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## **Competitiveness of agro-food and environmental economy**

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10. November 2012

Online at <http://mpra.ub.uni-muenchen.de/46369/>

MPRA Paper No. 46369, posted 20. April 2013 01:31 UTC



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# **COMPETITIVENESS OF AGRO-FOOD AND ENVIRONMENTAL ECONOMY (CAFEE`12)**

**Bucharest – 8-9 November 2012**

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**Competitiveness of agro-food and environmental economy – CAFEE`12**

**ISSN 2285-9179**

**ISSN-L 2285-9179**

*To be cited: 'Competitiveness of agro-food and environmental economy', Volume 1, Issue 2012*

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# The land price and the land rent

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## **ABSTRACT**

Agriculture is responsible for significant progress leaps in the history of humankind. Although for a long period of time these leaps are strongly related with technological progress, the modern history of agriculture could be understood only within the playground of economic systems. The price of land became an important parameter that influences both the welfare of farmers and the performance of agriculture. Nevertheless, this economic factor has a particular behaviour, which cannot be explained by models used for other economic activities. The theories developed and applied for highlighting the source of these deviations will be presented and analysed by revealing the conceptual and empirical underpinning of the land rent theory and how its application could be integrated in policy design for supporting one of the most important economic activity.

***Keywords:** fertility, land price, land rent, land taxation, policy design, value of land*

## **INTRODUCTION**

The price of a commodity expresses its history by the cost and its future by the profit that gives the hope of an additional gain. In case of land, the price is not underpinned by the cost (Popescu, 2007). Hence, in economic terms the history of efforts cannot be known, and if the history is not clear, either the present or the future could not be determined appropriately.

The land's productive power is given by both the contribution of natural factors and human intervention. However, the cost of land could express only the human effort. Thus, land's price could not be compared only with its cost, since this is lower than the total consumption (Popescu and Constantin, 2007).

Economists recognize the linkages between the land's price and the land rent. The land rent's theory was stated firstly by David Ricardo at the beginning of the XIX<sup>th</sup> century and became a key part of the economic theory (Medaille, 2012). The land rent is the net additional income obtained due to the difference in fertility. It is larger for more productive land and lower for less productive ones.

The land rent works only for land belonging to private property and is based on three principles (Small, 2000):

- Land is the support of production;
- Fertility is differentiated;
- The demand is rational, well documented, mobile and determined by financial factors.

The first two principles are clear. The third one is the basic principle of perfect market's theory and as long as this is valid the law regarding land rent is also valid. Obviously markets are not perfect and therefore the land rent law will never work perfectly. Nevertheless, there will be a pronounced tendency that the rent absorbs the productivity gains (Medaille, 2012).

The results of empirical and conceptual studies regarding how land rent is working were summarized in a number of conclusions by Swinnen et al. (2008), as follows:

- Land rents and land prices are increased if agricultural policies are coupled, but this increase is lower than the one predicted by theory;
- Land rents and land prices are affected by decoupled policy payments, although the third land rent principle predicts no such change. This is due to the limited action of this principle in conditions that are different from the perfect market;
- Support programs based on land rent produce benefits for all landowners regardless to their design;

Land rent is a very important concept with great impact on the prosperity of farmers and agriculture. Its application has a solid economic foundation, although the shortcomings of economic theory also emerge as limits of the land rent theory.

## **THE LAND RENT THEORY IN ACTION**

Wheat is cropped on lands that in normal production conditions should guarantee the covering of consumption. Spatial repartition of land that will be seeded will follow a compulsory trajectory, from the highest fertility lands toward the less productive lands.

It is a simple rule that takes in account the limit of the demand and the need to obtain the highest efficiency. Hence, the crop could climb on less fertile land as long as the production could be sold on the market. In case that the production exceeds the demand then the first who will be affected will be the farmers with least productive lands, since their costs are the highest and the reduction of prices in order to increase sells means for them a loss.

The difference in fertility creates also differences in cost and from here differences in profitability and return. Farmers with the most fertile lands are in advantage, where high productions lead, logically, to low costs and high profits. In the reversed situation are the farmers with weak productivity. Consequently, at the same market price, wheat producers will have a differentiated profitability, which is in a direct correlation with the land's fertility.

The economic theory recognizes as *normal profit* the profit of farmers with least fertile lands that could place their production on the market. It is considered that this profit is exclusively the result of human efforts. The additional net income above the normal profit is due to the supplementary natural fertility and is embodied as land rent.

## **THE EFFECTS OF THE LAND RENT**

The land rent is an economic category with multiple effects. These could be understood by considering three aspects: how the land tax is established, support policies for farmers, and how the value of land is determined.

### **Land taxation**

Firstly, the effects of the land rent should be considered in the design of fiscal instruments applied in agriculture. This is especially true for land tax, which is the main fiscal instrument for agriculture.

The land tax in correlation with the land rent has, above all, a constitutional support since all natural richness, including the soil's natural fertility, belongs to the state.

The taxation of land rent has also a moral dimension since the ones who act in agriculture have a minimal contribution to its formation. What merits could have the wheat farmers who have been born at plain, where the natural fertility of the land is among the highest against the ones from hill and mountain regions there natural conditions are more adverse?

The proportionality in the division of the rent between state and farmers was and will remain one of the main challenges for the fiscal policy. There were countless solutions, but all



of them were criticized. The interpretations are various, stemming in doctrinaire, political, social, regional or local development interests. In addition, the land rent occasionally was accepted as factor of stability and consolidation of land property relations and social relations among those who belong to opposite classes in agriculture.

### **Support policies for famers**

Secondly, the land rent could be used for policies that support farmers. The support granted to European agriculture by prices for more than forty years, between 1962 and 2003 was designed in accordance with the theory of land rent. From the perspective of time span we should recognize the intelligence of the European model.

For the first time it was demonstrated that the land rent is not only an abstract, theoretic notion, but an operational economic category that could and should influence economic decisions. Due to the application of this support model, European agriculture witnessed the highest growth path in its history (Bullock and Salhofer, 2003).

But, the model's smartness comes from how it was designed too. In that design the cost for extreme fertility outline the interval within which operate the intervention prices, from minimum to maximum.

### **Value of land**

Thirdly, the land rent could be a parameter in the equation of land value determination. The value of land is the outcome of a mathematical equation with many parameters that are of various types such as agricultural, financial, social, demographic, economic etc. (FAO, 2003).

The value of land is not the cost, nor the price of the land. It is not the cost of the land because the valuation equations are included parameters that are others than the ones that are related with the proper consumptions. It is not the price of the land because it is not the result of the confrontation between land supply and demand.

In fact, the value of the land is a determined mathematical indicator that could be considered a milestone in the establishment of agricultural lands' prices on the land market.

## **CONCLUSIONS**

Agriculture is the ground for the most ancient economic activity being also the source of progress among all other aspects of human life. The increased availability of food released the time needed for engaging in less productive and effort intensive activities that resulted in new technologies. For most of its history, progress in agricultural productivity was related mainly to the implementation of technologies that improved efficiency. Only for the last centuries agriculture is dominated the rules of economic systems, but this radically transformed the operation and success of agriculture, changing the factors that influence producers decision regarding crop structure, technology etc.

The paper explored how the most important production factor in agriculture, land, becomes a parameter of economic relations, highlighting the particularities that determine its specific behaviour. In order to do this, concepts like land price and land rent were analysed.

It resulted that the land rent theory has a solid economic foundation, although the limits of the economic theory creates similar restrains. Thus, the perfect market conditions are as rare in agriculture as in other economic activities. Nevertheless, the land rent theory is highly valuable for addressing land taxation that is one of the most challenging fiscal policy issues, for designing support policies for famers, and for establishing the price of land.

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# The opportunity of applying the measures that support young farmers and early retirement for the next period 2014 – 2020

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## ABSTRACT

This paper is an extensive analysis of the accessing stage of European funds for young farmers measure from the current National Rural Development Programme, namely programming period 2007 to 2013. Also, within the paper are presented a series of arguments about introducing early retirement measure, as well as maintain and possibly increase funds for people up to 40 years, from the rural areas for the future programming period of Common Agricultural Policy respectively from 2014 to 2020.

*Key-words: opportunity, rural development, young farmers, early retirement.*

## INTRODUCTION

Rural development policy is the second pillar of the CAP since the adoption of the strategic paper Agenda 2000 in 1999 at Berlin. Under Agenda 2000, the strategic objectives of the common agricultural policy for the future were the following<sup>1</sup>:

- improving competition capacity by applying lower prices;
- ensuring consumer safety and food quality;
- ensuring a stable income and a fair standard of living for the agricultural community;
- development of friendly production methods for the environment, taking into account animal welfare;
- integration of environmental goals into its strategic tools;
- attempt to make alternative income and employment for farmers and their families.

Principles underlying rural development policy defined in the regulation 1257/17 mai 1999, are<sup>2</sup>:

- The principle of multifunctionality of agriculture towards the interpretation given to agricultural activities, in addition to the traditional role of supplier of agricultural products;

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<sup>1</sup> [http://www.europainfo.ro/uniuneauropeana/dictionarul\\_uniunii\\_europene/agenda\\_2000\\_definitie.html](http://www.europainfo.ro/uniuneauropeana/dictionarul_uniunii_europene/agenda_2000_definitie.html), accessed on 20.09.2012

<sup>2</sup> Nicolae Istudor, *Dezvoltarea rurala si regionala a Romaniei in perspectiva integrarii in UE*, editura ASE, Bucuresti 2006.

- The principle of multi-sectorial and integrated approach to the rural economy, the purpose of diversification, creating additional sources of income and employment and preservation of rural heritage;
- The principle of financial flexibility to support rural development decision on decentralization, subsidiarity, and the involvement of local partners;
- The principle of transparency in the development of the rural development programs, based on the simplification of legislation.

### **Opportunities for the application of the measures that support young people and early retirement**

Since autumn 2010 started discussions to define a new strategy at European level on the CAP after 2013. The document was the basis of these discussions and is called "*CAP towards 2020: To meet the challenges of food, natural resources and land use.*" As regards Romania's position on the CAP, it appears crucial importance for achieving all 2020 strategy as CAP operates in an integrated manner with other Community policies by<sup>3</sup>:

- intake brings you hire a good part of the labor force in agriculture and related industries;
- its contribution to the achievement of social inclusion and cohesion;
- solving environmental problems (gas emissions);
- achieving the goals of competitiveness both on the local and on the global etc.

Romanian agriculture is facing a lot of problems regarding the productivity due to several factors. One of the most important factor concerns lack of mechanization and the big share of people occupied in agriculture, most of them aged over 55 years as we can see in Table no. 1.

In 2010, Romanian labor force was 9.240.000 people, from which the biggest share was occupied in agriculture, more than 2.780.000 people. Labor force having between 25 – 44 years from agriculture has a small share in comparison with other important branches or with the total number, which means that young people from the rural area usually work in other domain, agriculture not being such an attractive field for them.

**Table no. 1 - Structure of employed population for the national economy activities by age group in 2010**

Nr. crt	Activity	Total populatie ocupata (mii persoane)	Total 15 -64 ani	15 – 24	25-34	35-44	45-54	55-65	65 si peste
1	TOTAL	9240	95,5	7,8	26,6	28,9	20,8	11,4	4,5
2	Agricultura, silvicultura si pescuit	2780	85,3	10,2	17,7	21,1	17,4	18,9	14,7

Source: Romanian Statistical Yearbook, 2011

<sup>3</sup> Memorandum, Preliminary position of Romania regarding the Communication of the Commission called "*CAP towards 2020: To meet the challenges of food, natural resources and land use.*"

The lowest percentage of population employed in agriculture is found in the category aged by 15-24 years only 10.2%, so if we consider that in the next 10 years age group between 55-64 years will reach retirement age, means that most of the workforce will not be replaced because this category has the highest percentage 18.9%.

Agriculture branch comprises the largest share of employment, about 25% of the total, which ranks Romania first in the EU on this indicator. Compared with all other branches of the national economy, agriculture has most people occupied between 55-65 years and older. Agriculture has the most employed people over 65 years, about 14.7% of the total branch, which means that these people, although reached the retirement age are forced to work because of the low level of pensions (the lowest of all categories socio-professional).

In order to support the elder people occupied in agriculture, one of the measures proposed for the new Rural Development Programme is early retirement, this measure means:

- Financial support for farmers and farm workers, aged 55 years, retiring in activities / work commercial farming before the legal retirement age.
- Support for up to € 150 000, in annual installments not exceeding 15 000 Euro/year until the age of 75 years, and a farm worker, to 35 000 Euro, in annual installments of 3500 Euro each, the remainder period until the retirement.

Introducing this measure, old people could benefit for funds for the remained period until the retirement and young people could increase the economic viability, financial conditions and market positions, as well as the average farm size could increase.

In the actual National Rural Development Programme, young people are encouraged for agricultural activities. The most important measure that encourages young people is measure 112 „Installation of young farmers” fits in Axis 1 “Increasing competitiveness of agriculture and forestry” and has as general objectives the followings<sup>4</sup>:

- improving and increasing the competitiveness of the agricultural sector by promoting the installation of young farmers and supporting the modernization and compliance with the requirements for environmental protection, hygiene and animal welfare, safety at work;
- Improving farm management by renewing their management without increasing working population employed in agriculture.

Beneficiaries of the financial support for this measure are individuals who meet the following requirements when applying for support<sup>5</sup>:

- Are aged less than 40 years and installed for the first time on farms, as leaders (chiefs) of the farm;
- Hold or undertake to acquire occupational skills and competence in relation to the work that is to perform;
- Submit a business plan for the development of farming activities;
- Are agricultural workers at least 12 months prior to application support.

The support for young farmers is 12.000 euros for a farm with a minimum of 6 ESU and over this dimension; support may increase by € 4,000 / 1 ESU, but not exceed 40,000 Euro / holding. The contribution for measure 112 is: 337.221.484 Euro from which: 20% – Romanian Government contribution; 80% – European Union contribution.

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<sup>4</sup> Applicant's Guide, measure 112.

<sup>5</sup> Ibidem

**Table no. 2 - Population and number of communes on regions, 2011**

Regions	No of persons	No communes	Average no of pers/commune	Average no of young people/commune*
<b>TOTAL</b>	<b>9635620</b>	<b>2861</b>	<b>3368</b>	<b>977</b>
Noth-West	1270951	403	3154	915
Center	1027556	357	2878	835
North-East	2109251	506	4168	1209
South-East	1261195	355	3553	1030
South-Muntenia	1905766	519	3672	1065
Bucharest-Ilfov	187538	32	5861	1700
South-West Oltenia	1160527	408	2844	825
West	712836	281	2537	736

*Authors calculation, TEMPO ONLINE Database, National Statistics Institute*

*\* author estimates taking into account the share of persons aged 20-40 years in all rural people*

The total number of the people living in the rural area is 9,6 millions, from which the biggest number live in the North-East and South-Muntenia Regions. The regions with the biggest share of people living in the urban area are West and Center. The biggest share of people between 20 – 40 years (potential beneficiaries of the financial support through 112 measure) we can find it in the Bucharest-Ilfov region and North-East.

**Table no. 3 – Stage of projects submission for Measure 112 "Setting up of young farmers"on August 16, 2012**

	TOTAL	Average no. Of project/commune	No. of young people/project*
Submitted projects	22491	7.86	124.28
Selected projects	9759	3.41	286.42
Signed contracts	8162	2.85	342.46

*Source: authors calculations, data from Ministry of Agriculture and Rural Development and National Institute of Statistics*

*\* author estimates taking into account the share of persons aged 20-40 years in all rural people*

Analyzing the stage of projects submission for measure 112 until 16-th of August 2012, we can see that only 36% from the submitted projects have become signed contracts. That means, in average that only 7 young people from a commune have develop and submitted projects for this measure and, only 2 from them have a signed contract with the authority. So, from 124 young people, only one is submitting a project, and from 342 young people only one is signing a contract and can start the project.

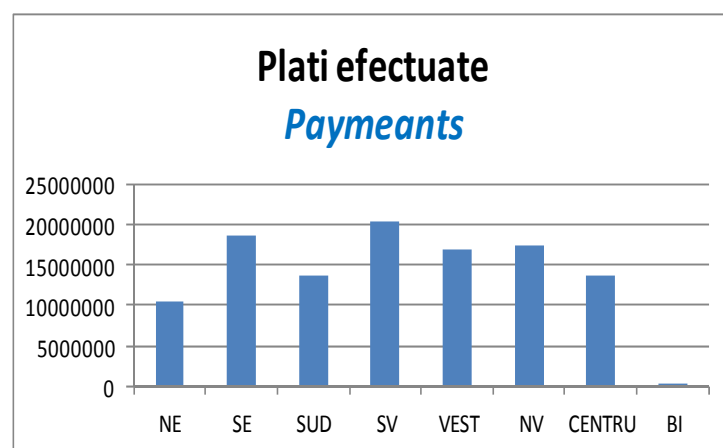
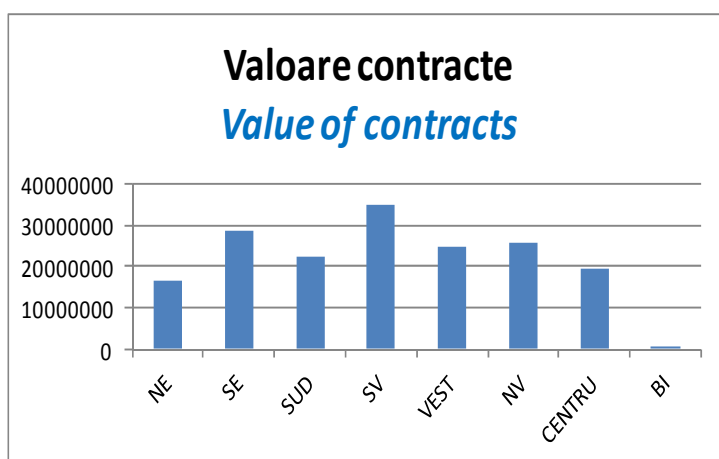
**Table no. 4 - Stage of projects submission for Measure 112 "Setting up of young farmers" on August 16, 2012 on regions**

Region	Submitted projects	Signed contracts	Finalised projects	Cancelled projects
North-East	2203	788	87	4
South-East	3448	1347	76	2
South	2969	1115	81	6
South-west	3998	1754	43	13
WEST	3342	1148	157	1
North-west	3860	1255	88	0
Center	2583	971	137	0
Bucharest - Ilfov	88	21	3	0

Source: authors calculations, data from Ministry of Agriculture

From table no. 4 we can see that, although North-East and South-Muntenia region have the biggest number of people living in rural area including young people, still these young people do not apply for European funds for measure 112, having the smallest number of submitted projects and signed contracts for this measure. What is more amazing is that the regions West and Center, the regions with the biggest number of people living in the urban area, have the biggest number of finalized projects by young farmers and only one cancelled project in the actual period.

**Graph no. 1 – Total value of contracts and payments for 112 measure, on 16-th of August 2012**



Source: authors calculations, data from Ministry of Agriculture

The level of the support for one young people is between 12.000 – 40.000 Euro depending from the economical dimension unit. South-West region has the highest value of the contracts with young people, as well as the highest payments made for them. At the opposite, regions like North-East and South-Muntenia, have the smallest values.

The Rural Development Programme has a good accession of funds compared with other operational programmes due to the pre-accesion programme SAPARD. Although the degree of access of funds is good compared to other operational programs NRDP implementation faces a number of problems caused by both exogenous and endogenous factors, of which the most important are:

- Effects of economic crisis in our country;
- Long period of the evaluation process and selection;
- Lack of qualified personnel in the public authorities;
- The procurement involving long time due to cumbersome procedures;
- Fluctuations of Exchange rate Euro-lei;
- Additional costs for project applications (approvals, certificates), etc.

For rejuvenation of the population from rural area and growth of farms economic viability, for the future programming period should be placed more emphasis on this measure, and introduction of early retirement measure in order to create opportunities for Romanian rural youth and not only.

## CONCLUSIONS

Labor productivity in agriculture depends not only on the quality of biological and bio ability of plants and animals but also the level of technical equipment and quality of work performed given by age, knowledge etc. Thus, European funds for rural development represent an opportunity for both the purchase and renewal of farm machinery and to increase the quality of work done by involving and encouraging young people who have knowledge or have the enthusiasm achieving knowledge.

It is very much important that the public authorities to try to provide public funds from the national budget for projects implemented by young people, as well as providing state guarantees for loans. In the same time, it is important that the public authorities to pursue the allocation of funds by efficient utilization.

The management of European funds must ensure for the next programming period the equitable distribution of these funds in order to contribute to the balanced development of rural areas and pursue their efficiency so as to achieve impact indicators listed in the programming document and to revival the rural area from Romania.

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# Industrial agriculture and sustainable development in the light of CAP implementation effects in Poland

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## ABSTRACT

Agricultural policy in Poland supports the functioning of numerous types of agriculture, including the model-based one: traditional, industrial, environmental, induced development and sustainable growth. The CAP objectives and mechanisms, as well as individual characteristics of Polish agriculture indicate that in the long run its pattern should be based on the dual model. Certain farms, while maintaining the basic requirements of environmental protection, should implement production methods ensuring high economic viability (industrial agriculture); other farms should base their development on methods more ecosystem-friendly, which enable the use of the environmental and social and cultural assets at hand (sustainable agriculture). This article defines the most important development stages of global agriculture, indicates the connection between the necessity of State's intervention-based policy and sustainable development, presents selected characteristics of Polish agriculture with an analysis of the most important effects of implementing the CAP in Poland in 2002-2011 and illustrates the conclusions concerning the shape of the future long-term agricultural policy in Poland.

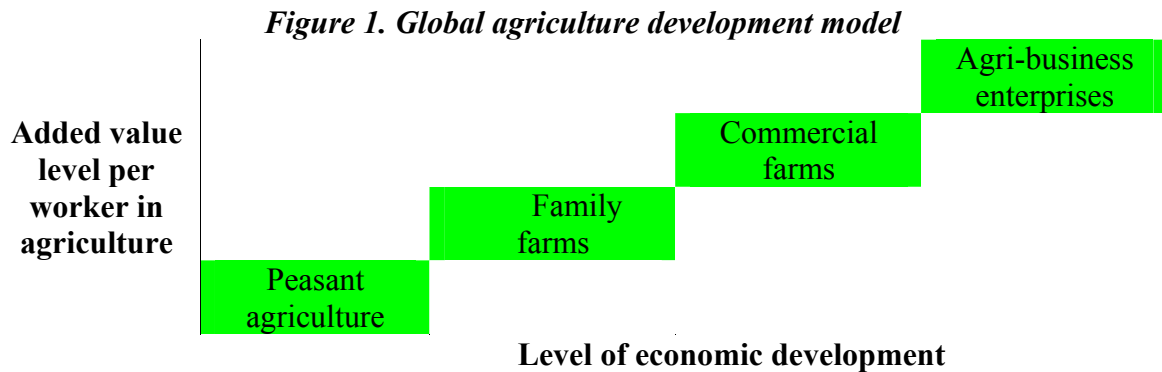
## Keywords

*industrial agriculture, sustainable development, CAP effects in Poland, economic interventionism*

## Global agriculture development model

For ages, agriculture has been most preoccupied with food production for nutrition purposes. This goal determined the development strategies of an entire nutrition complex and agricultural holding, which evolved from the farmer model into the farm-enterprise (Figure 1). Agriculture was the primary source of livelihood and the most important place of work for people who lived on rural areas. Industrialism, mechanisation of production and market mechanism have changed the situation. Explosion of agricultural production efficiency growth together with parallel development of other sectors of national economy resulted in highly developed countries in gradually pushing aside agriculture to the margin of economic life. Expansion of agriculture “...was promoted by development trends in the entire economy, notably fast increase in demand for mass food produced on a large scale. No other economic development model has previously changed agriculture more than industrialism. It not only realigned agriculture to use new technologies, but it also increased the economic scale of cost-effective production, changed the structure of manufacturing factors and consequently

*the agrarian structure, it introduced new organisation of factors of production. In addition, the approach of human towards the natural environment ... which was not an impediment to industrialisation of agriculture...*” [Woś, Zegar, 2002]. Despite such a huge increase in productivity and efficiency of labour, the increase in income in an agricultural holding did not catch up with the growth in income from extra-agricultural sectors, which stimulated further pursuit of higher efficiency and resulted in increase in surplus food production.



Source: On the basis of F. Tomczak, 2004.

The system of industrial agriculture, which meets the needs of the industrialisation period in the civilisational development, subordinated production activity in an agricultural holding to the principle of optimal utilisation of production factors (capital, labour, land). This principle was derived from the production rules that clarify the conditions for maximisation of economic values (profits, physical product, national income) or minimisation of other (costs, contributions in kind), but these criteria were limited solely to the economic field. “...On the other hand, the natural and social dimension and effects for the health of consumers were disregarded...” [Zegar, 2009]. Agriculture’s permanent surplus production and resultant problems involve “...shattering of traditional economic and social goals of an agricultural holding...” [Tomczak, 2003]. The rules that governed the 20<sup>th</sup> century agriculture (i.e. “producing more and cheaper”) are being replaced by the principle “*produce the same or less, but more efficiently*”. In the contemporary Europe, this principle is being implemented by transition of farmers to precision agriculture. Precision agriculture technologies are justified by the economic factors (business cost reduction), environmental ones (reduction of pesticide concentration) and demographic ones (the need to increase the production as the population number increases). Precision agriculture “...refutes the primary assumptions of the contemporary organisation of plant production...” [Józwiak, 2002]. New information technologies, which form the basis of precision agriculture and “cyberfarm”, mean that a new stage of evolution and development of the agri-food sector has begun.

### **Interventionism and sustainable development**

The debates between the supporters of new Keynesian economics, which assumed, *inter alia*, the use of state interventionism, and the enthusiasts of the neoliberal doctrine, according to which economy should be subject exclusively to impacts of the law of the market, are reduced to the answer to the classical question: “How much State should be there in the economy to guarantee its sustainable and long-term development?” The classical “...formulae of production functions do not assume any environmental or social restrictions...” [Woś, Zegar, 2002]. Therefore, a producer may freely (within the limits of the applicable law) use further outlays of factors of production while not caring about environmental sustainability. This way, they maximise their profits at the expense of the society and the future development. In consequence, “...the contest of market powers leads to increased rather than decreased inequities...” [Kamiński, 1998]. The polarisation that arises from the nature of market economy is a process that can be consciously counteracted through the implementation of the

spatial policy since the conflicts in matters of space become more and more severe. The fight for access to space, its values and resources aggravates.

The relations between agriculture, rural areas and natural environment form the basis for active agricultural policy and spatial policy. According to numerous agricultural economists and politicians, a farmer is not only a food producer, but also a host of natural resources and administrator of cultural heritage of rural areas. *“The natural environment that provides protection may be conducive to production and economic balance, but it may be an impediment thereto as well...”* [Woś, 2003] *“...It is the condition of the environment instead of lack of resources or new technologies that will be the primary impediment in the future to functioning of the societies...”* [Buckwell, 1997]. The concept of “socially sustainable agriculture” assumes that harmony will be achieved between the material factors and social forces that create the long-term development. It is a new philosophy of management and life in rural environment that mainstreams environmental sustainability, social welfare and strong state. When analysing the contemporary changes in the socioeconomic development of agriculture, one should clearly differentiate “agriculture” from “rural areas”. *“...The paths of development of rural areas and agriculture are more and more ramified... It can be concluded that rural areas lost their agricultural nature, but agriculture too goes beyond the traditional, usually closed, autarchic rural system, which used to determine their development for centuries. Currently, exogenous macroeconomic, regional and global factors have gained decisive importance.”* [Zegar, 2000].

R.E. Lucas and S.T. Sargent (authors of the theory of rational expectations in 1970s) argued that economic entities and people are flexible in adjusting their actions and expectations to state policy, taking advantage of all the benefits it can bring. They are also able to draw conclusions from past events, which allows them to forecast possible scenarios for the future. In their opinion, however, the effectiveness of economic policy getting involved in making economic growth more dynamic was questionable since the state has no influence on the sustainable growth of employment or a product. Thus the state should aim at maintaining price stability and act on the supply side of economy with a focus on stabilising the rules of its functioning. Making economic policy based on changes generated by the government is disadvantageous for the economy as it entails changes in the real values, which leads to increased uncertainty within the economy.

When explaining the main reasons for intervention in the modern global agriculture, J.E. Stiglitz [Stiglitz, 1987] and J. Wilkin [Wilkin, 2002] point to the high level of risk linked to agricultural activity and lack of efficiency as regards prevention of this risk. This risk results from e.g. changing climate conditions, lack of sufficient information and underdevelopment of agribusiness structures, including also consultancy. The need for interventions in the agribusiness sector is justified also by: the phenomena of external costs and effects, low price elasticity of supply, lower level of labour productivity than in other sectors of the national economy, low mobility of the workforce employed in agriculture, the need to provide public goods, implementation of the sustainable development concept.

A decision on production and allocation of market goods is taken under the influence of market mechanisms. Public goods represent an area that is defined in the public choice theory. Financing of the supply thereof by the State is the response to market’s fallibility. Therefore, when taking interventions on the market, the State rewards economic entities for their establishment. *“...Agriculture generates many types of goods. They include both market goods (cereals, meat, milk, etc.), but also public goods (biodiversity, landscape, water quality) and merit goods (soil quality, energy security, food safety). Public and merit goods are produced alongside the production of market goods (agricultural production)...”* [Niewęglowska G., 2011]. The public nature of the goods that are generated alongside agricultural production results in that a farmer does not receive the full remuneration for the provision of positive external effects, but they do not have to bear the (full) costs of providing the negative external effects either. The above-mentioned goods are interrelated, and hence

the value of one of them (e.g. biodiversity) will depend on the quality and quantity of another good (the system used in agricultural production). Sometimes, the goods are complementary to each other, and sometimes they exclude each other.

The Polish agriculture is under significant transformations in the pursuit of more developed countries by adjusting itself to market needs. Under the conditions of European integration and globalisation, it is exposed to international competition, yet the competition requirement functions here absolutely ruthlessly. The holistic approach, guided by social competitiveness and hence taking into account external effects, may largely change the way of agriculture's development, which is commonly believed to be defined by more developed countries. When taking into consideration the social account (utilisation of the production potential and lost benefits/alternative costs), the choice may turn out not to be so obvious. "...*Being guided by social competitiveness ergo classification of agriculture under a primary system (a superior-rank system) changes the relation in the area of competitiveness between the basic models of agriculture: the industrial (conventional) and sustainable ones. The ability to cope with economic competition without detriment to social interests represents an enormous challenge faced by the Polish agri-business...*" [Zegar J., 2011].

The CAP is an example of state interventionism with instruments that includes market and non-market policy tools. The market-based instruments, related to price support, favour the biggest producers, in particular the most productive ones and producers of goods. Thus they fail to meet the criterion of fairness and providing support to the weaker as the reason for intervention [Rembisz, 2010]. The rural development programmes are an example of non-market instruments. As an instrument of state intervention policy they provide an opportunity to stabilise the policy in several production cycles. They stimulate changes as regards production structures, competitiveness improvement, environmental protection and multi-functional development of rural areas. Thus they constitute the basic instrument supporting the process of food economy and rural areas modernisation both in the field of improving its competitiveness and the level of its sustainability.

### **Agricultural sector and effects of implementing CAP in Poland**

Integration with the EU created new conditions in Poland for the development of food economy. Rural development programmes, launched upon accession to the EU, are an example of non-market instruments. As an instrument of the state intervention policy they create chances for the stabilisation of structural policy conditions over the period of several production cycles, thus stimulating the desired changes in the area structure of farms, the improvements in the competitiveness of production, environmental protection and multi-functional development of rural areas. Thus they are a fundamental instrument that supports the process of modernisation of Polish rural areas and agriculture.

The total value of financial aid programmes (together with direct payments) for the agri-food sector and rural areas from the beginning of 2002 until the end of June 2011 exceeded PLN 113 billion. This comprises SAPARD payments ca. PLN 4.5 billion, SOP "Agriculture" ca. PLN 6.4 billion, RDP 2004-2006 – ca. PLN 11.1 billion, RDP 2007-2013 – PLN 27.5 billion and almost PLN 63.5 billion from direct payments. The implemented programmes are characterised by a certain continuity of general objectives, at the same time, gradually extending the forms of aid and changing the scope and value of provided support. The SAPARD programme aimed at preparing the Polish agri-food sector to the accession, especially as regards the adjustments to the sanitary, hygienic and environmental protection requirements of the EU. After 2004, the strategic objectives of agricultural policy have covered: improving the competitiveness of the agri-food sector, sustainable development of rural areas, improvement of the condition of the natural environment, improvement of the quality of life and diversification of economy in rural areas. A majority of measures implemented between 2007 and 2013 are a continuation of measures implemented in the previous periods. This proves policy continuity as regards implementation of the set objectives, but it does not mean

that agricultural policy itself is cohesive in the long-term perspective. Because of the multiplicity of measures and objectives some of them are mutually exclusive and cancel each other out.

The changes that take place in Polish agriculture are generational in nature and are closely related to the pace of the country's economic development and the possibility of financing structural transformations from public funds [Józwiak W., 2011]. However, the characteristic features of agriculture are still the following: a relatively high (as compared to western European countries) employment rate, low productivity of land and labour, unfavourable agrarian structure (Table 1) and low revenues on agricultural activity. These problems exert a direct influence on the living conditions in rural areas [Sikorska A., 2011].

*Table 1 Agricultural holdings by area group*

Area group	Number of agricultural holdings			Structure (%)	
	2002	2010	2010 2002	2002	2010
<1 ha	977	715	0.73	33.30	31.39
1-5	1,147	863	0.75	39.09	37.88
5-10	427	352	0.82	14.55	15.45
10-15	183	152	0.83	6.24	6.67
15-20	84	72	0.86	2.86	3.16
20-50	96	97	1.01	3.27	4.26
>50 ha	20	27	1.35	0.68	1.19
Total	2,933	2,278	0.78	100.00	100.00
Average	5.76	6.82	1.18	×	×

*Source: Own study based on data from the General Agricultural Census of 2010, CSO.*

Structural changes in 2002-2010 took place mainly in the smallest agricultural holdings, i.e. the ones with area up to 1 ha, the ones with area between 1-5 ha, and to a smaller degree in the group of 5-10 ha farms and in the largest ones. The number of small agricultural holdings decreased at the highest pace in the environments where there are no successors. This situation applies both to agricultural holdings located in typically agricultural regions, but also in suburban regions. In the former ones, agricultural production is concentrated more and more frequently in possession of medium-sized and large commercial farms. On the other hand, a fast conversion of land for non-agricultural purposes (construction for housing purposes, industry and services) takes place in the vicinity of metropolitan centres. The dual profession farmer model, i.e. a farmer who also works outside their farm as a worker with employment contract, which was still typical in 1980s and 1990s, now disappears more and more often. On the other hand, the number of agricultural holdings with an area of over 50 ha was increasing the fastest, which is directly connected with the growth of marketability of agricultural production or improvement in its profitability while preserving the economies of scale.

In general, four substantially different groups of agricultural holdings can be currently differentiated in Poland:

- group of commercial farms and the ones with development potential, the number of which is estimated at 290,000-300,000 entities, with economic size above 8 ESU. This group is composed of two subgroups, namely large-area farms and the ones with high economic viability. Those agricultural holdings distinguish themselves due to their competitiveness, or they are able to achieve such a capability. It is estimated that they produce approximately 64% of the national value of agricultural production. The farms with area up to 8 ESU produce ca. 27% of value of this production, the 8-16 ESU farms – 19% and as much as 54% is produced by farms with the size of 16 ESU and higher [Józwiak W. 2012] (cf. Table 2);

- group of farms with development potential; it includes 100,000 agricultural holdings with a size of 6-8 ESU. Such agricultural holdings are usually owned by families consisting of several members of whom at least one person is at mobile age and due to the acquired education plans to work in agriculture in the future. Such farms are located primarily in the voivodeships with fragmented agrarian structure (Podkarpackie, Małopolskie, Świętokrzyskie, Śląskie and Lubelskie);
- group of small agricultural holdings, which base their business on the cultivation of a small agricultural production, usually for their own needs (with limited sales to the market, mainly through marketplaces), or operate a small agricultural holding along with non-agricultural activity operated on a part-time basis;
- group of “exiting” farms, which are usually operated by elderly persons, are based on agricultural production exclusively for their own needs, receive disability and retirement pensions or small direct payments and do not have successors.

*Table 2 Number and short description of Polish farms of natural persons according to size in 2009*

Size of farms (ESU)	Number of farms <sup>a</sup> (thousand)	Average area of arable land <sup>a</sup> (ha)	Average income <sup>b</sup> (PLN)	Parity/disparity of income <sup>c</sup> (%)	Net value of investment <sup>d</sup> (PLN)
Up to 2 <sup>e</sup>	1,623.7	2.0	1,470	25.0	-1,842
2-8	520.9	8.4	14,862	56.6	-4,840
8-16	146.1	17.3	36,801	98.8	1,831
16 and over	96.5	41.6	94,431	164.0	31,039

*a. CSO data of 2007.*

*b. Numbers from Polish FADN and Economic Accounts for Agriculture, covering 2006-2009.*

*c. Part of income of a farm intended for maintenance of agricultural producer and their family and converted into 1 family member fully employed in a farm held in relation to average national pay for hired labour.*

*d. Gross value of investment (with land purchase) decreased by the amount of depreciation.*

*e. Estimations based on Economic Accounts for Agriculture, Polish FADN monitoring results and agricultural cooperatives, as well as farms based on former state-owned farms.*

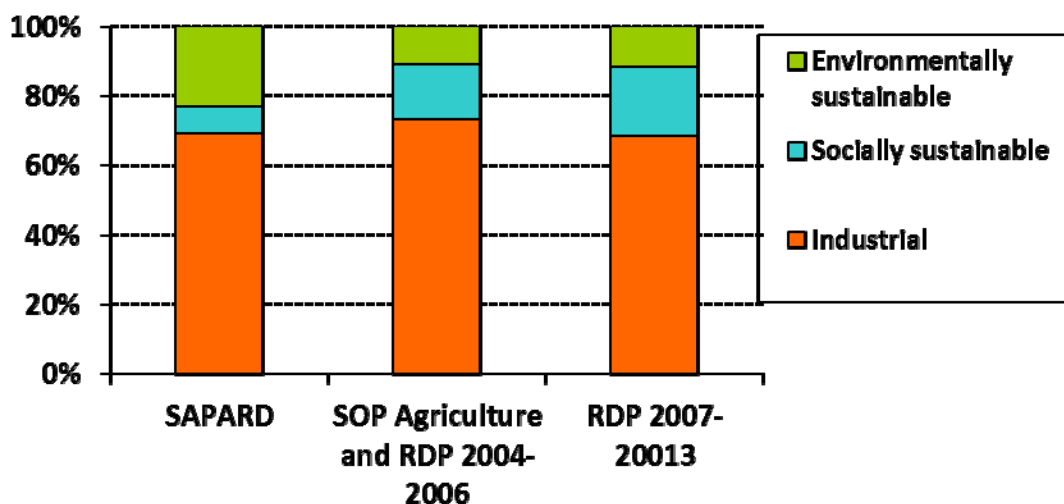
*Source: [Józwiak W., 2012] – findings drawn up mainly on the basis of CSO statistics, results of Polish FADN monitoring and Economic Accounts for Agriculture.*

The specific feature of Polish agriculture is its dualism. On the one hand, it is predominated by farms with insignificant economic potential and limited opportunities for development while, on the other, commercial and economically strong agricultural holdings provide 80% of food production for the market. The former ones form an important element of multiculturalism of rural areas, they perform important functions in the field of sustainable development and preservation of biodiversity. The latter ones are a symbol of modern times and competitiveness. From the statistical point of view, approximately 1.2 million agricultural holdings (i.e. the ones that represent 80% of the total number of farms with area exceeding 1 ha) are not able to restore and modernise the production potential they have. Under the Polish conditions, agricultural holdings begin to reach the ability to restore the production potential on average after going above the economic size of 8 ESU. A relatively sustainable ability to

restore its economic potential is achieved by farms only when they reach the size of approximately 12 ESU [Józwiak W., Michna W., 2011]. Given the above statements, it should be pointed out that there are currently many villages in Poland in which there are no agricultural holdings that are able to restore their production potential.

Given the specifics of Polish agriculture presented above, it is extremely important to develop a long-term development strategy for it, with the strategy being based on the necessity to preserve competitiveness on the international scale and contributing to keeping the production potential, sustainable and multi-functional development of rural areas and conservation of natural environment. Among other things, it is the CAP instruments that provide such an opportunity. Considering the value of financial flows allocated between 2002 and 2010 to Polish food economy and to rural areas (including direct payments), it can be concluded that most public funds (ca. 70%) were used to co-finance actions related to creating the industrial sector (Figure 2). In general, this shows that the most important priority of agricultural policy was to increase the competitiveness of the sector. However, a number of activities within that priority were also related to supporting farmers' income.

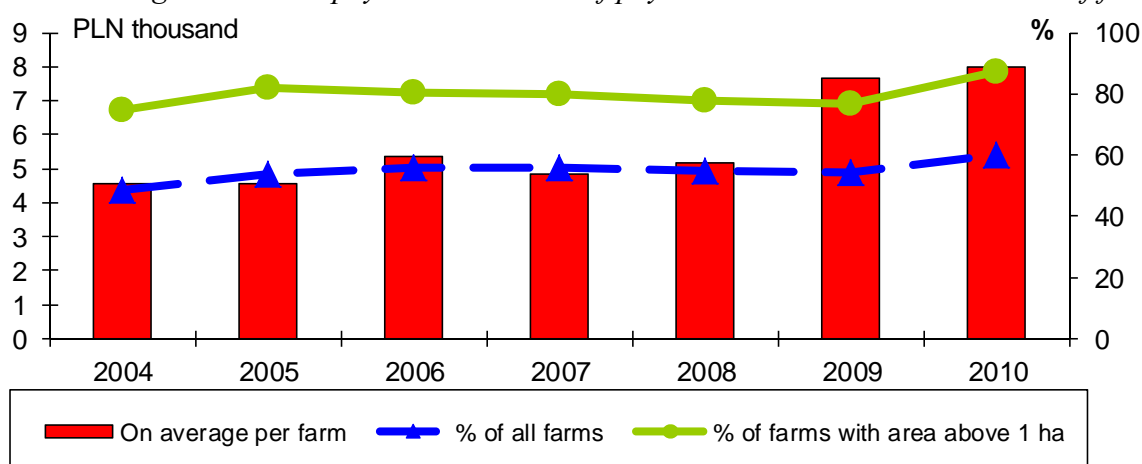
*Figure 2 Financing of agricultural models*



*Source: Own calculations based on data from ARMA monitoring.*

Direct payments are the most common type of support for agriculture in Poland. They are received by ca. 1.4 million farmers every year. The value of payments received every year by farmers between 2004 and 2011 increased systematically from ca. PLN 6 billion to PLN 14 billion per year. When calculated per one farm, it reaches an average of ca. PLN 9 thousand, and this form of support is used by 87% of farms with an area of more than 1 ha (cf. Figure 3). An equally important source of income (independent of production and based only on the farm's location) is represented by payments for less-favoured areas (LFA). Each year these payments are used by ca. 700,000 farmers, i.e. half of those who receive direct payments. The land surface covered with LFA payments amounts to ca. 6.9 million ha.

Figure 3 Direct payments - amount of payments and share in the number of farms



Source: Authors' own compilation based on the data of the Central Statistical Office (CSO) and the Agency for Restructuring and Modernisation of Agriculture (ARMA).

The share of direct payments in the farms' income amounts to ca. 30%. If we also consider other forms of direct payments, such as livestock payments or LFA (every year ca. 730,000 farmers use those subsidies), the share will be even greater. These payments are made to farmers on an annual basis. The manner of spending the resources is not subject to settlement. Smaller farms usually allocate the granted payments to current needs and means of production (fuel, fertilisers) while the bigger ones also make investments. *“The number of farms demonstrating competitive capacity increased about twelve times as compared to the pre-accession period. It resulted from increase in income of agricultural entrepreneurs (total incomes of farms of natural persons and incomes of farms of legal persons), as well as from increase in the level of subsidising agricultural farms, improvement in productivity of agricultural production caused by the progress made in production technology...”* [Floriańczyk Z. 2011].

Direct support generates many, often contradictory, effects in agricultural holdings and in their surroundings. On the one hand, direct payments boost the farmers' income, stabilise their situation and encourage them to enlarge their farms. *„...On the other hand, their impact on structural changes in agriculture is limited since land resources (in particular of relatively good quality) are limited, they contribute to direct increase of price of land and as they constitute a source of income (in particular in case of farms with smaller area), they partially support the existing agrarian structure...”* [Łopaciuk W., 2011]. It is one of the reasons why the agrarian structure in Poland is fragmented and polarised to a great extent. On the other hand, the impact on production (by definition about decoupling) is insignificant, however the selection of plants for production reflects to a certain degree the list of plants that are eligible for certain payments. By contrast, direct payments indirectly have impact on encouraging to make investment and the value of investment alone.

The resources earmarked for investments are also an important source of aid for farms. In order to obtain them, a farm has to prepare a business plan and have it approved by a body that manages the programme. So far, the financial resources for investments in farms available under SAPARD, SOP “Agriculture”, RDP 2004-2006 and RDP 2007-2013 have been used in their entirety. Since 2002, a total of 15% of farms have benefited from measures aimed at improving the competitiveness of farms (see Table 3). The most popular one include



6% benefited from the measure “Modernisation of agricultural holdings”, 5% from “Early retirement”, 2.7% from “Setting up of young farmers” and 1.3% from “Diversification of agricultural activities”. The value of grants is considerable (see Table 1), and in the current RDP 2007-2013 their average value per one beneficiary is even higher. In measure “Modernisation of agricultural holdings” it exceeded PLN 140 thousand, in measure “Diversification of agricultural activities” PLN 84 thousand, and in “Setting up of young farmers” PLN 66 thousand.

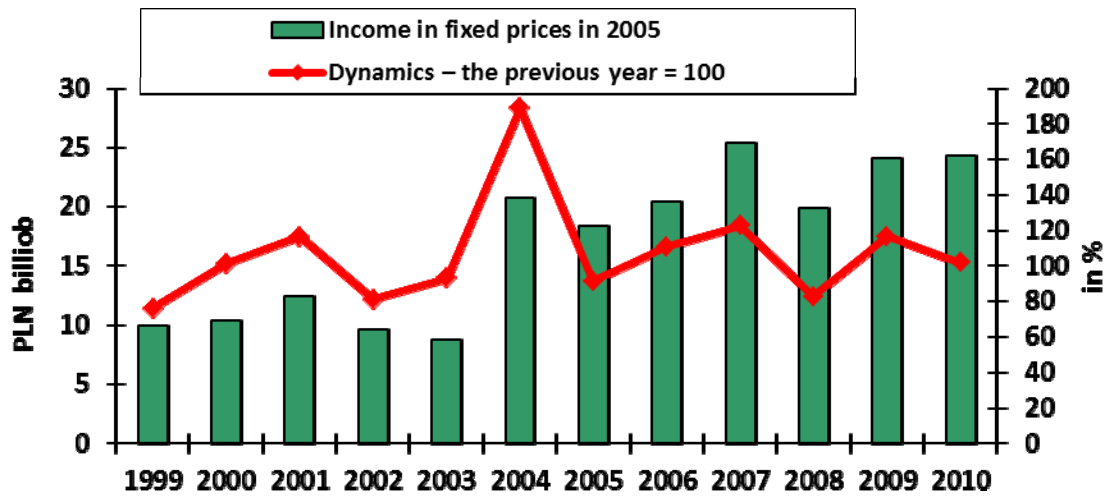
*Table 3 Selected results of measures implementation under SAPARD, RDP 2004-2006. SOP “Agriculture” and RDP 2007-2013 in total*

Measure	Beneficiaries	Resources paid in PLN million	% of farms in total	Amount of support per 1 beneficiary
Modernisation of agricultural holdings	80,794	7,188	5.95	88,967
Setting up of young farmers	42,310	1,736	2.71	41,030
Early retirements	73,924	7,136	4.73	96,531
Diversification of agricultural activities	17,846	1,136	1.34	63,656
Total	214,874	17,196	14.73	80,028

*Source: Authors’ own compilation based on the data of the CSO and the ARMA.*

Including farms under CAP mechanisms has improved the income situation of most farmers (Figure 4). In 2004 (the first year of membership in the EU) a sudden increase in income was noticed (by over PLN 20 billion in comparison to less than PLN 10 billion in 2003). The grants (mainly in the form of direct payments) were of basic significance for the rise in the income of farmers. In real terms, income from production factors per person employed full-time in Polish agriculture increased between 2005 and 2010 by over 45%, and by 11.1% for all agriculture in the EU-27. The growth rate of income in the households of farmers was higher than in other socio-economic groups. Real income at the disposal of framers increased by 64.3%, and by 38.7% in total. Impact of subsidies to agriculture on income could have been great enough to balance the negative effects of climate change and unfavourable changes in relation between agricultural products prices and prices of means of production purchased by farmers with surplus. Occurrence of droughts in plant vegetation periods has been increasing for decades, which decreases harvest of cultivated plants. Meanwhile, prices of agricultural products increased in 1999-2009 by ca. 41%, while prices of means of production for agriculture by ca. 66%.

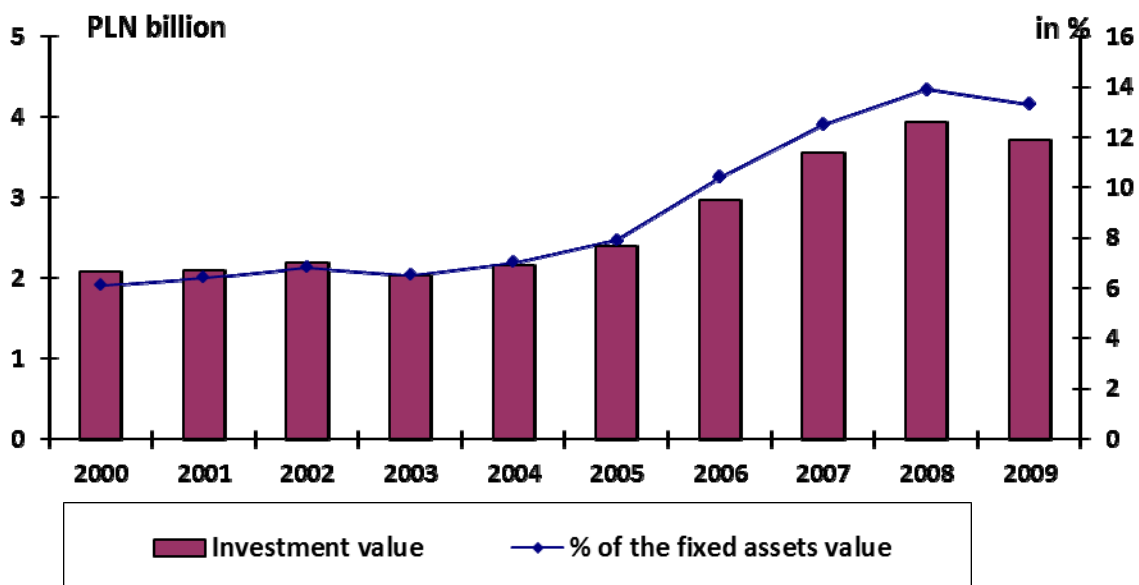
Figure 4 Income in the agricultural sector in 1999 – 2010



Source: Authors' own compilation based on the data of the CSO and the ARMA.

After transformation into market oriented economy in Polish agriculture there is slow increase in the fixed assets share in the structure of means of production, on the one hand, and, on the other, decapitalisation of fixed assets is observed. Between 2005 and 2010, programmes co-financed from the EU and national funds contributed to nearly double increase in the value of investments (Figure 5). Owing to them, the value of fixed assets in agriculture increased from ca. 8 to ca. 15%.

Figure 5 Value of investments and change in the value of fixed assets in the agricultural sector in 2000 - 2009



Source: Authors' own compilation based on the data of the CSO and the ARMA.

Investments were mostly made by large and economically powerful farms. They most of all concerned machinery and not buildings and facilities used in the agricultural production. The estimated number of investments in farms amounts to 150-250 thousand. Agricultural activity conducted in the remaining farms does not enable recovery of fixed assets which increases its

usage. As a result of investments in machinery the overall number of tractors increased by nearly 10%, and the number of combine harvesters – by one-fourth (Table 4). The technical supply of labour also improved. Apart from the greater traction output of new tractors, farms were equipped with modern accompanying machinery and field generators. Thereby, new technologies contributed to the improvement of quality of agrotechnical measures and the improvement of quality and safety at work.

**Table 4 Fixed assets in farms**

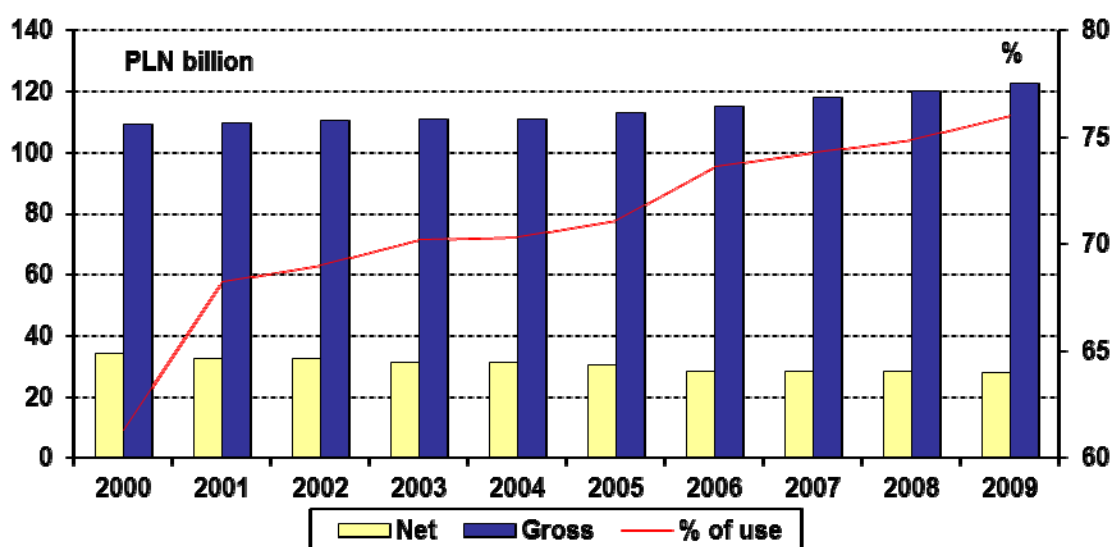
	2002	2010	2002=100
Tractors	1,339	1,471	109.9
Combines	123	152	123.6
Per one farm			
Tractors	0.46	0.65	141.8
Combines	0.04	0.07	159.5

*Source: Authors' own compilation based on the CSO data.*

Despite favourable investment tendencies, easy access to aid funds and relatively substantial public funds earmarked for investment in fixed assets, their net value has been decreasing systematically. Also the percentage of its usage increased (Figure 6). In 2009 it already exceeded 75%. This situation concerns mostly buildings and facilities. The usage of machinery is considerably lower. This affects small and medium-sized farms to the greatest extent. Due to their financial potential and opportunities for obtaining grants and investment loans, large farms renew their fixed assets on a greater scale.

The extent of influence of the CAP programmes is relatively small as compared to the vastness of investment needs. In 2011 the number of applications (call for proposals) reached 34.7 thousand (in previous years it was much smaller, ca. 20 thousand), which is an insignificant number when compared to the vast number of farms in Poland. Nevertheless, thanks to the support under the CAP one can clearly see the increasing investment activity of farmers (increase in the value of investments and their share in fixed assets). However, a very small group of farms engage in investments. A vast majority of them are rather large commercial holdings. There are ca. 150-250 thousand of them. In others one may observe decapitalisation of fixed assets. While machinery has been renewed, decapitalisation of buildings and facilities is progressing fast. The CAP investment programmes indirectly influence changes in the agrarian structure and support the concentration of production as well as the specialisation of farms.

Figure 6 Value of fixed assets in the agricultural sector and their usage in 2000 - 2009



Source: Authors' own compilation based on the CSO data.

An improvement in the competitiveness of agriculture depends on structural changes (that predetermine the efficiency of production factors used) and on the development of the entire national economy, especially in the context of the capacity to create new jobs outside agriculture. Rural development programmes, direct payments and changes in the entire economy have accelerated structural transformations in agriculture. They consisted e.g. in the concentration of production. This is evidenced by a drop of over 20% in the number of farms in 2000-2010; the greatest decrease, i.e. by 25%, pertained to the smallest farms in terms of acreage (1-5 ha UAA), while the number of the largest farms increased significantly. The average area of a farm (with UAA > 1 ha) increased by 13%, i.e. up to ca. 9.5 ha UAA. However, the greatest part of agricultural land still belongs to the small and medium-sized farms (of less than 20 ha UAA), and the distance between Poland and the main food producers in Europe remains huge in this respect.

The EU programmes did not impede high variability of agricultural productivity, especially in terms of plant production. It mostly results from lower technological level and relatively low-quality soil that considerably increases the plantation sensitivity to atmospheric conditions. Following the accession to the EU there was certain improvement in terms of production technology. However, it was not sufficient to considerably impede fluctuations in production, especially due to serious weather anomalies observed in this period. "... *Fluctuations in production cause changes in prices of plant products and, consequently, result in business fluctuations in livestock sector, and change in the production level ...*" [Łopaciuk W., 2011]. In the case of livestock sector, the most significant changes concerned decrease in pig production volume, and increase in the poultry, eggs and beef production volume. Milk production volume did not change.

Impact of the other CAP regulations on agriculture is considerably lower, at least in the current perspective. Production quota and the cross compliance requirement have positive impact on agrarian structures and the processes of concentration of production. However, the scale of impact is very limited. According to many farmers, cross compliance requirements impede production and result in the increase of production costs, while production quota, as directly interfering in the market administration, limit supply. "... *The most important consequences of the introduction of quota (milk market, sugar market) are: lower production capacity utilization, deficit in the national balance, increased imports, and disturbing farmers' decision-making process ...*" [Łopaciuk W., 2011]. Environmental regulations also

have limited range. Despite relatively high value of support per beneficiary (in average PLN 810 thousand), still a small number of farms benefit from these programmes. However, year after year, the number increases dynamically which undoubtedly contributes to raising farmers' environmental awareness. Nevertheless, impact of the regulations to date on the entire sector is insignificant.

## **CONCLUSION**

In the last decade the structural changes that take place in Polish agriculture, food industry and in rural areas became more dynamic. The most important among them are the drop in the number of farms with simultaneous growth in the share of the largest farms, which directly influences the increase in the average area of farms, drop in employment in agriculture and progressing concentration and specialisation of production. Structural changes are slow, however, and cannot be effectively accelerated due to non-agricultural circumstances.

In 1999-2003 economic conditions were not favourable for Polish agriculture. Prices of agricultural products increased by ca. 8%, while prices of means of production for agriculture by ca. 34%. Budgetary payments were minimal (1.5-2% of the value of production) and were paid only to producers selling means of production of the so-called biological progress. Agricultural producers implemented projects improving efficiency of production, yet certain outcomes became visible only in the years to follow. Calculations made in fixed prices for 2005-2009 pointed to the increase of gross value added by PLN 5.9 billion as compared to the situation in 1999-2003, while costs of indirect consumption per unit of value of production decreased by ca. 8 pp. This resulted from increasing chemicals-based approach to agriculture, withdrawal from costly small-scale plant and animal production or replacing it with larger-scale production. This positive phenomenon overlapped with the positive outcomes of accession that brought about the multiplication of the level of subsidies to agriculture. About 2/3 of income increase for agricultural producers in 2005-2009 (calculated in fixed prices) is attributed to this source, as compared to the period of 1999-2003.

Undoubtedly, the EU membership has had positive impact both on the macroeconomic dimension of agriculture, and on agriculture. Polish agriculture has low share in GDP and value added. However, at the same time, its share in employment is disproportionately high which partially proves low labour productivity. A serious problem is progressive decapitalisation of fixed assets despite considerable capital expenditures incurred under the programmes co-financed by the EU. Accession to the EU had no significant impact on the general structure of agricultural production. There were no significant changes in proportion between animal and plant production. It is obvious that changes in agriculture do not only result from including Poland under CAP instruments, but largely from change of market conditions, common market, and removal of trade barriers.

Poland's accession to the EU and covering food sector with state aid programmes invigorated foreign trade in agri-food products. Agricultural products and agri-food products are of great significance for Polish trade balance and balance of payments. The positive balance of foreign trade in the above-mentioned products has decreased the foreign trade deficit. Export of agri-food products became an important sales channel for the national food industry. Large part of the national production growth is sold abroad which stimulates economic situation in many industries. Export maintains prices of agricultural products in the situation of relatively stable (or slowly increasing) the national demand which is important for managing surplus of agricultural products through processing and sale in the foreign markets. Lack of trade barriers enables easier filling of shortages (both structural, and business) in agricultural products. Increasing deficit in turnover in agricultural products does not need to prove worsening position of our farmers in terms of imported products. Large part of agricultural import consists in products that are not cultivated in the country, but imported to the national market and for processing in food industry and export in the form of processed products. It

does not concern animal products, especially pigs and pork meat. Deterioration of the situation was caused by the market factors.

The EU aid programmes have made it possible to modernise a number of farms and processing plants, improve food safety and quality, increase the value added and innovation of production, as well as improve competitiveness in international markets. Changes in agriculture and food industry do not follow merely from including Poland under the CAP, but also from changes in market conditions. The impact of individual instruments is different. It ranges from the greatest impact – that of direct payments - to the slight significance of programmes supporting semi-subsistence farms or early retirement (minimal coverage). Owing to the investments made (including those co-financed from EU funds), the Polish food industry is one of the most modern ones in Europe, and our companies can successfully compete with producers from other EU countries.

The sudden increase of the level of subsidies initiated in 2004 decreased the interest of Polish agricultural producers in improvement of productivity of agriculture. However, it is not characteristic of our agriculture only, since similar phenomenon was noted previously in French agriculture. “... *The above mentioned fact demonstrates that direct payments will be the sole source of improvement of income of Polish agriculture up to 2013, and it will carry this “burden” to 2014 and the next planning and settlement period of the European Union. Therefore, income of Polish farms will depend on the level of subsidies, including those which currently reveal competitive capacity. Decrease of the level of subsidies received will probably lead to the decrease of their number, and at least will hinder the increase of their number ...*” [Józwiak W. 2012].

Granted support increases farmers’ income, and it is impossible to convince them to change their decisions taken in relation to their farms. Level of support for large farms (despite the modulation mechanism) seems to be too high to be treated only as income support. It is even justified in the theory of economics. Namely, large producers benefit more from the economy of scale than small producers and, therefore, the level of support must be proportional to the size of a farm. Meanwhile, small producers who may have great influence on multifunctionality of rural areas, especially in Poland with its fragmented agrarian structure, and on other public goods may need greater support. However, transaction costs have been omitted, so far, in the assessment of the CAP programmes outcomes.

Combination of direct payments and cross compliance requirements causes that this form of support plays the key role in providing basic public goods through sustainable agricultural land management (maintaining environmental quality of the landscape, biodiversity, access to water, climate stability and air quality) or public goods not related to the environment (activity in rural areas).

In the clash with globalisation, agriculture seems to be the weakest link in Polish food industry, being technically and technologically backward, with low concentration of production, low labour productivity, etc. Considerable funds received from the EU and directed to agriculture accelerated its modernisation, yet it still remains uncompetitive as compared to global agriculture. Increased grants for agriculture have diminished the pressure to improve efficiency of farming, intensify agricultural production or to transform agricultural structures. Open competition in the global market, as a manifestation of globalisation, gives rise to more threats than development opportunities for Polish agriculture. Obviously, the threats are neutralised by integration with the EU, yet the EU agriculture itself is rather unable to cope with open competition in the global market. This is where we can look for benefits for ourselves which follow from common action related to the protection system for all agriculture in the EU Member States [Chechelski P., 2011].

Quick response to crisis situations is becoming the greatest challenge of the modern world. As regards agriculture, this mainly concerns reacting to fluctuations of agricultural products in global markets and to natural disasters. Thus, the EU agricultural policy should have such instruments that, on the one hand, will facilitate flexible adaptation on the part of farmers to the market

situation and, on the other hand, will enable EU or national institutions to intervene quickly. The ability to compete in global markets is becoming another priority in the development of EU agriculture. While Asian and South American countries are developing dynamically, the European Union is pushed outside the circle of the most important global actors. Dwindling natural resources (soil, water, minerals) make it necessary to look for new solutions. The debate on the future of the Common Agricultural Policy (CAP) and decisions regarding the structure and priorities of the EU budget in the next financial perspective for the 2014-2020 period will be decisive for the ability of the EU agriculture to cope with the challenges it faces. Innovation in economy and its individual sectors is deemed as one of the fundamental determinants which condition the retention of competitiveness [Grochowska R., 2011].

The debate which is unfolding in the EU forum with regard to the future of the CAP after 2013 indicates that this policy will play a key role in ensuring food safety, sustainable development of agriculture and rural areas, as well as in natural resources management. It will focus on the new Community challenges, for instance, those related to: resources protection, climate change, water resources management, biodiversity, renewable energy or risk and crisis management. Still, food safety will remain the key challenge for the food sector not only in the EU, but all over the world. By 2050, global population will grow to 9 billion, making it necessary to increase food production by 70%, while the availability of scarce resources, particularly water, energy and land, will be limited. This implies a growing pressure of the global markets on increasing food production, a risk of price fluctuations in agri-food markets, and a greater pressure on natural resources. Food, just like in the past centuries, will be of strategic importance. These challenges should be accounted for in the future agricultural policy in Poland.

The future development strategy for Polish agriculture should take into account global processes and the process of farms polarisation into agricultural and non-agricultural activity. This polarisation concerns population, households and economic entities (including farms) that operate in rural areas. The tendency for different areas of economic activity to intermingle becomes more and more intense. In Poland, support for the economic development of rural areas, provided in the form of public resources, should be based on the endeavour to ensure implementation of the concept of shaping the internal balance of these areas. The latter consists in maximising net benefits from economic growth while protecting natural resources and ensuring restoration of their usefulness in the long-term perspective the concept of sustainable development.

However, in the future state aid should play a less significant role in shaping of the pace and direction of investments. Taking over the role of the regulator, the State will force specific patterns of behaviour on economic entities. The beneficiaries who take advantage of public funds will, by definition, be in a more favourable position as compared to those who do not receive such grants. But the resulting substitution and income effects can entail a drop in efficiency and thereby competitiveness in the long-term perspective.

Backwardness of Polish agriculture in accordance with the industrial model – mass production, large-scale – decreases the economic competitiveness capacity of the Polish agribusiness. Competitive advantages in this respect will be subject to progressive erosion. Factors determining long-term competitive capacities, i.e. adjustment of mobile factors to immobile natural factors, care for environmental standards, and quality of the products will become more and more important. Environmental factors must be taken into consideration in the research on social competitiveness and – increasingly – economic competitiveness. The latter is the basic objective of the Lisbon Strategy, while the first one is the message under the sustainable development strategy. In terms of agriculture these strategies are reflected in the European agricultural model that determines the development of Polish agriculture based on the CAP solutions: cross compliance principle, animal welfare, including the agri-environmental programme, shifting resources to the second pillar of CAP. Policy reorientation towards social competitiveness requires common actions of all EU Member States. Therefore,

the coherent approach to new sustainable strategic solutions needs to be specified [Zegar J., 2011].

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# **Structural and organisational changes, governance and the social strategy of cooperatives: Empirical evidence from the Italian wine sector**

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## **ABSTRACT**

This paper develops some of the most relevant themes emerging from the recent literature on cooperatives, as: the concept of collective entrepreneurship, the dynamic of relations between members and corporate bodies and between members and management, the psycho-social aspects of the relationship between members and the cooperative, and the social strategies of member-cooperative integration and patronage returns. It analyses the crucial governance and organizational elements of cooperatives using as a case study the Veneto region, which plays a relevant role in the Italian wine supply chain. The study focuses on five research themes concerning: the economic, organizational, and social governance impacts caused by the structural changes carried out by the cooperatives; the coherence between the aims of the cooperative and those of its members; the differentiation factors characterizing the members and the identification of those helping / not helping the member-cooperative integration; the presence of members clusters and the possibility of adopting specific models of integration by categories of members; the identification of the most suitable instruments of integration. For these purposes a case study approach, combining both qualitative and quantitative analyses, was adopted. The results highlight that the aggregation processes carried out by the cooperatives increased the heterogeneity of the membership, which complicates the decision-making process. The member segmentation is feasible and it represents an operational tool for the top management. The study results demonstrate that quality projects help to revise the member-cooperative relationship and to remove cultural constraints to its development.

**Keywords:** Cooperatives; Structural changes; Social Strategy; Governance; Entrepreneurship; Wine.

## 1. INTRODUCTION

Today, the cooperative has not yet reached its full potential, but it is still a modern organisational form that can provide new economic and managerial opportunities to the firms in the agro-food sector.

In Europe, cooperatives play an important role. According to the European Commission (2011), there are 250,000 cooperatives with more than 163 million members (a third of the EU population), which employ 5.4 million people. They are more widespread in some countries and economic sectors than in others, for example, agriculture, forestry, banking and retail. In some of these sectors, the presence of cooperatives is very high, especially in some countries in the north of Europe. Recently, cooperatives have branched out from their original business sectors, moving into new service activities (education, social services, transport, and finance for the small medium enterprises).

In the European food sector, cooperatives have a significant market share, controlling 50% of the market of raw materials and 60% of food products, reaching up to 80% in some countries, such as the Netherlands and Finland (Cogeca, 2010).

The European cooperative system has two different organisational models: the Northern and the Southern models (Nicolas, 1994). The first model is applied in countries like Germany, Denmark, and the Netherlands. It is based on the liberal tradition, the flexibility of legal rules and bylaws, and it has not been helped by favourable tax privileges. This model has allowed agricultural cooperatives to adapt to the economic and social changes and carry out a process of concentration and strategic development since the 1960s. Large and powerful cooperatives were created to compete and lead in the international market. The second model adopted, for example in France, Italy and Spain, has been helped by government interventions giving financial support, tax incentives and a detailed legal framework. This cooperative model has some critical points: regulatory constraints in order to obtain public supports; difficulties in strategic and financial management; inefficiencies in the decision-making process; and political criteria in the choice of the management.

Only from the end of the 1980s and the beginning of the 1990s did the cooperatives in Italy adopt a modern perspective, from both a regulatory and managerial point of view, because of the changes in the international and domestic context.

From a regulatory point of view, in 1992, after many years of lobbying for changes in the legislative system, relevant regulatory changes concerning the underfunding problem were made by introducing the investor member. In 2003, the reform of company law changed some rules related to cooperatives. The requirement of prevalent mutuality was introduced, meaning that at least half of the volume or value of the product must be supplied by the members in the agricultural cooperatives. If they do not respect this percentage and the mutuality, solidarity and democracy criteria, they are no longer able to receive public contributions and tax incentives.

From a managerial point of view, the dynamism required by the market led to an evolution of the objectives of the cooperative that makes the traditional cooperative–member approach no longer adequate. The cooperative cannot be regarded as a simple extension of the members, but is a separate entity, which pursues financial and economic equilibrium, as any other kind of business does, and guarantees adequate patronage returns.

However, the Italian cooperative system is characterised by the coexistence of traditional managerial approaches and modern approaches. The level of autonomy of the cooperative from its members is the main differentiating aspect of these approaches. Four different types of cooperative have been highlighted (Matacena, 1982):

- The *pure cooperative*, whose services benefit the members; its economic aim is to maximise the members' profit;
- The *co-dependent integrated cooperative*, in which the cooperative and the members constitute a system of firms; the cooperative is interested in its strategic, economic and financial development, and the members actively take part in the management and control of the cooperative. There is an integration in the aims of the members and the cooperative;

- The *management controlled cooperative*, in which the members have limited control of the management of the cooperative, and the managers are the driving force; and
- The *cooperative with only profit aims*, in which the cooperative legal form is maintained for legal and taxation reasons, but in reality, it works as a normal business.

This classification shows the life cycle of the Italian cooperative system over the past twenty years. In particular, in the last years, the cooperatives are looking for a greater downstream negotiation power via management and organisational changes. This has caused a reduction in the numbers of cooperatives, notably in North Italy, and a growth in size.

In Italy, the cooperatives play an important role in the industries of fruit and vegetables, meat and dairy, services to farmers, and wine. It is estimated that they control 36% of the agricultural value. This is higher in the north of Italy (57%), in wine (52%), and fruit and vegetables (39%). The cooperative members supply the 86% of the raw materials processed. In economic terms, the cooperative system generates the 24% of the turnover of the Italian food industry, mainly in the domestic market (Osservatorio della Cooperazione Agricola Italiana, 2011).

This paper aims to study the crucial governance and organisational elements that characterise agro-food cooperatives. Attention is paid to the effect structural changes on the social dimensions of the cooperative. The former could be implemented in the short term, through external growth, and the latter can only develop slowly, because of productive, economic, socio-psychological and cultural rigidities.

The study aims to identify the elements of the social dimension that are underestimated by the top management in the short term. These should be considered because they can change only in the long term.

Five research questions need to be verified and discussed.

- Which economic, organisational and social governance impacts are possible to hypothesise following the rapid structural changes carried out by the cooperatives?
- How is it possible to assure coherence between the aims of the cooperative and those of its members in a context in which the organisation of the cooperative is becoming more complex with a wider and articulated social structure?
- Which are the differentiation factors of the members? Which factors can help integration of members and the cooperative and which cannot?
- Is it possible to characterise different member clusters? Is it useful to differentiate and apply a classification of specific models of integration of members and the cooperative regarding various categories of members?
- What are the instruments capable of developing an integration of members and the cooperative aimed to reach certain strategic objectives?

Each question is discussed in the section below, which proposes a specific case study of Veneto wine cooperatives able to verify the observed difficulties, the possible proposals and their transferability in other contexts.

The following part of the paper is organized as follow. Section 2 highlights the importance of cooperatives in Italian wine supply chain. A literature review is reported in section 3. Methods are described in section 4. Results are discussed in section 5 and section 6 concludes.

## **2. THE ROLE OF COOPERATIVES IN ITALIAN WINE SUPPLY CHAIN**

In Italy, there are 611 wine cooperatives. They generally produce wine from members' grapes sold in bulk to other wineries or bottled under the cooperative brand name. Its membership is generally wide (300 farmers on average), and it is obliged to deliver all its grapes. The wine cooperatives are generally rather small, with an average turnover of 6.11 million euro (about 19.6 thousand euro per member) (Osservatorio della Cooperazione Agricola Italiana, 2011).

The largest more powerful cooperatives are generally based in the North of Italy. The cooperative wineries analysed in this paper lie in Veneto Region, one of the most significant geographical areas in representing the actual dynamics of cooperation in the wine supply chain. Its wine cooperatives are highly specialised in the first phases of product processing,

but they are also developing downstream, through sales and marketing strategies in competition with private companies.

Grape farmer members still play an important role in the cooperatives. The production of high quality products is essential for the image of the cooperative and the *terroir*, which is linked to the evolution of the product and finally the cooperative. Data received from the 2010 Census shows that in the period 2000–10, the area dedicated to viticulture increased in Veneto, but the number of companies reduced by 51.6%. In the last decade, the trend started in the period 1990–2000 has strengthened: the average size of vine cultivation has grown from 0.96 hectares in 2000 to 1.97 hectares in 2010. In this context, the role of cooperation is still very important in valorising the viticulture system, characterised by professional vocation, localisation in typical areas, high technical, economic and cultural exit barriers and preservation of landscapes, traditions and local identities.

In the last ten years, the changes in the wine cooperatives at organisational and structural levels have been marked by the birth of new organisational processes.

These processes have required that the wine cooperatives of Veneto adopt new strategic and managerial approaches in terms of both management and relationship with members. The cohesion based on the basic principles of cooperative mutuality, solidarity and democracy had to be adapted into the social governance of these cooperatives. This aspect is particularly important because it concerns the level of autonomy of the cooperative structure regarding the farm members and the form of integration between the cooperative and its members. This new situation can create a difficult relationship between the members and the cooperative management if the new development strategies are not fully understood by the farmers. Important points of controversy have been highlighted as crucial elements: i) the growth of the responsibility and specialisation of the management, ii) less representation at a managerial level of the members, iii) the understanding and sharing by members of the management choices.

### 3. LITERATURE REVIEW

The economic literature on agro-food cooperatives is wide. Staatz (1989) and Cook *et al.* (2004) provided a critical analysis of theories suggested for agricultural and agro-food cooperatives. Since the early 1960s, the first studies of agricultural cooperatives have been focused on the economic equilibrium of cooperative as a simple extension of the members' farm firms. Since the 1980s, the new developments in the theories of firm have been applied to cooperatives, in order to explain the agricultural cooperative from an organisational, managerial, and behavioural point of view. The heterogeneity of the membership, the differences of opinion between the membership and the management, the information costs, the different relevance of stakeholders, and the complexity of the decision-making process are studied as factors that affect the cooperative's behaviour.

In agreement with the aims of this paper and with the empirical evidence that will be analysed here, some themes discussed in the recent literature are particularly relevant to explain the actual dynamics of the wine chain. These concern:

- The research of new organisational forms, the degree of participation in risk by the members, and the concept of 'collective entrepreneurship';
- The relations between members and corporate bodies, and between members and management;
- The psycho-social aspects of the member–cooperative relation; and
- The modes of member–cooperative integration, and the patronage return.

In the new millennium, the agricultural economic literature has paid renewed attention to marketing cooperatives. The dynamics of the markets and the environmental contexts ask the cooperative to find new organisational and strategic solutions to enhance business efficiency and members' involvement. Cook and his collaborators propose the approach of 'collective entrepreneurship' (Cook and Iliopoulos, 1999; Cook and Chaddad, 2004; Cook and Plunkett, 2006; Cook *et al.*, 2008). Observing the development of the agricultural cooperatives in

United States, Cook and Iliopoulos (1999) pointed out that an increasing number of traditional, defensive cooperatives was becoming 'new generation' cooperatives (NGC), which are 'more interested in extracting rents from value added activities', and have 'a more clearly defined set of property rights in order to create investment incentives to producers' (Cook and Iliopoulos, 1999, pp. 529–530).

The empirical evidence related to agricultural cooperatives in North America, Oceania and North Europe show very complex and diversified organisational models. They satisfy the need to adopt an offensive marketing strategy and obtain a greater capital contribution by cooperative members. Cooperatives are seeking new solutions by developing hybrid organisational forms. Cook and Chaddad (2004) identify seven cooperatives typologies by considering 'how the ownership rights are defined and assigned to economic agents tied contractually to the firm (members, patrons, and investors)' (p. 1249). Where the ownership rights are restricted to member patrons, they are increasingly engaged in investing in the cooperative. In the new typologies, ownership rights are not restricted to member patrons. They are characterised by the simplification of the decision-making process and a greater financial flexibility as well as of the investments.

These new organisational forms are difficult to transfer to the Italian cooperatives due to more restrictive legislation and the traditional cultural approach of members. However, the reference concept for the Italian cooperatives is that of 'collective entrepreneurship' (Cook and Plunkett, 2006; Cook *et al.*, 2008). Cook *et al.* (2008) define collective entrepreneurship as 'the joint process by which patron-investors design, finance, and incorporate a path-dependent collective action form of multiple level rent generation' (at farm level and at cooperative level). The collective entrepreneurship orientation, for the Italian cooperatives, means an attitude, for both the cooperative and its members, to experiment organisational changes, to capture new opportunities, to increase the willingness to take risk, to exploit the social capital of the cooperative and of the members, and to accept different allocation of residual returns.

The main objective is to enhance the cohesion between cooperative and members through a new relationship between them. In this regard, six key elements can be highlighted (Cook *et al.*, 2008):

- The objective of the cooperative is not to reduce the members' risks, but to engage them in a 'joint bearing of uncertainty', in investing capital in order to delivery contract of raw inputs;
- The participation in the equity capital became permanent, transferrable, appreciable and non-redeemable;
- Membership is closed and the production requirements are stringent;
- The return benefits are distributed not only to the patrons but also to the investors;
- The cooperative performance are measured by the prices paid for raw material and by the returns to shares; and
- The voting scheme is weighted or proportional to investment.

All these elements involve the second discussion theme, that is, the relationships between members and the cooperative and between members and management. Collective entrepreneurship philosophy influenced the governance, which according to Cornforth (2004) suffers many weaknesses mainly concerning the member participation and the role of the board of directors. In the last case, the characteristics of the board components and their relationships with the management are particularly important.

The latter aspect gives new theoretical relevance to one of the main contributions of Italian researchers to the studies on agricultural cooperatives. Saccomandi (1992) and Benvenuti (1980) theorised that the board of directors, the management and the members are linked in a cooperative triangle, in which the dynamics of management and control are developed:

- The members deliver their agricultural production into the cooperative, they are property right owner of the cooperative, and express the corporate basic strategy as well as the strategic control of the board of directors and management;
- The board of directors, appointed by the members, and the president express the strategy, and they are strictly linked to the management; and
- The management, in many Italian cooperative formed by a director, operates at both a tactical and an operational level.

In traditional cooperatives, this nexus could fail, because of the low member participation and the delegation process between the members and the board of directors and sometimes between the latter and the management. The cooperatives concentration processes are putting this nexus in crisis. Today, agricultural cooperatives risk breaking the cooperative triangle, creating a concentration of strategic and decision-making competences in the management (Ruffio *et al.*, 2001). The social and cultural distance between the members, the board of directors and the top management can enhance these negative effects.

Another relevant theme analysed by recent literature concerns the psychosocial aspects of the relationship between members and the cooperative. In this regard, particular attention is paid to trust because it determines the member participation to the cooperative governance, its cooperative commitment and the performance evaluation. Some authors (Östenberg and Nilsson, 2009) have shown that some member characteristics (i.e. age and experience) affect the participative link between the member and the cooperative. Different kinds of trust have been identified and their effects on group cohesion and membership performance and satisfaction were evaluated. Trust among members and trust between members and managers are distinguished. In addition, the differentiated impacts of cognitive trust and affective trust were evaluated (Hansen *et al.*, 2002). The managerial implications are relevant: the creation of a favourable social environment improves member–cooperative integration and company performance. However, it happens through relational processes that evolve in the long term (Barraud-Didier *et al.*, 2012).

The last theme to be discussed concerns the modes of integration between members and cooperative and the patronage return, which are influenced by the socio-psychological perspective. According to Lambert (2003), the modes of integration of members and the cooperative have as basic elements social identity and, in particular, the relationship that the board of directors maintains with the members. Lambert (2003) takes the example of some French wineries. In different situations of the cooperative life (entrance, power distribution, participation in the governance, relationship of the members with the board of directors and the management) the cooperative management elaborates coercive measures, but at the same time, they apply with flexibility to ensure freedom and members' conviction.

Biarnès and Touzard (2003) focus on the differentiated remuneration for the grapes in the French cooperatives of the Languedoc region and its importance to corporate governance. This empirical study explains that the change in the grape remuneration mechanism is a real process of organisational innovation, difficult to implement and based on a formal device. It can be imperfect, and therefore it requires interpersonal adjustments to be completed and to contribute to its evolution. These authors identify the following operational key elements: i) innovation in marketing strategies; ii) standards stability, simplicity and flexibility; iii) transparency; and iv) activation of mechanisms of higher members' accountability. A multidisciplinary approach joining economical, organisational, technical and sociological aspects is necessary.

#### **4. METHODS**

To answer the five research questions listed in section 1 a mix of qualitative and quantitative approaches have been used. The case study methodology unites the various analyses.

Q1 is analysed through descriptive statistics and qualitative evaluations of four main organisational patterns implemented by the Veneto wine cooperative system.

Q2, Q3, and Q4 are analysed through an extensive survey of a cooperative members (Cantina dei Colli Berici) and the use of multivariate statistical procedures (factor analysis and the k-means cluster analysis) (Agnoli *et al.*, 2008; Capitello and Agnoli, 2009). The factor analysis was conducted using the method of principal components and selecting a set of 15 variables that can explain the characteristics of the vineyards and the grape supplies. The varimax method was used for factors rotation. The cluster analysis was carried out to individuate the different typologies of members from the scores associated to the extracted factors. The number of clusters was determined on the basis of a comparative analysis among the matrix of the Euclidean distances of alternative clustering processes. The solution of five clusters has been chosen.

An extensive survey of another cooperative members (Cantina della Valpantena) have been carried out to analyse Q5. Descriptive statistics concerning social, technological, and economic variables were used to evaluate the impact of quality projects on farms members' performance (Peroni, 2005).

## 5. DISCUSSION OF RESULTS

In relation to the first research question (Q1), which concerns the "economic, organisational, and social governance impacts that are possible to hypothesise following the rapid structural changes carried out by the cooperatives", four main organisational patterns can be highlighted in the Veneto wine cooperative system: i) the formation of large cooperatives through the purchasing and incorporation of other cooperatives; ii) the grouping of cooperatives also including private companies; iii) the creation of business partnership through joint ventures, purchasing, and the creation of new companies; and iv) the creation of network and alliances between cooperatives and other businesses.

The examples reported below show the different organisational choices and effects.

*i) The formation of large cooperatives through the purchasing and incorporation of other cooperatives: the case of 'Cantina di Soave'.*

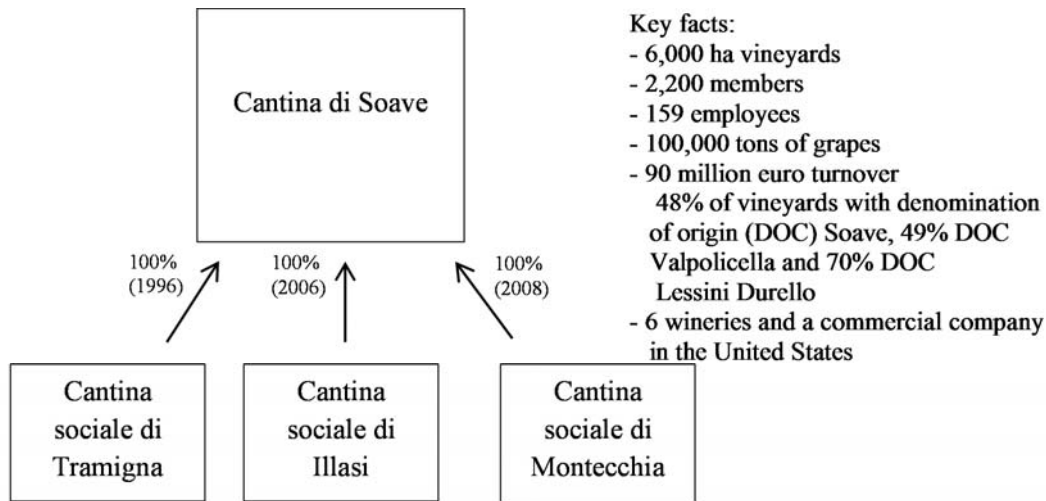
In four years, the 'Cantina di Soave' has become one of the largest wine cooperatives in Italy. The merger processes were the most suitable solution for a highly local competitive situation (Figure 1). The 'Cantina di Soave' is characterised by a larger production capacity than the other cooperatives, managerial skills, differentiation strategies and price leadership. The merged cooperatives suffered of structural limits, economic and managerial inefficiencies, and relational difficulties with the membership, and also critical financial situations.

The new organisation has caused the following effects:

- Managerial structure, organised by functions, characterised by high coordination and supervision power of the CEO; special attention is paid to marketing and communication areas;
- High vineyards and wine production concentration in two of the largest Italian denomination of origin (Soave and Valpolicella), high market power in the bulk and bottled supply, and high decision power in inter-professional committees;
- Socio-economic role from the public institutions, strengthened by the mergers, because of its capacity to generate value for members, their family and the local system;
- Deepening of product and brand differentiation strategies, control of the distribution channels in domestic and foreign markets, and communication strategies similar to private companies;
- Difficulties in the management of the membership, because of their heterogeneity; and
- Relational difficulties with the private wineries in the management of quality and price policies.



Figure 1. The 'Cantina di Soave' case study



ii) Grouping of cooperatives also with private companies: the case of 'Collis Veneto Wine Group'.

In this case, changes have been fast and they were permitted to establish a cooperative group, 'Collis Veneto Wine Group', with a significant economic and social impact (Figure 2).

From the 1990s, two large cooperatives ('Colognola ai Colli' and 'Colli Berici'), potential competitors, have adopted similar organisational and strategic choices: acquisition of small cooperatives, participation in commercial private companies, product differentiation strategies, and downstream control.

In 2008, they constituted a second level cooperative to have a higher power on the final market, maintaining the corporate identity for the customers and the grape grower members.

These two groups work individually to produce wine, but the new company manages the product sales and marketing (Giacomini and Montedoro, 2009).

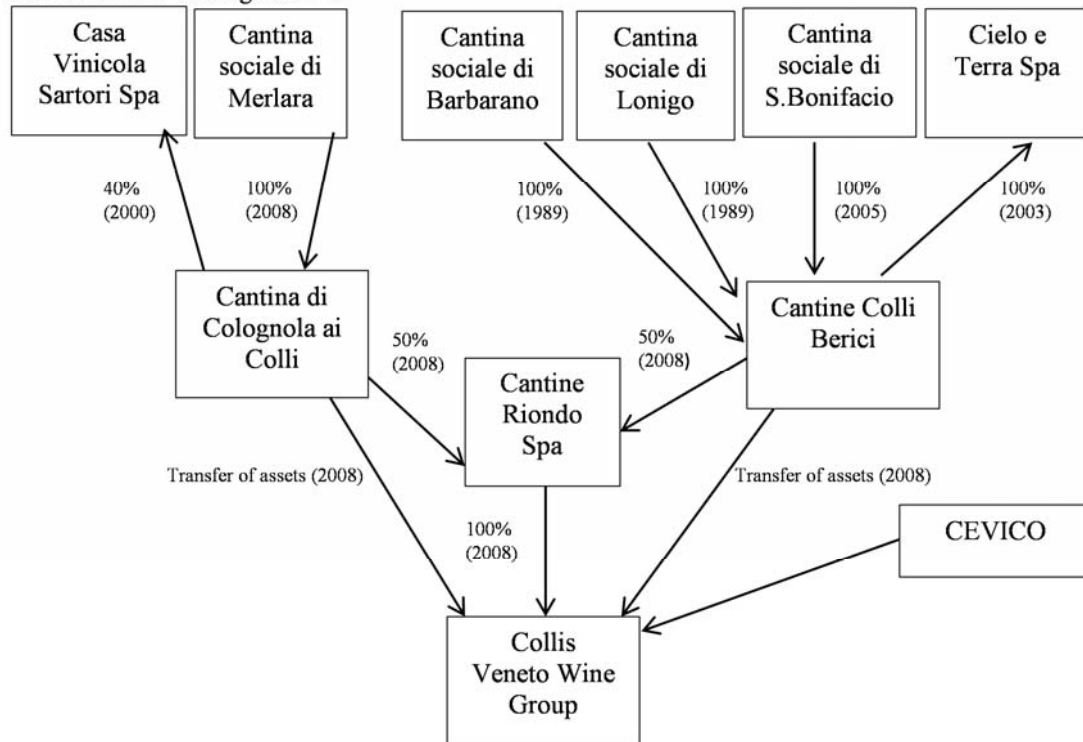
This agreement has the following effects:

- Strategic concentration of marketing and public relations functions, control of supply chain, preservation of their legal identity, product and brand differentiation;
- Strong vineyard and wine production concentration with direct management of members;
- Complex organisational structure characterised by different decisional centres and difficulties in managing tangible and intangible assets and human resources.

Figure 2. The 'Collis Veneto Wine Group' case study

Key facts:

- 6,700 ha vineyard
- 3,000 members
- 140,000 tons of grapes
- 11,000,000 hl of wine
- Presence in six DOC areas (Soave, Valpolicella, Arcole, Colli Berici, Merlara)
- 6 wineries and 3 bottling factories.



iii) Creation of business partnership through joint venture, purchasing, and creation of new companies: the case of 'Cantine Produttori Riuniti del Veneto Orientale' (CPRVO)

The CPRVO winery was established over a period of 20 years through a series of joint venture initiatives. Six cooperatives with over 2,000 members have been merged to form a large well-structured wine cooperative.

The main steps of the merger process are the following:

- 1992: joint venture between the 'Cantina sociale di Jesolo' and the 'Cantina sociale di Portogruaro';
- 1994: joint venture between the 'Cantina sociale di Jesolo' and the 'Cantina sociale di San Donà di Piave';
- 1998: establishment of the 'Cantine Produttori Riuniti del Veneto Orientale' (CPRVO);
- 1998: joint venture between the CPRVO and the 'Cantina Sociale di Meolo';
- 2001: acquisition of the 'Cantina Sociale di Torre di Mosto';
- 2002: joint venture between the CPRVO and the 'Cantina Sociale di Pramaggiore';
- 2005: establishment, with equal shares, of the 'Gruvit Srl' by the CPRVO and the 'Cantina Sociale di Campodipietra';
- 2006: participation of the 'Cantina Sociale di Pramaggiore' in the CPRVO;
- 2007: acquisition by the 'Gruvit Srl' of the major share of the bottling company of the 'Casa Vinicola Bosco Malera Srl'.

As a consequence of these actions, the CPRVO consolidated 2,000 ha vineyards, 1,900 members, two DOC areas (Piave and Lison Pramaggiore), and 30,000 tonnes of processed grapes.

This case study does not reach the quantitative impact of the previous ones, but it presents some peculiarities:

- The difficulty in changing the property assets and in finding the agreement of the membership because of the strong link between cooperative and members;
- Different types of joint venture were consolidated after a trial partnership period;
- The maintenance of the social identity, characterised by small size and territorial role; and
- Leadership capacity of the ‘Cantina di Jesolo’, which managerial competencies were fundamental in the downstream development.

#### *iv) Creation of network and alliances between cooperatives and other businesses*

One option for small cooperatives was independence. They were able to preserve this condition through the maintenance of a traditional organisational–managerial approach, based on a skilled management and an open-mind strategy. Thus, it allows them to overcome the structural limits through differentiation policies, control of the distribution channels, and also market repositioning. However, in the last years, although they are still stable in this position, they are implementing collaboration agreements with private companies through networks to realise new commercial projects. For example, in 2006, two cooperatives and a bottling company have founded an enterprise to buy a factory to be used for the storage of wine. In 2009, they started a commercial joint venture company to distribute wine in the English–speaking market.

Finally, it is evident that the basic strategy of all four organisational options is the strengthening of competitiveness downstream, alongside the supply chain, to the intermediaries, particularly abroad. The investment in technology is directly functional to objectives of quality improvement according to the marketing projects, management of bottled wines, logistic organisation and control of distribution channels.

The relationship with the members has not yet been addressed in a systematic way, although all the organisational choices described above implicitly aimed at being ‘accepted’ by the members. They do not appear as a subject of specific relational actions. The cooperatives will ‘collide’ with this problem in the future, taking into account the characteristics of the members and its valences in building a competitive and sustainable supply chain, ‘from producer to consumer’.

The second research theme (Q2) "How to assure coherence between the cooperative and members objectives in a situation in which the cooperative organisation become more complex while the members structure is characterised by weaknesses due to its greater articulation and size" is discussed using the results of a research carried out in the cooperative winery ‘Cantina dei Colli Berici’ (Agnoli *et al.*, 2008). It is a study aimed to deepen the long-term development dynamics of members. In this regard, six thematic areas are highlighted:

- The *members’ motivations* for maintaining the viticulture. It has been seen that the behaviour of a part of members is guided by a multi-objective function in which profit maximisation plays a complementary role in comparison to other objectives.
- The *family-farm perspectives*. The intergenerational transfer represents an important critical factor for the farm development. However, the investment attitude is high. It is due to the conviction that investments in viticulture increase the asset value of the land. It

assures intergenerational transfer of assets, traditions, and natural resources even in presence of uncertainty in the continuation of farming.

- The *vineyard management*. There is a lack of the market knowledge and asymmetry of information in relation to the consumers' choices and the strategies of competitors. Two key critical elements emerge: i) the members' participation and sharing of the corporate strategy, ii) the transfer of knowledge from the top management to the members' structure.
- The *success factors of viticulture*. A product-oriented approach, supported by the process innovation, is dominant. The entrepreneurship quality in agriculture—characterised by passion, conviction, and experience—and the growth of farm size are the main strength elements.
- The *economic efficiency in viticulture*. The differential quality, due to *terroir*, positively affects revenues. On the costs side, the adoption of new solutions that make possible the mechanisation, innovative varietal choices, and the realisation of economies of scale are particularly relevant.
- The *member-cooperative relationship*. The deepening of economic and legislative issues is still unsatisfied for two main reasons: i) a part of the membership does not perceive the importance of these themes, and ii) the top management privileges the training on technical issues. However, a strong fragmentation of opinions on some important themes—such as the members contributes evaluation and the transparency—exists within the members' structure.

The six themes discussed above assume different relevance in relation to the members' characteristics. It introduces the third research hypothesis (Q3) explored in the present paper, that is, the "identification of the member's differentiation factors and the analysis of those that contributes or hinders the integration of members and the cooperative".

The deepening of the "Cantina dei Colli Berici" case study, through the factorial analysis, allowed the researchers to identify five main factors that significantly discriminate the member's behaviour (Capitello and Agnoli, 2009). These are represented, in order of importance, by the following:

- The *technological choices* that highlight the orientation/non-orientation to the adoption of innovations linked to mechanisation of operations in viticulture.
- The *farm size*, associated to a greater attitude to innovation and a closer respect of the top management guidelines by the largest members.
- The *vineyard renewable* that discriminates between the members who renewed/not renewed the vineyard in the last 10 years. The vineyard renewable is also linked to the adoption of international varieties requested by the market that determines higher revenues per hectare.
- The *viticulture vocation* of the land that is associated to vineyards located in the high hills. These vineyards are adapted to the production of typical DOC wines and they are associated to a higher adhesion of members to quality projects.
- The *products portfolio* from which two main cooperative strategies emerge: i) a dominant orientation to the production of wines without DOC or IGT appellations, and ii) a new differentiation strategy based on the enlargement of the local white wines to white and red wines, with new packaging formats, and the research of synergies between corporate and territorial brands.

It can be seen how dimensions strictly linked to the entrepreneurship quality overlapped with structural and environmental elements in explaining the members' behaviour. All these

dimensions affect member–cooperative integration, but the effect of each of them in terms of facilitation or obstacle is determined by the sign and the value of the correlated variables.

The cluster analysis applied to the factorial scores previously determines allowed to deepen, still in relation to the ‘Cantina dei Colli Berici’ case study (Capitello and Agnoli, 2009), the fourth research theme that can be summarised in the following question (Q4): "Is it possible to segment the members structure? Is it useful and really applicable to classify the members into typologies to propose specific member–cooperative integration models?".

The analysis allowed to identify the following five typologies of members: 1) *Warn out seniors* (28%), 2) *Opportunistic seniors* (25%), 3) *Quantity focused* (23%), 4) *Small and typical* (18%), and 5) *Cooperative awareness, big and differentiated* (6%). The members of the last group (*Cooperative awareness, big and differentiated*) are already integrated in the cooperative strategic choices. They obtain the best economic performance per hectare. On the other side, the groups *Warn out seniors* and *Opportunistic seniors* could be involved only in medium- to long-term projects under the condition of an intergenerational transfer of knowledge, entrepreneurial competences, and skills. Integration projects aimed to improve the grapes quality could be activated by the top management for the groups *Quantity focused* and *Small and typical*.

Member heterogeneity concerning strategic, socio-demographic and cultural aspects, mainly in the largest cooperatives, suggests that a single quality projects could be ineffective. The analysis highlights that members can be grouped in homogeneous segments. It can be useful for the top management in order to adopt specific member–cooperative integration policies aimed to improve, the grapes quality, but also the cultural, the social, and the territorial cohesion in the cooperative values.

The fifth research issue (Q5), "the identification of instruments enable to develop a member–cooperative integration aimed to reach the cooperative strategic objectives", is deepened through the analysis of the so-called quality projects. In this regard, the cooperative winery ‘Cantina della Valpantena’ case study is analysed. It introduced this instrument in 2002 with the aim of improving grape quality in order to meet the new market demand. The agricultural processes implemented through the quality project are detailed in a production roles protocol. An expert in viticulture who assists the cooperative members during the different production phases supports it.

The members’ adherence to the quality project was stimulated through the implementation of reward mechanisms into the algorithm used to calculate the grapes prices. As a consequence, the quality project involves over 80 of the 270 cooperative members. It is allowed to obtain greater revenues per hectare but also to address the grape quality to market objectives. In a situation such as that of the cooperative that does not permit flexibility in the purchase of row inputs (grapes) the member’s incentives through quality projects is crucial. Through this instrument, a new relationship between the members and the cooperative is elaborated and it determines advantages in terms clarity of the member’s behavioural rules and of transparency of the grapes quality evaluation and prices determination.

## 6. CONCLUSIONS

The findings show that the organisational answers of the Italian wine cooperatives to the competitive challenges were adequate and rapid, and with a significant economic impact both on the business equilibrium, and on the local system. However, some issues with long-time effects are still unresolved. The discussed cooperatives have implemented new organisational and structural solutions, whose main strategic levers were:

- Development of managerial structure, especially in marketing and communication, with a strong ‘political’ power in the hands of the top management;
- Deepening of the product and brand differentiation;

- Higher control of the distribution channels and strengthening of the direct relation with the consumer; and
- Strong economic, social and environmental impact of the cooperative system.

Considering the latter lever, a high market concentration has been reached in the supply of raw materials, and bulk and bottled wine. The price leadership strategies are an obstacle in horizontal relationships with other firms, especially SMEs.

If the traditional mission of the wine cooperatives was to countervail the monopsonistic concentration power of the intermediaries and the wineries, now they are the main actors of a new process of concentration, which led them to oligopolistic power in the local market. This also affects the coordination policies of the denomination of origin.

A critical uncovered issue concerns the evolution of a relationship with members, which should be in line with the organisational processes of the cooperative. The main aim of the organisational decisions described above was to be accepted by the members, but without the implementation of specific actions. The cooperatives will face this issue in the future, taking into account the characteristics of the members and their valences in creating a competitive and sustainable supply chain, "from the producer to the consumer".

The relationship with the members is still based on traditional mutualistic criteria, characterised by risk aversion and reluctance to permanently invest in equity. The case studies have highlighted some development potentials.

The coherence between the goals of the cooperatives and of the members emerges to be supported by a personal relationship between the management and the board of directors and the members. It is focused on the economic objective of maximising member patronage returns, often with an opportunistic short-term vision. However, the member interest in the cooperative participation has also non-economic reasons, which are the basis for creating cognitive and affective trust. This could be a starting point to involve the member in the development of the cooperative, with a long-term horizon.

The analysis of the differentiation factors of the members confirms that the aggregation processes carried out by cooperatives have increased the heterogeneity of the membership. The differential elements have different natures: socio-demographic, structural, environmental and cultural. On the one hand, they complicate the decision-making process, the lobbies and their expectations. Conversely, they may provide new evaluation criteria of the members and of their role in the cooperative. This is useful from several points of view: internal communication, differentiation of the patronage returns, level of risk propensity. While the former is viable in the short to medium term, the other two require economic and relational efforts of long term.

Considering the multiple natures of the differentiation factors, the research shows that the member segmentation it is feasible. The issue is the concrete possibility that it can become an operational tool in the hands of top management. However, both the members and the top management are not still aware of this. The problem lies in the members' cultural approach, which has a traditionalist view, merely aims at maximising the patronage return, and is reluctant to invest in the development of the cooperative. The current regulatory framework is another obstacle because it does not allow an adequate return allocation according to the different risk participations and shareholders (members, patrons and investors).

Finally, the "quality project" helps to revise the relations with the members, to improve the understanding of the rules, to link the member to the marketing program.

However, the quality projects involve a small share of members, with a low ability to differentiate the product portfolio. Today, they are formulated to involve only a "niche" of members. In the future, quality project should become a broader tool to support the differentiation through more stringent production standards. Further, the quality project should be linked to the member segmentation. This will provide a marketing differentiation consistent with the different production capacities of members and supported by economic

and services incentives. However, the members are not yet ready to accept differences in treatment and only a relational approach based on trust can let them evolve towards these new perspectives.

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# The shortcomings of Romania's agricultural knowledge market

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## **ABSTRACT**

Knowledge is the most valuable ore credited with the potential to make the difference between success and bankruptcy. The agricultural market is featured by fierce competition that needs a significant efficiency leap of production in order to have a strong position. This could be achieved only by a similar bounce in productivity or quality that cannot be obtained without using cutting edge agricultural knowledge. The Romanian agricultural knowledge market is not yet functional and the paper discusses the main reasons of this. The analysis that considered three categories of behaviours for researchers, information producers, consumers and channels, and the model of abroad functional knowledge markets highlighted that these reasons were loss of researchers, land resources, university management mistakes and errors, rupture between research design and the producers' knowledge needs on the background of chronic underfinancing of unproductive sectors such as of information producers.

*Keywords: agriculture, creativity, knowledge market, research, transition*

## **RESEARCHERS' REACTION WITHIN CHANGING VALUES**

The main responsibility (but not the only one) for the bias that spotted since the fall of communism until today almost all fields of socio-human research, including the one of agricultural economics, regards, without equivoque, the chronic under financing of this sector, issue that had a disastrous impact on the quality of human factor.

The post-communist society, in identity crisis, on the background of deep economic and financial unbalances, had difficulties in bearing the weight of unproductive sectors, and therefore it reduced until humility the wages of researchers, teachers, physicians, engineers etc.

Any analysis, with a minimal respect for truth, demonstrates that in more than two decades of transition, the crisis of the human factor in research were deployed following a scenario that was simple in content, but unproductive by its effects.

In the first category, there are the researchers that are not few, that were lost, even by a natural path, when due to their age they retired, even because they were attracted or crushed by the roller of economic transformation or the mirage of a better life abroad. Others were thrown over the fence by the body-guards of the ones who became the masters of research goods, now sold by the state in the privatization process. Obviously, all the ones comprised in this category are stranded losses for economy, by both the leavings from the system (that are also important) and the loss of credibility or even more the demonetization of research and, by extension, the ones with creative minds in front of the public opinion.

The second category, less numerous than the first, includes the researchers that fully proved that they are able to metamorphose themselves by relational guiles, behavioural abilities, political capital and others, in academicians, university professors, businessmen,

political and syndicate leaders and others. A part of people who assumed the role of team engine in the new society were in the red period, with few exceptions, heads of research units, departments or ministry or county directions, productive units or were vocal party activists with high positions.

We made these clarifications not in order to criticize the scientific accumulations or merits, social position or good intents of these people. Our intent is to underline that rationally these people could not supply a credible theoretical foundation able to help the newly arisen capitalist economy to be victorious in a reasonable timeframe.

The fact that these people were educated and trained, worked and, what is very important for many, believed in the superiority of the communist model and then suddenly were forced to criticise and drop all that not long ago had value, could not be easy and without consequences in personal, but social plan too.

In fact, if the outcomes of the research were outstanding, then the economy should be one of performance. But, the reality is in opposition with this logical construction, fact that makes any other interpretation to have a speculative character.

The third category is made up by the ones who continued their activity in institutions, as many as they remained, after the pass economic reforms' wave. The fact that these people continued to work, despite minimal wages and unfavorable conditions, the loss of system's credibility, reduction of public support and others, could have numerous interpretations that based on various reasons related more with internal, personal spheres and less with a general phenomenology of social, political or even economic nature.

Nevertheless, the obstinacy of continuing to work within the system despite the outcomes of their activity supports multiple critical interpretations that have a special value. By them the flame of this nation's creative power is maintained and this gives the hope of real chances for a novel start of the research.

## **INFORMATION PRODUCERS AND CONSUMERS**

Beyond doubt, research, as the entire society, needs elites. Elites for the professionalization of public decision, including the economic one, elites as social models, based on scientific, moral, and professional values, elites by which the credibility of Romania in front of world's states can be improved. Research should be the main pool to recruit and train Romanian elite, which is today both feeble and atypical. In addition, by research it will be also opened the gates of knowledge society that is a strategic target of European Union until 2020.

In the general framework outlined previously agricultural research is not dissonant. However, natural, economic, and social patterns of agriculture, and also the ones of the reforming process occurred after the 1990s left their mark over the specific research sector (Popescu, 2007; Florian et al., 2006).

The market of scientific knowledge in agriculture, in a classical configuration, puts face to face the two acknowledged actors:

- a) Information producers, which for the current stage are research structures and university institutions that have unanimously recognized and quasi-determined roles;
- b) Information consumers or beneficiaries, who are represented by people who activate in agriculture, regardless to their rage, education, profile of holding etc.

The linking vectors between these actors are channels through which information circulates from producers toward consumers, namely: education, consultancy, extension, mass-media and others (Labarthe, 2009; Klerkx et al., 2006).

In the category of information producers, the Academy of Agricultural and Forestry Sciences (AAFS) is representative but not unique for the agricultural research. The structure of AAFS comprises many institutes and research stations designed to cover the entire territory of Romania. Hence their profile was established in accordance with the productive specificity of the area in which they were located.

The Romanian agricultural research, as form of modern science, had a shy start before the First World War and underwent an outstanding development in the interwar period, especially in the third decade of the past century. The current institutional architecture was outlined in the communist period.

After a century of existence, on the threshold of the 1990s, AAFS recorded significant scientific and material accumulations. But the dynamic of constant growth for the agricultural research entered a downward path after the abandonment of command economy trend that was maintained over the entire transition period and in present still does not show sign of recovery. The crisis of agricultural research was not a sole fact. It came, as in the entire Romanian research, as a result of the sector's underfinancing, leaving of researchers, loss of credibility for results.

In addition, agricultural research was also the victim of agriculture's privatization by de-collectivization. This, in terms of land relations, took the form of restoration and establishment of private property right for the land seized by communists or the form of concession of state owned land. Following these actions a great part of the agricultural land assigned for research passed in the commercial circuit. For instance, in 1990 agricultural research have available around 160 thousands hectares, while in 2010 this area is less than 35 thousands hectares, a reduction of 78%.

Institute, statii de cercetare, unitati scolare cu profil agricol (licee)

The category of information producers also comprises agricultural universities, among that the ones of traditional university centers such as Bucharest, Iasi, Cluj, Timisoara, and Craiova are the most important. Naturally, the scientific production of universities did not reach the level delivered by AAFS because along with research teaching was also a priority.

Nevertheless, research outcomes could have been significantly higher and truly useful for agriculture if the university management would value and incentivized human resources (teachers, researchers, experts, and students), land resources (any type of agricultural land) and all the other elements that compose the agricultural capital with responsibility and efficiency. Some university management mistakes and errors were even under the incidence of criminal law. Of notoriety is the alienation of the land belonging to the Baneasa teaching farm of the Bucharest University of Agricultural Science and Veterinary Medicine, which was of more than 200 hectares and was public law regime. We do not judge the legality of this action! However, we could say that from the point of view of responsibility for the training of young generation, the decision to drop off a teaching farm is against national interest since it compromises the quality of agricultural expert for many generations of future engineers, veterinary physicians or agricultural economists.

On the knowledge market, information demand is determined by a number of factors among that significant roles to play have: branch technique and scientific progress, profile of farmers and the ration between information cost on the one hand and agricultural prices and farmers income on the other hand.

Technical and scientific progress makes Romanian agriculture to work with two discrete production systems. The first one is the traditional one in which "new" regardless to its form has a minimal degree of occurrence. Here experience is the main channel of transmitting and acquiring knowledge needed in production. The second system is of industrial type to which recently the organic farming could be added. Here scientific information gains the quality of important factor for production increase and by this of economic efficiency. In this case knowledge push experience on the second plan, being important the modern information channels such as education, consultancy, mass-media etc.

The profile of farmers, according to their interest for knowledge is determined especially by the level of education, age, tradition, level of incomes, respectively living standards, the nature of production responsibilities, degree of production intensification and others.

In addition, sociologists recognize the conservatism of peasants as the main cause for the reluctance of individual farmers against the new world and progress. Conservatism is

regarded as a natural fact, resulting from the spatial isolation of farmers, but also as long as the access to market is regarded. In economic terms conservatism is also the result of inflexibility to change, regardless to its form: structural, professional, institutional, legislative etc.

Incomes, respectively living standards directly and significantly influence the level of knowledge. In fact, between incomes and knowledge there are direct relations of interdependency. If incomes rise, then naturally there are created conditions for improving the access of knowledge and reverse. The incomes of agricultural households was four time less than the one of a non-agricultural households in 2010, fact which clearly explains the much lower level of education of rural people than of urban people.

## **INFORMATION CHANNELS**

On the Romanian agricultural knowledge market, the vectors that allow the circulation of information between producers and consumers have certain characteristics, namely: independency; public power responsibility; and misperception of roles.

Generally information channels do not belong either to information producers or to consumers, and because of this they manifest themselves regardless to the interests of the two actors.

The main channels, respectively education, consultancy, a part of the specific mass-media and others are still in the responsibility of public power. Hence it was considered that the promotion of novelty in the sector should be made in compliance with the interests of agricultural policy makers and politicians.

In the agriculture development strategies the segments through which information circulation is provided suppose a minimum degree of visibility since, by a misunderstanding, it is considered that on the knowledge market producers have great and even determinant influence. But consumers and along with them, information channels, generate the bulk of the efforts, especially public ones. The most invoked example is here the gravity law. Since more than two centuries from its formulation by Newton, generations and generations of pupils struggled to understand it. It is clear that the efforts in the field of knowledge acquiring and consumption are higher, much higher than at the moment of discovery. By extension, the previous example is also noticeable in agriculture, but regarding other issues too. For instance, the expenses needed for the creation of a new variety of plant or breed of animal are far less than the efforts needed for their assimilation in production.

## **TOWARDS A FUNCTIONAL AGRICULTURAL KNOWLEDGE MARKET**

Currently the knowledge market in Romanian agriculture is dominated by two actors that cannot see each other because they are in relation of “large to small”.

Firstly, information producers, regardless to their institutional status – agricultural academy, institute, research station or university – are in the same structure as in the communist period, meaning that they are large entities designed to work with large agricultural units, cooperative or estate owned. In fact, the communists organized agriculture considering the relations between large and large, regardless to the field of activity: production, services, market, research etc.

Secondly, information consumers, in a determined proportion, are the people who activate in the almost 3.8 million peasant households with an average size of 3.3 hectares that use obsolete, traditional agricultural systems. Therefore, after the disappearance of large social units from the agriculture, as an effect of privatization, agricultural research struggled to maintain itself in its previous structure, without looking up for solutions to connect with the requirements of small agricultural producers. That is why Romanian research became so isolated from the real agriculture while continuously claiming the lack of public support for its operation.

Taking in account the facts presented in this paper, we consider that the main responsible (if such an actor is sought) for the state of Romanian research is not public decision, but the managerial incapacity to connect these institutions to the new market relations.

In the civilized world, research market is configured in more elaborated and functional schemes. Classical information producers, the same as here, delegate the responsibility of knowledge dissemination to territorial rural development centres (Popescu and Ioan, 2007). On their turn, agricultural producers organize themselves as cooperative or associative structures with responsibilities in the up taking and dissemination of information from territorial centres. It becomes obvious a market partnership, public and private, functional, among average size structures, with flexible activity, in which goals are compatible.

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# Enterprises' competitiveness advancement of Serbian agrarian sector through strategic planning and organizational changes<sup>6</sup>

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## ABSTRACT

Serbia has a great potential in agricultural sector, which has not been completely used. Along with adequate agrarian policy, agriculture can provide a significant contribution to economic development of the country. It has been, due to its connection and influence on other sectors, extremely important for development of Serbia. Besides it employs, directly or indirectly, many people, it also provides inhabitants' food safety and contributes to rural development and ecological balance, it also participates significantly in foreign trade. In such conditions, developmental behaviour of enterprises in Serbian agrarian sector implies searching for concepts and instruments which adjust goals and possibilities of enterprises with challenges and threats from the environment. The developmental goals define anticipated effects, conditions or situations which the enterprise desires to achieve. The developmental policy comprises a selection of principles and criteria by which the enterprise will be guided during decision-making in the field of managing growth and development. In order to achieve the developmental goals, must formulate a direction and a method of the enterprise's performance in agriculture. Managing growth and development of the enterprise implies formulating a strategy, as a unique concretization of the developmental policy.

*Key words: agriculture, competitiveness, strategy, organizational changes, planning.*

## INTRODUCTION

A reform of agriculture in Serbia has started in 2000, when had acquired basic preconditions for its conduction. Liberalization of trade relations and capital balance has made easier an inclusion of Serbian economy into international goods and financial courses. Started changes in the field of agriculture, although under influence of many factors having amortization effect on them, had acquired irreversible processes' character. The reform of agricultural sector can hardly get back to a starting position, but prior to it can talk about its vacillating tempo and agrarian policy instruments, which often should set up a balance between diametrically opposed goals. Generally, the most important elements of the reform processes in Serbian agrarian sector, since 2000 until now, have surely been: market liberalization, privatisation of processing industry, activating agrarian financial market, as well as starting to form new institutional forms at larger-scale.

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<sup>6</sup> The paper represents a part of the research on the project III 46006 "Sustainable agriculture and rural development in terms of realizing the Republic of Serbia's strategic goals within the Danube region", financed by the Ministry of Science and Technological Development of the Republic of Serbia.

## MATERIAL AND WORKING METHOD

In realization of research task was used a desk research of data which refer on Serbian agrarian sector competitiveness, as well as on an opportunity of competitiveness advancement through the strategic planning and organizational forms. Such research implies using data from the official sources: strategic documents of Serbian Government, data from the Statistical Office of the Republic of Serbia, etc; using data from domestic and foreign literature; using internal documentation. There were also used quantitative methods, primarily time series' analysis. With combination of those research methods can get more reliable answer to key questions, which impose within the analysis of Serbian agrarian sector competitiveness' advancement.

## RESULTS AND DISCUSSION

**Agricultural enterprises.** Agriculture in Serbia faces many problems, which are, among other things, a result of limitations appeared in terms of economic environment and agrarian policy conducted after the World War II until the SFRY collapsed, difficulties appeared in past fifteen years and difficulties in adjustment to market economy.<sup>7</sup> Agriculture in Serbia is encumbered by consequences of central- planned economy regarding ownership and land use. For development is necessary a policy which can affect on productivity increase by restructuring and investments, which implies clear proprietary rights and forming the efficient land market, credits and inputs inevitable for agricultural enterprises. Previous role of agricultural enterprises reflected in the following:

- Economy of scale of agricultural enterprises has enabled an appliance of modern technique and technology and establishment/development of seed production,
- Professional personnel concentration has provided development of science and agro-technique and their transfer to rural husbandries,
- Agricultural enterprises were a trigger for emergence and development of food industry in the same organizational frames of factory-farm type,
- The state, and later on the public property, as a ground for setting up the state influence agricultural enterprises, has assigned them the role of cheap products producers in terms of basic agricultural products self-sufficiency preservation, strategic stability of the country and social safety of population,
- A concept of agriculture development, which had provided a direct administrative control of courses in agriculture, gave to those enterprises a role of a mediator between the rural husbandries and food industry inputs producer, on the other hand.

As all others, the agricultural enterprises have a legal obligation to keep the books, to pay sales tax, property tax, income tax, so their formal-legal position is much more unfavourable in regard to rural husbandries position. The accent is on less working-intensive production lines and is relatively high level of specialization within some production units. The agricultural enterprises have relatively high level of agro-technical measures appliance (in regard to individual husbandries), because a size of property is not a limitation factor.

As significant limitation appears a *way of agricultural enterprises' taxation*. Agriculture is an unprofitable branch all over the world, but in Serbia, tax burdens are the same as for self-service markets etc. At the same time, while starting business in agribusiness, entrepreneurs face the problem of insufficiently developed agro-engineering, while technological ground significantly lags behind with up-to-date technological solutions in the world. An important

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<sup>7</sup> *Serbian agriculture strategy*, Ministry of Agriculture, Forestry and Water Management, Belgrade, Serbia, 2004, p. 8.

factor which affects the performances of big systems in Serbian agro-complex represents a *problem of agricultural land lease*.

PKB Corporation has 22,000 ha of arable land, of which 17,000 ha of state land. Obviously, there is no possible an efficient privatization while the problem does not solve. The Law on Agricultural Land has caused, yet in the first year of its appliance, many unfavourable confrontations among the owners of registered individual agricultural husbandries and workers and management of non-privatized, i.e. workers and owners of private agricultural enterprises, owing to which is necessary a many-sided and critical analysis of some of its clauses' sustainability.<sup>8</sup>

The main weakness come out from organizational-technological and economically anachronistic provision of fragmentizing big organized land complexes in state property and devastation of extremely important assets invested in programs of arrangements and protection of the state agricultural land in past five decades. On the other side, opposite to fragmentization of organized land complexes, on organization of fragmented and cultivation of hundred thousands hectares of non-cultivated plough lands has been done practically nothing in past years.

Owing to it, a size of agricultural production (especially livestock) is still significantly under the level realized during '80s, and today Serbia increasingly lags behind the results of neighboring countries, once far behind it. However, continuing decreasing trend of share of agriculture, forestry and fishery in the total GDP (*Table 1*) has not been determined by decline of agricultural production value, but development of other sectors of the national economy.

In spite of it, the agriculture in 2009 – the year of the world economic crisis – had significantly contributed to revival of Serbian total economy, regarding that it had realized a positive growth of physical production size and a positive balance of foreign trade exchange. The agriculture had an anti-inflatory effect, because high production size had affected a decline of food prices and total stabilization of retail prices.

**Table 1. Macroeconomic indicators of Serbian agriculture**

	Jed.	2000	2001	2002	2003	2004	2005	2006	2007	2008
Share of agriculture, forestry and fishery										
in GDP	%	18,7	18,0	13,3	11,4	11,9	10,3	9,6	8,7	
in employment	%					23,9	23,2	20,5	20,8	21,4
Share of food industry, beverage and tobacco in GDP		6,2	5,7	5,3	4,9	4,7	4,4	4,7	4,4	
Total		87	119	97	93	120	95	100	92	108
Plant production		73	150	96	83	144	94	97	82	123

<sup>8</sup> Sevarlić, M. (2007). *Weaknesses of Law on Agricultural Land*. Poljoprivreda.biz, Retrieved November 21, 2007, from <http://www.propertyexpat.org/?l=sr&a=1107>



	Jed.	2000	2001	2002	2003	2004	2005	2006	2007	2008
Livestock breeding		95	99	102	98	100	101	97	100	97
Share of food, beverage and tobacco in family budget costs	%	54,0	58,4	49,0	47,7	45,0	41,7	43,4	45,1	45,8
Trade of agro-food products	mil. €	631,0	854,1	1.133,3	1.086,2	1.316,2	1.353,7	1.713,1	2.035,5	2.327,1
Export	mil. €	319,7	347,4	554,9	509,4	628,7	731,7	991,9	1.217,9	1.327,3
Import	mil. €	311,3	506,8	578,3	576,7	687,5	622,0	721,1	817,6	999,8
Foreign trade balance	mil. €	8,3	-159,4	-23,4	-67,3	-58,8	109,7	270,8	400,2	327,5
Share of agro-food products in:										
Total export	%	19,0	18,3	25,3	20,9	22,2	20,3	19,4	18,9	31,3
Total import	%	8,6	10,7	9,8	8,8	8,0	7,4	6,9	6,1	6,4

Source: Statistical Office of the Republic of Serbia – different publications, Retrieved June 15, 2012, from <http://webrzs.stat.gov.rs/axd/index.php>.

Now cannot be denied an advantage of big organized land complexes by which manage several big agricultural enterprises and agro-systems in agriculture of Serbia. These land complexes provide, primarily, the appliance of economy of scope concept and there is not necessary many words for approving that is more economic and more profitable to produce on big land complexes, while on them can apply modern technique and technology, new scientific solutions, to build less expensive and more efficient irrigation systems, bigger and more profitable livestock farms.

**Strategic planning.** The strategic planning is mainly periodical activity, which overtakes in order for enterprise to face changes in the environment. A strategy is a planned decision by which, starting from goals and policy, precise a way of their realizing in enterprise's business. The strategy is a science and a skill of using a method for realizing the goals. The enterprise is obliged to learn not only on its own, but also on experience of others. Continual adjustment and progress in modern economy implies making new values for buyers, while otherwise there is no stimulus for them to buy products and services. In such conditions, a success of business making dominantly depends on ability to anticipate, understand and adequately and timely react to impulses from the environment. Exactly the environment's dynamism, in the unique way, tests the ability of the enterprise to provide its vitality. In such struggle with the environment, the enterprise finds itself between two extremes:

- To initiate new trends and changes, making new products and markets through innovation processes,

- To defend existing position, so the environment could stable, i.e. to amortize its influence on its business.

First orientation implies developed system of long-term foreseeing and observance of the environment, as well as decoding the signals while they are still weak (philosophy of interactivism and preactivism), while the other prefer internal, defensive flexibility, i.e. step by step strategy. Between these extremes, *de facto*, is series of options which must be analyzed by the enterprise.<sup>9</sup> There is noticeable a tendency toward activities diversification, which resort the modern enterprises with a view to provide business stability. Thereby affirms a need that, together with economy of scope realizes also economy of width. Then is the most important to keep a synergy between several activities in the enterprise. During the strategy formulation should know that a growth is not a goal *per se*, nor can be achieved by random actions. It is necessary planned, proactive and interactive observance of the environment. In order for enterprise to be successful, there must formulate the strategies based on one extrovert approach to developmental behaviour. According to proactive and interactive acting, the enterprise must train to use and create chances timely, i.e. which, along with lower costs of adaption, avoid shocks in the environment and business. Each growth strategy must be adequately financed, because always puts a question how much money is necessary to support the enterprise's growth.<sup>10</sup> Experience in business of modern enterprises had affected the appearance of new paradigm of strategic management, which had been considered as a process of directing the enterprise's activities by which, based on anticipating chances and threats from the environment and respect of strong and good aspects of the enterprise, set up the best balance between the goals, strategies, directions, methods and growth tempo, macro-organizational structure and the environment criteria.

***Defining organizational changes.*** Implementation of marketing strategy in modern conditions requires a flexible organizational structure. That is to say, the enterprises in Serbian agrarian sector must continuously adjust its organizational design and organizational processes to fast-changing marketing trends. Accordingly, there will be analyzed certain techniques of organizational changes, which should provide to the enterprises in agrarian sector, a theoretical-methodological framework and practical instructions for conduction of organizational changes. The organizational structure of enterprises in agrarian sector in Serbia is very complex and often very dissected, and caused by development and abundance of business functions, formal-legal position, production specialization etc. The agricultural enterprises still dispose with certain capacities for storing and finishing the agricultural products, regarding that their development went in direction of big factory-farm type business systems, which has implied also development of food industry within the agricultural enterprises. Most of food industry has separated, in organizational sense, from agricultural enterprises structure into specific business systems, but some part of storing, finishing and primary processing of agricultural products' facilities have yet remained within the agricultural enterprises. Scarce, highly developed giants in Serbian agriculture (PKB Corporation, Delta Agrar etc.) are only small islands in a sea of still predominantly traditional rural agriculture. A need of their existence should not be especially proved, in regard that there is more than obvious that – only those systems can provide higher production (naturally, quantitatively) and appliance of scientific solutions, i.e. technical-technological innovations. The complex business systems consist of more organizational units for which are characteristic relatively huge scope of individual business decision-making. The most often, the complex business system is made of numerous special economic entities, enterprises which do not have a special legal and economic status (giro-account). The thing that connects

<sup>9</sup> Milisavljević, M., Todorović, J. (1991). *Strategic management*. Belgrade, Serbia: Faculty of Economics, p. 257.

<sup>10</sup> Milisavljević, M. (2002). *Modern strategic management*. Belgrade, Serbia: Institute of Economic Sciences, p.241.

these enterprises into the complex business system is ownership, i.e. interests of controlling shareholders. Some enterprises within the complex business systems in agro-industry are mainly mutually production-technologically connected. If there is such connection within the complex business systems, then they are mainly organized by strategic business units' principle, i.e. profitable centres. In that case, a priority goal is not a profit of individual enterprises, but maximal total profit on entire complex system scale, while it, as a rule, does not represent a simple sum of individual enterprises' maximum profits, due to synergetic connections among them. Today, the big systems in agro-complex do not face so much with a problem of investments shortage, as much as with an obligation of starting privatization processes, which demolish them by already tested fragmentation practice, by which was jeopardize also their survival. There were separated repro-chains, as well as primary agricultural production from processing, while on the market dominate traders and import lobby. There are lost all functions of one solid system which had functioned in previous period, based on big systems in agriculture around which were gathered agricultural cooperatives and small proprietors.

Initiatives for conduction of analysis of *indispensable changes in Serbian agricultural sector enterprises* can be started by the enterprise's management or external consultants, which should investigate a specific problem in organization. For the overall analysis is necessary teams to be formed which mostly consist of the organization's top management and external consultants. The state diagnosis is made according to some diagnostic model of the organization. The diagnosis the most often contains two steps: 1) collecting data, 2) data analysis and defining changes. Research, beside an internal focus, connected to the organization, must be also externally oriented. The organizational structure is not an independent variable in regard to conditions in which the organization functions. In other words, a concrete model of organizational structure is caused by many factors, which nature and action the concrete structure model must adjust to. Thereby should have in mind that the most expressed influence on organizational structure change origins from the external organizational surroundings' forces. Under the influence of dynamics of the external organizational environment factors, very fast can come to a disturbance on relation: *acting factors – organizational structure*. Whether will change happen or not depend on a level of organizational structure flexibility, i.e. from the organization's skill to form an adequate structural arrangement according to anticipated changes in the organizational environment.<sup>11</sup> The diagnosis of the organization includes the following diagnostic variables:<sup>12</sup>

1. Environment: including market, technological, social, etc.,
2. Purpose (mission) of the organization and its strategy,
3. Organizational arrangements: organizational structure (jobs division, units grouping, coordination, authority distribution), systems (planning, human resources, information systems), procedure, policies,
4. Social relations: human relations, culture, informal communication,
5. Technology: a process by which inputs transform into outputs, including design of work places and processes,
6. Physical conditions: location, spatial disposition, work conditions,
7. Results (individual and organizational), productivity, profit, sales, climate and satisfaction of employees, absence from work.

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<sup>11</sup> Simić, I. (1999). Flexibility of organization in terms of organizational transformation. *Proceedings: Managing the key aspects of enterprise transformation*, Kragujevac, Serbia: Faculty of Economics, p. 116.

<sup>12</sup> Janićijević, N. (2002). *Organizational changes and development*. Belgrade, Serbia: Faculty of Economics, p.39.

Components or methods of reliable diagnosis can understand as complementary or substitutes. The enterprise can use one or more diagnosis methods. Managing directors often do interviews of main *stakeholders* of the organization. The key stakeholders are: main stakeholders, unions, banks-creditors, suppliers, main buyers and distributors, Government, etc. A managing director in discussion with them reveals causes of changes and has a task to determine their attitude on eventual directions of changes. If the managing director is not capable to make a diagnosis in the organization, special teams of external consultants engage to do the diagnosis. It is more qualitative because the consultants are objective, impartial, unburdened by experience and heritage of the organization and its internal relations. They have expert knowledge, necessary for diagnosis. The diagnosis can do through special working teams, too. In many situations, the diagnosis should not be left only to the external consultants, but it is necessary to do it in the enterprise. Internal experts are burdened by their experience, relations and connections in the organization, but, at the same time, they dispose with great knowledge on the situation and history of the organization by which do not dispose the external consultants. They can organize so called *diagnostic seminars*. The external consultants are best used when they do not bring only necessary expert knowledge into a diagnosis process, but also when they structure and lead a process of diagnosis in which an active role have internal experts and managers. Such seminars outside the enterprise, in duration of two-three days, can be very useful, not only for determining of crisis' cause, but also as a mean for the organization "thawing". In these seminars should take part experts from different functions, but also mid- and top-management.

For determination of indispensable changes in domestic organizations can use also *benchmarking studies*, by which collect information on competitors or similar enterprises performances and those performances compare with the enterprise's performances. The benchmarking studies aim to determine a gap between the enterprise and its competitors, as well as to reveal sources of that gap. For complete recognition of problems which the organization faces, there conduct the *organizational climate researches*. This part of diagnosis should determine a pleasure and motivation of employees as possible source of problems which led to the crisis. There also use: simulations, scenario models, heuristic model, detailed analysis of previous data. In diagnosis can be used also sophisticated mathematic and statistical methods in order to reveal causes of the problem. With trends analysis of productivity, costs, sale, profit is possible to reveal causes and to get an idea on possible directions for coming out of the crisis. Previous analysis point out to existence of customary mistakes for changes actions in the organization. The most often are the following<sup>13</sup>: surrender to excessive pleasure, negligence in forming sufficiently powerful leading coalition, underestimation of power of vision, allowing obstacles to block a new vision, negligence in realizing long-term successes, early victory announcement, changes which have not been steadily rooted into the company's culture. The enterprises in Serbian agrarian sector must adjust their organization to trends in the environment. Of modern tendencies in organizational design should surely mention the three dominating. Those are: tendency of forming the teams, tendency of hierarchy minimizing and forming so called "flat" organizations and tendency of networking.

**Conducting the organizational changes.** After the analysis of necessary changes in the organizations, it is necessary to define a plan of changes realization. The most important elements of the plan are:<sup>14</sup>

- Determining priorities (time chronology and inter-dependence, resource support, engagement and responsibility of management),

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<sup>13</sup> Kotler, D., P. (1998). *Change management*. Belgrade, Serbia: Zelnid, pp. 14-28.

<sup>14</sup> Jaško, O., Petrović, D. (1997). Managing organizational changes. *Proceedings: Management and strategies of enterprises transformation*, Belgrade, Serbia: Faculty of Economics, p.242

- Adjustment with current activities of the organization,
- Determining parameters of realization course control,
- Appointment of changes management (by directions and phases),
- Suppressing a resistance to changes (strategy and tactics, management style).

When all necessary preparations were come to an end, there realized an intervention which can last from several days to several months. In this phase of changes is necessary to do three tasks: <sup>15</sup>

1. *Tracking the intervention effects.* During the whole process of intervention conduction is necessary to track constantly its effects. Very often, an agent of changes has an obligation to inform the organization's management on the intervention realization and its effects. Regardless to it, the agent for changes has obligation to track the changes effects and to react if necessary.
2. *Overtaking corrective actions.* Often shows that, during the intervention, the changes cannot be realized in a way they were planned. In that case is necessary to make some additional collections and analysis of data, in order to make well thought-out the changes correction.
3. *Integration of made changes in the organizations.* If the changes were of such character to affect also other components of the organization, it is necessary to do integration of made changes with other components of the organization during their realization and after it.

After done intervention, i.e. the changes, it is inevitable to stabilize the done changes and make them an integral part of the organization's routine functioning. During the changes conduction appear limiting forces, regarding that employees mostly act by inertia. Consequentially, it is needed to defeat the resistance to the changes. Therefore is priceless that the organizational changes, in relatively short term, bring to a positive move (though mild) in business of the organization. Such improvement has a positive psychological effect on winning employees for further conduction of the changes.

## CONCLUSION

Besides a great potential in the sector of agricultural production, which has been a result of favourable climatic conditions, natural land characteristics and available water resources, it has not been optimally utilized. Just due to such potential, the agriculture in Serbia does not represent a common economic branch, regarding that in all municipal and regional strategies it has been defined as one of the strategic development directions. The most important economic actors in processing sector are enterprises. That is to say, agricultural enterprises had based their business in previous period on economy of scale, which had created conditions for applying the modern technique and technology and development of seed production. As such, they have been a stimulating factor for emergence and development of food industry in the same organizational frames of factory-farm type. Through the state, and later on also public property, was assigned a role of cheap products producer, which goal was to maintain a self-sufficiency of basic agricultural products, which actually provides a strategic stability of the country and social security of citizens. In accordance to such concept of agriculture development, which has implied a direct administrative control of courses in agriculture, the agricultural enterprises had a mediator role between agricultural husbandries and food industry inputs' producers. As distinguished from individual husbandries, a size of agricultural enterprises' property is not a limiting factor, so thanks to it, have high level of agro-technical measures application.

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<sup>15</sup> Janićijević, N. (2002). *Organizational changes and development*. Belgrade, Serbia: Faculty of Economics, p. 42

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# Adaptation of agricultural holdings to the economic environment and to its changes

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## Summary

Agriculture has interrelations with the environment, in sense that takes the necessary resources in order to obtain products. Situation is known, agriculture can contribute to climate protection, if rational practices are made without "pressure" caused by its intensity (excessive concentration of production factors per unit area and caution in their use). Also, through practicing production structures that include branches with adaptability to environmental conditions and respond to changes in the consumption pattern of the population, is also achieved high results in ecologically. Performance in production is a consequence of the fact that, through training, information and consulting, the farmer may have access general, technical, economic and managerial knowledge. Thus, efforts can be made in order to increase the level of perception of phenomena and instruments promoted by agricultural policies, and the "closed" economy can be replaced by elements of agricultural science knowledge. Therefore, the priorities for agriculture in the post-Lisbon agenda (smart, sustainable and socially inclusive) strengthen sustainability. For the purposes of the above, we resorted to setting a specific vegetable farms with plain area from south of Romania, with targeted support to social, environmental and climate change, and the market needs.

## Introduction

Agriculture, taking part in the sustainable management of natural resources, strengthen social cohesion and, also may contribute to the post-Lisbon priorities (smart, sustainable and inclusive)<sup>16</sup> and, accordingly, to meet the 2020 goals. Among other things, the Treaty of Lisbon (Fig. 1) is a step forward for the implementation of tools and procedures that would enable Europeans to be stronger role in global affairs<sup>17</sup>. Romania's economic interest is the development and welfare, depending on market integration of the 500 million inhabitants of the European community. The EU was a project of economic integration from the start. One closely related to a method of supranational integration, whose treatise is a book of rules and standards<sup>18</sup>.

The vision and the European Commission communication – "The CAP towards 2020: Meeting the challenges regarding food, natural resources and land use"– reform involves directing the objectives towards the diverse needs of farmers involved in agriculture that is friendly with environment and support focused on environmental issues and climate change. Romanian agriculture has different usage categories, mainly arable having an economic importance for plant products and suppliers. The territorial distribution of crops, achieved by zoning, providing favorable environmental conditions for the making of productions with some stability, is based on geomorphology, climate and biological formations in relation to plant. Beyond providing natural conditions, it takes a certain attitude with regard to the

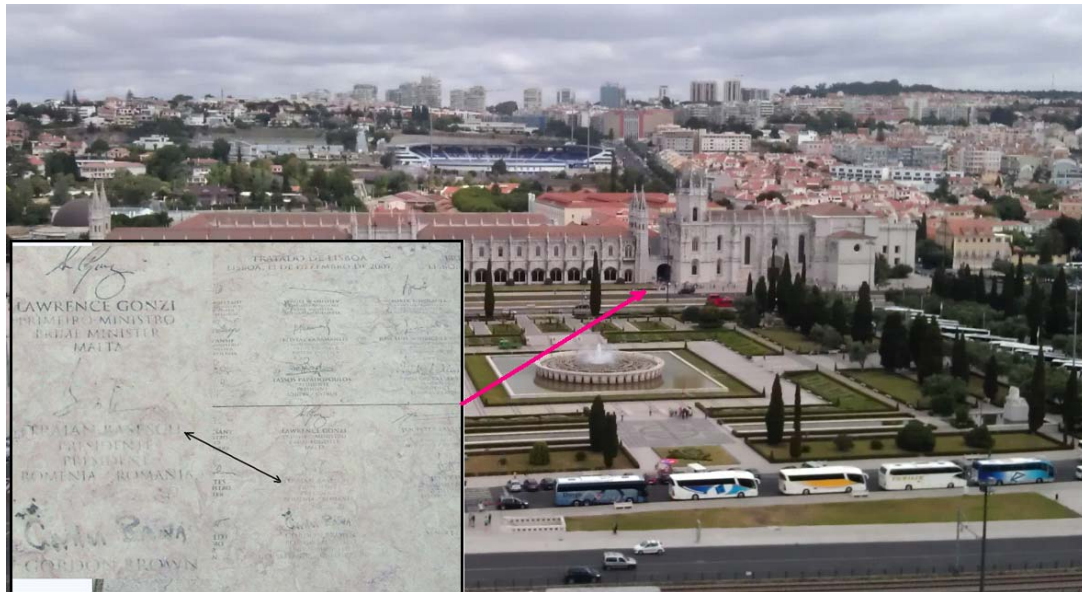
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<sup>16</sup> Smart growth based on knowledge and innovation, which involves research and technological development combined with efficient use of available resources leading to increased productivity, sustainable growth, the expression on promoting resource efficient economy can lead to delivery of goods to society , including market supply, growth promoting socially inclusive economy with high rate of employment, with repercussion on maintaining sustainable agriculture in Europe.

<sup>17</sup> Frunzulică, D., C., 2008

<sup>18</sup> Idem

application of technology to the climatic conditions and their changes. Differentiation of agricultural works, choosing vegetable production systems, types of agricultural machinery, choice of varieties and hybrids are additional requirements that lead to achieve the sustainability.



**Fig. 1 - The Treaty of Lisbon - December 13, 2007 - Burn street with the signature of President Traian Basescu (the Belem in Lisbon, Portugal), in the National Archaeological Museum and the Monastery "Dos Jerónimos" (personal archive)**

On medium and long term, farm productivity will increase through the access of EU funds for agriculture and technology. A viable solution to address the problems faced by Romanian agriculture, deepened further in the context of the current situation on the financial market can provide funds to finance agriculture and rural development<sup>19</sup>. Also, due to the disappearance of trade barriers and, more so, with planned organic products, it will be possible the access of Romanian producers on EU market.

### Materials and methods

"A sustainable society is a society that meets the needs of the present generation, not compromising the ability of future generations to meet their own needs, in which every person has the opportunity to develop freely in a balanced society and in harmony with the environment"<sup>20</sup>. Environment must be managed "coherent, flexible and capacitive"<sup>21</sup> with a variety of intervention tools, as well as ongoing communication with socioeconomic actors in the management of natural resources. In case of ecosystem management, economic value of crop biodiversity is accessible only in farms. They, in particular, decide on the structure of production, taking into account certain factors: environmental conditions of the area where the farm is placed, market demand, capitalization holdings, providing employment and classified, agricultural policy support branches production, removing the effects of risk and uncertainty. Reconstruction of private property led to fragmentation of land resources: exploitations prevail less than 5 hectares (89.6%), those over 100 ha representing 0.2% (*Statistical Yearbook of Romania 2008*). Therefore, using a land holding in 2007 return, on average, 3.57 acres (3.50 ha / family holding (*Romanian Statistical Yearbook 2008*). Depending on the legal status of

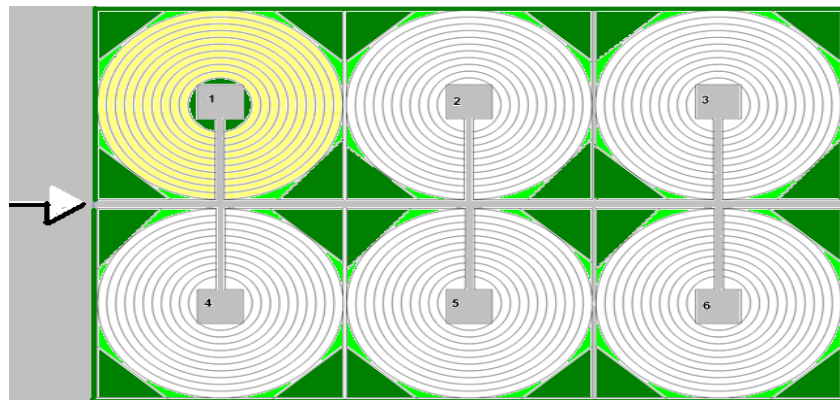
<sup>19</sup> Istudor N., Petrescu Irina, The role of consultancy in the process of applying for European funds for rural development, International Conference, Belgrade, Serbia, December 2009.

<sup>20</sup> Geurt Van de Kerk, G., Manuel, A.R., 2008

<sup>21</sup> Clinovschi F., Laura, Clinovschi, 1996, *Strategii forestiere europene*, „Bucovina forestieră” Publishing, nr. 1-2.



individual farms predominate (Law 18/1991), other categories (agricultural associations – Law 36/1991, agricultural commercial companies stock – Law 15/1990, agricultural commercial companies – Law 31/1990; groups producers, cooperatives) accounting for 0.5% of total units. Solution to exercise a competitive agriculture and based on the principles friendly practices for the environment are, for example, forms of association. In this context, it is proposed to establish a family association, which operates 240 ha in the lowlands of southern Romania, under irrigation. Figure 2 shows the schematic layout of the land, so as to meet the requirements of production, and the environment as sustainable option. Therefore, landscaped area is as follows: 77.10% field crops, afforestation 22.40% and 0.5% roads.



Legend	
<b>liziera</b>	edge
<b>laturi intretinute</b>	sides maintained
<b>cultura</b>	culture
<b>spatii acces</b>	space access
<b>1 - 6 sole</b>	1 to 6 parcels

**Fig. 2 - Spatial land farm field - Holding seed or green? (original)**

As technological structures we suggest:

Technology and conventional technique	Objective: ensure high production per unit area constant annual consumer with a given labor and financial resources. Applicability: most used. Result: ensuring food consumption of the population.
Ecological Technology	Objective: soil integrity and biodiversity protection, sustainable development precursor. Applicability: currently, the small. Result: The products clean, unpolluted.
Renewable energy	set of techniques that oppose the dominant technical model, suggesting less polluting and energy-intensive technologies

The choice may be based on comparative analysis of technological systems:

Technology / work / allocation of production factors		Technological system	
		conventional	ecological
Location of crop	Rotation / plant prior	Idem ecological	Idem conventional
Fertilization	Chemical fertilizer Natural/organic fertilizer	Yes Yes	No* Yes
Land works	Vertical mobilization Minimal works No tillage	Yes, depending on the case	Yes, depending on the case
Seed	Very good quality	Yes	Yes, but with the condition that they come from organic seed lots and not treated with pesticides

Technology / work / allocation of production factors		Technological system	
		conventional	ecological
Plantation	According to species and crop	Yes	Yes, but with the condition of hygiene
	Combat of weed	Herbicides and hoeing (if applicable)	Preventive, respecting the hygiene and hoeing and / or weeding
Crops maintenance works	Combat of diseases	Fungicide treatment	Preventive, not chemical treatments
	Combat of pests	Insecticide treatment	Preventive, not chemical treatments
Other works	Specific: supplementary pollination	Yes	Yes, with own apiary
	Irrigation	Yes	Yes (with bulletin for water analysis) Yes;
Other works	Evaluation of production	Yes	Controls for technology verification and certification of product
Harvest and storage	Specific optimal moment	Yes	Yes, by respecting specific norms

\*excepting less phosphor

It is found that the on both systems sequence of works are respected, the differences consisting in the use of chemical inputs or not. Of course, production costs are higher for organic farms (which obtained lower production) and higher prices. Isolation is not insignificant aspect of organic crop space, mandatory for compliance situation was created where crop rotation model. This consideration applies to any farm activity is the production of seed. Diversification as a form of production structure, practiced at different levels, may result in varying degrees of performance, creating significant boundaries between farms with similar activity. Reliance on manufacturing activities to meet market demands just in order to achieve a profit immediately, regardless of environmental conditions that support achieving agricultural production triggered at farm level and agriculture, consumption of factors, generate economically unjustified costs and the emergence of a series of risks with long-term effect. So it is necessary to find the degree of diversification of production to ensure optimum eco-economy<sup>22</sup>.

For carrying out the work has been used a complex and laborious methodology. In essence, for analyzing was used bibliographic study of natural factors operating in crop production, focusing on the scientific work of researchers from institutes and research stations. Browse documentary sources and use survey methods in collecting data from farmers, allowed to obtain information regarding the current level of technological development and innovation in crop production Romania. Changes in the economy and society caused by globalization and European integration bring in all segments of human activity, new information.

## Results and Discussion

In the proposed area, the most important problem is drought. Effects vary from year to year, so we prevent this risk by known means: agrotechnics (rotation / rotation<sup>23</sup>, tillage) tolerant or resistant species and varieties and irrigation<sup>24</sup>. According to crops zoning, southern plains of

<sup>22</sup> Dobre, Iuliana, 2011

<sup>23</sup> In crop rotations with rational rotations can be obtained yield increases of 15-25% and reduces the degree of weeding by 20-50% (Popescu V., 2009, *Cât de mare poate fi producția de porumb*, „Lumea Satului” Publishing, no. 9).

<sup>24</sup> 3-year average soil water participates with 22.21%, with 43.38% water from precipitation and irrigation water by 34.4% (Lupuț I., 2009, *Cercetări privind tehnologia și regimul de irigare la porumb*, PhD thesis, U.S.A.M.V. Cluj-Napoca).

Romania are very favorable for many species, but in order to properly exploit the proposed model were chosen weeding crops with market demand (i.e maize, sunflower, soybean, fig. 3) and alfalfa, the jumper field (soil supplies biologically fixed nitrogen in symbiosis with bacteria of the genus *Rhizobium melitoli*; over 200 kg / ha in a crop of alfalfa valued for 4 years<sup>25</sup>). It is important to introduce the rotating legumes to supply nitrogen and natural resources of soil structure. The production structures must follow good crop conditions in rotating sequence, so it is proposed to be held annually in March sole maize (monoculture tolerant, although this example is not the case), the other species being distributed on one field.



**Fig. 3 – Cultivated species**

Developing optimal tillage system, specific to a crop must take into account: age and depth of mobilization optimal soil plowing can replace the work surface, can sowing fallow field, alternating effect of tillage methods, the effect on characteristic biological activity of soil, hydrological regime, but also on soil nutrients, fertilizers applied in conjunction with effectiveness, contribution tillage methods to prevent and control weeds, pests and diseases. In terms of mechanization, 2 tractors are required at least 65 hp, 1-2 cultivators or harrows heavy aggregate of paved multi-fertilized-sowing, spraying machine for pesticides management in conventional crops, manure used car manure or wastewater to organic crops, harvesting, crop waste shredders, technology trailer to transport grain. In order to purchase these agricultural machinery, the manufacturer may receive a grant of part of their value by accessing European funds, Measure 121 "Modernization of agricultural holdings" of the National Rural Development Programme. Sole crop rotation includes 6 circular, which can be watered with a central pivot irrigation system (IAP). This allows the application at all stages of vegetation watering crops. Also, this type of investment is eligible to benefit from EU funding through Measure 121 "Modernization of agricultural holdings" and measure 125 "Improvement and development of agriculture and forestry".

Proposed watering system operation is fully automated and movement is monitored from a control panel that sets the speed of rotation and implicitly adjusts watering time. Operation of the electricity system is provided by various sources (generator or grid). Changing the position of watering is done by pulling a field installation to another<sup>26</sup>. The same reference work, the calculation example on irrigation norm specifies a wet surface rotation (11.08 hours) of 30.6 ha of crop rotation as is a field model, providing 250 m<sup>3</sup> of water/ha. For this specific cost are the oil, mining and security personnel and facility depreciation. The costs and inflation in 2010, when the calculations were made, arrived at the watering costs 964 lei / ha and year.

<sup>25</sup> <http://www.recolta.eu/tehnologia-de-cultivare-a-lucernei/>

<sup>26</sup> Biolan, I., Șerbu, I., Șovăială, Gh., Florica, Mardare, 2010

Providing natural protection. Because afforestation<sup>27</sup> (land edge) is equally a measure of protection against drought and curtain (seed and organic crops), almost a quarter of the holding area to be afforested. Preferably pseudacacia species Robinia (locust) is a species forestry value – exceptional protection. In dry regions are allowed only in culture seedlings of first quality (thickness 8 mm package) and II (package thickness 6 mm). Use 5000-10 000 seedlings per hectare, ensuring as far as possible, equal distances between seedlings (planting scheme 1.5 x 1 m or 2 x 1 m).

Acacia, worldwide, is considered an invasive species through reduced difficulty easy maintenance and multiplication, is the main species for planning forest belts as easily adapts to environmental conditions and the increasing speed (in 3-4 years after planting is forest, fig. 4), is used as an ornamental tree, wood has high calorific value, but it is good and construction, is the main forest species honey, flowers have therapeutic utility (eg making tea) etc.



**Fig. 4 - Stand acacia<sup>28</sup> age of 6 years after planting**

Costs per hectare of afforestation scheme by 1.5 x1 (6666 seedlings / ha) are: 0.25-0.50 lei / juvenile locust (at age 1), ie between 1666 and 3334 lei / ha seedlings , prepare the ground before planting (plowing, ... etc.) 600-800 lei / ha planting seedlings 200-300 lei / ha. Therefore, investment is up to 3500 euro / ha. However, we must not forget that plantations require maintenance expenses. Of many basic components of sustainable agriculture system, it emphasizes the following: the structure of diverse cultures with obligatory presence of annual and perennial legumes, mandatory use of crop rotations, tillage system rationalization, applying mainly organic fertilizer (manure, compost, chopped vegetable scraps, green manure, etc.) and the use of synthetic fertilizers in small quantities only as a supplement; integrated control of weeds, pests and diseases mainly using preventive methods (agro-technical, physical and biological) and reducing the intake of chemicals, use and conservation of natural resources and local economic program implementation, administrative, organizational and social sustainable development. The listed near term sustainable agriculture more friendly with environment alternative than conventional agriculture. Organic farming system in our country (the most restrictive in terms of environmental impact) can be extended by the application of national legislation governing the production, processing and use organic products, namely: Government Emergency Ordinance no. 34/2000, Law

<sup>27</sup> Articles underlying measure First afforestation of agricultural land: Article 36 b (i) in conjunction with Art. 43 of Council Regulation (EC) no. 1698/2005, Articles 30 and 31 and point 5.3.2.2.1 of Annex II of Council Regulation (EC) no. 1974/2006; measure code 221. Source: <http://www.fonduri-structurale-europene.ro/pndr/masura-impadurire-terenuri-agricole.html>

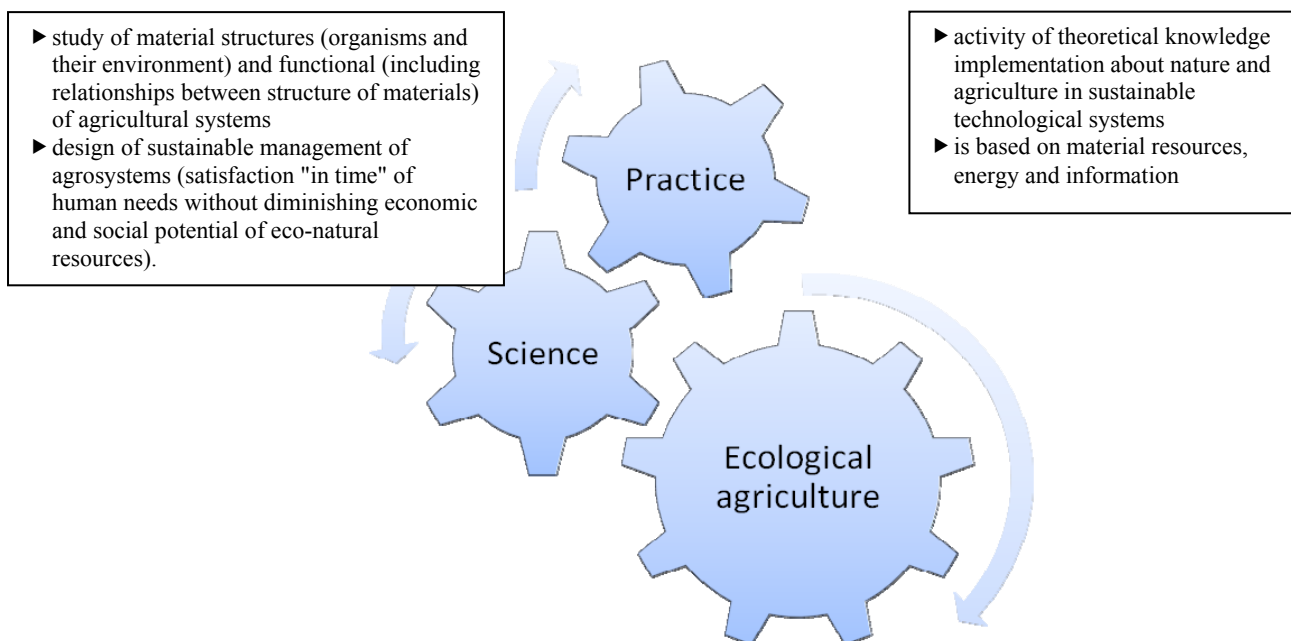
<sup>28</sup> <http://silvicultorul.wordpress.com/2011/08/09/padurea-de-salcam-robinia-pseudoacacia-la-varsta-de-6-ani-de-zile/>

no. 38/2001; H.G. no. 917/2001 approving the Methodological Norms for applying regulations etc. These provisions are implemented by the National Organic Products (ANPE), the Ministry of Agriculture, Food, Forestry and Environment, it ensures legal compliance and control on organic production methods.

Disadvantages of the system lies in the higher price of products (labeled with quality), strictly specialized retail market, lower productivity (higher volume of labor involved in getting production) and sometimes temporary air pollution during administration organic fertilizers.

Organic farming<sup>29</sup> does not fit, yet each farmer. Convert a conventional farm to organic holdings brings a degree of risk and uncertainty on financial viability<sup>30</sup>. Based on smart, this system involves an accumulation of knowledge production ("land"<sup>31</sup> creatures and economic and social factors), intuition and restraint in the choice and application of farming practices local perspective, but overall (Fig. 5). And, because it referred to the diversification and floristic composition permits, apiary, or bee, become Annex agricultural activity and beneficial effects on plant production. Appropriate natural resource harvesting – in chronological order of flowering – is acacia (about 54 ha and 1365 kg of honey can obtain / ha for forest and 643 kg honey / ha for young plantations), alfalfa (about 31 ha and can obtain a 25 Honey -200 kg / ha), sunflower (about 31 ha and the possibility of obtaining 35-100 kg of honey / ha) they are adding corn (about 92 ha), which is an herb polinifera and sometimes performs high production honey by hand. At this size, the main production hive that might get done modestly to 60 tons / year.

To grant of European funds, the beneficiary may apply for measure 112 "Setting up of young farmers", the main condition is to have up to 40 years.



**Fig. 5 - Organic farming at the interference with knowledge and friendly practices (multidisciplinary design)**

<sup>29</sup> Protected term and assigned by E.U. Romania to define this system of agriculture is similar to the term "organic farming" or "organic agriculture" used in other Member States. The role of organic agriculture is to produce food more "clean", more appropriate human metabolism, in full correlation with environmental conservation and development. One of the main goals of organic farming is the production of agricultural and food products fresh and genuine processes designed to respect nature and its systems.

<sup>30</sup> Ion, R., A., 2011

<sup>31</sup> It involves improving and preserving the structural condition of the soil.

## Conclusions

The study represents a complex analysis of the area capacity to produce value and protect environment geared to evaluating the diversification of production. Cultivated species diversification, aimed at inducing gradual eco-economic performance, taking into account the possibilities of putting them on the market.

Using technological variants for production structures become possible options for decision makers in agriculture. In terms of applying appropriate technologies chosen productive systems, harmonize agricultural activity with environmental protection. Related activities (beekeeping) is beneficial by increasing agricultural production and economic exploitation of honey.

Farmers can apply to access grant financial support from the European Agricultural Fund for Rural Development, by submitting projects for measures 112, 121, 125, 221 of the National Rural Development Programme, and subsidy plus the surface.

As was conceived agricultural activity, the requirements to enroll in post-Lisbon EU and recommendations for mitigating the effects of climate change in accordance with market requirements.

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# Livestock production capacity in CEFTA agreement countries<sup>32</sup>

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## **ABSTRACT**

The purpose of the research is focused on the creation of the CEFTA agreement and liberalization of markets that have signed the South East Europe (June 2001), the largest foreign trade partners of Serbia and other countries of the CEFTA market supply chain (except for Moldova, which is due to low relative share is excluded from the analysis), potential of livestock (cattle and pigs) and of beef and pork in all signatory countries liberalized market since 2008 to 2010. Special focus is the number of cattle and pigs and the production of beef and pork meat in Serbia in 2011 with predicted trends for 2012. Using mathematical and statistical methods of data processing were analyzed rates of change in production capacity by year, and then explained the results. The constant growth of the livestock achieved Bosnia and Herzegovina and Montenegro, and Serbia has consistently recorded a decrease. Montenegro is at the same time, realized an increase of produced beef and pork meat, while Serbia has produced reduction in beef and increase of production pork meat. Orientational balance of livestock Serbia in 2012 indicate a further depletion of livestock with a linear decrease in production and consumption of meat. The significance of the results indicates a reduction in livestock, which entails a reduction in livestock production and the decrease meat consumption.

**Keywords:** *CEFTA agreement, liberalization within CEFTA, livestock, trends in meat industry, meat production.*

## **INTRODUCTION**

Cattle breeding represents the most intensive agricultural production. Breeding cattle and pigs and their consumption is widespread in all countries members of the CEFTA agreement inspite the large regional differences. But, regarding to the percentage of total production, trade represnts generally low factor, because the production in many countries is based on self-sustainability of a farm (production for own needs). Serbia is very much competitive in the production of grains and oilseeds which are the basis for livestock, and also has high quality of natural pastures. However, Serbia fails to achieve international competitiveness in this sector, mainly due to inefficient domestic market of live animals and meat. Bosnia and Herzegovina and Montenegro are the only states which recorded an increase of cattle and pigs breeding in 2010 compared to 2008, and Serbia is the only country which has recorded in the same period the decline of cattle (6,39%) and pigs (3,91%) breeding. It is emphasized that Montenegro is the only country that has achieved growth of beef (14%) and pork (13,33%) in 2010 compared to 2008, while Serbia has a reduction of produced beef meet for 3,03% amd increase of 1,13% for pork.

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<sup>32</sup> Paper work is part of the project research III 46006 “Sustainable agriculture and rural development in function of Republic of Serbia strategic goals achievement within the Danube region” financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia.

## MATERIAL AND METHOD

Authors has collected used material by searching the literature available in electronic form (on - line publication), downloading data from the Statistical Yearbook of the Statistical Office of Serbia and Macedonia, and by acquisition of relevant data from the website FAOSTAT (*Food and Agricultural Organization of the United Nations*). Data are presented with absolute values, analyzed by using mathematical and statistical methods (rate changes), tables and graphs to interpret the movement of individual indicators, expressed in relative values. It is emphasized that Montenegro is the only country that has achieved growth of beef (14%) and pork (13,33%) in 2010 compared to 2008, while Serbia has a reduction of beef produced for 3,03% and increase of 1,13% for pork.

## RESULTS AND DISCUSSIONS

**Trends in meat industry** - According to FAO data, meat consumption in the world has larger growth rate than growth rate of human population, and that growth is especially expressed in developing countries, with the predictions that it is going to be even faster in the future. According to some researches and prognosis, in year 2050 human population in Earth will reach 9,2 billion people. Their need for food, mainly meat and meat products, due to growing trend, will be significantly greater than today when number of people is about 6 billion. Considering the previous, as main worldwide problem in near future will be production of enough quantities of nutritionally valuable and safe food. Also, the problem will be providing of solid and functional connections between production and processing of meat, from the aspect of interest and quality. Solutions for overcoming of these problems are restructuring of food production, creation of functional connections between certain production segments and connection of meat production and processing in unique agroindustrial complex that is based on strategically sustainable solutions. Meat industry has major role in all that, considering that it is an important factor of agricultural development and development of agro food industry, namely agro-industry, and thus domestic and world economy (Sarić *et al.*, 2010).

**Liberalization within CEFTA** - The first agreement on the liberalization of trade in Southeast Europe was signed in June 2001 counting eight member countries: Albania, Bosnia and Herzegovina, Bulgaria, Macedonia, Croatia, Romania, Yugoslavia and Moldova. The agreement on trade liberalization of these countries is named the CEFTA<sup>33</sup>. The first changes within the member states took place in December 2006 when members of the Agreement became Albania, Bosnia and Herzegovina, Montenegro, Macedonia, Croatia, Serbia, Moldova and UNMIK on behalf of Kosovo, while the remaining countries (Bulgaria and Romania) joined the European Union and thus withdrew from the CEFTA Agreement. CEFTA countries constitute a market of 27 million consumers. Accordingly, the aim of forming CEFTA Agreement was to encourage economic development, the stabilization and association process and to accelerate the process of accession to the WTO (Zivkov *et al.*, 2010). The advantage of CEFTA, as the market is not such a small scale within the European framework, is that each of the countries in the region seem more attractive place for foreign capital, which raises any significant interest in investing (Nikolić *et al.*, 2011). Economic leader of the CEFTA agreement is, of course, Croatia. However, Croatia would join the EU (probably 2013), so that Serbia, as a central country CEFTA region (though geographically BiH) become the new leader. In fact, Croatia has the most competitive manufacturing industry, but Serbia is lagging slightly lower, reflecting the fall in the trade deficit between Serbia and Croatia. Therefore, when Croatia enters the EU's trade with Croatia should exceed the surplus. Overall, Serbia and Croatia are the countries with the greatest economic potential and political importance (Nikolic *et al.*, 2011).

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<sup>33</sup> CEFTA - Central European Free Trade Agreement.

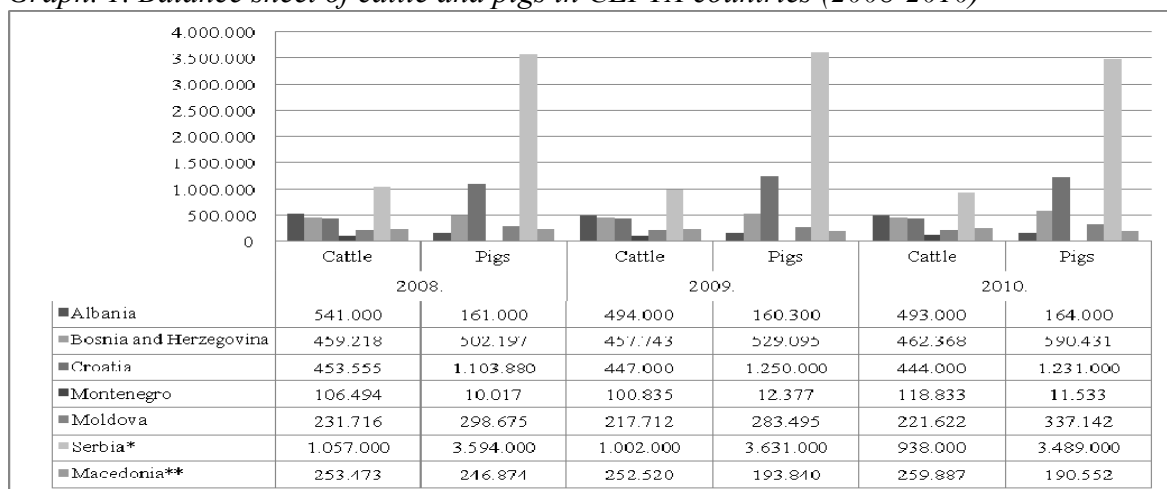


**The political aspect of CEFTA and importance for the positioning of Serbia in Europe -** CEFTA agreement provides to prepare for accession to the EU. Otherwise, the EU since 2007 to the end of 2010 invested more than a billion euros in improving regional cooperation in the Balkans. Cooperation among the countries of the region has made significant progress, but the region still has not reached the growth rate provided. Certainly, the EU will continue to politically and financially support the CEFTA agreement, and important reforms for accession to the EU member states. Economic cooperation between countries of CEFTA is, of course, the strategic interest of Serbia. Economic cooperation follows and renewal of cultural relations, primarily thanks to a common language and similar cultural model. Thus, the function of national policy is important to implement economic cooperation CEFTA countries. Therefore, we should not be surprised by a significant presence of Serbian products in Montenegro and Bosnia and Herzegovina, primarily in Republic of Srpska, as well as prominent trade surplus with these countries. Serbia in Bosnia and Herzegovina and Republic of Srpska, achieved a significant presence when it comes from foreign direct investment (Nikolic *et al.*, 2011).

**Livestock of cattle and pigs and meat production in the CEFTA countries -** Breeding cattle and pigs and their consumption is widespread in all countries of the CEFTA agreement with the large regional differences. However in the percentage of total production, trade is generally low, because the production in many countries is based on self-sustainability of a farm (production for own needs). Bosnia and Herzegovina and Montenegro have recorded an increase of cattle and pigs breeding in 2010 compared to 2008, and Serbia is the only country in the same period who recorded decline of cattle (6,39%) and pigs (3,91%) breeding. It is emphasized that Montenegro is the only country that has achieved growth of beef (14%) and pork (13,33%) in 2010 compared to 2008, while Serbia has a reduction of produced beef for the 3,03% and increase of 1,13% for pork. Within CEFTA environment (free trade within the countries and high protection to the EU), Serbia is the most competitive country in the category of raw and the processed products. However, the absence of substantial reforms in the Serbian cattle induced reduction of the presence of Serbian products on the market that is slowly taking producers from EU countries, not only due to the liberalization of the CEFTA countries to the EU, but also due to a reduction in price and quality competitiveness of Serbia. Cattle production in Serbia has enormous significance. The share volume of production of beef in total meat production was 57,3%. Even 4/5 cattle are located in rural areas of central Serbia. Also, liberalization within CEFTA in the pork producing sector is not complete, but it is limited by quotas and customs. It is estimated that approximately 1/4 produced pork is consumed in the household, because the sector is dominated by small producers with extensive production for its own purposes (Zivkov *et al.*, 2010.). The scenic view of the livestock variation in countries CEFTA is shown on *Graph 1* which suggests that only Bosnia and Herzegovina and Montenegro has achieved a constant increase in the number of cattle and pigs in 2010 compared to 2008. In Bosnia and Herzegovina number of cattle increased by 0,69% and 17,57% for pigs. Montenegro recorded increase of cattle for 11,59% and 15,13% for pigs. Percentage increase of number of pigs was recorded in Albania (1,86%), Croatia (11,52%) and Moldova (12,88%), while the numbers of cattle in these countries is expressed in percentage reduction. In contrast to these countries, Macedonia recorded increase in the number of cattle to 2,53%, and a reduction in pigs heads for 22,81%. Among the countries signatories of CEFTA, Serbia is the only country which in the balance sheet of cattle and pigs shows constant decrease in the observed three-year period. Accordingly, during 2009. compared to 2008. number of cattle decreased by 5,20% and in 2010 compared to 2009 for further 6,39%, indicating an average annual reduction of approximately 40.000 head of cattle. Number of pig heads in 2009 compared to 2008 increased by 1,03%, to be in 2010 compared to 2009, decreased by 3,91%. The mentioned performance indicators in analyzed countries

show depletion of livestock, except for Bosnia and Herzegovina and Montenegro, which increased in these types of livestock.

Graph. 1. Balance sheet of cattle and pigs in CEFTA countries (2008-2010)



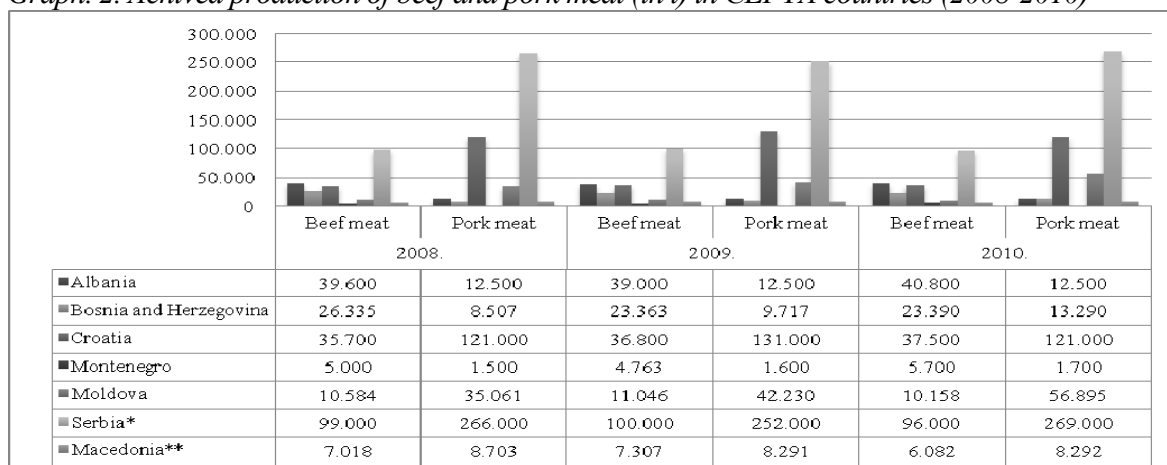
Source: FAOSTAT <http://faostat.fao.org/site/573/DesktopDefault.aspx?PageID=573#ancor>

\*Source: Statistical Office of the Republic of Serbia (2011): Statistical Yearbook, Belgrade, Serbia

\*\*Source: State Statistical Office of the Republic of Macedonia (2012): Livestock 2009-2010, Skopje, Macedonia

Graph. 2 shows the quantities of beef and pork (in t) in the countries of CEFTA during the period 2008-2010.

Graph. 2. Achieved production of beef and pork meat (in t) in CEFTA countries (2008-2010)



Source: <http://faostat.fao.org/site/569/default.aspx#ancor>

\*Source: Statistical Office of the Republic of Serbia (2011): Statistical Yearbook, Belgrade, Serbia

\*\*Source: State Statistical Office of the Republic of Macedonia (2012): Livestock 2009-2010., Skopje, Macedonia

Based on Graph. 2 one can notice that Montenegro is the only country that has achieved growth of beef (14%) and pork (13,33%) in 2010 compared to 2008. In the same period, the increase of produced beef has been made in Albania (3,03%) and Croatia (5,04%), while the volumes of meat were on the level of 2008, respectively Albania has produced 12.500 t of beef, and Croatia 121.000 t of pork. Since the interpretation of Graph 1 indicated that Bosnia and Herzegovina recorded an increase of cattle, beef produced statistics indicate a decline in 2010 compared to 2008 for 11,18%. This fact may indicate a possible way of exploiting animals - reduced percentage of slaughtered animals, and higher percentage of dead ones, or in terms of increased imports of animals that are fattened to the prescribed weight for fattening cattle, causing a smaller percentage of exports. However, the most realistic

interpretation is that the highest percentage of animals are used for breeding, which contributes to increase the herd. Contrary to indicator of beef production, Bosnia and Herzegovina in the production of pork has achieved a growth of 56,22%. Reduction of beef produced in 2010 compared to 2008 was recorded in Moldova (4,02%) and Serbia (3,03%), while the increase of produced pork is noticed in Moldova for 62,27% and 1,13% for Serbia. Macedonia is the only country in this period with recorded percentage declined in the quantities of 13,34% for beef and 4,72% for pork. Previously presented positions indicate that the CEFTA countries are exposed to large fluctuations and market risk, to competition coming from developed countries in the region (formerly part of the CEFTA agreement, later joined the EU), to insufficiently developed market cooperation among CEFTA member countries and lack of support for small producers by Ministry in charge.

### **Balances of livestock and production of beef and pork in Serbia with the plan for 2012 -**

Balances of cattle and pigs breeding in Serbia, as well as achieved production of beef and pork (which will be analyzed in this paper later) are taken from the official website of the Ministry of Agriculture of the Republic of Serbia, which differ from the data of the Statistical Office, Belgrade, used in the preceding section.<sup>34</sup> *Table 1 and 2* indicate the approximate balance of cattle and beef produced in 2011 with the anticipated trends for 2012 or approximate balance of swine and pork produced in 2011 with the anticipated trends for 2012. The predicted trends of supply and consumption in 2012 indicate a further depletion of livestock within the analyzed species (cattle and pigs) and their categories. Accordingly, it is expected to decrease linearly produced and consumed quantities of beef and pork. The number of cattle and beef production in Serbia in 2011 with the plan for 2012 are shown in *Table 1*.

According to *table 1* the balance of cattle planned for 2012 indicates a reduction in the number of animals at the beginning of the year (compared to 2011) by 0,08%, the initial number of cows and calf heifers to 3,40%, breeding cattle for 4,35%, the imported animals for 11,16%. These trends in total available number of cattle has decreased by 1,50% and the number of animals at the end of the year decreased by 0,07%. Orientation balance of beef predicts reduction of domestic production by 0,8%, an increase in imported beef for a 87,97%, a decrease in exports of 8,03% and the decline in total domestic consumption by 0,5%. In accordance with prescribed movements, at the end of 2012 the expected percentage reduction in total available amount and the total consumption of beef will be by 0,67%. According to estimates, Serbia remains a larger exporter than an importer of beef.

*Table 1. – Orientation balance of cattle and beef meat in Serbia in 2011 with estimate in 2012*

<b>ORIENTATION BALANCE OF CATTLE</b>			
<b>SUPPLY</b>			
<b>Category</b>	<b>Units</b>	<b>2011.</b>	<b>Estimate 2012.</b>
Head at beginning of year	Head	939.077	938.345
Cows and heifers in calf, beginning of year	Head	560.831	541.789
Number of livestock born	Head	458.792	438.849
Imports	Head	2.814	2.500
<b>Total supply</b>	Head	1.400.683	1.379.694

<sup>34</sup> According to the Republic Statistical Office, Belgrade, at the end of 2010 it was recorded 938.000 head of cattle and 3.489.000 head of pigs, and a Ministry of Agriculture of the Republic of Serbia, at the end of 2010 recorded 939.077 head of cattle and 3.488.738 head of pigs. The number of animals in early 2011 (according to the Ministry) does not coincide with the report of Statistical Office of the Republic of Serbia from 2010 (which should represent the number of animals at the end of the year.) Disparity of information is expressed and realized in the production of beef and pork, as can be seen by comparing *Graph. 2* data with data from *Tables 1 and 2*.

<b>ORIENTATION BALANCE OF CATTLE</b>			
<b>UTILIZATION</b>			
Exports	Head	80.584	72.000
Slaughter	Head	368.266	360.000
Losses	Head	13.488	10.000
<b>Head at the end of year</b>	Head	938.345	937.694
<b>ORIENTATION BALANCE OF BEEF MEAT</b>			
<b>SUPPLY</b>			
Domestic production	t	80.645	80.000
Imports	t	133	250
<b>Total supply</b>	t	80.788	80.250
<b>UTILIZATION</b>			
Exports	t	1.631	1.500
Total domestic utilization	t	79.147	78.750
<b>Total utilization</b>	t	80.788	80.250

Source: <http://www.mpt.gov.rs/postavljen/137/govedarstvo%20april%202012.pdf>

The number of swine heads and pork production in Serbia in 2011 with the plan for 2012, are shown in *Table 2*.

According *table 2* balance of pigs planned for 2012 indicates a reduction in the number of animals at the beginning of the year (compared to 2011) to 5,78%, the initial number of sows to 6,52%, livestock born of 3,92%, imported animals to 9,43%. These trends in total available number of pigs has decreased by 4,20% and the number of animals at the end of the year was reduced by 8,11%. Orientation balance of pork predict the reduction of domestic production for 0,92%, an increase in imported pork for 1,64%, a reduction of 14,59% in exports and decline in total domestic consumption of 0,81%. In accordance with prescribed movements, by the end of 2012 the percentage reduction in total available amount and the total consumption of pork by 0,88% is expected. On the basis of the planning balance sheet and projected production of pork, Serbia remains more exporter than an importer.

*Table 2. Orientation balance of pigs and pork meat in Serbia in 2011 with estimate in 2012*

<b>ORIENTATION BALANCE OF PIGS</b>			
<b>SUPPLY</b>			
<b>Category</b>	<b>Units</b>	<b>2011.</b>	<b>Estimate 2012.</b>
Head at beginning of year	Head	3.488.738	3.286.900
Sows at beginning of year	Head	519.119	485.271
Number of livestock born	Head	6.161.916	5.920.306
Imports	Head	22.846	25.000
<b>Total supply</b>	Head	9.637.500	9.232.206
<b>UTILIZATION</b>			
Exports	Head	35.650	12.000
Slaughter	Head	5.795.122	5.700.000
Losses	Head	555.828	500.000
<b>Head at the end of year</b>	Head	3.286.900	3.020.206
<b>ORIENTATION BALANCE OF PORK MEAT</b>			
<b>SUPPLY</b>			
Domestic production	t	271.000	268.500
Imports	t	4.575	4.650
<b>Total supply</b>	t	275.575	273.150
<b>UTILIZATION</b>			
Exports	t	1.405	1.200
Total domestic utilization	t	274.170	271.950
<b>Total utilization</b>	t	275.575	273.150

Source: <http://www.mpt.gov.rs/postavljen/138/svinjarstvo%20april%202012.pdf>

According to the showed data the decline in production of beef and pork appears as consequence of the number of heads decrease. In this and subsequent years it is necessary to increase the number of piglets per sow, as the numbers of livestock and the production can reach results that are achieved in countries with highly developed swine breeding. Ministry of Agriculture has passed a decree on the payment of premiums for milk, genetic improvement of livestock with emphasis on the purchase of heifers and fattening cattle. In the field of swine breeding Ministry has passed regulations on the use of incentives for the purchase of foundation stock and fattening pigs. Individuals, legal individuals and entrepreneurs who earn the right to implement these regulations can improve their production results in both the number of livestock, and in the achieved volume production quantities of beef and pork.

## CONCLUSION

The survival of agriculture and animal husbandry is explained as a result of the causal relationship of the economy and society. The position of the livestock in the CEFTA signatory countries determine: lack of financial capital, obsolete equipment, ruined capacity, exhaustion of land, livestock crisis and social problems of the population. Currently lagging in animal shape are: extremely unstable and unfavorable conditions for cattle breeding, biological characteristics of livestock production, population migration from rural to urban (abandonment of farms), the reduction of livestock, changes in racial structures. One of the factors affecting the decrease in livestock production is the decline in meat consumption, which entails the movement of volatile production and processing of meat and meat products. In this context it is considered that there was no lasting and comprehensive system of measures that would guarantee the economic security of the manufacturers. There was no adequate credit policy that takes into account the specifics of this production (long production cycles), often dysfunctional and guaranteed price protection, disparities in prices of inputs and outputs and a like. As a consequence a disincentives of global manufacturers, resulting in decline in livestock production and the decrease in production and meat supply, has appeared. In Serbia, late payments forced the producers to sell cattle to the craft slaughterhouses, paying immediately, which significantly decreased utilization of manpower and facilities for meat processing in industrial abattoirs. An additional problem for producers in Serbia represents the fact that export to CEFTA countries will decline due to the liberalization of tariffs in Bosnia and Herzegovina, Montenegro and Macedonia, and the fact that Croatia will probably soon become part of EU. This will totally disabled Serbian export, a small processing facilities will start to extinguish.

Failure to resolve these (and many others) factors limiting the development of agriculture and livestock and without modyfing the existing agricultural policy will bring the inevitable further decline and stagnation of agriculture, rural, livestock and living standards of farmers, thus slowing down access to the EU and the WTO.

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# **Impact of the Common Agricultural Policy on the competitiveness of the Polish agri-food sector**

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## **ABSTRACT**

Polish accession to the European Union significantly changed the economic conditions of agriculture, food industry and the broader market environment of Polish food economy. These changes resulted, primarily, from the elimination of customs borders between Poland and other EU Member States and the placing of Polish agri-food sector under the common agricultural and trade policy. The most important reason for these changes, i.e. the inclusion of Polish territory to the Single European Market and, consequently, entering of the Polish economy to a free trade zone, was tantamount to the abolition of customs duties and other trade restrictions in trade with other Member States, covering our country by the EU customs tariff and trade agreements concluded by the European Union prior to enlargement, and cancelling all the trade agreements concluded by Poland.

Improvement of the Polish food producers position would not have been possible if they had not achieved competitive advantages over producers from other EU countries, i.e. if they had not offered to the EU consumers the products corresponding to their expectations, but at the same time better and cheaper than the offer of their competitors. So far, the main source of competitive advantage on the EU and global markets were, above all, short-term cost and price advantages. However, in the context of European integration and economic globalisation, the long-term determinants of competitiveness, such as food safety, innovation and level of intellectual capital are gaining in importance.

### ***Key words:***

*Common Agricultural Policy (CAP), agri-food sector, competitiveness, export, import*

## **Impact of the state aid following from the Common Agricultural Policy on the development of the Polish food industry**

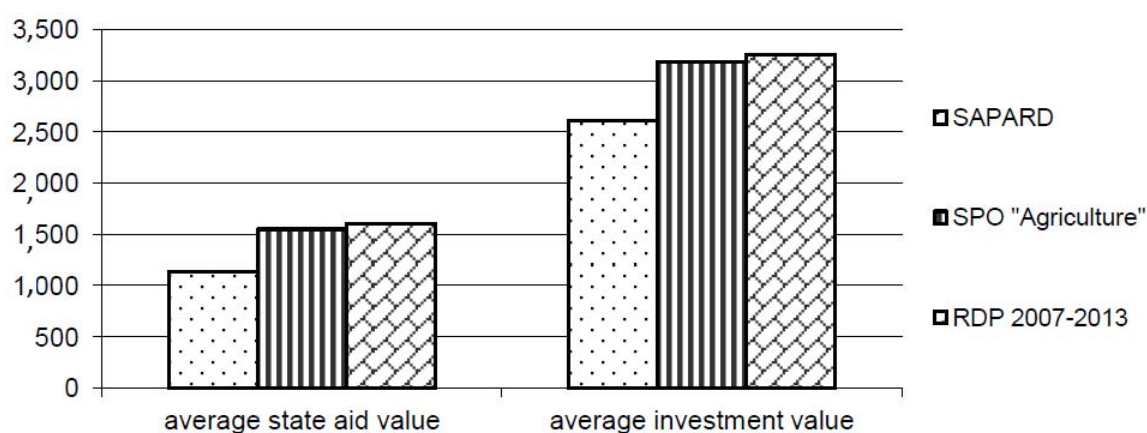
Poland's accession to the EU constituted a strong stimuli for many positive changes. Firstly, membership in the EU significantly changed the operating conditions for the Polish food producers. Because of the need to adjust the Polish enterprises to the EU requirements the majority of them underwent an accelerated adjustment process resulting in dynamic development of the entire food industry, including very rapid production growth. Changes in the food industry were smooth and Poland built a relevant institutional system and proper tools to implement the Common Agricultural Policy (CAP) mechanisms. The CAP

instruments having the strongest impact on the food industry include aid schemes launched in Poland both in the preaccession period (SAPARD), as well as in the period of Poland's membership in the EU (SOP "Agriculture", RDP 2007-2013).

The success of the Polish food producers on the domestic and European market was possible, primarily, due to privatisation of the processing sector, structural transformations and the implemented investments. The total value of investments in 2000-2011 amounted to almost PLN 75.7 billion. However, the share of the EU aid funds (co-financed from SAPARD, SOP "Agriculture", RDP 2007-2013) in this amount was slight and totalled only PLN 4.1 billion<sup>35</sup> (i.e. ca. 5.4% of the total value of investments implemented in the food sector in this period). By the end of 2013 the value of these payments will reach almost PLN 7 billion. In order to obtain co-financing an entrepreneur has to launch his own resources which, consequently, increases the final value of the investment by three-four times. The programmes delivered helped to modernise processing plants, improve safety and quality of the produced food and increase in the value added in the basic price.

The producers from almost all food industry branches used the EU funds after the accession. The major aid beneficiaries were the following industries: meat, dairy and fruit and vegetables (for which aid has been launched first, i.e. together with SAPARD). However, the value of co-financing in the entire 2002-2011 period was relatively low and it ranged on average from PLN 1 million to PLN 1.5 million per one investment project (Fig. 1). Along with the start of other aid schemes a systematic growth in the value of investments was noted. An average value of grants was, however, by several times lower than the limit indicated in the documents of the operational programmes. As for SAPARD, only 4.2% of companies received a grant amounting to more than PLN 5 million, and as much as 62.6% of projects concerned aid, whose value ranged from PLN 125 thousand to PLN 1 million. Similarly, under SOP "Agriculture" the majority of projects (63.7%) received co-financing up to PLN 1 million and only 7% of projects received state aid exceeding PLN 5 million. Also for RDP 2007-2013 the value of major projects, i.e. above PLN 5 million, failed to exceed 10%, others are rather small projects [Wigier 2011].

Figure 1. Average value of state aid and investments co-financed from the EU resources, per one project implemented in food industry (PLN thousand)



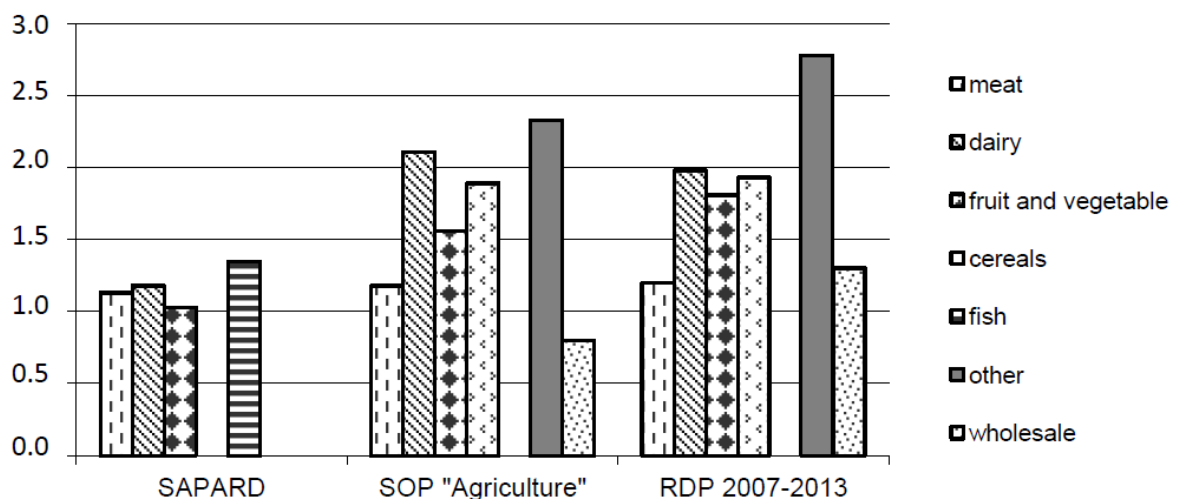
Source: M. Wigier's own calculations based on the data of the Agency for Restructuring and Modernisation of Agriculture (ARMA).

<sup>35</sup> By October 2011.



According to the ARMA data from SAPARD, almost 3.5 thousand investment projects were implemented in over 2.1 thousand processing plants. At the beginning, the value of state aid from SAPARD was similar in all of the four supported branches, but already in the subsequent editions of the aid schemes, increasing diversity in the aid amount is visible (Fig. 2). However, the value of investment in meat industry plants (where the sanitary and veterinary provisions are the most strict) remain almost the same. The aid effects as measured with the indicator of company's survival on the market are more than satisfactory. The majority of entities that benefited from the EU resources even under the SAPARD, still conducts production activity in 2010.

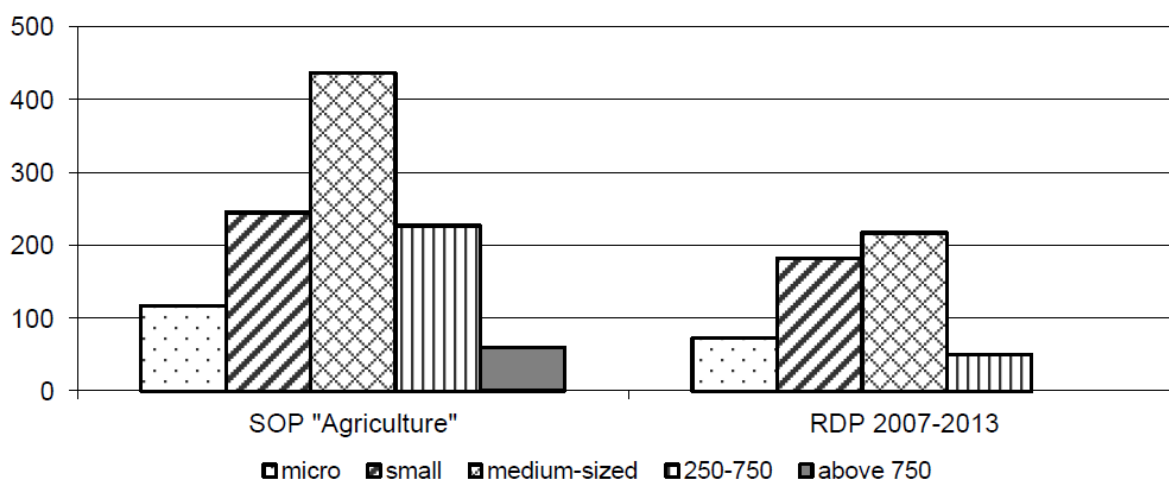
Figure 2. Average value of state aid under the implemented investment projects according to food industry branches (PLN million)



Source: M. Wigier's own calculations based on the data from the ARMA.

The structure of enterprises benefiting from investment aid is different from the structure of food industry in Poland. More than 40% of companies benefiting from the investment aid are medium-sized companies employing from 50 to 249 workers, whereas according to the Central Statistical Office (CSO) data the percentage of such companies in the Polish food sector amounts to 7.5%. These results are not, however, surprising because it is much easier to benefit from state aid to larger companies since they have greater economic potential, creditworthiness and greater human capital resources. But it should be emphasised that also small companies actively participated in the implementation of programmes co-financed from the EU resources (Fig. 3). However, the investment implemented by such companies most commonly concerned purchase of means of transport and small production equipment.

Figure 3. Number of food industry companies benefiting from state aid according to the size of employment

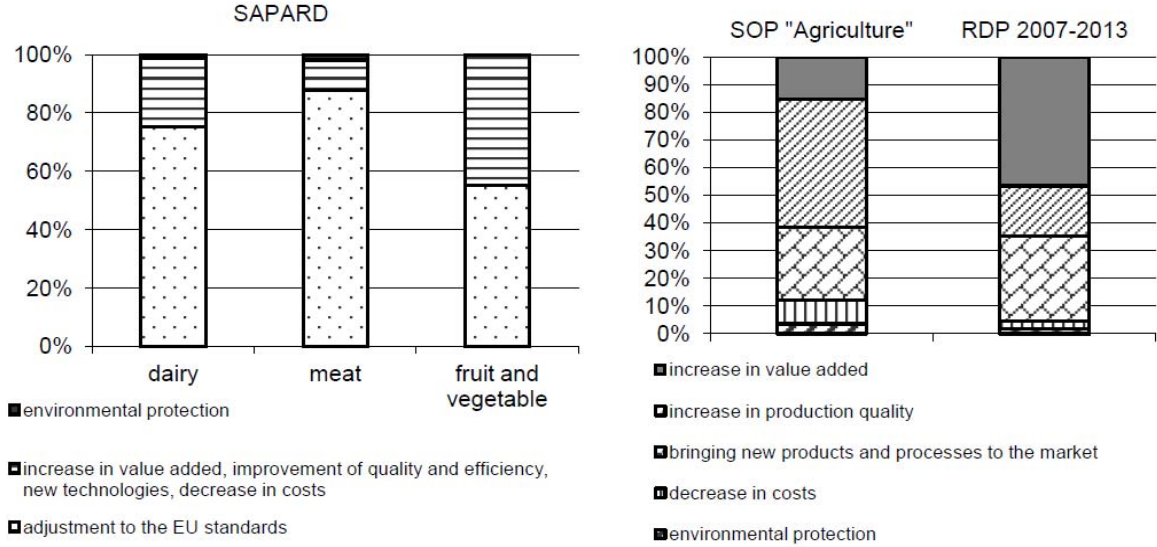


Source: M. Wigier's own calculations based on the data from the ARMA.

In 2002-2006 investments in food industry focused mainly on adjustments to the EU sanitary and veterinary requirements. In order to export to the EU markets processing plant had to meet these requirements in advance. The adaptation period for plants producing for the domestic market expired at the end of 2006. The requirements caused that ca. 80% of the value of investments implemented in this period in the meat and dairy industries referred to such activities. In the next period (SOP "Agriculture") the majority of investments (45% of their value) concerned improvement of the production quality and bringing new products to the market, and the resources available under the RDP 2007-2013 enabled to implement investments resulting, mainly, in increasing the value added (45% of the value) and bringing new products to the market. Such a change in the nature of investments is an evidence of a preference given by the enterprises to measures increasing their competitiveness. Environmental investments still have marginal character [Wigier 2011].

Analysis of all projects shows that the conducted investments aimed primarily at: improvement of the sanitary and hygienic as well as veterinary conditions of production (23% of the total value), improvement of production quality (25%) and introduction of new or modernised technologies (20%). Almost 2/3 of all projects delivered at least one of the objectives. The share of investment pertaining to the improvement of animal welfare (1%), creation of new and rationalisation of the existing marketing outlets (2%) and reducing the negative impact on the environment (4%).

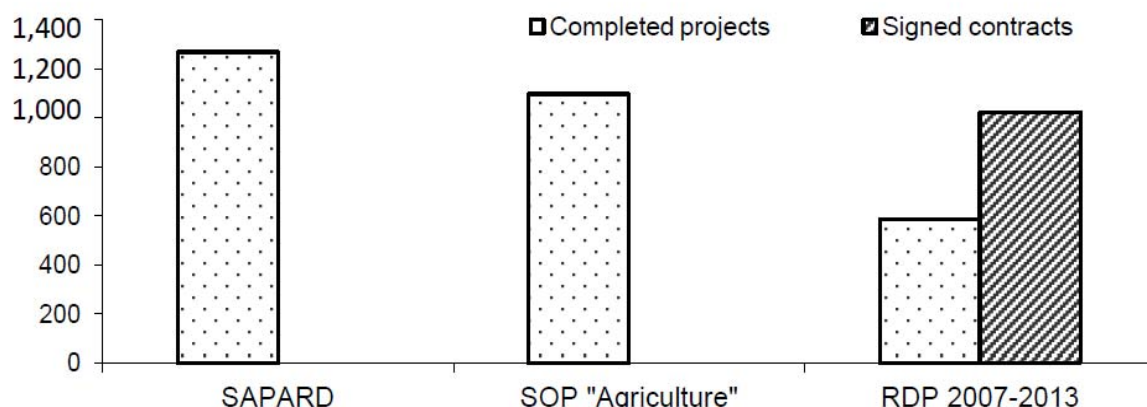
Figure 4. State aid structure for food industry according to programmes and investment objectives (%)



Source: M. Wigier’s own calculations based on the data from the ARMA.

The SAPARD was implemented in 791 food industry enterprises, i.e. in ca. 4% of food companies existing in Poland at the moment of its accession to the EU. Owing to the programme resources the HACCP system was implemented in 581 companies, including: 300 meat, 127 dairy, 102 fruit and vegetables and 52 fish. The programmes of adjustments to the EU norms and standards was implemented in total in 747 companies, including: 412 meat, 154 dairy, 130 fruit and vegetables and 51 fish. 320 raw milk transport trucks were purchased. One enterprise implemented on average 1.5 project, but there were also some rare examples of companies implementing more than three projects. 727 entities benefited from the next SOP “Agriculture”; they conducted 1,097 investment projects (Fig. 5). Despite the fact that financial resources available under this programme were slightly higher, it was used by a smaller number of beneficiaries. This provides for a higher value of investment outlays co-financed from the SOP “Agriculture” resources than from the SAPARD resources. As for RDP 2007-2013, at the end of the first half of 2011, the number of accepted applications was higher than the limit of available resources (122% of the limit). At that time, 1,065 contracts were signed with 877 entities, which concerned investments for the total value of more than PLN 4.5 billion and engaged ca. PLN 1.3 billion of grants for public resources (44% of the resources limit). Aid was paid to 522 entities, which implemented 586 investment projects of the total value of PLN 1.9 billion, which required payment of PLN 0.6 billion from the public resources.

Figure 5. Number of investment projects in the food industry according to programmes (units)



Source: M. Wigier's own calculations based on the data from the ARMA.

State aid played a significant, but less and less prominent role in the shaping of the investment pace and trends in the food industry. Most definitively, it helped to develop investment activity, increase export and strengthen the competitive position of the Polish food industry, mainly on the EU market. Already in the first years of our membership in the EU structures, the Single European Market (SEM) became the main outlet and supply market for the Polish agri-food sector. In the subsequent years the growing trend both for export and import continued with different intensity in individual years and on individual markets. Development of export of agri-food products and high positive trade turnover balance for these products confirm high competitiveness of the Polish food producers on the foreign markets. Thus mutual full opening of the EU markets became a strong impulse for the growth of the Polish agri-food sector.

#### **Assessment of changes in competitiveness of the polish agri-food sector**

Due to international dimension of the Polish food producers competitiveness, performance in foreign trade in agri-food products became one of the most significant manifestations of shaping the competitive position of the Polish food producers. Despite different conditions, they confirm good preparation of this sector to pursue activity on the Community market and on the majority of other markets.

Revival in the Polish foreign trade of agri-food products was observed already after the Poland's accession to the EU (Table 1). In 2004 the value of agri-food products export grew by ca. 31% as compared to the preceding year. The growth of import was slower and amounted to almost 24% at that time. Such a dynamic growth of export in 2004 was not a one-time surge resulting from the integration impulse. In the following years growth in foreign trade of agri-food products continued. In 2005 export grew by over 34%, and import – by almost 22%; in 2006 respectively by another 21% and 19%. In 2007 our trade further developed, but for the first time import grew faster than export, i.e. by 17% and 25%, respectively. This ratio continued in 2008, and indicators for growth dynamics of export and import amounted to: 15% and 27%, respectively. Such changes in trade streams improved the positive trade balance in the first years of the integration (from EUR 0.5 billion in 2003 to EUR 2.1 billion EUR in 2006), and decreased it in the following years (to EUR 1.3 billion in 2008). These trends changed due to the global economic crisis, which resulted for food trade in a decrease of

export value by 1.3% in 2009, and of import value by 9.7%, which caused another improvement of the turnover balance (to EUR 2.2 billion).

Table 1. Results for foreign trade in agri-food products

Specification	Value in EUR million					Growth rate (2003=100)			
	2003	2007	2009	2010	2011*	2007	2009	2010	2011*
<b>Export of agri-food products</b>	<b>4,010.4</b>	<b>9,942.5</b>	<b>11,277.6</b>	<b>13,507.2</b>	<b>15,097.7</b>	<b>247.9</b>	<b>281.2</b>	<b>336.8</b>	<b>376.5</b>
including: to the EU-25/27 <sup>a</sup>	2,616.7	8,001.4	9,066.9	10,705.7	11,777.4	305.8	346.5	409.1	450.1
<i>where: to the EU-15</i>	<i>2,041.6</i>	<i>5,941.2</i>	<i>6,698.8</i>	<i>7,992.6</i>	<i>8,701.4</i>	<i>291.0</i>	<i>328.1</i>	<i>391.5</i>	<i>426.2</i>
<i>to the EU-10/12<sup>a</sup></i>	<i>575.1</i>	<i>2,060.2</i>	<i>2,368.1</i>	<i>2,713.1</i>	<i>3,076.0</i>	<i>358.2</i>	<i>471.8</i>	<i>471.8</i>	<i>534.8</i>
<b>Import of agri-food products</b>	<b>3,556.9</b>	<b>7,972.3</b>	<b>9,111.0</b>	<b>10,921.1</b>	<b>12,481.1</b>	<b>224.1</b>	<b>256.2</b>	<b>307.0</b>	<b>350.9</b>
including: from the EU-25/27 <sup>a</sup>	2,175.9	5,347.4	6,320.4	7,481.9	8,677.0	245.8	290.5	343.8	398.8
<i>where: from the EU-15</i>	<i>1,848.5</i>	<i>4,484.6</i>	<i>5,448.9</i>	<i>6,421.4</i>	<i>7,413.5</i>	<i>242.6</i>	<i>294.8</i>	<i>347.4</i>	<i>401.0</i>
<i>from the EU-10/12<sup>a</sup></i>	<i>327.4</i>	<i>862.8</i>	<i>871.5</i>	<i>1,060.5</i>	<i>1,263.5</i>	<i>263.5</i>	<i>266.2</i>	<i>323.9</i>	<i>385.9</i>
<b>Balance of foreign trade in agri-food products</b>	<b>453.5</b>	<b>1,970.2</b>	<b>2,166.6</b>	<b>2,586.1</b>	<b>2,616.6</b>	<b>434.4</b>	<b>477.8</b>	<b>570.2</b>	<b>577.0</b>
including: from the EU-25/27 <sup>a</sup>	440.8	2,654.0	2,746.5	3,223.8	3,100.4	602.1	623.1	731.3	703.3
<i>where: from the EU-15</i>	<i>193.1</i>	<i>1,456.6</i>	<i>1,249.9</i>	<i>1,571.2</i>	<i>1,287.9</i>	<i>754.3</i>	<i>647.3</i>	<i>813.7</i>	<i>667.0</i>
<i>from the EU-10/12<sup>a</sup></i>	<i>247.7</i>	<i>1,197.4</i>	<i>1,496.6</i>	<i>1,652.6</i>	<i>1,812.5</i>	<i>483.4</i>	<i>604.2</i>	<i>667.2</i>	<i>731.7</i>

\* initial data

<sup>a</sup> in 2003 data for the EU-25, since 2007 for EU-27 (EU-10 and EU-12 respectively).

*Source: Authors' own compilation based on the data from the Analytical Centre of the Customs Administration (CAAC)*

Results of foreign trade in agri-food products in 2010 were also very good. Value of trade in food increased by almost 20%, i.e. export grew to a record value of EUR 13.5 billion, and import to EUR 10.9 billion. Further improvement of the trade balance for these products was observed. In 2010 it amounted to almost EUR 2.6 billion, which compared to the previous year means growth by over 19%. In 2011 trade in agri-food products continued to grow, export increased by 11.8% to EUR 15.1 billion and import by 14.3% to EUR 12.5 billion. The surplus of import over export amounted to EUR 2.6 billion. It needs to be emphasised that since 2007 (apart from 2009) the import growth rate is higher than export.

In the entire period of Poland's membership in the Community the export of agri-food products grew by over 3.5 times, import – by three times, and foreign trade balance of these products increased by over 5.5 times. Average growth rate of export in 2003-2011 amounted to 18% per year and was by 1 percentage point (pp) higher than import (17%). Turnover balance increased on average in this period by 24.5% per year.

Poland's commercial relationships with foreign states are not symmetrical – i.e. the EU Member States are still dominant partners in this exchange. Trade turnover in agri-food products with these countries grew after accession much more dynamically than with third countries. In 2003-2009 food deliveries from Poland to the EU increased by almost three and a half times, whereas import to Poland increased by almost three times. Positive trade balance with these countries improved from EUR 0.4 billion to EUR 2.7 billion, more than six times (Fig. 6). The next years, i.e. 2010 and 2011 were marked by further development of our trade

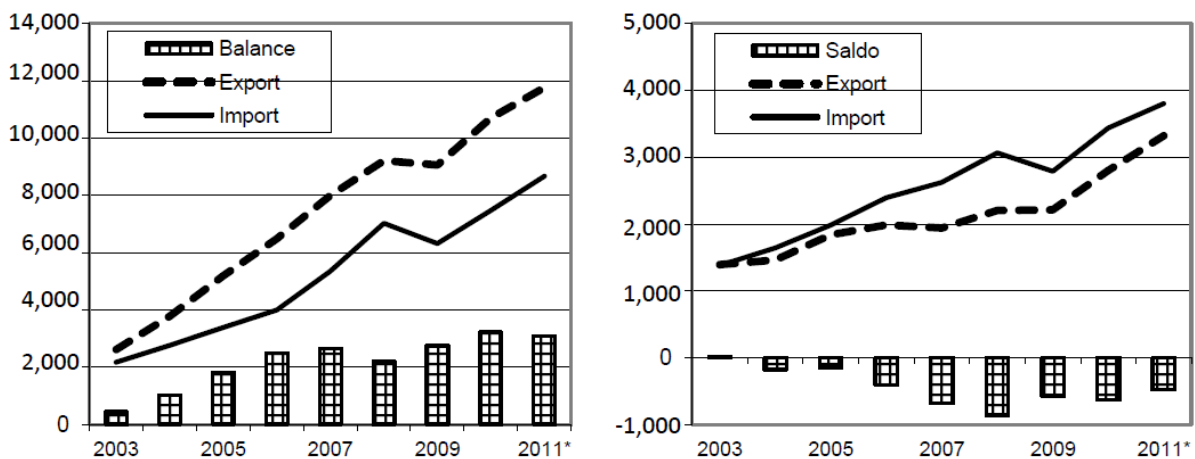
with the EU Member States. In 2010 the export value of agri-food products grew by 14.6% and in 2011 by 10%, while the growth rate of import in 2010 amounted to 15.3% and in 2011 - 15.9%. The trade balance of these products increased by as much as EUR 3.2 billion in 2010 and in 2011 it underwent a slight decrease to EUR 3.1 billion. At that time, the increase in trade turnover with non-EU countries, with which the trade balance of agri-food products is negative for many years, was several times slower.

Due to this lack of symmetry in Polish foreign trade relationships, the Single European Market became the main supply and outlet market for the Polish agri-food sector already in the first year after the accession. In the following years of our EU membership, the share of the European Community in export of this group of goods grew especially rapidly - from ca. 65% in 2003 to almost 74% in 2005 and to over 80% in 2007-2009. The share of the EU in import of agri-food products was more stable and in 2003-2006 it ranged from 61% to 63%, to exceed 67% in 2007 and reach 70% in 2008-2009. The 2010 and 2011 witnessed only a slight decrease in the EU share in our export (to 79.3% in 2010 and 78.0% in 2011) and import (to 68.5% in 2010 and 69.5% in 2011). These data show a still strong dependence of the Polish agri-food trade on Single European Market [Szajner, Szczepaniak 2010].

Figure 6. Results of the agri-food products foreign trade (EUR million)

with the EU-25/27 countries

with other countries



\* initial data

<sup>a</sup> in 2003 data for the EU-25, since 2007 for EU-27

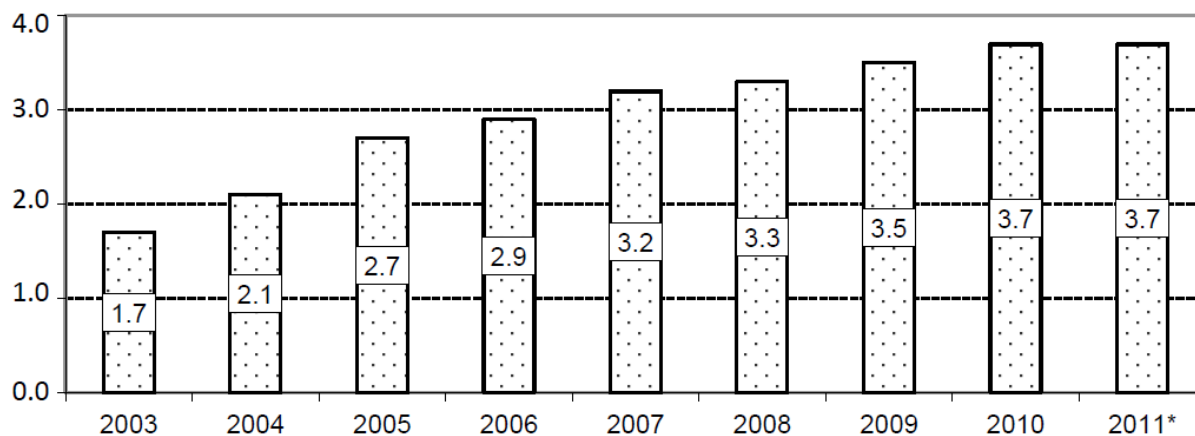
Source: Authors' own compilation based on the data from the CAAC

The Polish foreign trade in agri-food products is dominated by food industry products [Szczepaniak 2011]. According to the estimates of the IAFE-NRI the share of food industry products in total agri-food export amounts to ca. 80-85%. The share of food industry products in agri-food import is lower and amounts to 65-70%. The balance in food products trade since 1997 has been positive and since 2004 grew rapidly, while deficit in foreign trade in agricultural products has always been very deep. The structure of goods for agri-food products trade thus preserved is advantageous for the Polish economy. The export of processed products helps us to achieve a significantly greater value added than by mere export of primary products. In turn, import of primary products and their processing in the country contributes to the improvement of foreign trade balance and makes it possible to create a greater value added and new jobs. On the one hand, import of such products is of supplementary

nature for the market supply, on the other, it has a processing character, as some products are processed in national enterprises and re-exported. Processing import, oriented at export, develops mostly due to lower cost of production in the Polish food industry, which confirms the thesis on cost/price competitiveness of the food sector.

The development of agri-food export in the period of Poland's EU membership contributed to the doubling of our share in total agri-food export of the EU (intra EU and extra EU) – from 1.7% in 2003 to 3.7% in 2010 (Fig. 7). The analysis of the trade balance value in the EU agri-food products (*intra EU* and *extra EU*) shows, that in 2011 Poland, with the turnover of EUR 2.6 billion was ranked seventh among ten European Union states having a positive trade balance (other EU Member States are net importers of food). Despite the apparent progress Poland made in this regard in the last eight years, it is hard to count our country among the biggest agri-food exporters.

Figure 7. Poland's share in agri-food export of the European Union (*intra EU* and *extra EU*, %)



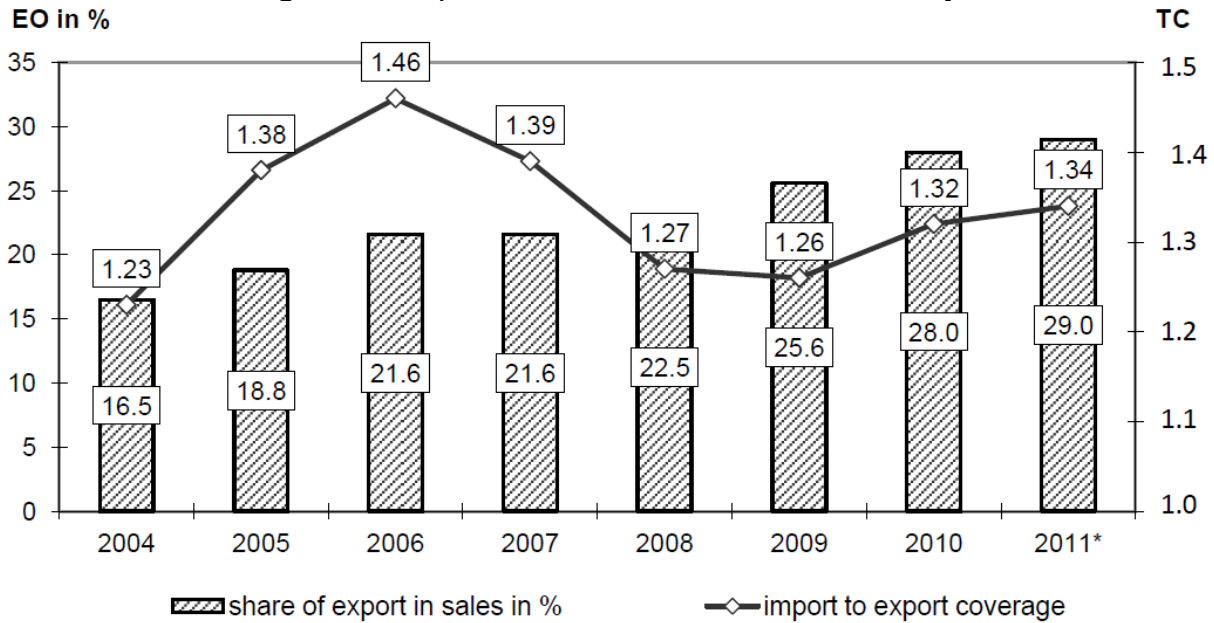
\* initial data

Source Calculations by M. Bułkowska on the basis of the EUROSTAT data.

Two indices were taken to assess the competitiveness of the Polish food industry after Poland's accession to the EU: trade coverage (TC) index, i.e. ratio of the value of export of food industry products to its import value, and the export orientation (EO) index, i.e. the share of the export value of the food industry products in the sales value of these products. These indices show the pro-export specialisation of a given country in a certain sector, group of products or only one product.

The analysis results concerning the Trade Coverage Index (the coverage of food industry products import to the export of these products) during the Poland's membership in the EU showed multi-directional fluctuations of the index, but all the time its level was higher than one (Fig. 8). This implies that Poland has a specialisation in the food industry production and it enables to conclude that Polish producers have a relative advantage over their partners from other countries. In 2004-2006 the TC index increased from 1.23 to 1.46, and then it dropped to as much as 1.26 in 2009. In the last two years this index once again showed an increasing tendency and in 2010 it amounted to 1.32, in 2011 - 1.34. This means that within the same period the export value of food industry products exceeded the import value of products from this sector by as much as 30%.

Figure 8. Competitiveness indices for the food industry



\* initial data

Source Authors' own compilation based on the data of the CSO and the ACCA.

The analysis results concerning the ratio of food industry products export to sales thereof in the 2003-2011 showed that the share of foreign sales in the total sales of food industry increased in this period by almost 13 percentage points and in 2011 it reached even 29%. As compared to 2003, this means that the export orientation index for food industry increased by almost two times (Fig. 8) This very significant improvement of the index is an evidence of a clear growth of export specialisation in the entire food sector and its increasing international competitiveness.

The actions undertaken by enterprises aim at increasing competitiveness, which is expressed in better competitive position on the market and winning of competitive advantages in a long-term perspective. So far, the main source of competitive advantage on the EU and global market were, above all, cost and price advantages. Reaching the advantages was possible due to lower prices of agricultural products, lower costs of labour and other production factors, as well as lower processing margins.

The analysis of producer prices for basic food industry products and highly processed products in Poland and the prices of these products in Germany points to the fact that in case of the majority of goods Polish producers remain competitive [Szczepaniak 2011]. However, the level of our price advantage is differentiated both between individual branches and within them. On the market of basic food industry products we have the highest competitive advantages in the poultry and bakery sectors. As regards meat processing and fresh or chilled meat of bovine animals, as well as primary processing of cereals our competitiveness is also significant. Moreover, we are still competitive on the market of certain dairy products, fruit and vegetable products and margarine. Only the oil sector remains uncompetitive in respect to prices as compared to Germany, both on the market of oil-cake, as well as crude and refined rapeseed oil. We have no price advantages on the market of fodder for farm animals, apple concentrate, raw pork hams and processed and fresh cheese, and more recently also frozen fish fillets and sugar.



A comparison of prices of highly processed products on the Polish and German market shows that the greatest price advantage on the market belongs to the producers of fruit juices and fruit drinks intended for drinking and beverages. Significant price advantages are recorded by Polish producers of sweets and durable pastrycooks' products, as well as some dairy products, such as icecream and yogurt. Also the producers of other highly processed food products, such as: yeast and pickles, and recently also chips, are still competitive as regards prices. Poland is not competitive on the market of potato preparations and some other highly processed goods.

The process of food prices equalisation on the Polish and German market is ongoing. It follows from both the growing prices of this products in Poland, and lowering prices of many food products in Germany. This process is one of the factors that forces the Polish food producers to seek for other than price sources of competitiveness. Such non-price sources of competitiveness cover, for instance: quality (quality and uniqueness of products, the ability to identify and meet the individual needs of customers, wide-ranging promotional activities, as well as the ability to create a company's brand based on trust in the quality and reliability of products and quality of customer service), innovation (product, process, organisational and marketing innovations), entrepreneurship as well as knowledge and intellectual capital.

## **Impact of export subsidies and food products promotion on the competitiveness of the Polish agri-food sector**

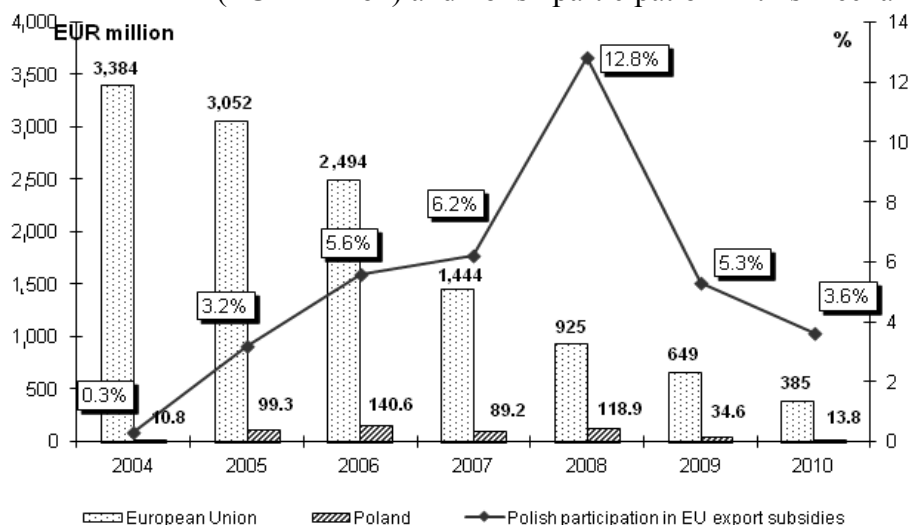
### **Subsidies to exports of agri-food products**

Export subsidies were among the instruments of the Common Agricultural Policy, which after the accession could benefit Polish entrepreneurs equally with entrepreneurs in other EU countries. This was one of the main instruments of intervention aimed at taking off the market the surplus of products in the period of overproduction. Export subsidies, compensating for the difference between the price of products on the internal market and a lower price on the global market, also served to stimulate and support exports to third countries. As a direct form of support for exports it was a popular method of disposal of surplus food products during the period of overproduction, thus enabling to balance the supply and demand. Subsidies also contributed to improving the price competitiveness of Polish agri-food products in third country markets.

In the first years of our membership in the European Union, most agri-food products exported outside the Community were subject to an export subsidy scheme, and Polish entrepreneurs were actively involved in this CAP mechanism, as evidenced by the amount of export refunds paid, and high in this respect position of Poland among EU- 27. However, from year to year, this form of export support loses significance (Fig. 9).

In the 2004-2010 period, the European Commission had earmarked EUR 12.3 billion to subsidise exports of agri-food products, most of which was allocated to: France (EUR 2.26 billion), Netherlands (EUR 1.71 billion) and Belgium (EUR 1.6 billion). Poland with the share of 4.1% (EUR 507.2 million) was on the 8 position among all EU-27. Our country is the clear leader among the new Member States (EU-12), followed by Lithuania (EUR 159.5 million) and Hungary (EUR 100.2 million), the Czech Republic (EUR 70.7 million) and Slovakia (EUR 28.1 million). Other EU-12 countries subsidised food exports outside the EU to a lesser extent.

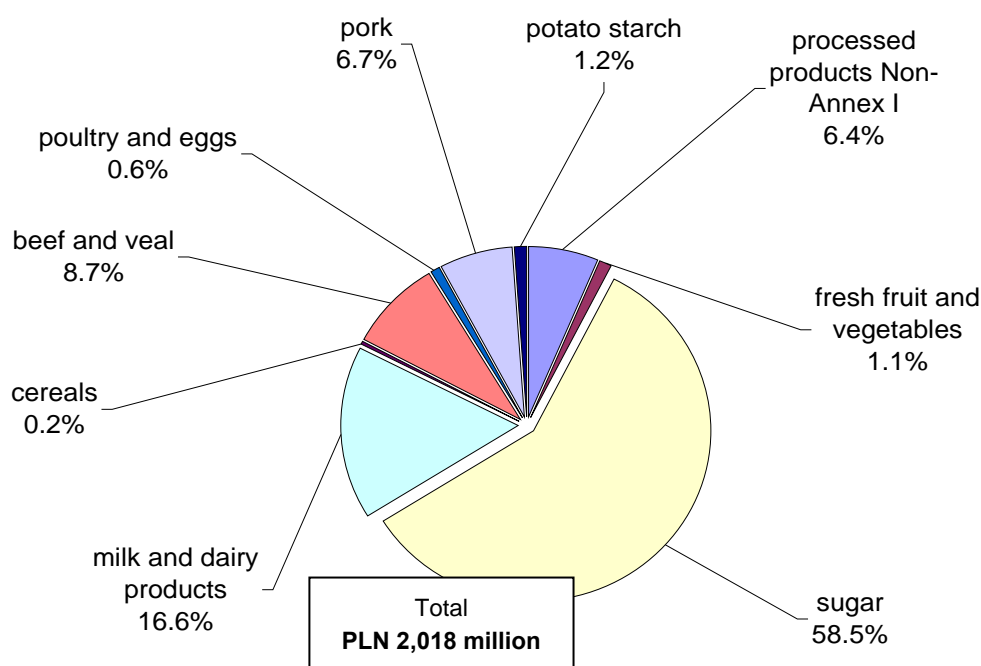
Figure 9. Subsidies to exports of agri-food products by the EU and Poland in 2004-2010 (EUR million) and Polish participation in this mechanism (%)



Source: Author's own compilation based on the data from the European Commission.

In 2004-2011 the export of Polish agri-food products was supported by the EU resources amounting to more than PLN 2.0 billion. The largest amount of about PLN 600 million was paid in 2006. In subsequent years, the European Commission devoted a diminishing envelope of financial resources to this form of support and therefore Polish entrepreneurs received less funds. This form of support for exports of agri-food products declines in importance from year to year.

Figure 10. Structure of the refunds paid to the export of agri-food products by Poland in the period 1 May 2004 - 31 December 2011



Source: Author's own compilation based on the data from the Agricultural Market Agency.

The greatest financial support in 2004-2011 was granted for exporters of sugar – PLN 1,180 million (58.5% of the total refunds paid), milk and dairy products – PLN 334.1 million (16.6%), beef and veal – PLN 176, 2 million (8.7%), pork – PLN 136.5 million (6.7%) and processed products Non-Annex I – PLN 129.1 million (6.4%) (Fig. 10, Table 2). The export of other agri-food products was covered by the support to a lesser extent. In the early years of our membership in the Community, exports of cereals, fresh fruit and vegetables was also covered by a system of export subsidies and Polish entrepreneurs benefited from this assistance. However, the amount of subsidies paid for exports of these products accounted for only 2.5% of the total export refunds paid during this period. Quite different was the situation in the export of poultry meat - even though the European Commission subsidised the export of this product at a fairly high level, it was not popular among Polish entrepreneurs. The share of subsidised exports of poultry meat in the volume of exports outside the EU reached the highest level in 2007 - 3.5%, in subsequent years it was a minimal amount. In addition to poultry meat, Polish entrepreneurs also exported with subsidies live chicks and hatching eggs.

Table 2. Subsidies to exports of agri-food products in 2003-2011 (PLN million)

Specification	2004	2005	2006	2007	2008	2009	2010	2011	Total 2004-2011
Beef and veal	11.1	47.0	21.0	14.4	9.1	13.2	16.9	43.5	176.2
Pork	39.7 <sup>a</sup> 0.08	5.6	9.2	6.3	83.2	14.4	9.0	8.7	136.5
Poultry and eggs	0.3	2.2	2.1	2.9	2.0	1.1	0.9	0.8	12.3
Milk and dairy products	31.9	135.9	85.6	46.8	1.3	20.0	12.6	0.03	334.1
Sugar	73.3	181.1	409.1	202.7	268.5	37.9	2.6	5.2	1,180.4
Processed products Non-Annex I	0.4	31.2	33.2	25.9	22.6	12.8	2.9	0.08	129.1
Cereals and potato starch	8.8 <sup>a</sup> 0.5	10.8	14.2	2.2	0.5	0	0	0	28.2
Fruit and vegetables	0.03	6.6	7.1	6.9	0.8	0.04	0	0	21.5
<b>TOTAL</b>	<b>166.1<sup>b</sup></b>	<b>420.4</b>	<b>581.5</b>	<b>308.1</b>	<b>388.0</b>	<b>99.4</b>	<b>44.9</b>	<b>58.3</b>	<b>2,018.3</b>
Value of exports of the above agri-food products to third countries	2,019.1	2,047.2	1,959.7	1,663.7	2,072.5	1,128.0	1,808.3	1,534.2	14,232.7
Share of subsidies in the value of exports to third countries (in %)	8.2	20.5	29.7	18.5	18.7	8.8	2.5	3.8	14.2

<sup>a</sup> refunds paid by 30 April 2004 from the national budget; <sup>b</sup> including PLN 48.5 million paid from the national budget for the exports carried out by 30 April 2004

*Source: Author's own calculations based on data from the Agricultural Market Agency and the CAAC.*

The share of subsidies in the exports of agri-food products covered by this mechanism outside the EU in the period of the highest support (i.e. 2005-2008) was ca. 20%, while the average for 2004-2011 was almost 14%. This is not much, considering the fact that the export of food products outside the EU accounts for only about 20% of exports of these products.

The main outlets for Polish food is still the EU market, which gets about 80% of total exports of agri-food products.

Decline in the importance of export subsidies in recent years was caused by rising prices of basic agricultural products, thereby the reduced difference between world and EU prices, which meant that this mechanism not only ceased to fulfil its role, but actually interfered with the trade. The European Commission, recognising that export subsidies distort the trade and international competitiveness, gradually moves away from subsidising exports of agri-food products, i.e. reduces the rates of refunds applicable to certain agricultural products, until their total elimination. Currently, they are significant only in the export of such agri-food products as: beef, processed pork and poultry meat, but the amount is several times lower than it was in the first years after accession. With the gradual removal of this mechanism (probably complete abolition in 2013), indirect forms of export support are increasingly important, including promotion and information measures.

### **Promotion of agri-food products**

The purpose of promotion of agri-food products is to increase public awareness of the consumption of promoted foods and a change in dietary preferences, followed by an increase in demand, development and strengthening of the market position of producers of agri-food products [Szczepaniak 2011].

One of the main ways to implement the information and promotion policy is to support producers and producer organisations through co-financing of promotion campaigns (programmes), whose main purpose is to enhance the image of Community products among consumers through fair and objective information. The range of promotion measures includes measures such as: public relations, media advertising, participation in fairs, exhibitions and seminars and training sessions, information on websites, organisation of various competitions. Activities supported by the European Commission cannot be oriented on brand, trademark or company, or encourage the consumption of any product on grounds of its specific origins<sup>36</sup>. Information and promotion are to raise public knowledge about the products, the production chain, the control system, standards of quality and they are to lead people to an informed choice. Specific features of products, like their quality and taste, can be promoted. Promotion measures must be focused on strengthening the EU food products in the global market, and thus - increasing the demand for promoted products. Promotion encourages customers to buy certain goods at a specific time and place, thereby seeking to obtain an advantage over competitors.

Financial assistance for promotion measures, information and advertising conducted in the market of food products, provided under the CAP, can be obtained under the mechanism of "Support for promotion and information measures on the markets of selected agricultural products". In Poland, it has been operating since 1 May 2004 and it serves, in particular, to increase the degree of market transparency, shaping the preferences of buyers and healthy eating habits. It is addressed to producers, processors and distributors of agri-food products through their professional organisations (associations of producers of one or more of agri-food industries), which can apply for co-financing of promotion or information campaigns. The primary objective of this support is the implementation of information and promotion

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<sup>36</sup> Council Regulation (EC) No 3/2008 of 17 December 2007 on information provision and promotion measures for agricultural products on the internal market and in third countries

policy for agri-food products from the European Community. It allows associations and industry organisations obtaining funds for the implementation of long-term information and promotion campaigns, including those targeted to expand consumer awareness about the nutritional value, quality or food safety, and in turn increase demand for certain food products. Participation in this mechanism enables organisations to get a refund up to 80% of the net costs actually incurred for activities covered by the campaign (up to 50% of the funds comes from the budget of the European Union and 30% from the national budget). The remaining 20% is the organisation's contribution.

Promotion and information measures may be conducted separately on the EU internal market or on non-EU markets. The European Commission identified a list of themes and products that may be covered by the foregoing measures<sup>37</sup>.

Under the mechanism of "Support for promotion and information measures on the markets of selected agricultural products", Poland from the date of accession was accepted by the European Commission to carry out eighteen promotion campaigns (programmes) concerning various groups of products<sup>38</sup>:

1. "Organic farming" (*Rolnictwo ekologiczne*) - information campaign on organic farming and organic products.
2. "Originality under protection" (*Oryginalność pod ochroną*) - information campaign disseminating knowledge about the existence and principles governing the system of symbols for regional and traditional products.
3. "Frozen foods full of nature" (*Mrożonki pełne natury*) - campaign to promote frozen fruit and vegetables.
4. "Carrot" (*Marchewka*)- campaign promoting carrot juice and carrot-fruit juice in Romania and Bulgaria.
5. "Meat and its products - tradition and taste" (*Mięso i jego produkty – tradycja i smak*) - campaign to promote beef, veal and pork in China, Japan and Ukraine.
6. "Life sweetened with honey" (*Życie miodem słodzone*) - promotion and information campaign on honey and beekeeping products.
7. "Promoting milk and dairy products" (*Stawiam na mleko i produkty mleczne*) - information and promotion campaign for milk and dairy products.
8. "Table full of flavours" (*Stół pełen smaków*) - campaign to promote beef, veal and pork in the United States and South Korea.
9. "Frozen foods full of nature" – second campaign to promote frozen fruit and vegetables.
10. "Fruit and vegetables 5 times a day" (*5 x dziennie warzywa i owoce*) - promotion campaign for consumption of fruit and vegetables.
11. Information campaign on pork meat (fresh, chilled or frozen) produced in accordance with the national quality scheme: Pork Quality System-PQS.
12. "The European table - tradition, modernity, quality" (*Europejski stół – tradycja, nowoczesność, jakość*) - campaign aimed at third country markets for fresh, chilled or frozen meat and meat products, including fresh, chilled or frozen beef, veal or pork.
13. "Tradition, quality and taste of Europe" (*Tradycja, jakość i europejski smak*) - information and promotion campaign for fresh, chilled or frozen beef and pork and processed foods manufactured with these products.

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<sup>37</sup> Commission Regulation (EC) No 501/2008 of 5 June 2008 laying down detailed rules for the application of Council Regulation (EC) No 3/2008 on information provision and promotion measures for agricultural products on the internal market and in third countries.

<sup>38</sup> Information from the website of the Agricultural Market Agency: [www.arr.gov.pl](http://www.arr.gov.pl).

14. "5 servings of vegetables, fruit or juice" (*5 porcji warzyw, owoców lub soku*) - continuation of the campaign.
15. "Fall in love with rapeseed oil" (*Pokochaj olej rzepakowy*) - education and information campaign aimed to encourage the acquisition of rapeseed oil.
16. "New quality in the poultry industry" (*Nowa jakość w drobiarstwie*) - information and promotion campaign on poultry meat in Poland and goose meat in Germany, according to the programme of Quality Assurance for Food Products (QAFP).
17. "European Pasta" (*Makarony Europy*) - promotion and information campaign directed at markets of third countries (Ukraine).
18. "One apple each day" (*Jabłko każdego dnia*) - promotion and information campaign directed at markets of third countries (Russia, Ukraine).

So far, ten programmes were completed, i.e.: "Carrot", "Originality under protection", "Frozen foods full of nature" (two campaigns), "Promoting milk and dairy products", "Organic Farming", "Life sweetened with honey", "Meat and meat products - tradition and taste", "Table full of flavour", "Fruit and vegetables 5 times a day". Programmes currently under implementation cover: "Information campaign on pork produced in accordance with national quality scheme Pork Quality System – PQS", "The European table - tradition, modernity, quality" and "Tradition, quality and taste of Europe" and "Fall in love with rapeseed oil", "New quality in the poultry industry" and "5 servings of vegetables, fruit or juice" (continued), and from 30 November 2011 the next two programmes: "European Pasta" and "One apple each day".

The first promotion programme organised in the foreign market was the "Carrot" campaign, promoting the consumption of carrot and carrot-fruit juice and nectars in Bulgaria and Romania. In 2006 this campaign helped to increase the sales of carrot juice and nectars in Bulgaria by 84% and in Romania by 60%<sup>39</sup>. As a result of these measures, Romania has become the second largest outlet market for carrot juices and nectars in Europe.

Two-year campaign "Meat and its products - tradition and taste", promoting the meat on the markets of three countries, namely Japan, China and Ukraine, aimed to promote high quality meat from the European Community, its taste and nutritional value. Measures taken under this campaign resulted in the direct promotion effects and important support in the negotiations on opening the Japanese market for meat from the EU, including from Poland.

Another promotion and information campaign "Table full of flavours" addressed to producers and consumers in the U.S. and South Korea, was designed to promote the consumption of beef, veal and pork and their products in the markets of these countries. The aim of the campaign was to build and consolidate a positive image of meat products from the European Union and to encourage recipients in the U.S. and South Korea to import the EU goods, and consumers to learn to recognise and appreciate the original European meat and cured meat products. A very important element of this campaign was the participation of representatives of the Polish agri-food sector in international trade fairs in the U.S. and South Korea, as well as publications and advertising for promoted products. These measures contributed to the growth of pork products export to the U.S. and South Korea.

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<sup>39</sup> Information from the website of the Agricultural Market Agency: [www.arr.gov.pl](http://www.arr.gov.pl).

Table 3. Budget of campaigns (programmes) to promote food products (EUR million)

Campaign / programme title	Target markets / year of approval by the European Commission (years of implementation)	European Commission contribution (50%)	Contribution of the national budget (30%)	Contribution of the proposing organisation (20%)	Total budget for the programme (100%)
<b>Completed programmes</b>					
Originality under protection	Poland / 2005 (2)	0.74	0.74	-	1.48
Carrot	Bulgaria, Romania / 2006 (1)	0.88	0.53	0.35	1.76
Frozen foods full of nature (2 campaigns)	Poland / 2006 (2)	0.08	0.05	0.03	0.16
Organic farming	Poland / 2006 (3)	1.57	1.57	-	3.14
Meat and its products - tradition and taste	Ukraine/China/Japan/ 2006 (2)	0.87	0.52	0.35	1.74
Life sweetened with honey	Poland / 2007 (2)	0.34	0.20	0.14	0.68
Table full of flavours	South Korea, U.S. / 2007 (2)	1.16	0.70	0.46	2.32
Promoting milk and dairy products	Poland / 2007 (3)	4.90	2.94	1.96	9.80
Fruit and vegetables 5 times a day	Poland / 2008 (2)	1.00	0.60	0.40	2.00
TOTAL (budget of completed programmes)		11.54	7.85	3.69	23.08
<b>Ongoing programmes</b>					
European table - tradition, modernity, quality	China/Thailand/ Singapore/Russia Ukraine / 2009 (2)	1.55	0.93	0.62	3.10
Information campaign on pork production in accordance with PQS	Poland / 2010 (3)	1.86	1.11	0.74	3.71
Tradition, quality and taste of Europe	South Korea, U.S., Vietnam / 2011 (2)	1.74	1.04	0.69	3.47
5 servings of vegetables, fruit or juice	Poland, Romania / 2011 (3)	1.91	1.15	0.76	3.82
Fall in love with rapeseed oil	Poland, Latvia / 2011 (3 years)	0.83	0.49	0.33	1.65
New quality in poultry industry	Poland, Germany / 2011 (3 years)	1.99	1.20	0.80	3.99
European pasta	Ukraine 2011 (3 years)	1.50	0.90	0.60	3,00
One apple each day	Ukraine, Russia 2011 (3 years)	1.98	1.19	0.79	3,96
TOTAL (budget of ongoing programmes)		13,36	8.01	5.33	26.70
<b>TOTAL</b>		<b>24,90</b>	<b>15.86</b>	<b>9.02</b>	<b>49.78</b>

Source: Author's own compilation based on the data from the Agricultural Market Agency.

The campaign “European table – tradition, modernity, quality”, promoting meat and meat products in the markets of such countries as: Russia, Ukraine, China, Singapore and Thailand is a continuation of a two-year campaign “Meat and its products – tradition and

taste". This campaign aims to increase the demand among the consumers of the above countries for the European products (beef, pork, veal and meat products) through convincing them of their high quality and unique taste.

Another information and promotion campaign is the campaign "Tradition, quality and European taste", promoting beef and pork and meat products in the markets of South Korea, U.S. and Vietnam. The campaign aims to improve knowledge of customers about taste and production of meat and its products, make target groups aware of the possibility to import European meat and meat products, which in turn will contribute to the growth of exports of these products to target markets. Activities under this programme will be implemented through the media, press, the Internet, information materials and fairs and exhibitions.

The campaign "Fall in love with rapeseed oil" is to make Polish and Latvian consumers aware of the nutritional value of rapeseed oil and persuade them to frequent consumption of this product. Convincing people to consume this oil will increase its sales, which in turn will permit the full use of the Polish oleochemical plants and will affect the demand for rapeseed.

The campaign "New quality in poultry industry" aims to promote poultry meat on the Polish market and goose meat on the German market. This campaign is planned for three years, and its strategy is to increase consumer confidence in both countries for poultry meat, due to the promotion of strict production rules compliant with the Quality Assurance for Food Products (QAFS). The main goal of promotion strategy is to reach the widest possible group of potential consumers of poultry meat and change their perception of the qualities of the meat.

The purpose of promotion and information campaign "European Pasta" is to maintain the current level of sales of pasta on the market of Ukraine, without specifying a particular brand. The campaign will be implemented over the period of 3 years. The planned promotion and information activities include ads on TV, in newspapers and on the website in Ukraine and participation in fairs and exhibitions.

Another promotion and information campaign to promote the consumption of apples in the market of Russia and Ukraine is the campaign "One apple each day". The programme aims to reach the biggest possible group of people and increase consumption of apples among the people of Russia and Ukraine. The campaign will include publications of promotional articles and advertisements in newspapers, women's magazines and on the Internet.

The first campaign organised on the Polish market was "Originality under protection". The campaign disseminated knowledge of the existence and the principles governing the marking of regional and traditional products. Marking such products shows their origin and quality, increases their credibility with customers and helps manufacturers in the promotion. Symbols of *Protected Designation of Origin*, *Protected Geographical Designation* and *Traditional Specialty Guaranteed* are seen in the EU as a guarantee of tradition and quality. The campaign, using different media, aroused great interest in regional and traditional products among consumers and merchants. Poland began to be perceived as a country with food traditions, mainly in the domestic market, but also in the foreign ones. The campaign also



encouraged many groups of producers to register their products and place them under legal protection given by European and national rules.

Another campaign, which aimed to promote the consumption of frozen foods and to change the thinking of consumers that frozen fruit and vegetables lose their nutritional value and flavour during freezing, was the campaign “Frozen foods full of nature”. The message of this campaign was to raise awareness of consumers about the healthy aspect of frozen products, and create among them the fashion for frozen foods, which enables quick and easy preparation of meals rich in nutritional value. It is estimated that the campaign contributed to a 20% increase in consumption of frozen foods in Poland<sup>40</sup>.

Three-year information campaign “Organic Farming”, promoting organic farming and organic products in Poland, was aimed at disseminating knowledge among consumers and producers about the benefits of organic farming, especially in the field of environmental protection. Consumers learned how to distinguish organic products, and manufacturers and processors were persuaded to switch to organic production, certified according to the European Union legislation. Many activities were carried out in media advertising, as well as various events, seminars and training for producers and processors of food and organic products were promoted at national and international fairs. This campaign has improved the knowledge on the values of organic food.

Another campaign, whose purpose was to break the stereotype that honey is only a remedy for cold was the campaign “Life sweetened with honey”. The main objective of this campaign was to emphasize the taste and nutritional values of natural honey and raise awareness of consumers on the beneficial properties of other beekeeping products. Promotion measures were carried out in TV, newspapers for women, on posters and on the Internet.

Information and promotion campaign “Promoting milk and dairy products”, executed on the domestic market, promoted the consumption of milk and its products. This campaign encouraged the public to consume milk and its products and to perceive them as characterised by high nutritional value. Comprehensive educational and promotion measures were aimed at children aged 7-13 and their parents and carers. The programme range in Poland included 108 cities, 324 schools and 330 thousand children and similar number of adults. The campaign included a series of complementary communication channels, e.g.: advertising in the media, promotion at sale points, events “Milky expedition” (*Mleczna ekspedycja*) and “Milk Truck” (*Mleczny Truck*), and a website. Extensive campaign brought positive results. There was an increase in the percentage of children and their caregivers aware of the need to consume milk and dairy products. There was also an increase in consumption of milk and yogurt among children and increased consumption of cheese, processed cheese and milk among parents and carers.

Another promotion campaign was a two-year nationwide campaign “Fruit and vegetables 5 times a day”, addressed to mothers aged 25-40 and children aged 7-13. The aim of this campaign was to increase the demand for fresh vegetables and fruit and juices, by building awareness of the health benefits of fruit and vegetables among the target groups. An

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<sup>40</sup> Website of the Agricultural Market Agency: [www.arr.gov.pl](http://www.arr.gov.pl), tab: Polish only: *Promocja żywności* (Food Promotion)

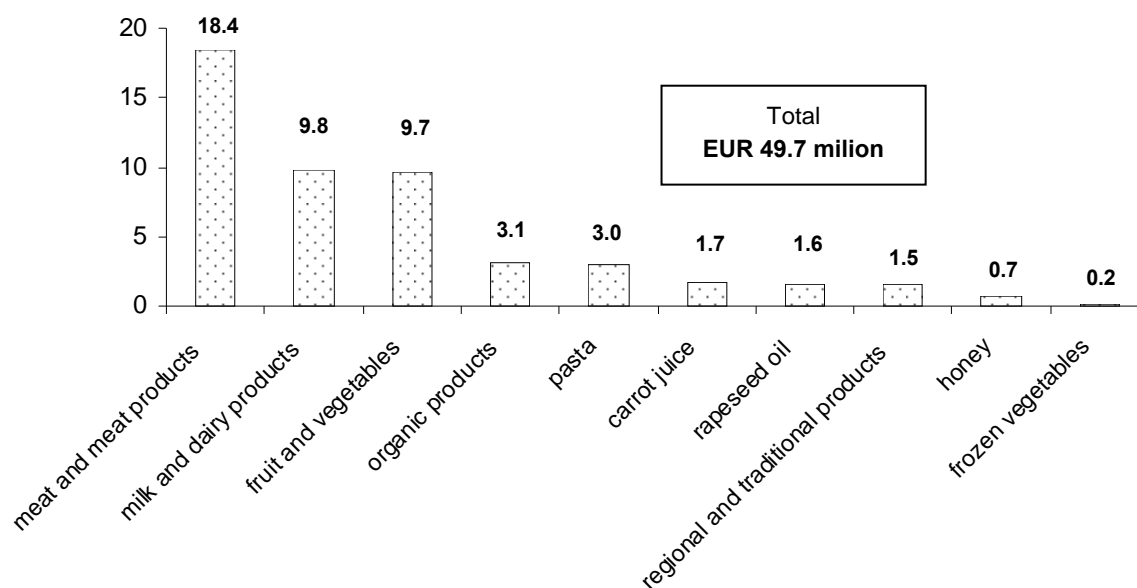
important element of this campaign was to provide consumers with information to encourage fruit and vegetables consumption in the optimal dose of 5 times a day and to develop a custom in children for the daily consumption of fruit and vegetables. Implemented activities were adjusted to target groups. Each of them had an opportunity to take advantage of the many attractive forms of communication such as: advertising on television and in newspapers, public relations (press conferences, workshops for journalists), a website with information on healthy eating, and various competitions in schools. The studies showed positive effects of this campaign, including increase in consumption of fruit and juices, and a change in consumers' awareness and knowledge about the health benefits of fruit and vegetables.

Information campaign on pork produced in accordance with national quality scheme Pork Quality System (PQS) is a three-year campaign approved by the European Commission in 2010. The aim of this campaign is to give the Polish people accurate information about the national system of PQS, ensuring a high quality, safety and specific properties of pork and its products, and to inform about the scope and the functioning of the system. The programme is targeted to a wide audience, i.e. consumers, owners and staff of butcher shops, media, restaurants, public figures associated with the cooking.

Promotional campaign “5 servings of vegetables, fruit or juice” is a continuation of the campaign “Fruit and vegetables 5 times a day”. The purpose of information and promotion activities is to promote healthy, balanced diet rich in vegetables, fruit and juice and to encourage its use. This programme is aimed at Polish and Romanian markets. It is a response to the alarming results of surveys that show that the Poles, against the advice of nutrition experts, forget about daily servings of fruit and vegetables.

In 2004-2011 the largest promotional support was given to the meat industry - 37% of all funds for promotion and information measures. In second place were milk and dairy products - 19.7%, followed by fresh fruit and vegetables - 19.5%, and organic products - 6.2% (Fig. 11). From among the total funds allocated for promotion measures 56% of them were directed to the Polish market. These were primarily promotion and information measures that served to raise public knowledge about food products, i.e. their values, characteristics, quality, production chain and control system. The second place occupied Eastern markets, including: Ukraine (10%) and Russia (7%). 6% of funds for promotion and information measures were allocated for the U.S. market. The share of other markets covered by these measures, namely: Romanian, German, Korean and Chinese, was less than 5%. Promotion and information campaigns conducted in foreign markets, by disseminating knowledge about the high standards of production in the EU, promoting the quality and taste (originality), helped to improve the image of the EU goods to consumers, and to establish new contacts with distributors and importers of food. All completed campaigns have achieved tangible results in the form of increased knowledge of domestic and foreign customers on Polish food.

Figure 11. Total budgets for promotion and information campaigns in 2004-2011 by product groups (EUR million)



Source: Author's own compilation based on the data from the Agricultural Market Agency.

In 2004-2011 Poland spent PLN 80.0 million for promotion and information campaigns under the "Support for promotion and information measures on the markets of selected agricultural products", of which PLN 47.6 million (59.5%) came from the EU budget (Table 4).

Table 4. Value of funds paid for promotion and information measures<sup>a)</sup> (PLN million)

Specification	2005	2006	2007	2008	2009	2010	2011	TOTAL
Organic farming	-	<b>1.6</b> <i>0.8</i>	<b>3.8</b> <i>1.9</i>	<b>2.8</b> <i>1.4</i>	<b>3.1</b> <i>1.5</i>	<b>0.6</b> <i>0.3</i>	-	<b>11.9</b> <i>5.9</i>
Originality under protection	<b>1.5</b> <i>0.7</i>	<b>3.4</b> <i>1.7</i>	<b>0.9</b> <i>0.45</i>	-	-	-	-	<b>5.8</b> <i>2.8</i>
Carrot	-	<b>3.2</b> <i>2.0</i>	<b>2.2</b> <i>1.4</i>	-	-	-	-	<b>5.4</b> <i>3.4</i>
Frozen foods full of nature	-	<b>0.1</b> <i>0.05</i>	<b>0.3</b> <i>0.15</i>	-	-	-	-	<b>0.4</b> <i>0.2</i>
Meat and its products - tradition and taste	-	-	-	<b>2.1</b> <i>1.3</i>	<b>1.7</b> <i>1.1</i>	-	-	<b>3.8</b> <i>2.4</i>
Table full of flavours	-	-	-	<b>0.9</b> <i>0.6</i>	<b>3.3</b> <i>2.1</i>	<b>1.7</b> <i>1.0</i>	-	<b>5.9</b> <i>3.7</i>
Promoting milk and dairy products	-	-	-	<b>6.2</b> <i>3.9</i>	<b>12.9</b> <i>8.0</i>	<b>10.4</b> <i>6.5</i>	-	<b>29.5</b> <i>18.4</i>
Life sweetened with honey	-	-	-	<b>0.9</b> <i>0.5</i>	<b>1.1</b> <i>0.7</i>	-	-	<b>2.0</b> <i>1.2</i>
Fruit and vegetables 5 times a day	-	-	-	-	<b>2.2</b> <i>1.4</i>	<b>3.0</b> <i>1.9</i>	0.1 0.1	<b>5.3</b> <i>3.4</i>
European table - tradition, modernity, quality	-	-	-	-	-	<b>1.7</b> <i>1.1</i>	<b>4.4</b> <i>2.7</i>	<b>6.1</b> <i>3.8</i>
PQS	-	-	-	-	-	-	<b>3.9</b> <i>2.4</i>	<b>3.9</b> <i>2.4</i>

Specification	2005	2006	2007	2008	2009	2010	2011	TOTAL
<b>TOTAL</b>	<b>1.5</b>	<b>8.3</b>	<b>7.2</b>	<b>12.9</b>	<b>24.3</b>	<b>17.4</b>	<b>8.4</b>	<b>80.0</b>
including the EU support	0.7	4.5	3.9	7.7	14.8	10.8	5.2	47.6

<sup>a)</sup> In 2004 applications for funding campaigns were submitted, but their implementation was conducted in later years.

*Source: Author's own compilation based on the data from the Agricultural Market Agency.*

#### 4. Summary

Placing the Polish agri-food sector under the Common Agricultural Policy meant the use of such instruments for the regulation of agricultural production and agricultural markets, as direct area payments, production quotas, intervention purchasing and private storage subsidies, price regulation, promotion of consumption or use of non-food purposes, export subsidies in exports of selected agri-food products to third countries and tariffs and quotas on imports from third countries. At the same time, the EU aid schemes were launched in Poland, SAPARD in the pre-accession period, and during the full membership - Sectoral Operational Programme "Restructuring and Modernisation of the Food Sector and Rural Development 2004-2006" (SOP "Agriculture"), Rural Development Plan 2004-2006 (RDP 2004-2006) and Rural Development Programme 2007-2013 (RDP 2007-2013).

Poland's accession to the EU became an impetus for the accelerated development of the Polish food industry. It created new opportunities for Polish food producers in the form of free access to a large and wealthy EU market, which in 2011 had over 500 million consumers, with much higher income than the Polish population. Polish producers also had the opportunity to benefit from the EU funds, which were supposed to assist in the process of modernisation of enterprises and their adaptation to functioning within the Community and the new market conditions. At the same time, opening the domestic market for the EU producers was associated with the enormous challenges, including facing the strong international competition, which necessitated investments and the related processes of consolidation and restructuring of industries. There was also strengthening of the processes of horizontal integration (between processors) and vertical integration (between farmers, processors and merchants).

From a formal point of view, a sufficient condition to use the resulting possibilities of placing food on the developed European market, which is one of the more demanding agricultural and food markets in the world, was respecting the EU sanitary, veterinary, phytosanitary standards and animal welfare and environmental protection. The pressure to adapt food enterprises to the requirements in the EU forced the companies to increase investment, to modernise and adjust facilities to required standards, as well as to replace machinery and sometimes also to introduce completely new technologies. The EU funds played an important role in financing these investments. The share of the EU aid funds (co-financed from the SAPARD, SOP "Agriculture", RDP 2007-2013) in the overall amount of investments in food industry in 2000-2010 was only 4%, but these funds were a catalyst of investments. An entrepreneur, in order to receive the EU aid, had to commit his resources, which in turn significantly increased the total value of the investment. With the implementation of huge investments the Polish food industry has become one of the most modern in Europe.

Since the date of accession, compliance with the EU standards made it possible for Polish food producers to compete on an equal footing with producers in other EU Member States. Actual use of growth opportunities of Polish food exports to the markets of other EU Member States was, in fact, dependent on the competitiveness of Polish offer and acceptance of Polish products by consumers in those countries [Urban, Mroczek 2011]. As demonstrated by the analysis of the results of foreign trade in agri-food products and selected indicators of the competitiveness of the Polish food industry, the competitiveness of Polish food producers on the world market is quite high and our comparative advantages in the period of Polish membership in the European Union increased. The analysis proved that Polish food producers were well prepared for the membership in the EU, they managed very well on this difficult market and, consequently, over more than eight years of Poland's membership in the Community they have strengthened their position on the Single European Market.

The increase in competitiveness of Polish food producers after Polish accession to the EU was also a result of such instruments of the Common Agricultural Policy as export subsidies for agri-food products to non-EU markets and support for the promotion of agri-food products, both domestically and in foreign markets. Export subsidies, compensating for the difference between the price of products on the internal market and a lower price on the global market, served to stimulate and support exports to third countries. Export subsidies, as a direct form of support for exports, were a popular method of disposal of surplus food products during the period of overproduction, thus enabling to balance the supply and demand. The purpose of promotion of agri-food products is to increase public awareness of the consumption of promoted foods and change dietary preferences, followed by development and strengthening of the market position of producers of agri-food products.

Due to the fact that the nature of the CAP in recent years underwent many changes, resulting, mainly, from the changing market conditions, including development process of economic globalisation and increased competition in the international market, the trade instruments have evolved and were adapted to market requirements. Therefore, the European Union, recognising the distorting effect of export subsidies on trade and international competitiveness, gradually began to move away from subsidising exports of agri-food products. In turn, indirect forms of export support gain in importance, including promotion and information measures.

The future EU policy is dependent on changes both in the Common Agricultural Policy and in world politics in the implementation of support mechanism for promotion and information measures. Opening new markets creates new opportunities and challenges for the EU food industry companies, therefore it is extremely important to orient the CAP on markets, including development of information and promotion measures. These measures should facilitate the sale of our food products outside the EU, and the position of these products is based on quality, originality and food safety. Currently, the primary purpose of measures is to raise consumer awareness about the quality of food products from the EU, which should result in increasing their sales in global markets and gain a distinct competitive position of our food producers.

In summary, the competitiveness of Polish agri-food sector eight years after the accession can be assessed as quite high. The progress made in this area during the period of Polish membership in the Community, including the strengthening of Polish food producers on the EU and global market, resulted, of course, from the economic conditions,

such as freedom of Polish trade with other EU countries and the development of the global market. However, it would not be so significant, if not for the impact of the instruments of the Common Agricultural and Trade Policy. The next years should witness further development of the Polish food industry and an improvement of our competitiveness, but at a pace much slower than in the period of Poland's integration with the European Union. Pro-export attitude of Polish agri-food sector and its strong connection with one outlet market (EU) makes it more sensitive to changes in factors affecting the agri-food trade.

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# Realities and Recovery Solutions for Romania's Agriculture

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## ABSTRACT

The article deals with the situation of Romanian agriculture and it also presents the measures that could lead to its recovery. It is emphasized the idea that the division of agricultural land, namely the 10 million hectares that became 48 million lots of lands, is to blame for the current situation in agriculture. In Romania, there is the smallest average agricultural exploitation from European Union, namely 2.47 hectares. It was stated that this is the cause why we import 70% of food products we consume. The assumption is believable, but it can be indirectly questioned if we present statistical data according to which, today over 50% of the agricultural land of our country is already covered by medium and large surface exploitations. Hence, we can conclude that whether 100% of the agricultural land would be included in such exploitations – a thing impossible to accomplish in Romania – we should still import 35% of the consumable food. This happens in a country with a lot of agricultural land and appropriate climate conditions, being able to feed at least double the population. Therefore, it results that Romanian agriculture has reached the current situation not only because of agricultural lands division, but also due to other causes.

**Keywords:** agriculture, market, measures, development, standards, products

## THE DRIFTING ROMANIAN AGRICULTURE

When talking about the agriculture' situation, it is often said that Romanians focus on effects and not on causes. There are no reasons to believe that this statement would be unjustified. However, we have to say that in newspapers, on TV, in conferences and seminars, the actual situation from Romanian agriculture was assigned to certain causes. Thus, it is said that the whole guilt belongs to agriculture collectivization, namely the former agricultural production cooperatives (CAP). Analyzing mountain agriculture, it results that in this field the disaster is bigger than in the field that was collectivized; in spite of the fact that there was no collectivization in the mountains. Today, our mountains are depopulating; the herds of cattle and sheep plummeted dramatically. In Dorna area, milk is imported from Germany. In a milk factory in Rucar, from a truck of imported powder milk the factory will produce ten trucks of consumption milk for native people. Our forests are exported as logs and not as furniture as it was many years ago.

At the same time, it was emphasized the idea that the division of agricultural land, namely the 10 million hectares that became 48 million lots of lands, is to blame for the current situation. "In Romania, there is the smallest average agricultural exploitation from European Union, namely 2.47 hectares." (Bacescu, 2008:45) It was stated that this is the cause why we import 70% of food products we consume. The assumption is believable, but it can be indirectly

questioned if we present statistical data according to which, today over 50% of the agricultural land of our country is already covered by medium and large surface exploitations. Hence, we can conclude that whether 100% of the agricultural land would be included in such exploitations – a thing impossible to accomplish in Romania – we should still import 35% of the consumable food. This happens in a country with a lot of agricultural land and appropriate climate conditions, being able to feed at least double the population. Therefore, it results that Romanian agriculture has reached the current situation not only because of agricultural lands division, but also due to other causes. “The actual world crisis is not a recurring one, as we might believe, but an organic system crisis that affects, to a great or small extent, all the subsystems of world economy.” (Bulgaru, 2011:20)

It was insistently stated the idea that agriculture could save the Romanian economy. Here is the core of the problem. Modern agricultures and with a substantial contribution, direct and indirect to GDP, can only belong to developed countries and not to the desindustrialized ones. The agriculture of a country has to be an important market for its own national industry. Let's take for instance the tractor factory in Brasov which ceased the production and its land became real estate property. Romania used to be one of the biggest producers and exporters of tractors worldwide. In Iran there was a manufacturing line for 10.000 Romanian tractors a year and the payment was made in crude oil. In cooperation with Fiat-Alis tractors were exported even in the USA. Nowadays, Romanian agriculture became a commodity market for foreign industries, not only for tractors but also for trucks, combine harvesters, computers etc. And to complete the general framework, we can add that the village inhabitants purchase imported television sets, vehicles, refrigerators and more. “All these above mentioned issues affected seriously the economic macro-stability because they generated the hyperinflation state which determined a strong instability and depreciation of national currency.” (Bacescu, 2012:33)

At the same time, we should take into account how and what the Romanian agriculture produces. In a certain agricultural year, the added value on cultivated hectare in Romania was 858 dollars in comparison to 2.435 dollars the European Union average. Huge differences can be seen if we take into account cheese (rockfort, Danish ones), wines, champagne and refined beverages imported from France, Scotland etc. Productivity in agriculture can almost reach, in developed countries, the level of productivity in industry and services. Moreover, we have to take into account the fact that with the modernization of agriculture, it absorbs less workforce. In USA, although only 3% of the active workforce is involved in agriculture, the Americans are important exporters of agricultural products. “The issue of rural population, overall, as well as the agricultural population, rises serious and multiple problems, such as demographic, social, political, sanitary, cultural, ecological problems, integrated in the general context of social and economic development.” (Bulgaru, 2012:104)

Until now, we have dealt with certain issues at macro level. Further on, we will refer to specific, obvious aspects. Due to the fact that globalization means westernization, and this means in fact Americanization, our presentation will be made in comparison to the situation in the United States of America. Let's take an example: year 1973, a farm of 1200 acres (485 hectares) where mainly cattle were raised, well known for the meat. The administration of the farm was made on the computer and the respective agricultural surface was worked by two permanent persons, plus four day-laborers hired from spring until autumn. Amazingly, the farm had yearly an average income per capita of 40.000 dollars; this parameter being at the level of the one accomplished by the American industry of computers at that time. Visiting the farm, you would have expected to be invited to taste some veal “Black Angus” raised in the farm. But the meat was delivered wholesale to the slaughter-house. The farmers said that they buy the meat, milk and other food products from hypermarket as the other Americans. Obviously, the steak from “Black Angus” meat bought from hypermarket will never have the



taste of meat from a calf raised by a peasant in the Apuseni Mountains. The question is, if and when globalization will force peasants or farmers from Romania to reach the level of the American farmers since 1970.

Now we should refer to a paradoxical aspect. Since Baiazid Ilderim time, the Turks used to take (for free of course) our agricultural products. During World War II, in order to wage war in the East, Hitler bought from Romania not only oil but also other agricultural products. Today, there is a change. When we go to the market, we are obliged to buy potatoes from Germany, tomatoes and carrots from Turkey. Not to speak of apples, pears, garlic etc imported from China (that succeeds in feeding its 1.3 billion inhabitants), France, Austria, Argentina and other countries. "In a market economy system, the main producers of goods necessary for people are always the economic agents who work in the agricultural and industrial field. The existence of construction and services activity is justified only by the existence of agriculture and industry." (Fota, 2011:50)

Paradoxically, the Romanian agricultural products cannot be exported because they do not meet EU quality standards. It is possible, but they still have taste. During the last forty years, in the USA, it was noticed that their agricultural products were losing the taste. Although they look very well, the apples, water melons, plums, grapes and tomatoes do not have any taste, as they used to have. If you ask Americans about the taste of the fruits and vegetables, they say that they are delicious. Due to the taste deterioration during the years, Americans did not notice the change. But for those that visited America from time to time, the phenomenon was striking. It is said that the taste loss could be because of the genetic change of plants. Whether is true, than it is strange that in our country the idea of genetic modification is very much emphasized. Let's hope that, when the Romanian fruits and vegetables meet the EU quality standards, there will not be a similar deterioration in taste as the one in other products from hypermarkets. "All these show that the measures taken and the policies from the last years in the economic, financial, currency, monetary and prices field, are not appropriate, they did not manage to stop the production decline, on the contrary, they contributed to the crisis' worsening." (Dumitrescu, 2005:66)

Another much discussed issue is the one regarding the optimal size of agricultural exploitation. In the USA, the concentration of agricultural fields was the result of the market' strong forces. But we have to say that the American farmers benefited from subsidies, including for exports. Despite this situation, a farmer, owner of an agricultural field of 500 acres (202 hectares) meant for cereals cultivation, told that he went bankrupt; he could not face the competition of big farms because he could not renew his agricultural inventory. In our country there is much hope in fields' amalgamation by owners' association. Another approached issue is the foreigners purchasing of agricultural fields, some of them doing this only for speculation. Foreigners have already purchased 10% of the country arable surface, meaning almost 1 million hectares, most of the purchases being made near the west borders of our country. "In such conditions, we cannot count on the fact that the main purpose of territory arrangement is the harmonization at the level of the whole territory, of economic, social, ecological and cultural policies established at national and local level." (Bold, 2012:128)

The state of Romanian agriculture can be seen if you watch carefully the crops, even from your car or from a wagon train. Thus, if you travel in the USA, you can't see at all fields in decay, every piece of land being labored very thoroughly. At the beginning of September, if you watch from the train to Constanta, you couldn't see, in many places, the cultivated plants because of the weeds. Also from the train, to Transilvania this time, you could see agricultural fields left in decay. If you talk to a peasant, he will tell you that it is not profitable to work his land. The cost of plowing, of seeds, crop maintenance works, fertilizers, chemical pesticides is higher than what he obtains on the harvest. Especially, because he is forced to sell the harvest to some speculators or middlemen.

Another damaging issue for Romanian agriculture is the amount of plastic bottles and bags that you can see spread all over fields and even on trees. But in America there are no plastic bags and garbage along the roads. And this happens because of high fines. For instance if you throw a cigarette butt you risk to pay a fine of 250 dollars. “The differences in development, that led to the economic gaps, are a consequence of the historical conditions they generated. They arose in the framework of international work division and the international exchange flows.” (Bacescu, 2005:331)

The main differences between Romanian and American agriculture can be noticed if you visit a university campus and an experimental resort in the USA and then you pass through the campus of the University of Agricultural Sciences and Veterinary Medicine Bucharest from Marasesti Avenue’ entrance up to the greenhouses in the back. For instance, in the university campus UCLA in Santa Monica-California, you will see students reading on the grass or on the stairs of well kept and clean buildings. Through the experimental resort “Cornell University”, placed near Seneca Lake in the north of New York state, you can walk unhindered. Here you will find buildings surrounded by turf, roads, trees and fields all very well cared for. You can also see students and teachers digging the soil. Americans are not ashamed of manual labor. Through the University of Agricultural Sciences campus you can also walk but the scenery is completely different. Roads are full of holes, with garbage and weeds around and a lot of dust everywhere; the trees are not taken care of. In the north of the New York state there are orchards with dwarf apple trees very well cared for by the American farmers. “The fact that we are connected with the fundamental values do not allow to look trustfully at the future, despite the worrying reality we are engrossed in.” (Bidileanu, 2012:178) After visiting the University of Agricultural Sciences in Bucharest, you reach the conclusion that the fruit growing resort of 224 hectares in Baneasa was abandoned because nobody could keep it. Instead of trees that filter the air, a lot of villas and stores were built. From the above mentioned, the conclusion is that “three quarters of the population is the victim of poverty and great social gaps. Our century scandal is represented by unemployment, famine and poverty.” (Bulgaru, 2011:22)

## **PROPOSALS OF MEASURES FOR ROMANIAN AGRICULTURE’ RECOVERY**

Further on we present the main measures that could recover the Romanian agriculture:

Drawing up a study over the causes that triggered the crisis in order to find optimal solutions for controlling it; drawing up an anti-crisis program that should take into account the phenomena that led to the current domestic crisis: disorganization of agriculture (more than half of the agricultural fields are not cultivated), stopping the bank loans and the existence of an imperfect monetary policy; clear measures for controlling unemployment and helping the unemployed that could become a critical mass; measures for re-launching the agriculture and the agricultural machinery industry- that could lead to the increase in the work places.

Specific measures for agricultural development, starting from an analysis of advantages and disadvantages that Romania’s natural conditions present: high quality of soil, but reduced humidity; technical measures for agriculture; human resources qualifications; agricultural fields’ amalgamation in order to practice a modern agriculture; organizing a national conference which should present the results of scientific research regarding agriculture’ issues.

Specific measures for saving mountain agriculture; professional training of mountain farmers; creating a system for purchasing agricultural products at stimulating prices for producers by setting up certain associations in which the producers should be shareholders; the need to take into account the Romanian essential feature in the negotiations with the European Union Commission; encouraging the mountain boarding houses to develop; specific measures for

mountain environment' protection; subsidizing the agricultural production in the mountain area; drawing up certain protection measures for Romanian products; the state has to encourage peasants' joining in agricultural associations.

The trust in your own forces; to conform the fiscal system to the crisis situation; to increase the competitiveness of Romanian products with government support; to cultivate the agricultural lands on the whole; to modernize and make effective the agriculture and agro-food industry; the rise in the production of ecological food; to draw up a governmental strategy that should be approved by the European Union and that should be applied by the government. The strategy has to include the development of agro-food industry that before revolution had 300 factories, among which some of them could be rehabilitated, offering workplaces, superior valorization of agricultural production, prosperity of rural areas and regaining of domestic and foreign markets.

To recreate a state banking capital; the state should have again the monopoly over natural resources; to give up the single tax quota.

The need to strengthen the state role in order to surpass the crisis, including measures that focus on private sector; state institutions have to involve in order to bring back the natural resources in state patrimony.

The state has to have a major role in the crisis surpassing; drawing up a study regarding the current crisis following the plan: causes, effects, proposals of solutions.

The modernization and effectiveness of agriculture is the solution for getting out of crisis; the setting up of services for agriculture; the re-launching of industry for agriculture; the remaking of irrigation system; agricultural fields' amalgamation in farms; the re-establishment of agro-industrial complexes; the integration of agriculture with food industry and commerce.

The assurance of food security for population; the adjustment of agriculture to the European Union' requirements; the increase in the quality of agricultural products; farmers' training for the accession to the European funds; state support for agricultural production; promulgation of the Law regarding scientific research in agriculture; the organization of agricultural education.

The training of personnel in agriculture in order to access financing programs of the European Union; the extension of financing programs towards the small farmers; to create workplaces for young persons in the rural area; to solve the managerial crisis both at central and local level.

The state should encourage the poor young persons from the countryside to study; setting up agro-industrial-commercial associations in order to eliminate speculative prices of agro-food products; training persons that should be able to draw up programs that focus on attracting European funds; the European Union should not ban the import of agro-food products from Romania on a period of five years; measures from the state to encourage agricultural specialists that move in the rural area.

Drawing up a 20-25 year program for modernization of villages and separation of agricultural zootechnics area from the living areas; drawing up a ten year program for afforestation in order to improve the environment; setting up small and medium enterprises in the rural area in order to process agricultural products, especially the perishable ones; the revival of agricultural education specialized in agricultural area and the marketing of agricultural products; drawing up a single and attractive salary system for the specialists in agriculture and forestry.

## CONCLUSION

To sum up, we underline the following:

- the need to revise the way in which the state subsidies are granted in agriculture; it is necessary to grant subsidies on product, to subsidize services;
- the need of a coherent agricultural policy;
- to sustain small quantity production of family households;
- to introduce the system of agricultural planning that should assure food safety for population;
- the amalgamation of agricultural fields;
- the reintroduction of cooperative system;
- reconsidering the banking system;
- organizing the markets;
- developing the industry for agriculture;
- setting up a National Council for Food Security.

We have presented above some of our thoughts concerning Romanian agriculture and, at the same time, we hope that both the economy and the agriculture will recover as soon as possible.

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# Strategic Developmental Priorities of Sustainable Agriculture and Rural Development of Local Rural Communities within the Danube Region in Republic of Serbia

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## ABSTRACT

The sustainability of agriculture and rural development and their influence on sustainable development of the Danube region can be provided only through coordinated activity of agricultural and environmental policies on establishing the optimal balance of the present production systems in line with national and international legislation. Level of success will depend on level of cooperation intensity between various stakeholders (from the local and national to the regional and inter-regional level).

Paper presents part of the results gained by the project Strategic developmental priorities of local rural communities in the function of sustainable agriculture and rural development, implemented by the research team of the IAE Belgrade, as a segment of STAR project within the territory of Serbia.

Among many activities, the implementation of mentioned project was required establishment of strategic documents for the two pilot rural communities, local community Glogonj (located in the Pančevo city, within the Metropolitan area of Belgrade - Novi Sad) and local community Jasenov (located in the municipality of Bela Crkva, which can be considered as municipality that belongs to the Danube-Carpathian region in Serbia). Project realization required interdisciplinary work, as well as for this purpose defined specific activities and methodology.

**Key words:** *rural local communities, Serbia, strategy, rural development, sustainable agriculture.*

## BACKGROUND

Dynamic and sustainable development of agriculture and rural areas should be the resultant of the process in which key roles have local government, citizens and the agricultural sector. In practice, it considers establishment of territorial plan for protection and development of rural areas, as well as for integral management of sustainable development of agriculture.

Orientation of Serbia toward Euro-integrations requires a reconsideration of the definition of role and importance of agriculture and rural development within the used documents and practice. There was and still exists a need for establishment of new, clearly conceived frame for creation of local sustainable development strategies, as comprehensive response to the key issues of agriculture and rural development at the local level. Of course, policy of mentioned development has to be maximally aligned with the Common Agricultural Policy of the EU, which is more and more focused on rural areas development.

Since the 90' of XX century, EU members have started with establishment and insisting on *bottom-up* approach during the planning and implementation of activities related to agricultural and rural development. Instrumentalization of this approach was done with introduction of the

LEADER program. The basic idea within the mentioned program is that establishment and implementation of local strategies (strategies that define the developmental goals and activities in realization of planned goals) should be the result of joint work of local actors (local action groups, so-called LAG's)<sup>41</sup>, with respect of compliance principle of created developmental plans with the strategic documents at national and EU level.

Local strategy defines set of measures that will support local development, as well as speed up cooperation with regions from close and further surrounding.

Reformed rural development policy at the national level provides a wide range of measures, from which on local level priority activities can be selected, like as:

- Training;
- Analysis and development (establishment of feasibility studies, plans, revision of assets, prototypes of products and services);
- Establishment of innovative rural enterprises, craft workshops and local services;
- Exploitation of agriculture, forestry and fishery products;
- Improvement of natural, social and cultural environment;
- Make an initiative for with natural environment protection;
- Animation and building of social infrastructure capacities (encouraging and development of social groups through effective behaviour change (awareness), as well as through strengthening of enthusiasm and development of skills and resources for entrepreneurship promotion and employment);
- Initiating and strengthening of rural and agri-tourism.

Good cooperation between local community, scientific-research institutions and LAG's (especially developmentally oriented agricultural husbandries, SME's and entrepreneurs from the sphere of agro-complex) is necessary during the process of establishment of sustainable agriculture and rural development strategy of local rural communities. Only by close cooperation of all interested local stakeholders is possible to create real SWOT matrix of state of agriculture on local level (scheme of internal resources and development limitations, in the context of chances and threats from surrounding), then to define developmental goals and ways (directions) of investment activities that will lead to realization of established goals of sustainable development of agriculture.

In the process of more aggressive redirection toward the principles of market economy, sustainable development of agriculture and rural areas in Serbia should represent the components of unique strategy, which will contribute to proactive changes within the society.

As the rural areas occupy the largest part of the Republic territory, where the agricultural production represents the main source of husbandries income, development of agro-sector is of crucial importance, as for the community, as well as for the Serbian village as a whole. Approach to the sustainable development of agriculture and rural areas on certain territory (level of local community, municipality, city, region or country) assumes the initiation of the preparatory phase, or series of activities that include professional and expert engagement, necessary for establishment of development strategy as a basis for undertaking of complex development activities.

By strategic planning representatives of local community will be able to contribute to faster development of agriculture, as well as to better living conditions in rural areas. Development of agriculture and villages on certain territory considerably leads to development of same elements at national level, as well as to development of whole society.

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<sup>41</sup> The most important segment of the mechanism for implementation of LEADER program on local level is body so called LAG (local action group), which is consisted from representatives of different social, economic and political sectors within the local community.

For many years present transition processes in Serbia have not bypassed the rural areas. Changes within the national agricultural policy, in terms to redirection to rural development and multifunctional agriculture, have led to inclusion of all stakeholders from governmental institutions, through local community to population of certain rural areas into developmental processes.

Participation of all community representatives in the identification process of available opportunities and priorities of high importance to local community is a key element necessary for establishment of appropriate strategic document. Each local community should independently come up with the most suitable model for creation of sustainable development plan (Strategy of sustainable agriculture and rural development) based on wholeness, integrativity and social consensus (participation of citizens, agriculturalists and all interested stakeholders), with main goal to enable much more efficient decision-making process during the realization of future investment programs.

Sustainable development of agriculture and complete rural development of rural local communities should be directed to:

- Improvement of material and social status of local population;
- Promotion of integral rural development model based on strengthening of relations between rural and city economy;
- Polarisation of agricultural structure;
- Diversification of economic activities in rural areas; etc.

## **MATERIAL AND METHOD**

From the aspect of papers' title, employees of the Institute of Agricultural Economics – Belgrade were participated during the period November 2010 – November 2011 in realization of STAR project on the territory of Republic of Serbia. In other words it was delegated to them realization of sub-project Strategic priorities of local rural communities in function of sustainable agriculture and rural development.

Besides all, implementation of mentioned sub-project considered establishment of strategic documents for two pilot rural communities. First local community - Glogonj is located in the surrounding of Pančevo city, or within the Metropolitan area of Belgrade - Novi Sad (are covers administrative territory of Belgrade city (17 municipalities) and Novi Sada city (2 municipalities), as well as municipalities on the axle Belgrade – Novi Sad that gravitate to Danube river: Beočin, Irig, Sremski Karlovci, Inđija, Ruma, Pećinci, Stara Pazova, Pančevo i Smederevo). Second local community – Jasenovо is located on the territory of Bela Crkva municipality, that according its geographical position and specific potential of projects related to tourism, cross-border and transnational cooperation belongs to Danube-Carpathian region within the Republic of Serbia. This region generally covers administrative area of municipalities of Golubac, Kučevo, Majdanpek, Kladovo and Negotin.

Complexity of sub-project required a team-interdisciplinary work of larger group of researchers, while research work included the following activities (phases) and methodology:

- ***Organizational and methodological preparation for the implementation of sub-project. This phase involves following activities:***
  - Preparation of questionnaire for evaluation of current conditions within the segment of agriculture and rural development of local rural community;
  - Training and introduction of LAGs with methodology for local strategy establishing (with main goal to involve greater number of them in mentioned process);
  - Analysis of statistical data;

- Processing of relevant national and international professional literature (analysis of secondary data resources, or desk research methodology), or national and international strategic documents;
  - Defining of tasks for each member of research team;
  - Establishing of appropriate level of cooperation with representatives of local government and all stakeholders; etc.
- ***Establishment of information base (creation of database) of potentials, resources and limitations of agricultural development on the level of local community and all stakeholders*** – methodologically this activity considers direct cooperation of scientific-research institution with local community in the field of poll survey of all interested stakeholders (developmentally oriented husbandries and enterprises from the agro-business), with analysis of available documentation of local/city/municipal government, that is from help in real and complete overview of current state of agriculture (resources, possibilities and limitations) in rural community.
  - ***Detail analysis of obtained data through poll survey of all available secondary data resources (statistical data, strategic national documents, professional literature, documentation of local community, etc.)*** – this phase considers creation and analysis of SWOT matrix for agriculture and rural development of rural local community, that is precondition for real overview of internal (local) strengths (potentials) and weaknesses (limitations) of agricultural development, as well as chances and treats that arise from local, regional, national and international surrounding.
  - ***Defining of goals and strategic priorities of rural and agricultural development for chosen local rural communities according the SWOT matrix*** – with respect to all national strategic documents from the field of agriculture and environment protection (legislative, strategies, programs, plans), as well as Common Agricultural Policy of EU that more and more take attention to development of rural areas. Methodology of this activity includes next:
    - Real evaluation of local potentials and possibilities, as well as limitations for development of agriculture;
    - Defining of rural development goals, as well as goals for sustainable agriculture of local rural community development;
    - Processing of investment recommendation of interested actors and local government;
    - Defining of strategic developmental priorities of local rural community, which are in function of sustainable agriculture and rural development;
    - Preliminary evaluation of suggested investment projects as a priority from aspect of possibilities for financing, existence of market demand for recommended products/services, as well as from aspect of economic and social justification of investments and contribution to sustainable development and environmental protection.
  - ***Establishment and public presentation of Strategy of sustainable agriculture and rural development for chosen local rural communities, with defined state of agriculture (SWOT matrix), strategic goals and priority investment projects, which are in function of defined goals achievement*** – this activity considers publishing of Strategies for mentioned local communities, its public presentation with appreciation of all constructive suggestions, proposals and comments of professional and scientific auditorium and all relevant participants from the agriculture of local community.



## RESULTS AND DISCUSSION

Within the Danube region is concentrated great part of Republic high quality agricultural resources and food processing capacities. According to accepted rural regionalization on national level, they are located in:

- *Upper Danube region*, territory with highly intensive agricultural production and integrated economy;
- *Urban area of Metropolitan territory (Belgrade - Novi Sad)*;
- *Mountain region* with economy primarily based on natural resources (Carpathians within the Republic of Serbia).

Development of sustainable, multifunctional agriculture, appropriate to heterogeneous natural-geographic, resource and socio-economic specificities of cities and municipalities in the Danube region is well aligned with the strategic activities in the Republic of Serbia on the establishment and implementation of the EU Danube Strategy, that are relating to the environment protection and diversification of activities in local economies.

As was earlier mentioned, realization of suggested sub-project was based on concrete research activities on the level of local rural communities (method of poll survey and infield-market research), experts redirections (national and international consultants), as well as by respect of number of officially published strategic, professional and statistical documents from this domain.

As each local rural community has to find for itself the best possible modality for creation of sustainable development plan, its essence has to be in establishment of strategic document that is based on wholeness and integrativity, in other words on real participation and decision making process of all interested stakeholders.

During the defining of strategic plan have to respect three key elements such are: participation of local population and local government; social consensus; sustainability. For achieving of established priorities of sustainable development of local rural community, next activities were done: establishment of local strategy of sustainable agriculture and rural development; forming of information centre; rebuilding and modernization of infrastructure; etc.

Results that are expected within the mentioned rural communities during the following long term period (2012-2022) are:

- Increase of competitiveness;
- Complete use of all resources;
- Balancing of agricultural production with natural suitability and limitations, as well as with market demand;
- Increase of employment and population incomes; etc.

Considering principle of optimality, local strategy of sustainable agriculture and rural development in SWOT environment is *mini – maxi strategy* that carry „minimization of own weakness“ on one side, and „maximization of chances in surrounding“ on other side.

Users of realized sub-project results are/can be: in Glogonj village (local rural community), in Pančevo city (local government); in Jasenovo village (local rural community), in municipality of Bela Crkva (local government).

During the defining of strategic (developmental) plan for proposed local rural communities, it was necessary to take appropriate preparatory activities, such as: identification of local actors; training of local stakeholders to identify and define their own development priorities; education of local stakeholders about methodology for establishing and implementation of local sustainable development strategy; etc.

Only by adequate training for proper use of scientific-research methods for identification of advantages and limitations of the local community, as well as determination of developmental priorities and strategic planning, representatives of local community are enabled to contribute to endogenous development and improvement of life quality in their environment. Such this approach

to rural development ensures successful integration of community into the broader developmental processes (at regional and national level) and facilitates cross-border cooperation and participation in the EU pre-accession support programs.

Besides aforementioned, realization of sub-project on the territory of Glogonj and Jasenovo rural communities, enables achievement of some other results, such are:

- Each local rural community gets strategic document „*Strategy of sustainable agriculture and rural development*“ (for period 2012-2022), that on basis of wholeness, integrativity and established social consensus (participation of agriculturalists, local government and all stakeholders) represents reliable base for efficient decision making process in future investment programs/projects of rural development and sustainable agriculture;
- Since they are based on SWOT matrix, recommended goals and priority investment projects, through each strategy of sustainable agriculture and rural development, will contribute to minimization of threats from surrounding and weaknesses of local rural community and interested stakeholders, or maximization of chances from surrounding and strengths/resources of local rural community and interested stakeholders;
- Approach to rural development, through realization of mentioned sub-project will provide more successful integration of local rural community in wider developmental processes and will facilitate cross-border cooperation and use of EU funds.
- Set of suggested investment projects within the Strategy of sustainable agriculture and rural development of local rural communities is in accordance to strategic national documents that regulate environmental protection and sustainable use of natural resources. Particular priority carry projects that lead to: improvement and protection of environment; decrease of current negative influence of agriculture to environment; insurance of viable development of economy and sustainable use of natural resources; energetic efficiency; introduction of so called clean technologies; protection of biodiversity; waste reduction; etc;
- If during the implementation of future investment projects targeted local rural communities lean on established Strategies of sustainable agriculture and rural development that will secure status of investment in function of: sustainable development of agriculture and rural areas; increase of entrepreneurship, employment and incomes of rural population; remaining of agriculturalists in rural communities (decrease of migrations toward urban centres); etc.

During the sub-project implementation on the territory of mentioned rural communities, urgency of certain activities was noticed, as are:

- *Within the Glogonj rural local community:*
  - Reconstruction of water system (change of asbestos pipeline and connection to city water system);
  - Upgrading and expansion of existing sewage system;
  - Building of plant for a waste recycling and composting and accompanying facilities (offices, storage, parking);
  - Construction of infrastructure for production, transport and usage of renewable energy;
  - Remediation and reclamation of illegal landfills;
  - Reparation of septic tanks in use.
- *Within the Jasenovo rural local community:*
  - Building of sewage system;
  - Building of gas pipeline;
  - Construction of facilities for production, transport and usage of renewable energy;
  - Construction of plant for waste recycling and composting;
  - Remediation and reclamation of illegal landfills;
  - Septic tanks reparation.

## CONCLUSION

Different natural and socio-economic resources within the Danube basin area allow the use of various agricultural production systems: from the intensive production of cereals and oil crops on the Upper Danube and Ključ-Negotin plain, through intensive conventional and organic food production in Metropolitan area, to extensive livestock breeding production based on grazing and traditional and organic production of local meat and dairy products, as well as fruit and grapes production in the high nature value farmland areas along the Danube river.

Development of strategic documents for the two pilot local communities Glogonj and Jasenovo, located within the Danube basin on the territory of the Republic of Serbia, defined several strategic developmental priorities of observed local rural communities that are in function of sustainable agriculture and rural development. By overview of applied methodological approach and interdisciplinarity of phases, during the mentioned documents establishment can come to valuable tool for general selection of strategic developmental priorities within the agriculture and rural development of other local communities on the territory of the Danube basin.

## ACKNOWLEDGEMENT

Paper work is a part of the project researches no. III 46006 - *Sustainable agriculture and rural development in function of Republic of Serbia strategic goals achievement within the Danube region*, financed by the Ministry of Education and Science for the period 2011-2014 and project *Reform of Serbian Agriculture in Transition (STAR project)* - sub-project *The strategic development priorities of local communities of sustainable agriculture and rural development*, funded by the Ministry of Agriculture, Trade, Forestry and Water Management, project period 2010 - 2012.

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# **Polish food industry against the background of the changing market environment**

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## **ABSTRACT**

Integration with the EU had positive impact on acceleration of Polish food industry production growth, and the several years of adjustment to the EU requirements significantly changed the image of Polish food companies on the Single European Market. Polish food industry has become a significant food producer on the European market and Polish food processing plants have been recognised as the most modern in the EU. The food industry in Poland has been developing faster than in the EU-15 states and is leading in EU-12. EU integration has been facilitating an increase in the production value of the Polish food industry and the several years of the adaptation process to EU requirements has changed the image of Polish food companies in the Common European Market. The Polish food industry has become an important food producer on the European market, with Polish food processing plants being among the most modern in the European Union. One of the main factors contributing to the development of the food industry in Poland is the export of food products, which has been rapidly growing since EU accession. There is an ongoing process of closing the gap between Poland and the EU-15 in terms of the development of the food industry. Polish industry has been developing at one of the highest rates in the EU, with its position on the Common European Market gaining strength year by year.

## **KEY WORDS**

food industry, food production industry, food producers, food sector, food products

## **INTRODUCTION**

The aim of this paper is to illustrate the development of the Polish food industry. Influenced by the EU integration process, it was a period marked by major changes within the entire Polish economy. Starting already from the late 90's, the food sector had been fundamentally restructured and modernised. The 2000-2003 period brought structural changes in the area of food production as a result of the need to comply with EU requirements. Many years of transformation of the Polish food industry have caused the productive, ownership and business structure to change. A diversified structure has emerged to facilitate the competitiveness of our food industry within the Common European Market. Currently, the Polish food industry is successful in competing with other food and drinks producers from other EU states. Thanks to its considerable production capacity, as well as its diversified range of high-quality food products, the Polish food industry has made its presence felt within the European market.

## **MATERIALS AND METHODS**

This study is based on statistical data from the *Central Statistical Office*, the Ministry of Finances, Ministry of Agriculture and Rural Development, the Analytical Centre of the Customs Administration, which were used for the analysis of data concerning foreign trade with agro-food products and Polish food industry. The assessment of the development of the Polish food industry compared to other EU states was carried out based on data provided by Eurostat and the CIAA (the Confederation of the food and drink industries of the EU). During the period 2000-2008, the average rate of the advance of the food industry in the EU states, expressed at fixed prices, was calculated based on the dynamics of production value at current prices (expressed in EUR) adjusted for the inflation rate in the respective EU states. In turn, a comparative analysis of the food industry was carried out based on converting the value expressed at current prices into comparable prices with the use of the purchasing power ratio (parity) of the euro in the respective EU states.

### **Dynamics of food industry development and its environment**

In the years before Poland's accession to the European Union (i.e. 2000-2002) the pace of food industry development was slow – reaching the level of 1.6% per annum and was several times as slow as in the second half of the 1990's. Dynamic increase of food industry production took place in 2003. Production sold of this sector increased by 7.7%, which, *inter alia*, resulted from the expected increase of food prices in Poland upon accession to the EU. Production revival was maintained in the years to follow (2004-2007), and the average pace of food industry production growth was 6.3% per annum. In the subsequent years, the development dynamics of this sector was decreased due to e.g. the global economic crisis and recession in the Community states – main recipients of our food. In the whole period in question (2001-2010), industrial production of food, drinks and tobacco developed by 4.4% per annum (Table 1).

Table 1. Comparison of the pace of development of food industry production and its market environment (in %)

Years	Growth of production sold as compared to the previous year		Growth as compared to 2000							
	food and drinks	food industry	global production of agriculture	commodity production of agriculture	GDP	industrial production	food industry production	consumption of food, drinks and tobacco	export of food industry products	import of food industry products
2001	4.9	4.3	5.8	2.9	1.2	0.6	4.3	0.9	17.0	10.1
2002	-0.3	-0.2	3.8	7.2	2.6	1.7	4.1	2.4	17.4	9.3
2003	7.9	7.7	3.0	12.8	6.6	10.1	12.2	3.5	34.7	6.6
2004	3.7	3.6	10.7	16.5	12.3	24.0	16.2	6.4	75.0	32.5
2005	7.1	7.0	5.9	11.2	16.3	28.6	24.4	8.2	140.7	71.1
2006	6.2	6.6	4.7	15.8	23.5	43.5	32.7	12.1	195.5	105.3
2007	7.2	6.9	10.8	17.6	31.9	58.9	41.9	14.7	245.4	149.6
2008	1.1	0.4	14.4	24.7	38.7	64.6	42.5	17.4	293.6	210.2
2009	3.8	4.0	17.1	28.6	47.1	57.2	48.1	17.8	284.2	203.7
2010 <sup>a</sup>	4.4	4.4	14.7	28.0	52.7	72.5	54.6	18.1	360.2	249.6
2011 <sup>b</sup>	3.8	3.8	.	.	59.3	84.4	60.5	18.1	393.4	278.8

<sup>a</sup> insufficient data, <sup>b</sup> forecast based on 8 months

Source: J. Drożdż, *Rozwój produkcji przemysłu spożywczego*, [in:] *Procesy dostosowawcze polskiego przemysłu spożywczego do zmieniającego się otoczenia rynkowego*, ed. R. Mroczek, series: *Multiannual Programme 2011-2014*, Report no. 4, IAFE-NRI, Warsaw 2011, p. 10.

Dynamics of food industry development in the previous decade was lower than of the whole Polish industry (5.8% per annum), but simultaneously it was faster than the pace of gross domestic product growth (3.9%). Production sold of food industry increased twice as fast as commodity production of agriculture (2.5% per annum) and 2.5 times as fast as food, drinks and tobacco consumption. Pace of development of agri-food products export was the highest (nearly four times as high as of food industry) and slightly lower was that of import of the said products, which increased by nearly 14% per annum (Table 1) [Drożdż].

Within 11 years, as a result of such changes both in food industry and its market environment, increase by 60.5% of food, drinks and tobacco production was noted, against the increase of production of the whole Polish industry by 84.4%. Food industry production growth in the period in question was similar to the gross domestic product growth (by 59.3%). Simultaneously, it was decidedly higher than that of commodity production of agriculture (28% within 10 years) and of consumption of food, drinks and tobacco (18.1%) (Table 1). It may be stated that food industry enhanced its position in the food sector and increased its share in satisfying domestic demand for food. On the other hand, its position in the whole Polish industry and the whole economy has been decreasing, which is mainly attributed to the change of consumption models and decreasing share of food in population expenditure and income [Drożdż]. Share of food industry in gross domestic product of Poland, measured by gross value added (GVA), is ca. 2.7%.

In the 2000-2010 period, export of food products increased from PLN 9.8 billion to PLN 45.2 billion, whereas production sold of food industry increased from PLN 92.2 billion to PLN 162.3 billion. In that period, the share of export in production sold of this sector increased from 10.5% to 27.8%. Consequently, over half (51%) of food industry production growth was located on foreign markets. This means that, without the development of export being outcome of integration with the European Union, increase of production of the sector would be half as small. Export was not only a significant outlet for Polish food industry products but also stimulated the economic situation of numerous trades and contributed to the improvement of economic and financial results of food industry.

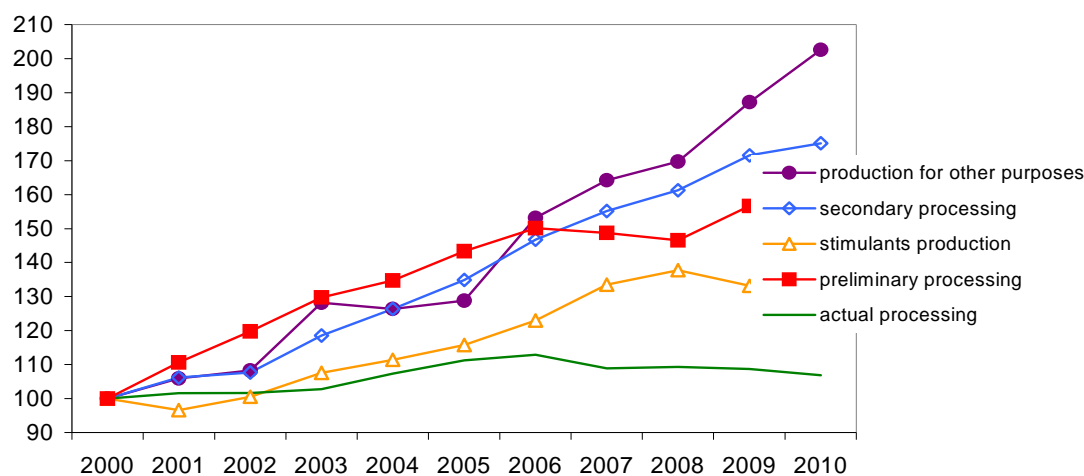
### **Development of the respective directions of food processing**

Development of the respective directions of food processing had varying intensities. In the previous decade, articles intended for purposes other than food (fodder for farm animals, petfood, dehydrated and denatured alcohol, esters and isoglucose and glucose) demonstrated the greatest dynamics of development. Production of these products increased by 7.5% per annum and its value (calculated in fixed prices) in 2010 was twice as high as at the beginning of the decade (Fig. 1).

In the previous decade, secondary processing of food, including tinned food, dishes, ready-mades and other multi-ingredient products as well as various types of snacks, desserts and non-alcoholic drinks, developed rapidly. Its pace of development reached 5.8% per annum and was faster than of the whole food industry. Highly processed food production increased by 75% in 2000-2010. The greatest increase of pace of development of this line of processing was noted directly before integration (in 2003), after which time it remained on the high level even in the crisis period (in 2008), when production of the whole sector increased by only 0.4% [Drożdż].



Fig. 1. Dynamics of development of the main directions of industrial processing of agri-food products (2000=100)



Source: J. Drożdż, *Rozwój produkcji przemysłu spożywczego, [in:] Procesy dostosowawcze polskiego przemysłu spożywczego do zmieniającego się otoczenia rynkowego*, ed. R. Mroczek, series: *Multiannual Programme 2011-2014, Report no. 4, IAFE-NRI, Warsaw 2011, p. 13.*

High production growth was also reached in the so-called pre-processing of agricultural products (i.e. industrial slaughter, processing of milk, rape, sugar beet, fruit and vegetables as well as milling of cereals for food and fodder uses and their industrial use). Value of pre-processing in the 2000-2010 period increased by over a half and average annual pace of its increase was slightly higher than of the whole food industry and reached 4.6%. Recently (since 2007) not only decrease of pace of development of this direction of processing was noted, but simply a slowdown or even a slight decrease (except for 2009). High pace of development of agricultural primary material processing was noted directly before integration (2001-2003). Growth of this processing in the following years was slightly slower than that of global agricultural production and, consequently, growth of the share of food processing in developing agricultural production was not noted. Industrialisation of this processing was halted also due to low fruit and vegetables harvest in 2007 and of sugar beet in 2008 [Drożdż].

In the 2000-2010 period, the value of production of stimulants increased by nearly 40%, i.e. by 3.7% per annum, i.e. slightly slower than that of the whole food industry. Increase of development of spirits and tobacco production, with a considerable decrease of wine sector production (by nearly a half) was the new phenomenon after integration with the EU. Production of standard food articles, i.e. the so-called actual processing, developed the slowest. In the period in question, the value of production of this line of processing in fixed prices increased by 7% (i.e. at the pace of less than 1% per annum) (Fig. 1).

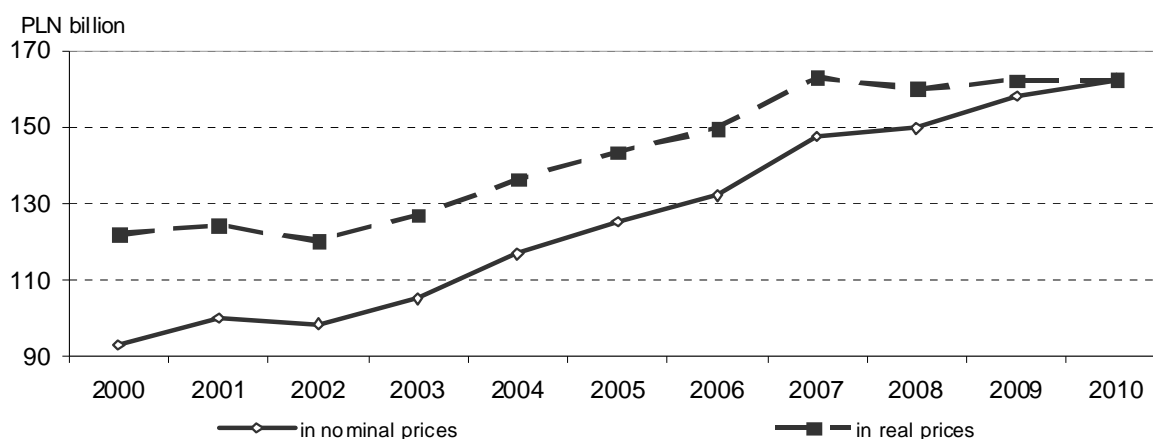
Assessment of changes in production of the main groups of food industry products demonstrates slow pace of increase or decrease of production in branches subject to quotas (sugar, potato starch, isoglucose production and milk processing). On the other hand, constant and fast development of manufacture of products not intended for human consumption, in particular related to the biofuel sector and sectors with developed export orientation (e.g. tobacco, fish products, certain confectionery, etc.) and those meeting the needs of dynamically developing segments of national food market (e.g. all drinks, snacks and desserts

as well as highly processed food) was noted. These are the branches directly or indirectly related to benefits and capabilities of integration with the EU (development of foreign trade but also increase of consumer income).

### Value of production sold of food industry

Value of production sold of food industry (in basic prices)<sup>42</sup> in the previous decade increased by  $\frac{3}{4}$  from PLN 92.9 billion in 2000 to PLN 162.3 billion in 2010 (Fig. 2). The growth resulted from increased export of agri-food products from Poland (in particular after 2004) and increasing domestic demand. Average growth of production sold in the period of 2003-2010 nominally reached 6.4% per annum, and in the 2000-2003 period - 4.2% per annum.

Fig. 2. Value of production sold of food industry (with micro-companies) in basic prices



Source: Own calculations based on CSO Statistical Yearbooks 2001-2011.

Real value of production sold of food industry (in prices of 2010) also demonstrated an increasing tendency<sup>43</sup>. It increased by  $\frac{1}{3}$  from PLN 121.9 billion in 2000 to 162.3 billion in 2010, i.e. its average pace of growth was over twice as low as in nominal prices. However, recent years marked halting of the increasing tendency of real value of production sold of Polish food industry, which resulted from the global economic crisis and slowdown of economic development in the Community states, i.e. main recipients of Polish agri-food products. In the 2007-2010 period, increase of nominal value of production sold of food industry slowed down to ca. 3.3% per annum, and its real value was stable.

Value of production sold in food industry enterprises increased by over  $\frac{3}{4}$  from PLN 84.5 billion in 2000 to PLN 151.1 billion in 2010 (Table 2). The majority of sectors (except for wine, tobacco and sugar sectors) managed to increase income on sales in this period.

The greatest increase of the value of sale, nominally exceeding 10% per annum, was noted by the following branches: food concentrates, poultry and fish. Good results were reached by the following sectors: dairy, milling, oil-mill, production of juice, non-alcoholic drinks, bakery, pasta and brewing (nominally over 6%, in real terms over 3%). Five branches noted negative real increase of the value of production.

<sup>42</sup> Value of production sold is calculated at the so-called basic prices, which are lower than real implementation (sales) prices by the value of indirect taxes (i.e. excise and VAT).

<sup>43</sup> Conversions of the nominal value at current prices into real ones was performed with inflation indices, i.e. retail prices of goods and services, which were higher than the pace of increase of food products, drinks and tobacco producer prices. Therefore, changes to real value of food industry products are different (smaller) than when evaluation covered the development of this sector in fixed prices, i.e. based on producer prices indices.

Share of the respective branches in the value of production sold of food industry greatly differs, and changes of the last decade depended on numerous factors, e.g. increase of demand and consumer preferences, availability of raw material and its prices.

Table 2. Value of production sold of food industry enterprises (micro-companies excluded)

Branch of industry	Production sold in PLN million				Change in % per annum		Food industry production structure in %	
	in nominal prices		in real prices		nominal	real	2000	2010
	2000	2010 <sup>b</sup>	2000	2010				
<b>Food industry</b>	<b>84,507</b>	<b>151,112</b>	<b>111,604</b>	<b>151,112</b>	<b>6.0</b>	<b>3.1</b>	<b>100.0</b>	<b>100.0</b>
including:								
Meat	16,855	28,457	22,114	28,457	5.4	2.5	19.9	18.8
Poultry	3,096	9,616	4,062	9,616	12.0	9.0	3.7	6.4
Dairy and ice-cream	11,357	21,404	14,900	21,404	6.5	4.7	13.4	14.2
including: dairy	10,809	20,596	14,181	20,596	6.6	4.8	12.8	13.6
Fish	1,791	4,849	2,350	4,849	10.5	7.5	2.1	3.2
Milling	3,224	6,459	4,229	6,459	7.2	4.3	3.8	4.3
Oil-mill	2,014	3,643	2,642	3,643	6.1	3.3	2.4	2.4
Sugar	3,922	3,695	5,146	3,695	-0.6	-2.5	4.6	2.4
Potato	980	1,042	1,286	1,042	0.6	-1.7	1.2	0.7
Fruit and vegetable	4,641	6,586	6,089	6,586	3.6	0.8	5.5	4.4
Juice production	1,470	3,204	1,928	3,204	8.1	5.2	1.7	2.1
Non-alcoholic drinks	3,286	6,584	4,311	6,584	7.2	4.3	3.9	4.4
Fodder	5,382	9,458	7,061	9,458	5.8	3.0	6.4	6.3
Bakery	4,675	9,438	6,134	9,438	7.3	4.4	5.5	6.2
Sweetmeat	4,810	7,877	6,311	7,877	5.1	2.2	5.7	5.2
Pasta	443	971	581	971	8.2	5.3	0.5	0.6
Coffee and tea processing	1,630	1,996	2,139	1,996	2.0	-0.6	1.9	1.3
Food concentrates	3,398	10,287	4,458	10,287	11.7	8.7	4.0	6.8
Spirits	1,653	2,589	2,168	2,589	4.6	1.8	2.0	1.7
Brewing	4,852	9,035	6,366	9,035	6.4	3.6	5.7	6.0
Wine	1,061	607	1,392	607	-3.6	-4.6	1.3	0.4
Tobacco	3,718	3,014	4,878	3,014	-1.7	-3.3	4.4	2.0

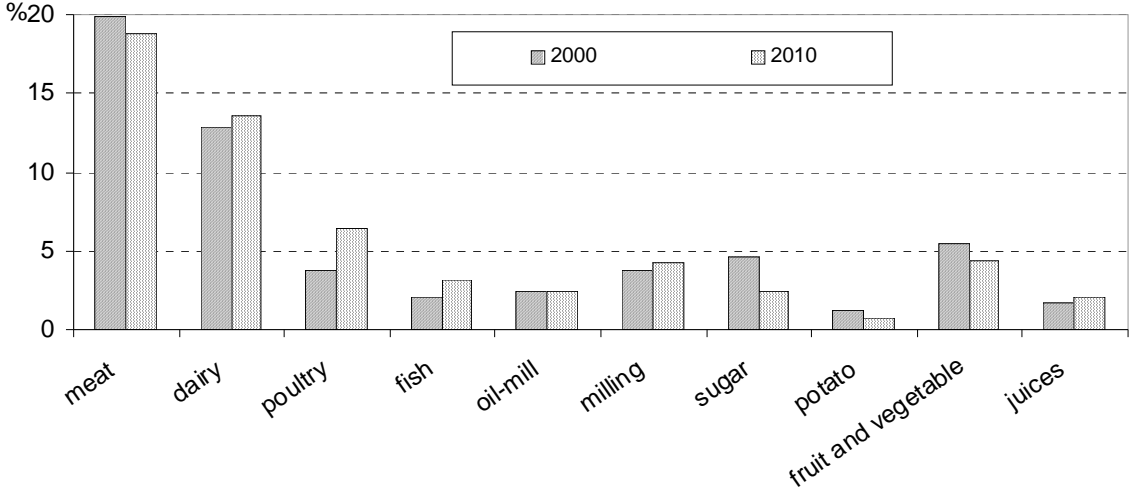
<sup>a</sup> in prices for 2010; <sup>b</sup> own estimates

Source: Own calculations based on unpublished CSO data.

The strongest position in the food industry structure (Fig. 3 and 4) was held by 2 sectors, i.e. meat and dairy. The first lost slightly, whereas the latter gained slightly as the share of meat sector decreased by 1.1 percentage points to 18.8%, whereas the dairy sector increased by 0.8 percentage points to 13.6% in 2010. Sectors which noted the greatest increase of production sold enhanced (improved) their positions to the greatest extent. The group includes: poultry sector (increase of share from 3.7 to 6.4%), food concentrates (from 4.0 to 6.8%) and fish sector (from 2.1 to 3.2%). Share in the development of production sold of food industry was increased considerably (by over 1/5), by juice and pastry production branches – which increased their share by 2.4 and 0.6%, respectively. The following branches enhanced their positions slightly (by ca. 1/10): milling, non-alcoholic drinks and bakery.

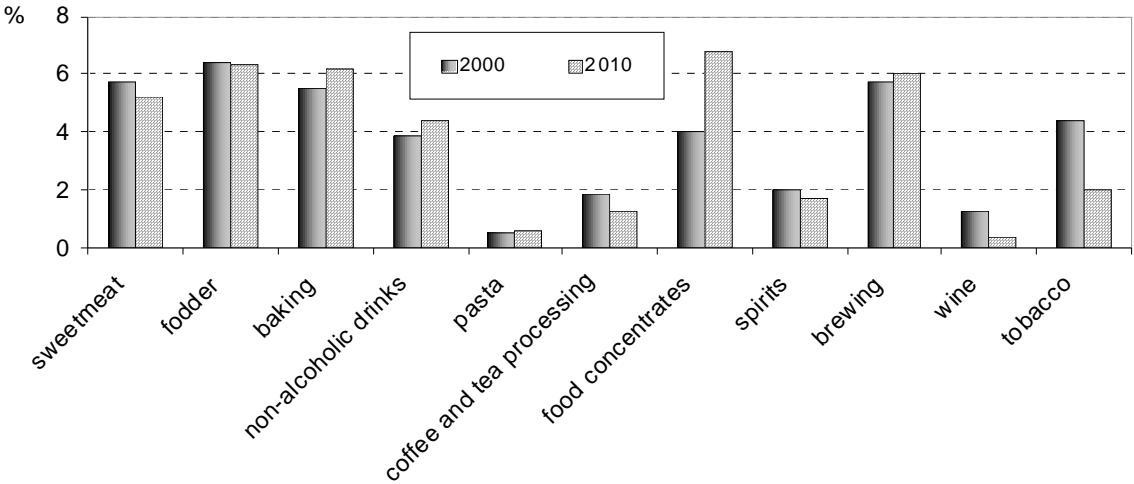
Stable position, with considerably high share in production sold of food industry, was maintained by brewing and fodder branches (ca. 6% each).

Fig. 3. Share of animal and plant products processing in value of production sold of food industry



Source: based on table 2.

Fig. 4. Share of deepened processing and production of stimulants in value of production sold of food industry



Source: based on table 2.

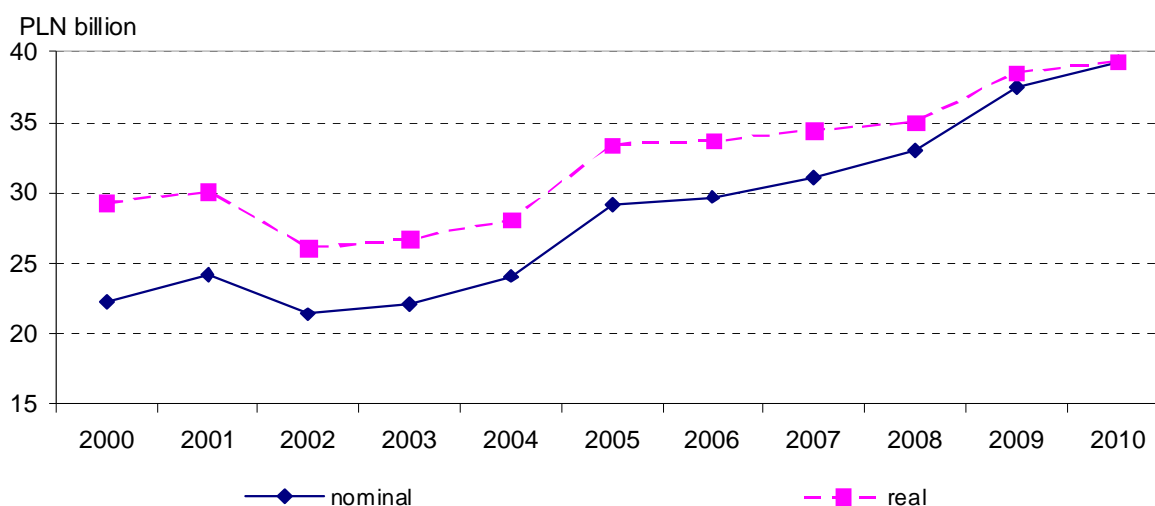
The share of certain sectors in value of production sold of the whole food industry decreased. In the last decade, share of wine and tobacco sector decreased the most, i.e. by over a half, whereas that of sugar and potato sector decreased considerably (by 2/5 or 1/2). Slightly weaker position in contributing to the value of sales of food industry was also held by such branches as: fruit and vegetable, coffee and tea processing, spirits and sweetmeat production.

## Gross value added in food industry

Gross value added may be determined in various ways. It forms a part of global production, upon deduction of the so-called intermediate consumption, and covers the value of final products and part of cooperation products which were not used to produce final products. Gross value added in food industry may be termed value of services offered by industry, increasing the value of basic agricultural products, subject to further processing. Value added in food industry contains: cost of remunerations with liabilities, depreciation, taxes on costs (without VAT and excise duty), financial costs and gross financial result<sup>44</sup>. These elements form a “housing” of agricultural product, facilitate access to food, easiness to use and increase of satisfaction of consumption.

Gross value added (GVA) is produced in each branch of the national economy and makes up the gross domestic product. Share of food industry GVA in Polish GDP<sup>45</sup> is ca. 2.7%. In the previous decade, gross value added of food industry (with tobacco) increased by over 3/4 from PLN 22.3 billion to 39.3. In real terms<sup>46</sup>, the increase was half as low (Fig. 5).

Fig. 5. Gross value added in food industry



Source: own calculations based on CSO Statistical Yearbooks 2001-2011.

In food industry enterprises submitting financial reports, gross value added increased by 78% from PLN 18.1 billion in 2000 to PLN 32.2 billion in 2010, whereas in real terms (in prices of 2010), GVA increased by 35% from PLN 23.8 billion to PLN 32.2 billion. Dynamic increase of value added took place after 2003. Average value added growth in 2003-2010 reached 7.6% per annum, and in real terms its pace was lower by 1.9 percentage points.

All industry branches (except for potato) increased their gross value added in this period. The greatest increase – over 10% per annum – was noted by the following branches: production of juices, fish sector, poultry, bakery and pasta (Table 3). Lower increase but

<sup>44</sup> J. Drożdż, *Analiza ekonomiczno-finansowa wybranych branż przemysłu spożywczego w latach 2003-2009*, series: Studies and Monographies, no. 151, IAFE-NRI, Warsaw 2011, p. 7.

<sup>45</sup> Gross domestic product calculated as (global production + taxes on products – grants for products) – indirect consumption.

<sup>46</sup> Value made real with the index of retail prices of goods and services.

higher than average in the whole food sector (6.1%) was reached by meat, oil-mill, fruit and vegetable, food concentrates, feed, sweetmeat and wine sectors.

Meanwhile, the number of sectors noting the decrease of real gross value added increased. This group covers the potato, milling and starch, sugar, tobacco and confectionery sectors, and the pace of decrease of value added was from 0.6% to 4.9% per annum (Table 3).

Table 3. Gross value added in food industry enterprises submitting financial reports

Branch of industry	Value added in PLN million				Change in % per annum		Structure of value added of food industry in %	
	in nominal prices		in real prices		nominal	real	2000	2010
	2000	2010	2000	2010				
<b>Food industry</b>	<b>18,135</b>	<b>32,170</b>	<b>23,793</b>	<b>32,170</b>	<b>6.1</b>	<b>3.3</b>	<b>100.0</b>	<b>100.0</b>
including:								
Meat	2,329	4,997	3,056	4,997	8.1	5.3	12.8	15.5
Poultry	422	1,238	554	1,238	11.5	8.7	2.3	3.5
Dairy	2,160	3,515	2,834	3,515	5.3	2.4	11.9	10.9
Fish sector	317	946	416	946	14.1	11.0	1.7	2.9
Milling and starch	675	927	886	927	0.6	-2.0	3.7	2.9
Oil-mill	398	496	522	496	6.6	3.2	2.2	1.5
Sugar	1,612	1,579	2,115	1,579	0.2	-1.5	8.9	4.9
Potato	343	309	450	309	-4.0	-4.9	1.9	1.0
Fruit and vegetables	904	1,651	1,186	1,651	6.9	4.5	5.0	5.1
Juice production	218	670	286	670	16.2	13.0	1.2	2.1
Non-alcoholic drinks	837	1,632	1,098	1,632	4.6	1.6	4.6	5.1
Fodder	848	1,567	1,113	1,567	8.1	5.6	4.7	4.6
Bakery	707	1,981	928	1,981	11.6	8.8	3.9	6.2
Confectionery	441	536	579	536	2.4	-0.6	2.4	1.7
Sweetmeat	1,008	1,675	1,322	1,675	7.5	4.7	5.6	5.2
Pasta	90	245	118	245	11.0	8.1	0.5	0.8
Coffee and tea processing	344	508	451	508	3.0	0.4	1.9	1.6
Food concentrates	958	2,854	1,257	2,854	9.3	6.6	5.3	8.9
Spirits	495	735	649	735	5.4	2.3	2.7	2.3
Brewing	1,771	2,790	2,324	2,790	3.9	1.1	9.8	8.7
Wine	143	194	188	194	6.6	3.9	0.8	0.4
Tobacco	1,115	1,125	1,463	1,125	0.1	-2.4	6.1	3.5

<sup>a</sup> in prices for 2010

Source: Own calculations based on unpublished CSO data.

The share of the respective branches in forming gross value added of the whole food industry varied greatly. At the beginning of the previous decade, meat (12.8%) and dairy (11.9%) sectors had the greatest share in forming GVA of food industry, whereas of all

branches involved in animal products processing was nearly 29%. Considerable share was also noted by the brewing sector (9.8%) and sugar sector (8.9%). Ten years later, the meat sector enhanced its position by increasing its share in forming gross value added of food industry by 2.7 percentage points, whereas the share of dairy industry decreased by 1 percentage point. In 2010, the span between the respective branches extended to 14.9 percentage points (it was 12.3 percentage points in 2000).

In the previous decade, 10 branches increased their share in gross value added of food industry. Next to the above mentioned meat industry, increase was noted by the poultry, fish sector, juice production, bakery, pasta and food concentrates (increase by over 1/2). Share of the fruit and vegetable as well as non-alcoholic drinks branches increased to a lesser extent.

Share of 12 branches of food industry in forming gross value added of this industry decreased. The share of sugar industry decreased to the greatest extent, i.e. by over 2/5, (from 8.9 to 4.9%) as well as tobacco (from 6.1 to 3.5%). Inasmuch as the decrease of significance of sugar industry resulted from its reduction (reduction of quantity of sugar produced and closure of sugar plants), the decrease in the tobacco sector may raise certain doubts.

### Labour productivity in Polish food industry

Labour productivity most frequently means the quantity of goods or services produced by an employee in a unit of time. It depends on numerous factors, including e.g. qualifications and experience of employees, technical condition of machines and tools, their modernity and labour organisation as well as motivating remuneration and award scheme.

Labour productivity in Polish food industry, measured by the value of production sold per one employee in 2010, amounted to PLN 357 thousand and was nearly twice as high as in 2000. In real prices, the increase reached nearly 50% (Table 4). Nearly the entire increase was reached after 2002, which signifies that accession to the European Union and free trade with the Community states that increased the pace of development of labour productivity in Polish food industry.

Table 4. Labour productivity in Polish food industry (micro-companies included) measured by production sold

Specification	2000	2003	2007	2010
Value of production sold of food industry <sup>a</sup> (in PLN billion)				
in nominal prices	92.9	105.0	146.0	162.3
in real prices (of 2010)	121.9	126.9	161.5	162.3
Labour force number of employees (in thousand persons)	500.1	468.2	473.5	454.3
Labour productivity (in PLN thousand) measured by production sold				
nominal <sup>b</sup>	186	242	308	357
real <sup>c</sup>	244	271	342	357

<sup>a</sup> production of food products and drinks as well as tobacco; <sup>b</sup> in current prices; <sup>c</sup> in fixed prices

Source: CSO Statistical Yearbooks 2001-2011; R. Urban, J. Drożdż, A. Staszczak, *Wpływ integracji z Unią Europejską na polski przemysł spożywczy [in:] Wpływ integracji z Unią Europejską na polską gospodarkę żywnościową, series: Multiannual Programme 2005-2009, Report no. 90, IAFE-NRI, Warsaw 2008, p. 92.*

Improvement of labour productivity was a common phenomenon, occurring nearly in all branches of food industry, yet the scale of changes of labour productivity varied. In the period of 2000-2009, the fastest real increase of labour productivity measured by the value of production sold took place in the sugar sector (14.3%), oil-mill (9.5%), brewing (9.1%), spirits (8.4%) and production of juices, dairy, fish and pasta sectors (from 7.0 to 7.6% per annum). These indices were higher than that of the whole food industry (Table 5). Great improvement of labour productivity in the sugar branch resulted from considerable reduction in employment and concentration of sugar production in operating plants (despite the decrease of the sugar production limit for Poland from 1,406 thousand tonnes per annum since the 2008/09 season). In the period of 2000-2010, the number of operating plants decreased by 3/4 from 76 to 18 plants, and the quantity of sugar produced by one plant increased three times (from 27 to 80 thousand tonnes). Furthermore, dynamic development of beer, spirits and oil production, including for biofuel use, was accompanied by the decrease in employment from 19.5% to 37.7%. Slight increase of labour productivity (below 4% per annum) was noted for the meat, fruit and vegetable, coffee and tea processing sectors, as well as that of food concentrates, tobacco and milling. The group of branches of food industry with average labour productivity (from 4.1% to 6.0%) covers bakery, poultry branches, as well as that of non-alcoholic drinks, sweetmeat and the feed sector.

Table 5. Labour productivity in food industry measured by the value of production sold in real prices

Branch of industry	2000	2003	2007	2009	Growth in % per annum	
	in PLN thousand/person <sup>a</sup>				in industrial companies 2001-2009 <sup>a</sup>	including: submitting financial reports 2001-2010 <sup>b</sup>
<b>Food industry including:</b>	<b>253.7</b>	<b>285.4</b>	<b>367.5</b>	<b>376.4</b>	<b>4.8</b>	<b>4.6</b>
Meat	240.3	250.7	309.3	357.9	4.5	3.8
Poultry	282.8	331.4	391.3	430.4	4.8	5.0
Dairy	284.5	329.0	547.9	523.4	7.0	7.0
Fish	180.4	241.2	323.1	335.8	7.1	8.1
Milling	408.2	435.5	518.0	591.0	4.2	3.0
Oil-mill	628.2	1 103.7	1 180.9	1 424.3	9.5	10.2
Sugar	243.5	265.7	643.0	808.3	14.3	12.6
Potato	278.5	293.8	389.2	346.4	2.4	6.1
Fruit and vegetable	214.3	263.8	305.2	294.1	3.6	3.8
Juice production	303.2	449.0	526.7	587.7	7.6	8.3
Non-alcoholic drinks	259.4	267.6	405.7	451.1	6.3	5.8
Fodder	688.3	850.5	950.2	961.7	3.8	5.4
Bakery	95.5	96.0	107.7	110.0	1.6	4.4
Sweetmeat	176.3	217.1	310.9	305.8	6.3	6.0
Pasta	115.7	138.5	151.7	214.7	7.1	7.7
Coffee and tea processing	508.5	463.5	416.5	477.8	-0.6	0.6
Food concentrates	255.7	330.4	382.0	351.9	3.6	2.9



Branch of industry	2000	2003	2007	2009	Growth in % per annum	
	in PLN thousand/person <sup>a</sup>				in industrial companies 2001-2009 <sup>a</sup>	including: submitting financial reports 2001-2010 <sup>b</sup>
Spirits	302.0	408.4	556.2	626.8	8.4	8.2
Brewing	459.7	687.3	923.5	1 089.3	9.1	8.7
Wine	376.9	340.5	440.1	410.1	0.9	8.5
Tobacco	505.8	623.6	677.3	537.9	0.6	1.1

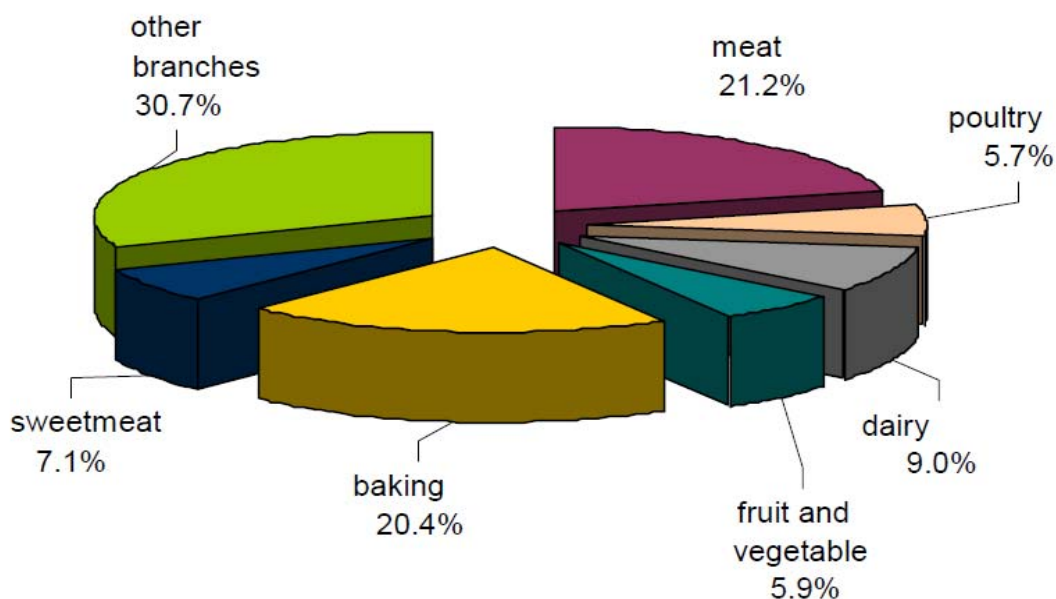
<sup>a</sup> in prices for 2009; <sup>b</sup> in prices for 2010.

*Source: Own calculations based on unpublished CSO data obtained from companies employing over 9 persons of permanent staff, which submitted financial reports F-01/I-01.*

### **Employment in food industry**

The number of the employed in food industry decreased in the last decade by 9.2% from 500 thousand in 2000 to 454 thousand persons in 2010. While analysing the state of employment in food industry, it should be indicated that slightly over 40% of these persons were employed in branches related to animal processing, including the greatest number in meat branch (ca. 21%) and dairy with ice-cream (10%). Branches of secondary processing of food, in particular baking industry (20%), sweetmeat (7.0%) and production of food concentrates (6.2%) also demonstrate high percentage of employment. The relatively smallest employment was noted for branches involved in stimulant production, i.e. spirits, wine, brewing and tobacco. Low level of employment was also noted for oil-mill, sugar, pasta sectors and of coffee and tea processing (Fig. 6, Table 6).

Fig. 6 Structure of food industry branches in terms of employment  
in 2009 (in %)



Source: A. Judzińska, *Zatrudnienie i wynagrodzenia w przemyśle spożywczym, [in:] Procesy dostosowawcze polskiego przemysłu spożywczego do zmieniającego się otoczenia rynkowego, ed. R. Mroczek, series: Multiannual Programme 2011-2014, Report no. 4, IAFE-NRI, Warsaw 2011, p. 44.*

In the last decade, employment in food industry companies decreased by 7% from 426.1 thousand in 2000 to 395.8 thousand persons in 2009. Employment had decreased at the pace of nearly 1% per annum. The phenomenon occurred in the majority of branches of food industry, and staffing was being reduced at various intensities. The greatest decrease of employment took place in the sugar sector (6.5% per annum) and in spirits, tobacco and brewing sectors (ca. 3.5% per annum). These mainly include branches producing stimulants, characteristic of high automation of production processes. Slower pace of employment decrease was noted in the dairy sector (2.7%), oil-mill, sweetmeat and fodder (2.0% each), fruit and vegetable and non-alcoholic drinks (ca. 1.6% each). Branches experiencing employment increase were in minority. Poultry sector turned out the leader by increasing the staffing by 5.4% per annum on average. Slightly lower employment growth was noted by food concentrates branch (4.2%); while in baking and fish branches employment increased by over 2.0% per annum (Table 6).

Table 6. Employment in food industry enterprises (calculated per full-time employment, in thousand persons)

Branch of industry	2000	2009	Changes in % per annum 2001-2009
<b>Food industry</b>	<b>426.1</b>	<b>395.8</b>	<b>-0.8</b>
including:			
Meat	89.7	84.0	-0.7
Poultry	14.0	22.5	5.4
Dairy and ice-cream	53.2	39.5	-2.5
including: dairy	48.6	35.5	-2.7
Fish	12.7	15.5	2.2
Milling	10.1	9.5	-0.6
Oil-mill	4.1	3.3	-2.0
Sugar	20.6	4.8	-6.5
Fruit and vegetable	27.7	23.3	-1.6
Juice production	6.2	6.2	0.0
Non-alcoholic drinks	16.2	13.7	-1.6
Fodder	10.0	8.2	-1.9
Bakery	62.6	80.9	2.9
Sweetmeat	34.9	28.2	-2.0
Pasta	4.9	4.4	-1.1
Coffee and tea processing	4.1	3.9	-0.5
Food concentrates	17.0	24.6	4.2
Spirits	7.0	4.7	-3.2
Brewing	13.5	8.4	-3.6
Wine	3.6	1.9	-4.4
Tobacco	9.4	6.0	-3.5

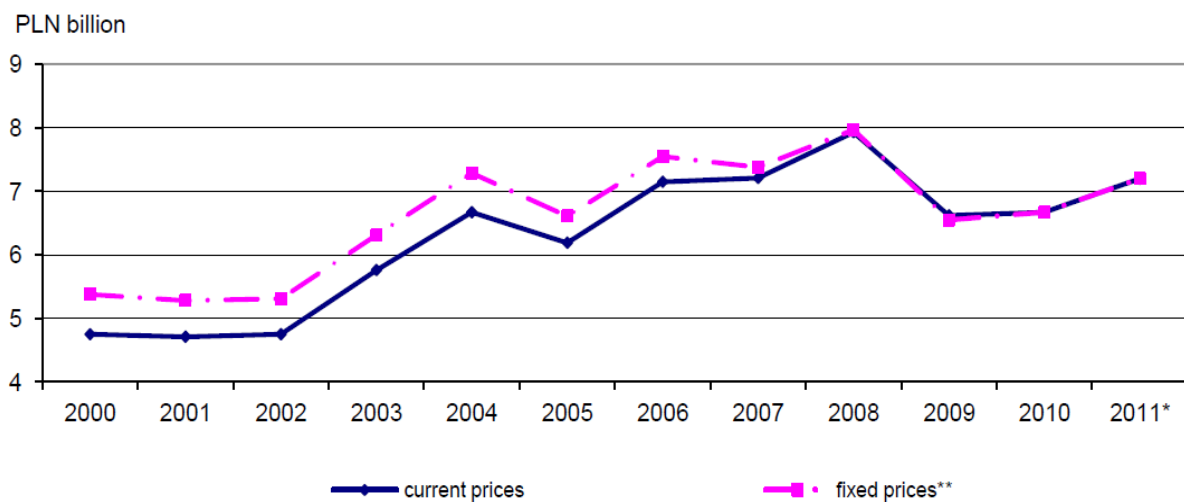
Source: as in Fig. 6, p. 45.

Average monthly remuneration in food industry enterprises (submitting financial reports F-01/I-01) in the 2000-2010 period increased from PLN 1.4 thousand to PLN 3.0 thousand. Pace of increase of remuneration was 4.3% per annum, and in real terms, upon correction with the inflation index it was 1.4% per annum. The most significant remunerations (exceeding gross PLN 5 thousand) are noted in the tobacco, brewing branches, i.e. with high automation and high concentration of production, and the lowest are in the meat, pasta and baking branches. The difference is over twofold. It is significant that in the period in question the dynamics of remuneration was lower than the dynamics of labour productivity. In the 2000-2010 period, the difference between the average pace of increase of the value of production sold and the increase of remuneration in enterprises submitting financial reports was 2.4% per annum. Relations like these are favourable for a "healthy development" of an enterprise and affect, for instance, its market competitiveness.

## Level of investment in food industry

The perspective of Poland's entry to the European Union resulted in increased investment outlays in the Polish food industry. In the pre-accession period, i.e. between 2000 and 2003, investments increased by nearly 1/5 (from PLN 4.8 to PLN 5.7 billion). High revival also took place in 2004, when investment outlays were PLN 6.7 billion and were by nearly 1/5 higher than in 2003. High pace of investment in the food industry was also maintained in the years to come, however, at the end of the decade investment processes slightly weakened. In the 2007-2010 period, the average value of investment was PLN 7.1 billion per annum, reaching the record-breaking level of nearly PLN 8 billion (Fig. 7) in 2008.

Fig. 7. Investment outlays in Polish food industry 7



\* based on results of 9 months in large and medium-sized companies,

\*\* fixed prices corrected by the investment goods index

Source: Own elaboration based on CSO Statistical Yearbooks 2001-2011.

Global economic crisis resulted in more cautious investments of the processing plants. Such a policy resulted in the decrease of investment outlays in 2009 to ca. PLN 6.6 billion, still it was by 40% higher than in the period of 2000-2002. It should be underlined that smaller investments in the last two years of the previous decade experienced record-breaking profits of the food sector, which amounted to ca. PLN 8.0 billion (in 2009) and PLN 7.7 billion (in 2010). The remaining market uncertainty resulting e.g. from financial and economic problems of certain Eurozone states, may halt investments in the food industry as in the 2007-2008 period. Simultaneously, such a situation provides grounds for takeovers and faster consolidation of processing plants in various sectors of the food industry.

Table 7. Investment outlays in food processing enterprises <sup>a</sup> (PLN million)

Branch of industry	2000-2002 <sup>b</sup>	2004	2006-2008 <sup>b</sup>	2009-2010 <sup>b</sup>	Total 2000-2010
Meat	572	1,551	1,048	699	9,732
Poultry	93	259	233	183	1,938
Dairy and ice-cream	507	982	882	768	8,171
Fish	72	164	231	165	1,607
Cereals and milling	130	184	205	163	1,837
Oil-mill	68	77	98	82	877
Sugar	135	251	299	282	2,671
Potato	39	120	39	42	513
Fruit and vegetable	144	549	386	279	3,385
Juice production	104	171	258	134	1,873
Non-alcoholic drinks	278	350	332	289	3,393
Fodder	178	208	276	226	2,452
Bakery	171	183	297	315	2,614
Confectionery	53	107	95	97	929
Sweetmeat	145	296	493	562	3,980
Pasta	15	32	31	41	303
Coffee and tea processing	68	79	61	63	694
Food concentrates	188	195	338	592	3,334
Spirits	47	86	118	80	895
Brewing	643	614	683	343	6,489
Wine	57	40	28	28	408
Tobacco	297	190	470	495	4,023
<b>Total food industry</b>	<b>4,003</b>	<b>6,688</b>	<b>6,901</b>	<b>5,926</b>	<b>62,112</b>

<sup>a</sup> which submitted financial reports; <sup>b</sup> on average in a year

*Source: Own elaboration based on unpublished CSO data.*

Increase of investment outlays by the Polish food industry in the period of integrating with the EU resulted, above all, from the necessity of meeting the EU veterinary, sanitary and hygiene standards by processing plants. The adjustments contributed also to the improvement of competitiveness of Polish enterprises as compared to competition from other Community states and third states. High level of investment in food industry enterprises, in particular in 2007 and 2008, resulted from good economic situation of agricultural products on the global market. Another factor affecting the increase of investment came down to concluding transitional periods for the so-called sensitive sectors, i.e. meat, dairy and fish sectors. Not all the plants applying for such periods managed to introduce the necessary changes in order to be able to continue functioning on the market.

In the 2000-2010 period, the greatest investment outlays were made by the meat sector (PLN 9.7 billion), i.e. 15.6% of investment in the whole industry (PLN 8.2 billion) and brewing (ca. PLN 6.5 billion), as well as sweetmeat and tobacco sectors ca. PLN 4 billion each (Table 7). Advantage of the meat sector in this area resulted from large number of

entities operating on the market (ca. 3.2 thousand companies) and their needs in the scope of adjustment to the EU production standards.

### Entity structure of the food industry

Food processing is a branch of industry characteristic of high dispersion and little level of concentration. This mainly results from the lower level of technical development of this branch (it belongs to a group of the so-called low technology branches) and nature of subject of work determined by variation of agricultural products processed. These phenomena result in relatively low assets absorption and high labour-intensity of food production. Significant characteristics of industrial processing also include its high relation to local and regional markets, assortment diversity and relatively short expiry date of products and often short production series.

Food production characteristics listed above provide great opportunities for the activity of micro-, small and medium-sized companies. Food industry is therefore a branch of economy particularly predisposed to the development of small and medium-sized enterprises.

In 2009, production activity was carried out by nearly 15.7 thousand economic entities (Table 8), including:

- 9.6 micro-companies (employing up to 9 persons), constituting as much as 61.2% of the total of food companies the share in employment of which was 15.0%, and in sales only 5.9%;
- 4.6 thousand small enterprises (employing from 10 to 49 persons), constituting 29.4% of the total, and their share in employment was 20.8% and in sales – 14.4%;
- 1,183 medium-sized companies (employing from 50 to 249 persons), i.e. 7.5% of the total food companies, the share in employment of which was 27.7% and in sales – 26.3%;
- 280 large companies (employing over 249 persons), constituting as little as 1.8% of the total, and their share in employment was 36.5% and in sales – as much as 53.4%.

Table 8. Entity structure of food industry according to the number of employed persons

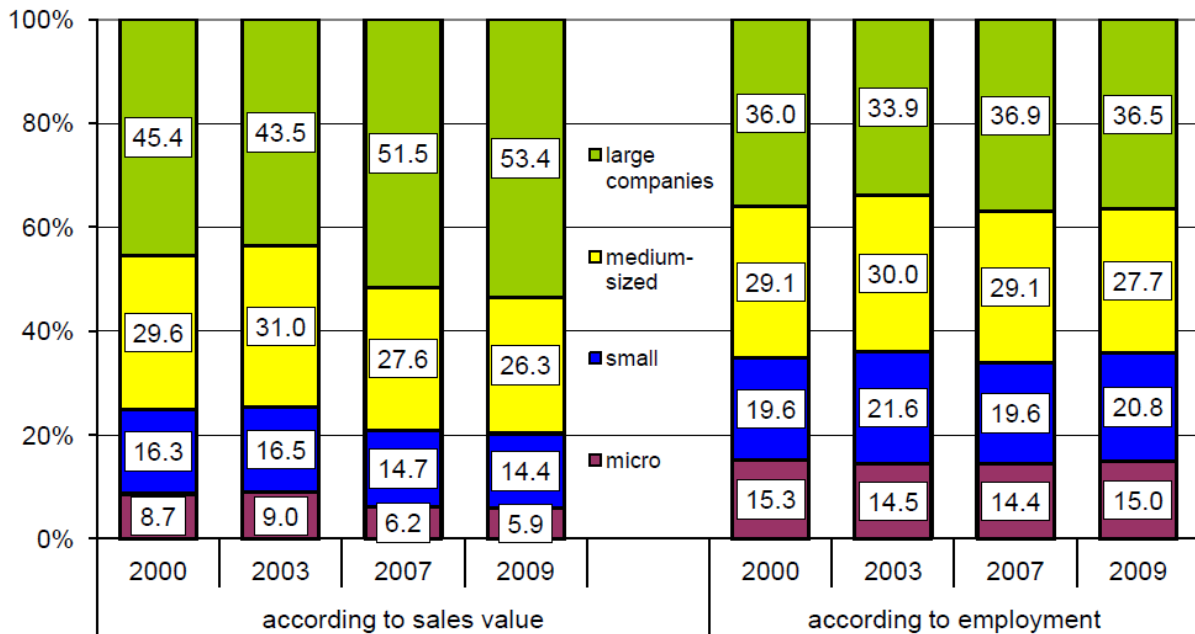
Specification	2000	2003	2007	2009
<b>Number of enterprises</b>				
Total	21,977	19,516	16,727	15,686
including: micro (up to 9)	14,960	12,638	10,469	9,601
small (10-49)	5,269	5,353	4,738	4,622
medium-sized (50-249)	1,399	1,255	1,232	1,183
large (over 249)	349	270	288	280

Specification	2000	2003	2007	2009
<b>Average employment (thousand persons)</b>				
Total	492.2	456.4	462.7	458.5
including: micro (up to 9)	75.4	66.5	66.7	68.7
small (10-49)	96.6	98.4	90.7	95.3
medium-sized (50-249)	143.0	137.0	134.5	127.2
large (over 249)	177.2	154.5	170.8	167.3
<b>Production sold (current prices, PLN billion)</b>				
Total	89.2	101.7	141.8	154.9
including: micro (up to 9)	7.8	9.1	8.8	9.1
small (10-49)	14.5	16.8	20.9	22.3
medium-sized (50-249)	26.4	31.5	39.1	40.8
large (over 249)	40.5	44.2	73.0	82.7

*Source: I. Szczepaniak, Struktura podmiotowa przemysłu spożywczego [in:] Procesy dostosowawcze polskiego przemysłu spożywczego do zmieniającego się otoczenia rynkowego, ed. R. Mroczek, series: Multiannual Programme 2011-2014, Report no 4, IAFE-NRI, Warsaw 2011, p. 68.*

Changes taking place in the period of 2000-2009 (Fig. 8) were partially a continuation of the system changes, but mainly related to the necessity of meeting the requirements of globalisation and integration with the European Union. As a result of these changes, up to 2003, the number of all groups of enterprises decreased, and to the greatest extent of micro- and small ones (by over 2.2 thousand units). To a lesser extent, the number of medium-sized enterprises (by 144 units) and large ones (by 79 units) decreased too. Throughout this period, the position of medium-sized companies in income on sales of the sector improved by nearly 1.5 percentage point, the position of large companies decreased by nearly 2 percentage points, and the position of the smallest companies remained basically the same. In the period of 2003-2007, the number of micro- and small companies, as well as medium-sized decreased (by nearly 2.8 thousand and 23 units respectively), similarly to their share in employment and sector turnover. Meanwhile, the number and position of large companies increased; in the period of 2003-2007, their number increased by 18 units, i.e. nearly 7%, reaching 51.5% of share in sales of the whole food sector. Within two subsequent years, the number of all groups of companies decreased by several per cent; in the structure of value of sales the significance of large companies increased to as much as 53.4% in 2009), at the expense of other groups of companies. Changes related to Poland's functioning in the European Union and under conditions of economic globalisation had changed considerably and they have been changing the entity structure of the food industry.

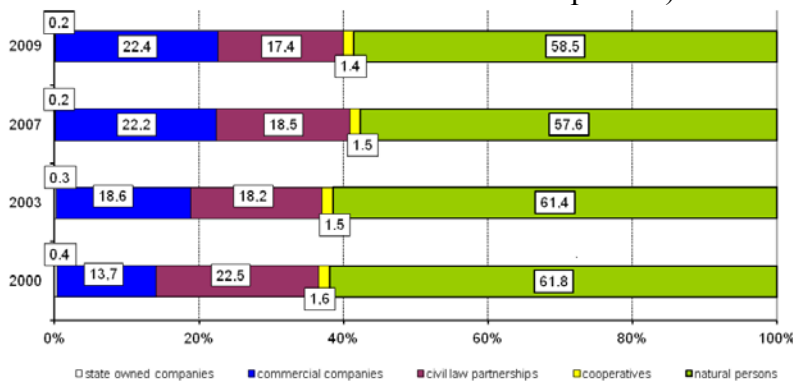
Fig. 8. Entity structure of food industry (according to the value of sales and employment, in per cent)



Source: as in Table 8, p. 72.

Fundamental change of the ownership structure of food industry took place in the transformation period. Currently, sector privatisation may be considered concluded. Companies controlled by the state lost the dominating position and the food industry is dominated by private companies (Fig. 9). These mainly include companies of natural persons (in 2009 they constituted as much as 58.5% of total units) and various types of commercial companies (22.4%) and civil law partnerships (17.4%). Among the commercial companies over 22% cover companies with foreign capital.

Fig. 9. Ownership structure of food industry (according to the number of companies, in per cent)



Source: as in Table 8, p. 73.

Development and increasing significance in sales and employment of large enterprises demonstrate that production concentration processes have returned to food

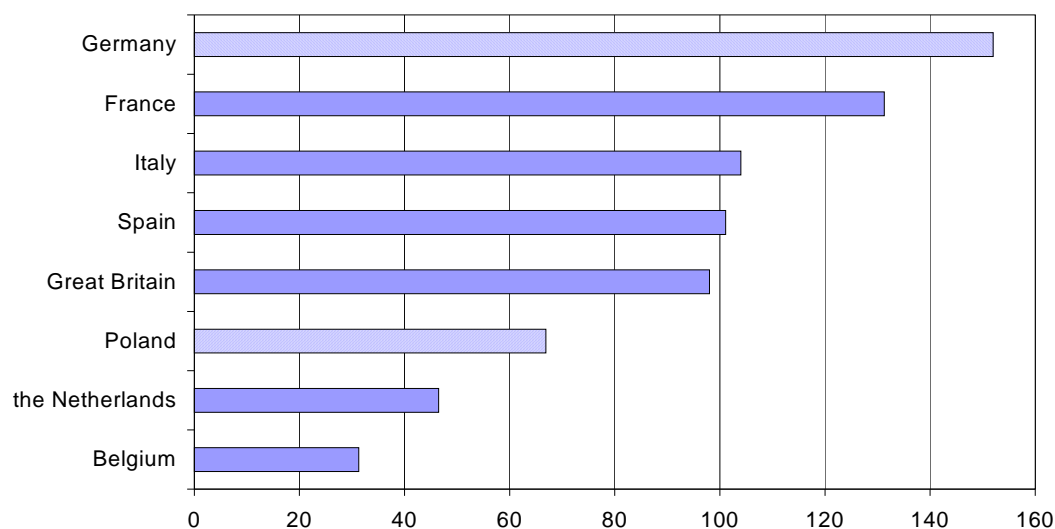


industry. The line of development of entity structures, initiated in the first period of the EU membership, was continued. In recent years, changes within this area have manifested themselves mainly in enterprise restructuring, consisting in merges of companies and enterprise of new greater organisational units (with considerable significance of strategic investors). Nevertheless, entity structure of food industry has still been dispersed and the concentration level quite low. Food industry concentration factor<sup>47</sup> has been clearly lower than the average in the Polish industry.

### Comparative evaluation of Polish food industry against the EU the background

Poland is the 6<sup>th</sup> food producer in the European Union, following five greatest Community members<sup>48</sup>. Poland's share in food production of EU-27 is 7.4%. This factor resembles our share in the population of the European Community (7.6%). Meanwhile, Poland's share in economic potential of the whole EU (in GDP value) in 2008 was 4.3%, whereas that of Germany - 19%, Great Britain - 14%, France - 13.6%, and Italy - 12.4%. Polish food industry production (in comparative prices) is twice as low as in Germany, yet twice as high as in Belgium, four times as high as in Portugal, Romania, Ireland, the Czech Republic, Hungary and Sweden, and five times as high as in Denmark, Greece and Austria. Poland is the greatest food producer in the EU-12. In the "old" EU, Germany is the greatest food producer, with the share of 16.8% in the value of food industry production of EU-27, followed by: France (14.5%), Italy (11.5%) and Spain (11.2%). The lowest share of food industry in the "old" EU belongs to such states as: Finland, Greece, Sweden, Denmark and Austria (Table 9).

Fig. 10. Largest food and drink producers of the EU-27 in 2008 (value of turnover according to purchasing power parity) in EUR billion



Source: Own elaboration based on Eurostat data

<sup>47</sup> Production sold concentration factor is calculated by CSO by means of an interpolation formula, based on Lorenz curve. The factor ranges from 0 to 1. The higher the concentration level, the more the value of the factor gets closer to 1. Concentration shall mean uneven division of the phenomenon according to size classes, i.e. deviation of actual division from even division (*Industrial Statistical Yearbook 2010*, CSO, Warsaw 2010, p. 39).

<sup>48</sup> i.e. Germany, France, Italy, Spain and Great Britain.

Significance of food industry for Polish economy is greater than in the Community states. In 2008 the value of turnover of this sector in Poland was 12.4% of GDP produced value and was the highest of all the EU-27 MSs. To compare, this relation in the EU-15 was 6.9%, and in the EU-12 – 9.4%. Among the EU-15 states the highest relationship between the value of food industry production and GDP in 2008 was reached by Ireland (11.9%) and Belgium (10.1%), whereas in Germany it was as little as 6.4% and in Greece (4.6%). On the other hand, in the EU-12 states its highest level was reached by Bulgaria (11.6%) and the lowest by Slovakia (4.5%), Malta (4.9%) and Slovenia (5.2%). In the majority of states this relationship in the 2000-2008 period decreased, in particular in the EU-12 (by 1/6 on average). The greatest decrease, nearly two times, was noted for Slovakia and Estonia. Meanwhile, in Poland this relation decreased slightly. Improvement of this factor in the period in question was noted by just few EU states; the highest in Austria – by 1/6, and Bulgaria – by 1/13, and Germany – by 1/20.

The level of development of the food industry measured by the value of production sold per 1 resident in Poland is EUR 1.7 thousand and it is similar to the highest food producers in the EU, i.e.: Germany, Italy and Great Britain. On the other hand, it is lower than in Ireland (EUR 4.0 thousand), the Netherlands (2.8), Belgium (2.9) and Denmark (2.2) as well as Spain and France (ca. EUR 2.0 each). Among the EU-12 states only Cyprus has greater turnover per one resident (EUR 2.4 thousand). In the 2000-2008 period, the value of food industry production per 1 resident in Poland increased by 54%, in Germany by 28%, while in the EU-15 the said turnover increased by 18% on average and in the EU-12 by 40%. The greatest, i.e. twice as high, increase of turnover per 1 resident in the period in question was noted for Bulgaria, very high in Latvia (86%) and Lithuania (78%) (Table 9).

Pace of development of the Polish food industry is said to be one of the highest in the whole European Union. In the 2000-2008 period, the value of production of this sector expressed in current prices (EUR) for the EU-27 increased by 30% to EUR 896.7 billion, in EU-15 by 26% (EUR 805.4 billion) and in EU-12 by 84% (EUR 91.3 billion). In the period in question in Poland, food production increased by as much as 93% (from EUR 23.1 to 44.6 billion), in Spain by 57%, in France by 29% and in Germany by 27%. Among the EU-12 states, the greatest increase of the value of food and drinks production (current prices) was noted for: Bulgaria, Lithuania and Romania (over two times) and in Hungary (by 60%) (Fig. 11, Table 9).

Table 9. Basic data regarding food industry in the EU MSs.

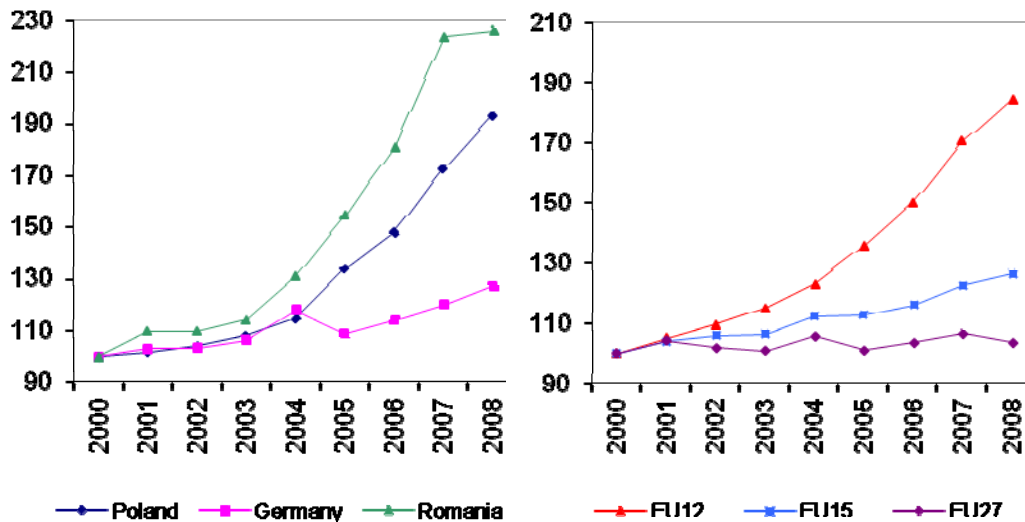
States	Value of food industry production in 2008 in EUR billion in		Share of EU-27 states in value of food industry production* in 2008 in %	Value of food industry production* in 2008 per resident in EUR thousand	relation between value of food industry production and GDP in 2008 in %	Index changes in 2000-2008		
	current prices	comparative prices*				Share of EU-27 in value of food industry production* in percentage points	Value of food industry production* per resident in %	Relation between value of food industry and GDP in percentage points
<i>EU-15</i>	805.4	760.1	84.1	1.9	6.9	-1.3	18.7	-0.3
<i>EU-12</i>	91.3	143.8	15.9	1.4	9.4	1.3	40.0	-2.1
<i>EU-27</i>	896.7	903.9	100.0	1.8	7.2	0.0	28.6	-0.2
<b>Germany</b>	<b>160.0</b>	<b>152.0</b>	<b>16.8</b>	<b>1.8</b>	<b>6.4</b>	<b>0.7</b>	<b>28.6</b>	<b>0.3</b>
France	152.7	131.3	14.5	2.0	7.7	-0.5	17.6	-0.2
Italy	107.2 <sup>a</sup>	104.0	11.5	1.7	6.6	-1.1	6.2	-0.4
Spain	94.5	101.1	11.2	2.2	8.6	1.3	29.4	-0.7
G. Britain	100.0 <sup>a</sup>	98.0	10.8	1.6	5.6	-1.0	14.3	-0.6
<b>Poland</b>	<b>44.6</b>	<b>66.9</b>	<b>7.4</b>	<b>1.7</b>	<b>12.4</b>	<b>1.1</b>	<b>54.5</b>	<b>-0.1</b>
The Netherlands	50.0 <sup>a</sup>	46.5	5.2	2.8	8.5	-0.4	12.0	-1.2
Belgium	34.8	31.3	3.5	2.9	10.1	0.2	26.1	0.5
Romania	9.5 <sup>a</sup>	17.8	1.9	0.8	7.1	0.3	60.0	-3.4
Ireland	21.5	17.6	1.9	4.0	11.9	-0.2	2.5	-3.8
Portugal	12.7	16.0	1.8	1.5	7.7	0.1	25.0	0.1
Czech Republic	11.0 <sup>a</sup>	16.0	1.8	1.5	7.3	-0.3	7.1	-3.5
Austria	16.7	15.4	1.7	1.8	5.9	0.2	38.5	0.8
Hungary	9.8	15.3	1.7	1.5	9.5	-0.1	25.0	-2.4
Denmark	20.0 <sup>a</sup>	14.2	1.6	2.6	8.4	-0.2	8.3	-1.1
Sweden	14.7	12.6	1.4	1.4	4.4	-0.1	16.6	-0.4
Greece	11.2 <sup>a</sup>	12.2	1.3	1.1	4.7	-0.3	0.0	-2.0
Bulgaria	4.0	9.6	1.0	1.3	11.6	0.3	116.6	0.8
Finland	9.4 <sup>a</sup>	7.9	0.9	1.5	5.0	0.0	25.0	-0.6
Lithuania	3.2	5.2	0.6	1.6	10.1	0.1	77.8	-2.0
Slovakia	2.9	4.4	0.5	0.8	4.5	-0.1	0.0	-4.0
Latvia	1.8	2.6	0.3	1.3	8.2	0.0	85.7	-2.7
Slovenia	1.9 <sup>a</sup>	2.4	0.2	1.2	5.2	-0.1	9.1	-2.1
Estonia	1.3	1.8	0.2	1.4	7.8	0.0	27.3	-5.7

\* in comparative prices (corrected by the EUR purchasing power index of a given state) <sup>a</sup> data of other years than 2008,

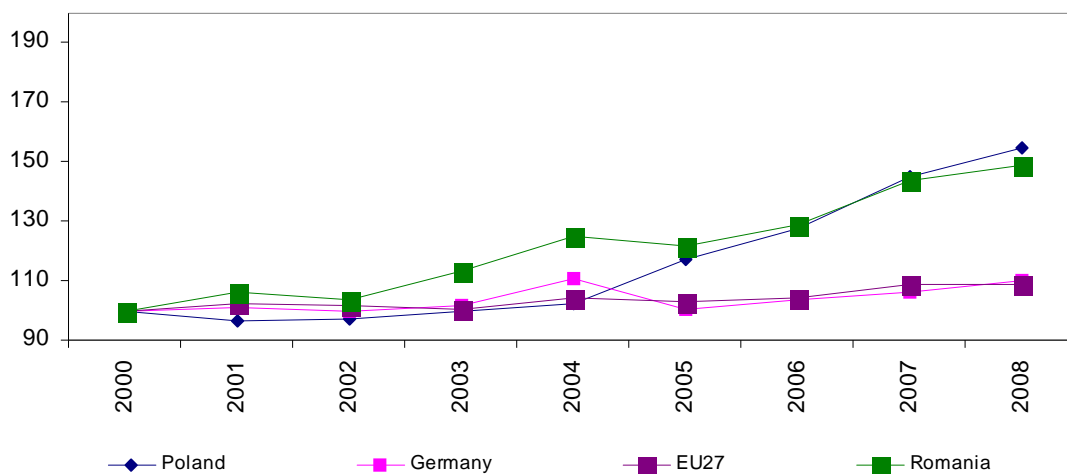
Source: Own calculations based on Eurostat data

Fig. 11. Dynamics of food industry production in Poland against the background of the European Union Member States in 2000-2008 (2000 = 100)

**in current prices**



**in fixed prices**



Source: Own calculations based on Eurostat data

In Poland, real increase of the value of food industry production in the 2000-2008 period, upon correction by the inflation factor, was 5.7% per annum, in the EU-15 – as little as 0.7%, and in the "new" EU states - 1.9%. Only Lithuania (9.5% per annum), Bulgaria (5.8%) and Romania (4.7%) noted higher increase of value of production in food industry than Poland. Meanwhile, within the period in question, among the “old” EU states relatively high increase of food industry production in fixed prices was noted solely in Austria (4%) and Spain (2.4%) and Belgium (2.1%), while low increase (ca. 1% per annum) was noted in Germany, France, Finland and Italy; in

the Netherlands it was only 0.2%. In three EU-15 states a decreasing tendency of food industry development was noted in the period in question. It was manifested to the greatest extent in Great Britain (-1.9% per annum in fixed prices), Greece (-1.3%) and Sweden (-0.4%). Among the “new” EU Member States the decreasing food industry production tendency was noted only for Slovenia (-2.8%) (Table 10).

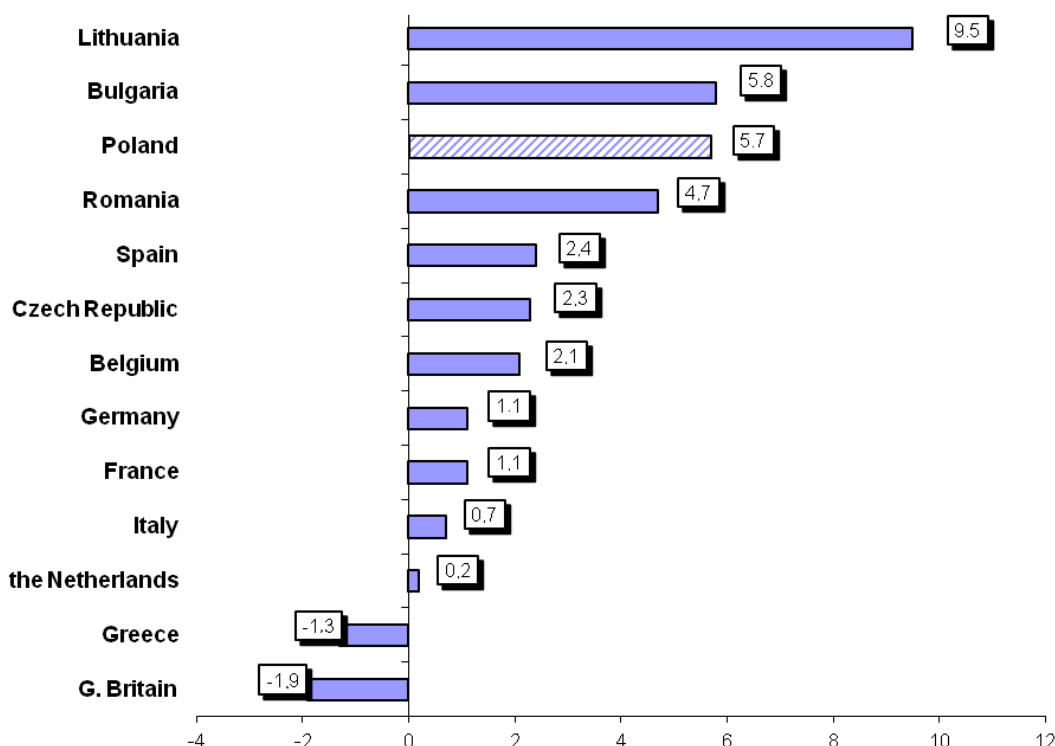
Table 10. Dynamics of food industry production in the EU MSs in the period of 2000-2008 in percent per annum

States	Inflation	Increase of value of production in	
		current prices	fixed prices <sup>a)</sup>
<i>EU-15</i>	2.3	3.0	0.7
<i>EU-12</i>	5.9	7.9	1.9
<i>EU-27</i>	3.0	3.4	0.4
<b>Germany</b>	<b>1.9</b>	<b>3.0</b>	<b>1.1</b>
France	2.1	3.3	1.1
Italy	2.5	3.2	0.7
Spain	3.3	5.8	2.4
G. Britain	1.9	0.0	-1.9
<b>Poland</b>	<b>2.7</b>	<b>8.6</b>	<b>5.7</b>
The Netherlands	2.4	2.6	0.2
Belgium	2.3	4.5	2.1
Romania	14.1	19.5	4.7
Ireland	3.2	3.2	0.0
Portugal	3.0	3.1	0.1
Czech Republic	2.7	5.1	2.3
Austria	2.0	6.1	4.0
Hungary	5.9	6.1	0.2
Denmark	2.0	2.3	0.3
Sweden	1.9	1.5	-0.4
Greece	3.5	2.1	-1.3
Bulgaria	6.8	13.0	5.8
Finland	1.7	2.8	1.1
Lithuania	3.2	13.0	9.5
Slovakia	4.9	5.4	0.5
Latvia	6.5	9.0	2.3
Slovenia	5.0	2.1	-2.8
Estonia	4.9	7.0	2.0

<sup>a)</sup> corrected by inflation index,

Source: Own calculations based on Eurostat data.

Fig. 12. Yearly average pace of development of food industry production in selected EU-27 Member States in 2000-2008 (in per cent per annum) in fixed prices



Source: Own calculations based on Eurostat data.

The diversification of development of food industry in the EU MSs resulted in the shortening of distance between the “new” and “old” EU MSs. Food industry in the EU-15 has slowly lost its position to companies of the EU-12, and Polish food industry has from one year to another become stronger on the Common European Market.

#### **Labour productivity and turnover of an average company in Poland and the EU**

Polish food industry employs ca. 443 thousand persons, i.e. ca. 10% of the total employees of the EU food industry, which makes Poland 3<sup>rd</sup> among the EU-27 MSs. Higher employment is noted in Germany (840 thousand persons) and France (615 thousand persons), and slightly lower in Great Britain and Italy (ca. 440 thousand persons each). The number of employees of the food industry in the EU-27 decreased in the period of 2000-2008 by 5% on average, and at the same time it decreased by 4% in the EU-15, and by 7% in the EU-12. Meanwhile, in Poland it decreased by as little as 1%. On the other hand, in numerous Community states, such as: Spain, Greece, Italy and Portugal, employment increased by several percent. In German food industry employment has been decreasing within the last few years – from ca. 873 thousand persons in 2000 to ca. 855 thousand in 2003, and 840 thousand in 2008. Employment in 2008 in the whole EU food industry was ca. 4.5 million persons (in EU-15 – 3.4 million and in EU-12 – 1.1 million persons).

In Polish food industry activity has been carried out by ca. 16 thousand enterprises (micro-companies included), which makes Poland 5<sup>th</sup> in the EU-27. In the period of 2000-2008, the number decreased by ca. 20%. This phenomenon was also

noted for certain EU MSs with various intensities. For example, in Germany the number of companies of the food sector decreased by 29% (from 44.1 to 30.9 thousand), in Spain by 15% (to 28.6 thousand). Meanwhile, in Italy, Greece and Portugal the number of food sector entities increased by several percent. The greatest number of companies producing food has been operating in Italy – ca. 71 thousand (23.5% of the total of companies in the EU-27), followed by France with 21.1% share (63.7 thousand companies). In 2008, ca. 300 thousand food industry enterprises operated in the EU-27. The number has decreased since 2000 by ca. 7.8%, and in the EU-12 by 11%. This means that the whole EU has experienced a gradual process of concentration and consolidation of the food sector, and labour productivity has increased. It has varying intensity in the respective EU MSs and branches of the food industry.

Improvement of labour productivity in the food industry in the 2000-2008 period was a common phenomenon in all EU MSs. The greatest increase of labour productivity in the period concerned was noted for Bulgaria (+89%) and Lithuania (+84%) as well as Romania (+67%), whereas it increased by 51% in the EU-12, and in the EU-15 by 32%. Labour productivity in the period in question in Polish food industry increased by 53% (Table 11).

In 2008, EUR 150.9 thousand of production sold was per one employee of food industry in Poland, similarly to Portugal. However, in the majority of the “old” EU labour productivity in food industry is nearly by 50% higher than in Poland and reaches from EUR 180 thousand to EUR 440 thousand per one employee (EUR 222 thousand on average). The greatest labour productivity in 2008 was noted for such states as Ireland (EUR 439.9 thousand), the Netherlands (EUR 366.7 thousand) and Belgium (EUR 317.6 thousand). Labour productivity in German food industry in 2008 was similar to the average level of the EU-27 and reached EUR 180.9 thousand per one employee. It was by EUR 30 thousand (per one employee) greater than in Poland (i.e. by 20%). Labour productivity in the Polish food industry is by 20% higher than in the EU-12 on average, except for Slovenia (EUR 154.8 thousand), and decidedly (nearly two times) higher than in Latvia, Bulgaria and Romania. Increase of outlays on technical supply of labour had significant impact on the increase of labour productivity in food industry in Poland in the 2000-2008 period. The changes resulted from high investment revival in the food branch and decrease of the number of employees of the food industry.

Table 11. Labour productivity<sup>a)</sup> in the EU food industry in EUR thousand/employee

States	2000	2008
EU-15	168.2	221.5
EU-12	83.3	125.6
EU-27	146.5	197.5
Ireland	312.1	439.9
The Netherlands	265.8	366.7
Belgium	233.3	317.6
Spain	187.3	260.1
Italy	207.6	236.4
Great Britain	157.6	224.8
France	168.8	213.5
Austria	130.4	198.1
Finland	158.5	198.0
Denmark	144.5	197.2
Sweden	158.3	192.5
<b>Germany</b>	<b>129.5</b>	<b>180.9</b>
Slovenia	100.9	154.8
<b>Poland</b>	<b>98.4</b>	<b>150.9</b>
Portugal	114.0	149.4
Greece	152.7	140.2
Hungary	104.1	140.0
Czech Republic	113.1	133.8
Slovakia	89.1	113.1
Estonia	78.8	112.2
Lithuania	58.2	106.9
Bulgaria	47.8	90.3
Romania	51.5	86.0
Latvia	50.8	83.9

<sup>a)</sup> in comparative prices,

Source: Own elaboration.

Turnover of an average company demonstrates the increase of economic power and competitiveness of Polish food enterprises in the European market. Real value of turnover of food processing enterprise in Poland in 2008 was EUR 4.1 million per company and was by 36% higher than the average level of EU-27 MSs and considerably higher than in Greece, Italy, Portugal and France. It was similar to turnover reached by companies in Finland, Belgium, Sweden and Austria and just less than 20% lower than in Germany, where the average value of turnover in 2008 was EUR 4.9 million (Table 12).



Table 12. Production concentration in the EU food industry measured by the value of production sold of an average food company in EUR million

States	2000	2008
<i>EU-15</i>	2.2	3.0
<i>EU-12</i>	1.8	2.9
<i>EU-27</i>	2.1	3.0
Ireland	22.0	27.5
G. Britain	10.5	13.2
The Netherlands	7.8	11.3
Denmark	6.7	8.3
Slovakia	6.3	5.3
<b>Germany</b>	<b>2.5</b>	<b>4.9</b>
Estonia	3.3	4.7
Finland	3.3	4.4
Lithuania	0.7	4.2
<b>Poland</b>	<b>2.0</b>	<b>4.1</b>
Belgium	2.7	4.0
Austria	2.3	3.8
Sweden	3.5	3.8
Latvia	2.2	3.6
Spain	2.0	3.5
Slovenia	2.2	2.5
Czech Republic	2.8	2.4
Hungary	2.1	2.3
France	1.5	2.0
Bulgaria	0.7	1.9
Romania	1.1	1.8
Italy	1.3	1.5
Portugal	1.4	1.5
Greece	0.8	0.7

Source: Own elaboration based on Eurostat data.

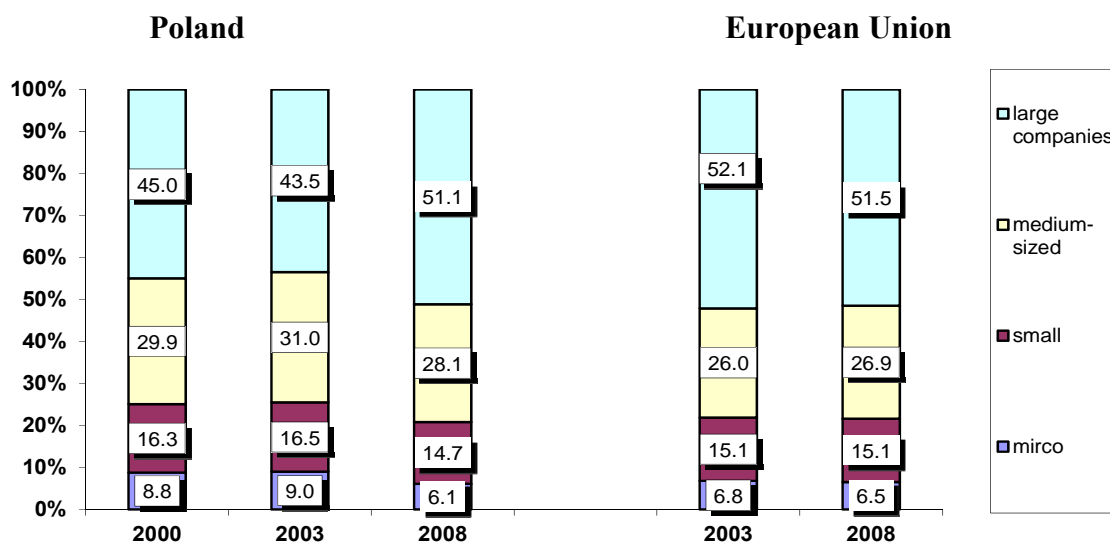
The greatest turnover was noted by food companies in Ireland (EUR 27.5 million), the Netherlands (EUR 11.3 million) and Great Britain (EUR 13.2 million). This means that production concentration in the said states is decidedly higher than in Poland and by 17% higher than the EU-27 average (Table 12). It is also significant that in Poland the processes of concentration and consolidation in the food industry were faster than in the majority of other European Union MSs. The distance between Poland and other states with high production concentration in this sector has been decreasing.

In the period of 2000-2008, Poland and the EU continued the process of concentration in food industry, consisting in the decrease of the number and share in sector production of the smallest companies (micro-companies) (from 8.8% in 2000, 9% in 2003 to 6.1% in 2008), with the increase of the share of large companies (from 45%

and 43.5% to 51.1% respectively) (Fig. 13). Previously, the transformation process<sup>49</sup> in this sector took an opposite direction, i.e. towards dispersion and fragmentation of activity, which was reflected by the increase of share in turnover and employment of the small and medium-sized companies sector. In the pre-accession period and in the first years of membership in the EU, fundamental changes to the Polish food industry took place. Diversified and smooth structure of enterprises was created to contribute to competition with considerable share of small and medium-sized companies.

At the time in the EU, the share of large producers in turnover of food industry decreased slightly from 52.1% to 51.4% and it is now on the level similar to the one in Poland. The turnover of the EU macro-companies, small and medium-sized ones in 2008 was also similar to the pre-accession level (i.e. of 2003). The entity structure of the Polish food industry is very similar to the EU average (Fig. 13) and resembles the structure of this sector typical for the largest food producers in the EU, i.e.: Germany, Spain and France.

Fig. 13. Entity structure of food industry in Poland and the EU in % of sector sales



Source: *Own elaboration based on unpublished CSO data and Data&trends of the European Food and Drink Industry 2009.*

Similarity of entity structures of the food sector not only concerns production, but also employment and company structure. In the Polish and the EU food industry over 50% of food production originates from large companies, representing respectively 36% and 37% of employment in the food sector, nearly 30% of production originates from medium-sized companies, and 20% from micro- and small enterprises. Medium-sized companies employ respectively 29% and 25% employees, and small enterprises of the EU and Poland employ 21%, whereas in micro-companies the indices reach 13% and 16% respectively for employment, and 6% each for the value of production sold of food industry (Table 13).

<sup>49</sup> R. Urban Report 145/2009 Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej Raport 6 (synthesis)

Table 13. Entity structure of the food industry in Poland and the EU (%) in 2008

Specification	Value of production		Employment		Companies	
	Poland	EU	Poland	EU	Poland	EU
Large companies (>250 employees)	51.1	51.4	36.2	37.0	1.6	0.9
Medium-sized companies (50-249 employees)	28.2	26.9	29.4	25.2	7.3	3.6
Small companies (10-49 employees)	14.7	15.2	20.9	21.3	29.4	16.4
Micro-companies (up to 9 employees)	6.0	6.5	13.5	16.5	61.7	79.1

*Source: Own elaboration based on unpublished CSO data and Data & Trends of the European Food and Drink Industry 2009.*

In the 2000-2008 period, the employment structure of the Polish food industry changed as a result of increasing restructuring processes of the food sector and European integration. Employment in large and medium-sized companies increased by 4% on average, whereas in small and micro-companies it decreased by 7%. The greatest decrease was noted for micro-companies (12%). Simultaneously, the EU employment structure in the food sector was not subject to serious changes.

Decrease of the number of micro-companies has been a common trend in this sector in Poland. In 2000, they formed 68.1% of the total number of Polish food industry companies, and in 2008 - 61.7%. Share of small and medium-sized companies increased by 5.5 and 1.0 percentage points respectively. Share of large enterprises in entity structure of the Polish food industry reached as little as 1.6% and increased, as compared to 2000, by 0.2 percentage point. As regards the enterprise structure of the food sector, the EU-27 has a larger number of micro companies than Poland, which formed 79.1% of the total number of companies of this sector, and the share of small (16.4%), medium-sized (3.6%) and large companies (0.9%) is smaller.

The sectoral structure of the food industry both in Poland and the whole EU, including Germany and France, notes the greatest share in sector turnover of meat processing and production of other food products (over 20% each), followed by drink and dairy production (ca. 15% each), and the smallest is fish processing, fat and cereals production (ca. 3-4% each).

Sectoral structure of the food industry varies in geographical terms. Central Europe (Poland, Germany, France) is dominated by animal production. In Great Britain and Ireland the greatest share in food production belong to other food products (30.6%) and meat processing and drink production – 20% each. The share of milk and dairy produce, fruit and vegetable preserves as well as plant fats is smaller. Meanwhile, in Southern Europe (Italy, Greece, Spain and Portugal), share of oils and animal fats production as well as processed cereal products and other food products is greater, and that of meat and milk is smaller. The Benelux countries (Belgium, the Netherlands, Luxembourg) demonstrate high share of dairy products production, and Romania and Bulgaria – drink production. Polish food industry, as compared to the European Community, has slightly stronger processing of meat and products thereof, as well as fruit and vegetable processing than the other MSs. Meanwhile, such branches as milk and dairy produce as well as fat industry are less developed in Poland (Table 14).

Table 14. Sectoral structure of food industry in Poland as compared to the EU (share in production of the whole sector in %)

Food industry sectors	Years	EU-15	Poland	Germany	Great Britain, Ireland	Italy, Greece, Spain, Portugal	Belgium, the Netherlands	Romania, Bulgaria
Meat and meat preparations	2000	20.2	20.1	20.2	19.2	17.8	19.3	15.9
	2008	20.3	24.2	23.4	19.1	17.7	16.3	20.0
Fish and fish preparations	2000	2.3	1.9	1.4	2.8	2.8	1.5	0.3
	2008	2.4	3.0	1.3	3.2	3.0	1.5	0.7
Milk and processed products	2000	14.8	12.6	15.0	11.6	14.4	14.1	7.9
	2008	14.3	12.6	15.6	10.2	12.8	14.8	8.6
Fruit and vegetable processed products	2000	5.8	8.2	5.4	5.2	6.8	7.0	3.4
	2008	6.0	8.1	5.6	4.5	7.6	7.5	4.6
Plant and animal fat	2000	3.4	2.2	3.5	1.2	5.5	7.1	6.2
	2008	4.6	3.1	4.0	1.3	7.0	9.2	4.3
Cereal products and starch	2000	3.8	3.9	2.8	4.2	4.6	4.6	6.1
	2008	4.5	3.4	3.9	5.9	4.8	4.3	7.1
Animal fodder	2000	6.2	6.2	3.6	5.6	7.0	10.7	3.3
	2008	6.4	6.8	4.5	5.1	6.9	10.1	2.1
Other food products	2000	27.7	25.4	32.4	30.1	23.9	25.4	28.6
	2008	26.8	22.4	29.2	30.6	24.7	26.5	25.7
Drinks	2000	15.8	19.5	15.7	20.1	17.2	10.3	28.3
	2008	14.7	16.4	12.5	20.1	15.5	9.8	26.9
<b>TOTAL Food industry</b>	2000	100	100	100	100	100	100	100
	2008	100	100	100	100	100	100	100

Source: Own calculations based on Eurostat data.

The whole EU has a considerably stable sectoral structure of food industry. In recent years, increase of share of fat products and cereals processing in the structure of this industry was noted, mainly at the expense of other food products and drinks. Meanwhile, Poland noted an increased share of animal products and fats, and decreased share of cereal products and starch as well as drinks.

## Summary

1. The Polish food industry is different than that of the other European Union MSs. The share of Poland in the value of production of the EU-27 food sector amounts to ca. 7.4% (4.6% in GDP, 7.6% in population). In terms of the value of sales, Poland is the 6<sup>th</sup> food producer in the EU. In the 2000-2008 period, the value of food sector production in Poland increased by 52%, while in the “old” EU by 27% and in the EU-12 by 38%. Employment in food industry is decreasing, labour productivity is increasing. The process of consolidation and concentration of the food sector is in progress, especially in such branches as meat, milk, sweetmeat and fish.
2. The structure of the Polish food industry (in terms of sectors and entities) is similar to the structure of this industry in the Community states. The branch structure reveals that Poland has strongly developed meat, fruit and vegetable processing, and less developed dairy, fat and cereals sectors. In Poland and the EU the greatest share in food and drinks sales belongs to large companies (51%), yet strong position is occupied by medium-sized companies (28 and 27% respectively), as well as small companies (15%) and micro-companies (6%). There are also no greater differences between the employment structures in food industry.
3. The average sales of one food company in Poland (EUR 4.0 million) is nearly twice as high as the average EU level (EUR 2.9 million), but considerably lower than in the states with the highest concentration of production of this sector, i.e. Ireland (EUR 31.1 million) and Great Britain (EUR 11.5 million). It is similar to that of Germany (EUR 4.5 million).
4. The improvement of labour productivity in the food industry between 2000 and 2008 was a common phenomenon in all EU MSs. The greatest growth in the period concerned was noted in Bulgaria (89%), Lithuania (84%) and Romania (67%), while in the whole EU-12 it was 51% and in the EU-15 – 32%. Labour productivity in the period concerned in Poland increased by 53%.
5. The process of levelling the differences in development of the food sector in Poland and the EU-15, as well as closeness of branch and entity structures to the largest EU food and drink producers is in progress. Development rate of the Polish food industry is among the fastest in the EU and each year is enhances our position on the Single European Market.

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# The potential and limits of the fruits - vegetables sector in Romania

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## ABSTRACT

In the present paper we propose to make an analysis regarding the evolution of the fruits – vegetable sector in Romania. In order to show the importance of the agriculture for developing Romania's economy we started with presenting the structure of the total fund surface, which is a favorable one. We decide to analysis the period 2007-2011 because since 2007 Romania is a member of the EU and therefore is subject to the regulations in force and the provisions of EU agricultural policy.

Through the analysis made in the present paper we tried to identify treats and opportunities in development of fruits vegetables sector and principal competitive factors of the domain. In the study it was observed that despite the fragmentation of cultivated vegetables and fruits they increased from year to year, maintaining a variety of species, vegetables and fruits

The number of people employed in agriculture whiles the amount of fertilizer utilized per unit of surface favors the development of ecological agriculture, which will allow an increase in revenues from these sector.

*Keywords: land fund structure, agricultural products, fruits and vegetable exports, ecological agriculture, producer groups, fruits-vegetables consumption.*

## INTRODUCTION

In Romania, the agriculture was always considered to be one of the economy's basic branches. Romania has favorable climatic conditions for obtaining the agricultural production in order to satisfy the consumption needs of the population and at the same to ensure significant export availabilities.

Unlike other European countries, in 2011 Romania had a favorable structure of the total land fund surface, from the utilization perspective, since the agricultural area represented 61.7% of the total, meaning 14.6 million hectares, of which 9.4 million hectares was represented by the surface of the arable land.

The arable land, from the utilization perspective, was occupying 64% of the total agricultural surface. The evolution of the land fund, from the utilization perspective is represented in the following table:

**Table 1. Romania's land fund surface from the way of use**

*hundreds ha*

<b>Specification</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
<b>Agricultural area, from:</b>	14709,3	14702,3	14684,9	14635,5	14797,2
Arable land	9423,3	9415,1	9422,5	9405,0	9337,1
Grasslands	3330,0	3330,0	3313,8	3288,8	3392,4
Hay (meadows)	1531,4	1532,4	1528,0	1529,7	1497,7
Vineyards and vine nursery	218,0	214,5	215,4	213,4	292,4
Orchards and fruit nursery	206,6	207,3	205,2	198,6	277,6

*Source: Romania's Statistical Yearbook, 2011, tab 14.1 [www.insse.ro](http://www.insse.ro)  
[www.afaceri-agricole.net](http://www.afaceri-agricole.net)*

In the arable farmland soil position changes yearly or even several times a year, while the vegetative cover varies and does not last long. The change of the land fund structure, in time and space, follows the changes of the demand for agricultural products, driven by modifications in the consumer's habits and those that occur at the social level (level of education and standard of living).

In Romania to every inhabitant is associated 0.41 ha of arable land while the European average is 0.212 ha/capita. All these show Romania's agricultural potential, despite the fact that the share of employment in agriculture is high, about 30.1% while the European average is 6%. This aspect could allow Romania to develop an ecological (organic) agriculture, to better harness the large number of persons in the industry. The markets for organic food and in particular organic fresh fruits and vegetables also exist in developing countries (United Nations, 2003: 235).

The Romanian agriculture has contributed in 2011 to about 7% of the gross domestic product (GDP) compared to the average European Union (EU) which was about 2%. All these aspects show the importance of the agricultural sector to the national economy. The forecasts of the Economic Cooperation and Development Organization (OECD) regarding the agricultural products markets in the period 2010-2019 show that on a global level the consumption of agricultural products is determined by the developing economies and the emerging ones ([www.dce.gov.ro](http://www.dce.gov.ro)).

The transformations experienced by these countries (the income and population growth) determine significant changes in the consumption structure and in the food (eating) habits. The forecasts for the consumption of the OECD's mature markets indicate a change in structure. This change is caused by demographic modifications and also by the changing diets and the orientation towards a healthier diet which includes more fruits and vegetables. ([www.traderom.ro](http://www.traderom.ro)).

## **THE EVOLUTION OF FRUITS - VEGETABLES AGRICULTURAL PRODUCTION AND CULTIVATED AREA**

From this perspective, Romania could have a series of advantages, by restructuring the agricultural area, increasing areas cultivated with vegetables and fruit orchards. Fruit growing is a domain of "agricultural resources", which throughout the



natural and directed interaction has a result the obtaining of new sorts of agricultural products – namely fruit – important for people’s nutritional needs. (Urs, I.F., 2005:303).

The evolution of both the cultivated areas and the agricultural production was marked by Romania’s integration into the EU in 2007. In order to better capture the dynamics of vegetables and fruits production we have chosen to do an analysis of the period following the EU integration. From this perspective, the analyzed period is the one of the years 2007-2011. Although Romania has a significant agricultural potential, in the analyzed period, the agricultural production had a differentiated evolution due to the climatic conditions, the specific agricultural work and the new Common Agricultural Policy (CAP).

According to data provided by the Food and Agriculture Organization of the United Nations (FAO) ([www.dce.gov.ro](http://www.dce.gov.ro)), the place Romania occupies on the European fruit and vegetables market, both in terms cultivated areas and the obtained production is represented in the next table:

**Table 2. Romania’s rank on the European fruits and vegetables market**

Category	From the cultivated area perspective						
	Rank				Share %		
	2007	2008	2009	2010	2008	2009	2010
Potatoes	6	6	6	6	4,1	4,1	4,0
Vegetable	5	5	5	5	6,1	6,2	6,2
Fruits	9	8	8	7	4,3	4,1	4,4
Category	From the obtained production perspective						
	Rank				Share %		
	2007	2008	2009	2010	2008	2009	2010
Potatoes	9	9	9	10	3,0	3,2	3,2
Vegetable	8	8	8	8	4,1	4,0	4,2
Fruits	11	8	8	8	3,1	3,3	3,1

*Source: authors’ own processing*

There could be observed a slight oscillation both in terms of the cultivated area and the obtained production, aspect that could be explained by market conditions. In such a context, the economical and social importance of fruit growing can take into consideration the following aspects: raw materials for the processing industry, increasing the fruit exportation, efficient use of some fields as compared to other agricultural products, contribution to the development of Romania villages, fruit processing. (Urs, I.F., 2005:303).

At the national level there could be observed a change in the surface occupied with potatoes and vegetables, and in the one of fruit orchards. In the following table is presented the evolution of the surfaces and their share in the total agricultural area.

**Table 3. The evolution of the surface cultivated with vegetables and fruit orchards**

Specification	Cultivated surface (thousands ha) and share in the total agricultural surface									
	2007		2008		2009		2010		2011	
	<i>th. ha</i>	%	<i>th. ha</i>	%	<i>th. ha</i>	%	<i>th. ha</i>	%	<i>th. ha</i>	%
Potatoes	268,1	2	255,3	2	255,2	2	241,3	2	243	2
Vegetables	253,4	2	268,6	2	267,1	2	262,7	2	258	2
Orchards and strawberry nurses + watermelons and melons	190,0	1	181,3	1	181,0	1	179,2	1	177,7	1

*Source: authors' own processing*

From the above table data it could be observed that the area cultivated with potato but also with orchards, strawberry nurses, melons and watermelons has suffered a continuous decrease. Meanwhile the surface cultivated with vegetables has increased in 2008 compared to 2007, after which again could be observed a downward trend like in the others categories case. Despite the reduction of the cultivated area, production has shown some fluctuations from year to year, but on an upward trend background, meaning that:

- the production of potatoes had increased by 10.8% in 2011 compared to 2007 at the same time with the diminution of the area by 9% ;
- fruits production had increased by 22% over the same time period along with a area reduction of 6%.

This situation could be explained through the increase of the outputs per hectare, increase caused by the use of new varieties (kinds) and production technologies but also by the climatic conditions of each year.

The vegetables production has increased in 2011 by 31.4% compared to 2007, even though the cultivated area has recorded just a slight increase (+1.8%). This trend could be explained by the increase in outputs per ha (more performing varieties, extremely favorable weather conditions, the introduction of new technologies).

As an EU member state, Romania is subject to the Community rules and the provision of fruit and vegetables is made both by own sources and imports. The productive potential of Romania allows, besides satisfying its own needs, to obtain quantities that can be exported. All these aspects are likely to boost local producers to develop the fruits and vegetables sector. Although the offers of products are diverse, the added value of products is small, especially due to:

- lack of marketing knowledge involving preparation methods for commercial production (sorting, grading) and presentation (packaging and labeling) meant to ensure the safety and attractiveness of the product to the consumer;
- lack of technical means of washing, sorting, packaging, labeling, storage and transportation of production to the market;
- lack of a production planning system and its correlation with the markets' demands.

A low added value of products involves instability and differences in the producer's income.

Given the small size of the fruit and vegetable farms and farmers' lack of experience in relation to the harvest insurance system, the prevention and management crisis mechanisms play a very important role in stabilizing the producers' income. Given the small number of farmers who have fruit or vegetables production insurance policies, we could say that the adverse effects caused by the climate phenomena, diseases and pests on the vegetables and fruit plantations are totally borne by the producer. The damages caused by pests and diseases of quarantine are excluded, since the producers of whom crops are affected by them can obtain financial support.

The number of exploitations which have insurance policies for their crops crop is very low and given these circumstances in the fruits and vegetables sector we cannot talk about a crop insurance system. The causes are multiple but the most important deficiencies are:

- the lack of interest on producers behalf;
- the lack of an attractive/flexible offer from the insurance companies;
- the lack of collective actions;
- lack of administrations concern in order to create a guarantee fund to which the administration, insurance companies and producers should participate.

#### **ROMANIA'S EXPORTS AND IMPORTS IN THE FRUIT AND VEGETABLE SECTOR**

Given all these conclusions, in order to see which the destination of these productions was we will have to carry out an analysis of Romania's exports and imports in the fruit and vegetable sector. In the below table is presented Romania's exports of fruits and vegetable during the period 2007-2011.

*Table 4. Romania's exports of fruits and vegetable*

Specification	2007		2008		2009		2010		2011	
	<i>value</i>	<i>share</i>	<i>value</i>	<i>share</i>	<i>value</i>	<i>share</i>	<i>value</i>	<i>share</i>	<i>value</i>	<i>share</i>
	Mil. euro	%	Mil. euro	%	Mil. euro	%	Mil. euro	%	Mil. euro	%
07. Vegetables, plants, roots and food tubercles	42,8	3,8	41,7	1,9	43,7	1,9	66,6	2,1	53,0	1,3
08. Fruits; citrus peels and melons	38,5	3,5	33,5	1,5	38,8	1,7	61,9	2,0	70,1	1,8

*Source: authors' own processing*

Regarding the value of vegetables exports (*Chapter 07 "Edible vegetables and certain roots and tubers"*) it can be seen that on a national level, they had an insignificant share of about 0.1 - 0.2% for 2007-2011 as a share of total exports.

If we refer only to the category of agrifood exports, then the share of vegetables exports ranged from 3.8% (the maximum share recorded in 2007) and 1.3% (the minimum share recorded in 2011). Of course, the shares are not always suggestive, since a large share in the total exports does not necessarily mean a higher value, so in terms of value, vegetables exports had two also other two peaks in the studied range period. Thus, the maximum value was recorded in 2010 and it was 66.6 million euro while the minimum value was recorded in 2008 when the Romanian vegetables exports were only of 41.7 million euro.

Ironically, 2008 is the year in which the areas cultivated with vegetables were the highest in the period 2007-2011, and the obtained outputs were also very high (close to periods peak). This aspect could be explained by the fact that in 2008 the economic and financial crisis has affected most European countries, the purchasing power was very low and the prices have suffered changes.

Fruit exports have registered a relatively constant evolution during the years 2007, 2008 and 2009, hovering around the value of 38 million euro, while in 2010 and 2011 have increased significantly by 60%, respectively 82% compared to 2007. Basically, in 2011 was registered the most high fruit export of a 70.1 million value. (www.romtradeinvest.ro). Again there is a paradox because 2011 was also the year in which the land surface covered with orchards had decreased and fruit production lowered with 6.6% compared to the previous year. This significant change is due to stabilization of European and international markets with the apparent exit from the economical and financial crisis.

Romania's imports on the two chapters '07 *Vegetables, plants, roots and food tubercles*' and '08 *Fruits; citrus peels and melons*' are each described separately while having different evolution.

**Table 5. Romania's imports of vegetables and fruits**

Specification	2007		2008		2009		2010		2011	
	<i>value</i>	<i>share</i>	<i>Value</i>	<i>share</i>	<i>Value</i>	<i>share</i>	<i>value</i>	<i>share</i>	<i>value</i>	<i>share</i>
	Mil. euro	%	Mil. euro	%	Mil. euro	%	Mil. euro	%	Mil. euro	%
07 Vegetables, plants, roots and food tubercles	144,2	4,3	155,6	3,6	122,0	3,2	149,7	3,8	152,2	3,4
08 Fruits; citrus peels and melons	245,1	7,4	245,3	5,6	175,7	4,6	178,7	4,5	185,4	4,2

*Source: authors' own processing*

The imports of vegetables had a fluctuating trend, with a minimum recorded in 2009 (122 million euro) and a peak in 2008 (155.6 million euro). However if we pay a close look at the entire period, then it could be observed an increase of the imports of vegetables in 2011 by 5.25% compared to 2007.

Romania's exports and imports of vegetables correlate with each other with an inverse relationship. So if the exports have registered a peak in 2010-2011, the imports

showed lower values, the minimum recording in 2009. The minimum value of exports was recorded in 2008, while the imports were the highest in the exactly same year.

Regarding the fruit import, it recorded a maximum of 245.3 million euro in 2008 and a minimum of 175.7 million euro in 2009. Overall the imports, although have registered some fluctuations have decreased by 24.3% in 2011 compared to 2007.

In this case also, the imports correlate with the exports through a relationship of inverse proportionality. The exports peak form the period 2010-2011 is correlated with the very low values of imports (close to the minimum value recorded in 2009), and the maximum of the imports in 2007-2008 correlates with the export minimum.

However, Romania's trade balance is negative for vegetables and fruits. Overall the exports amounts value around several tens of millions euro while the imports value around a hundreds of million euro. In 2011 the export of vegetables and fruits represented 5.4% of total exports of agricultural products of the country, while the import accounted for in the same year, 24.2% of total imports of agricultural products, which explains the negative balance trade in this chapter.

The European Union is the leading destination as well as source of supply in the global fruit and vegetable sector. Major exporters are Spain, the Netherlands, Italy, Belgium, France and Germany. (Huang, H.S., 2004:11).

In order to get a complete picture of fruit and vegetable sector in Romania we will also analyze the annual consumption, per capita and its evolution during the same time period: 2007-2011. The last years were marked by shifts in consumption habits and lifestyle, many nutrition experts from around the world highlighted the increasing importance of fruits and vegetables in the daily diet and the need to increase consumption (Chiru, C., & Calabro, G., 2012:81).

The Romanian Statistical Yearbook 2011, shows that the annual consumption per capita was situated in 2010 at 98.2 kg potatoes (which means an increase of 2.2% compared to 2007), at 174.4 kg for vegetables and vegetables products (in equivalent of fresh vegetables), legumes and watermelons (showing an increase by 3.7% and respectively 6.3% compared to 2007). Also, a person's annual consumption of fruits was 63.3 kg registering an increase of 1.6% compared to 2007.

The trend of fruit and vegetables consumption is an increasing one, from year to year, and we believe that it will maintain the same in the next period, out of at least reasons:

- the increase of the interest due to the public awareness of adopting a healthier lifestyle, which involves a greater consumption of fruits and vegetables;
- slight increase in population's incomes, which allow the purchase of superior agrifood products, the category in which fall the fruits and vegetables in Romania;
- the amplification of media on the benefits obtained from the increased consumption of vegetables and fruits.

The production also benefits from a favorable development field due to the existence of measures to support the fruits and vegetables sector in 2012 (Financial support for preliminary recognized producer groups and the producer organizations in the fruits and vegetables sector; The 'Fruit in schools' program – a grant of 8.483.523 euro given by EU to Romania for the school year 2011-2012; State aid for the diesel

used in agriculture – 1.27 lei / liter; Measure 142 Setting up of producer groups – 95 600 lei, etc.).

The EU financial support has been the engine for the investments needed to raise the sector' competitiveness and helping local farmers improve efficiency through upgraded technology (The ministry of Economic Affairs, EVD, 2009:6).

## CONCLUSION

The fruit and vegetable sector in Romania is characterized by a relatively high potential, both in terms of surfaces that can be attracted in the agricultural circuit, but also due to the potential to develop ecological agriculture. This conclusion is supported by the fact that:

- the fertilizer consumption in both sectors has not increased significantly from 2007 to 2011 while the natural fertilizer consumption increased significantly.
- in 2011 there were 9,703 ecological operators registered in the ecological agriculture from 3834 to 2007;
- the cultivated area in the ecological agriculture, arable crops, was 147,581.55 ha in 2011 compared to 65.112 ha in 2007;
- the orchards and vine crops area increased from 954 ha in 2007 to 4166.62 ha in 2011. ([www.madr.ro](http://www.madr.ro)).

Moreover, the large share of employment in agriculture, on the background of a very poor mechanization of these two sectors, increases even more the potential to develop an ecological agriculture.

Romania will never be able to compete with the imported products in terms of price or in terms of the offered quantities, so its chance is the ecological agriculture. Here Romania has a great potential given by the fact that our lands are not as "chemicalized" as other European countries, which gives us a substantial advantage. Romania has not known to take advantage of the years when, despite the cultivated areas, production was higher than in previous years and to capitalize on a higher level these additional quantities. For the following period, Romania will be the slave of imports for this sector of agriculture.

The explanations are multiple and relate primarily to the high cost of the Romanian products which reflects on prices, compared to imported fruits and vegetable, although seen from the qualitative perspective the situation is exactly the opposite. The population low income together with the lack of "local patriotism" encourages fruits and vegetables imports. Another explanation relates to the production, well below the average annual consumption per capita quantity in our country.

Another issue is raised by the insufficient development of the associative phenomena in the field, which would allow profitable contracts both upstream and downstream the production area, thus eliminating some of the present intermediates.

Romania admitted that until May 2, 2012, had a total number of 34 producer groups and producer organizations under Regulation (EC) 1234/2007 establishing a common organization of agricultural markets and on specific provisions for certain agricultural products. The recognized groups and producers organizations in the fruits and vegetables sector may benefit from financial support stipulated by the Government

Decision no. 1078 of 10 September 2008 regarding the financial support to the producers groups previously recognized and also to producer's organizations in the fruit and vegetables sector. ([www.madr.ro](http://www.madr.ro)). For the period 2010-2013, the recognized producer groups and organizations can receive financial support for the establishment, administrative facilities and investments as well.

Summarizing we could state that the production potential of the sector is affected for the following reasons:

- large number of small exploitations;
- a low level of endowment with modern technical production means and harvest of the exploitations;
- a high degree of fragmentation of vegetables and fruit surfaces and the lack of a coherent land consolidation strategy; The severe land fragmentation has been accompanied by a reduction in the living standards of the rural communities causing 76% of the total holdings (38.2% of the total area) producing for self-consumption and only 2.3% of the holdings (31.2% of area) being market oriented (Chiru, C., & Calabro, G., 2012:81).
- a low degree of fruit plantations rejuvenation associated with large areas of orchards in decline;
- the increasing frequency of extreme weather phenomena impacting on production.

At the same time, the production potential of the Romanian sector of fruits and vegetables is characterized by:

- numerous exploitations;
- a high range choice of species and varieties of fruits and vegetables;
- favorable climatic conditions for growing vegetables, fruit trees and fruits hrubs;
- the increase of the areas cultivated with competitive varieties of vegetables and fruit trees;
- the increase of the areas cultivated with vegetables in modern protected areas.

However, there are a number of competitiveness factors of fruit and vegetables sector, such as:

- in Romania, the fruits and vegetables sector is characterized by relatively cheap labor force, low cost of raw material for processing and a high potential for practicing an ecological agriculture;
- the quality of Romanian products is recognized and valued by consumers; Romanian products are preferred to others from somewhere else;
- the existence of research centers in areas favorable for the production of fruit and vegetables, whose staff has considerable theoretical and technical knowledge could create preconditions for increasing the competitiveness of the sector, under the condition that the future research projects would focus on applied research of which results would be implemented by the producers.

All these aspects can have a positive impact on the fruits and vegetables sector in Romania, if we develop an efficient management in this field.

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# Romanian agriculture under the impact of the new CAP reform. Challenges and expectations

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## ABSTRACT

This paper presents the important role that the Common Agricultural Policy (CAP) post 2013 will have on Romanian agricultural development. It also expose the present situation of the Romanian agriculture and the impact that other CAP reforms, which took place within through time, over the development and transformation of Romanian agriculture. The most important part of this paper refers to the increase of competitiveness, the efficient use of resources provided by taxpayers and results expected by citizens following an effective public policy, in terms of food security, environment, climate change and social and territorial balance. The objective of the CAP post 2013 should generate a stronger, smarter and more inclusive growth for the Romanian agriculture.

**Keywords:** *Common Agricultural Policy, agriculture, objectives, development, reforms, competitiveness*

## INTRODUCTION

Ever since its foundation Common Agricultural Policy (CAP) has undergone a series of modifications being necessary reforms to ensure food security primarily, without neglecting food safety but also the increase of the rural population living standards.

The historical development of CAP can be summarized as follows:

In prior periods of CAP implementation and in the first decades of its operation, in the member countries agriculture there was a deep food crisis which led to the adoption of measures that aimed exclusively productivity and includes: food security, increasing productivity, stabilizing markets, supporting production in early years and overproduction, reducing costs, structural measures during the crisis.

The 1992 reform was no longer centred just on productivity but move to a higher stage which aimed competitiveness and mainly involves: reducing excess, environmental protection and conservation, stabilization of income and budget.

Starting with 2000 agenda the focus is on sustainability and measures include deepening the reform process, competitiveness and sustainable development. The 2003 CAP reform implied measures regarding: market orientation, consumer concerns, rural development, environment, simplifying the CMO compatibility. "Health Check" of 2008 aimed to strengthen reform of 2003 through new solutions for new challenges and increased interest in risk management.

## **COMMON AGRICULTURAL 2013-2020**

The 2013-2020 CAP aims facing the challenges related to food, natural and territorial resources. The main challenges to which the CAP must respond in the coming period are related to food security environmental and climate change and Territorial balance. "It is emphasized that the main future challenges of the Reformation refers to food security, environment and climate change and territorial balance."

Regarding the food security, based on role the agriculture to ensure food, is essential that EU agriculture to maintain and to increase production capacity in order to ensure meeting the demand for agricultural products in continuous growth. This goal is utopian if you take into account that EU agriculture faces a more pronounced competitive environment and EU citizens who demand quality products at a higher level and a wider range of products. Therefore, future CAP" enter into force after an economic crisis that has hit the agriculture and rural areas through direct association of more global macroeconomic developments that have had an impact on production costs. After a decade of simple stagnation, farmers income decreased slightly in 2009, a fact which deteriorated the already fragile situation (*income of farmers are already well below by approximately 40% per working unit comparative to constant income from other economic sectors*- European Commission).

Regarding the climate and environment changes, the quality of agriculture and forests plays a key role. The production of environmental and public goods is overshadowed by land pressure during its exploitation. The future CAP focuses mainly to adapt to changes and to positive contribute at the reducing of greenhouse gas emissions, improve energy efficiency, etc.

Essential role of agriculture of being the engine of the rural economy in many EU member countries must be developed through the existing of a competitive and dynamic agricultural sector Territorial balance.

### **Necessity of a reform**

CAP has evolved but are required some changes in order to adapt it to new challenges. These challenges are related to:

- Concern over food security in both the EU and around the world;
- Improving sustainable management of natural resources;
- Reduce pressure on inputs that generate climate change
- Preserve and increase the competitiveness of the agricultural
- Diversification of production structures and systems
- Encouraging social and territorial cohesion
- Monitoring support on behalf of CAP
- Simplification the CAP work procedures

So CAP contributes to the Europe 2020 strategy by Smart growth (improve resource efficiency and strengthen competitiveness through investments in training, new

technology, environment, information and communication), sustainable growth (keeps the base for the production of goods, food and renewable energy by ensuring sustainable management of earth), inclusive growth (unlock economic potential of rural areas by developing local labour and markets).

### **Objectives of the future CAP**

"The overall strategic objectives of the future CAP are reflected in the report, namely agriculture's contribution to achieving sustainable, inclusive and intelligent growth. Also, agriculture has to provide food security, contribute to climate change through green growth and renewable energy supplies, provides jobs and income of rural residents. "

The future CAP aims to achieve three main objectives:

- A viable food production that aims to contribute to farmers' incomes, improve competitiveness, providing natural compensation to disadvantaged regions
- Sustainable management of natural resources and measures that favours the climate which aim to improve the provision of environmental public goods, providing environmental factor by innovation, engaging in climate change mitigation
- A balanced territorial development that implies rural labour support, improve the local economic conditions in rural areas by promoting diversity, allowing structural diversity in farming systems.

### **Future instruments**

This objective can be achieved only through the support of agriculture and rural areas. The key tools to be used for this purpose are:

*Direct payments* aimed at supporting the farmers' income; strengthen environmental performance, promoting sustainable development of agriculture in naturally disadvantaged areas, taking into consideration problems specific to certain regions through aggregate support for creating a simple and specific system applied to small farms.

*Market measures* aimed at shaping the CAP to market needs through conservation the general user " architecture" of management markets.

*Rural development* as part of the CAP is designed to strengthen the sustainability of EU agricultural sector and rural areas in economically, environment and socially.

*Global architecture* that is designed to structure the future CAP instruments on two pillars.

One of the instruments problems is the "sure thing that CAP funding swallows a lot of money, about 40% of the entire EU budget and in the current economic crisis, there may be relevant positions requiring reconsideration forms of support and extent of the CAP budget."

So CAP 2013-2020 proposes to address the challenges of competitiveness, sustainable development and quality of life in rural areas.

## ROMANIAN AND EU AGRICULTURE

Agricultural area ranged from 14,815,200 hectares in 2007 to 13,298.0 thousand hectares in 2010 in Romania. Romania contributes with 6 percentage points at utilized agricultural area. Greatest contribution it has France with 16 percentage points, followed by Spain with 15 percent. So in the ranking of the agricultural area used, Romania ranks 6. This position reflects the importance of the agriculture surface of Romania and demonstrates the agricultural potential that it has.

More than half of utilized agricultural area in the EU27 belongs to France, Spain, Germany and Great Britain. Mainly these percentages have remained stable in 2003-2010 but there are exceptions. According to EUROSTAT these exceptions were noted by increasing Spain with 0.8% and 0.6% in Poland and by reducing Romania and the UK with 0.7 percent.

The utilized agricultural area showed fluctuations in the year 2010. Most EU 27 member states scored a decrease in terms of utilized agricultural area. United Kingdom, Sweden, Finland, Poland, registered increases of cultivated surface, other countries including Romania shows decrease of agricultural land. In Romania the proportions of this phenomenon assumes disturbing connotations because the setting up of industrial sites was done without taking into consideration the protection of agricultural land and thus without giving due importance to limited character of the land for this purpose. Basically, the main factor of production respectively agricultural land becomes a clear target of urban activity, either by turning it into urban land, whether as a result of degradation by mechanical activity and forced chemicalizing designed to provide food requirements to the urban population that is on the rise. To balance relations within the coalition-building land-urbanization this does not be seen as a stop development process, but as a rationalization, establishing an optimal framework for the evolution of the three components, so that each of them better meet their goals.

In terms of agricultural holdings in the period 2005-2010 there was a decrease in the total agricultural holdings both in the EU 27 and in Romania. The main reasons behind these reductions refer to changes in the meaning of instabilities that have occurred in the economic and which influenced agricultural holdings activities. Evolution in the number of holdings is closely related to land development and a reduction in the number of holdings may be made on easing agricultural land. Another variable that has an impact on this state is the physical resizing farms.

In terms of number of holdings with at least one unit of economic size, in terms of this number Romania ranks fourth after Italy, Poland and Spain. Countries like Portugal and the UK have a small number of such holdings more precisely 1,816,000 respectively 1,785,000 holdings. Other EU Member States have amounted to a total of 27 10824000 holdings this is lower than Italy which holds 13.833 million holdings.

The data shows that in the year 2010, from the number of holdings 76% of the 745 million holdings larger than one economic size unit are constituted by Italy with a contribution of 19 percent to that number, 15 percent Poland Spain with 13 percent, Romania by 12 percent, Greece with 10 percent and France with 7 percent. Of course this is irrelevant if is not taken into account factors that may influence this. Factors that have impact on the number of holdings can be considered: the total area of the state to which it refers, the total agricultural area utilized agricultural area legislative framework under which it is established and operate the holdings, farming practiced models. By comparing, agricultural area of Romania is lower than Germany's for example but the

number of holdings in Romania's case is higher than in Germany, this is explained by the existence of holdings in Germany whose economic size is much larger than in Romania and the existence of small economic size holdings in Romania. Romania also has a utilized agricultural area for holdings larger than one unit of economic size close to that of Italy but the number of holdings is much higher in Italy, this is explained by the existence of holdings which in Italy are characterized in general by small economic size and the pronounced difference between of holdings size.

Differences may also be explained by the state of development of agriculture as a whole, Romania still represents the space in which operates further very small holdings, many of which are less than one unit of economic size Also in the case of Romania you can refer to the degree of excessive fragmentation of agricultural land and parcelled it, besides this factor it also operates the Romanians reluctance to cooperate, associate or lease.

### **Holdings of less than 1 ESU**

Although at the level of 2010 according to European Commission these holdings occupied only 7% of the utilized agricultural area and 1.6% of the standard gross margin EU 27, EU agriculture structure analysis cannot be neglected because it holds a 48.85 percent share in total agricultural holdings

This type of holding occupies the largest share of total agricultural holdings; this percentage is between 45.95 and 48.85 percent. Although these holdings have a large percentage of the total number of holdings in by EU-27 level these holdings hold a lower share in the farm land they use.

At the level of EU 27 over the period of analysis there is a decrease in the number of holdings with this economic dimension In comparison to 2003 there has been a continual increase until 2007, the percentage decrease in the number agricultural holdings of this size is 13.7, exactly to 2003, the number of agricultural holdings decreased by 870,700 In this respect all EU 27 have contributed Mentioned in these holdings is that the Netherlands was no longer include these farms in European statistics because they represent less than one percent in agriculture Also in other Member States such as Luxembourg, Denmark and Finland are significantly reduced these holdings represent less than 5 percent and aggregating more than 4,000 farms.

Bulgaria, Czech Republic, Denmark, Estonia, Spain, France, Italy, Cyprus, Latvia, Luxembourg, Slovak Republic acted to increase the number of holdings of this size Other EU member states 27 have shown both increases and decreases in the number of agricultural holdings with more than 100 ESU in the period of analysis.

In Romania until 2005 there is a decrease in the number agricultural holdings with less than economic size unit from 2003, but in 2010 it recorded an increase this number compared to 2005.

In seven of the 27 European Union Member States (Romania, Poland, Hungary, Slovakia, Latvia and Lithuania) holdings whose economic size is less than one economic size unit represents more than half of registered holdings by 2010 In 2010, holdings with an economic size of less than one economic size unit represented 23% of total number of holdings registered at the level of EU27. The main difficulty encountered is that of maintaining family structures of production in terms of competitiveness objectives This explains a land policy with objectives sometimes ambivalent or difficult to adapt local specificities Such training funds to encourage agricultural of holdings at an enterprise approach proves to be difficult.

Romania's situation on the increased number of holdings with a unit economic size is explained by excessive fragmentation of agricultural land and by parcelling it.

### **The average size of farms larger than 1 ESU**

Values regarding the evolution of the average area of agricultural holdings recorded both in the EU 27 and in Romania oscillations. If in 2003 the average area per holding was 8.8 hectares in 2010 this value increased to 12.8 hectares. Regarding the EU 27 holding average area is noted that the trend is a strictly increasing, this indicator increased from 20.4 hectares per holding to 22.3 acres per holding.

This evolution as well as the gap between the EU and Romania can be explained by the small number agricultural holdings with an economic size greater than one ESU and the contribution of country like Germany, France, Italy, Spain which had on their territory sized agricultural holdings larger. Romania is a country that is still characterized by a high number of peasant households whose size is very small. Also besides the physical size to the development of this indicator it contributes the performance per hectare recorded and Romania by practicing primarily an extensive system is characterized by low performance which does not allow classification of holdings although from terms of physical size could be placed on farms with size greater than 1 ESU.

### **Standard gross margin**

Romania's participation in the formation of the EU-27 gross margin is reduced. The largest share amounting to 3 848.4 ECU was recorded in 2003 and contributed 2.65 percent to the EU 27 standard gross margin formation. The lowest value was 2 598.8 ECU and recorded in 2007 but its contribution to the formation of standard gross margin amounts to 1.71 percent of EU-27 is due to the decrease of this indicator in the EU 27. The lowest rate was recorded in 2010, but was 1.68 percent of the total. These values are explained as reduced physical size of agricultural holdings and labour used, the degree of mechanization, technology, agricultural model practices in Romania. This emphasizes the need for measures to increase size and performance.

Standard gross margin on the holding has a much lower in Romania than EU-27 average, its value is approximately 2.8 times lower in 2003-2010 analysis periods, this can be explained by the large differences existing EU 27 in terms of margin and standard farm structure exceeding one ESU. This indicator reflects the economic performance of farms at the level of EU-27 and in Romania. An agricultural development based on performance and such performance involves progress. The high potential of Romania may change the current position in terms of standard gross margin but a large number of peasant households hinder this process.

## **CAP POST 2013 AND ROMANIA**

Present evolution of the economic environment and the move towards global sustainable development will generate changes in the policies that will be adopted for the development of Romanian agriculture.

Romania has a huge agricultural potential but is not turned to his value and results of this exploitation are weak and well below the European Union. On the one hand is understandable but where Romania is from terms of agricultural holdings because unlike other states which after the Second World War began efforts to rebuild the economy in general and agriculture transformation into a viable one capable of

ensuring safety and security (initially), Romania was tested by a new land reform as a political effect was going to later have serious influence on both agriculture and the rural area and population. On the other hand the desire of property and "thirst" of land later led to a new law based on a reform whose effects are feeling strong after 20 years of its entry into force, a law that has produced a series of effects. Thus the effects of the Land Law that Romania faces today regarding the land crumbled, many small holdings places Romania in France position after the war when there were many small sized holdings considered inefficient in the sense that France acted by a series of policies.

Although Romania's agriculture is characterized by peasant households, they could be seen through the prism of 'space' which manages to preserve tradition and culture. Supporting these peasant households through direct payments under the new CAP reform but preserve national identity would jeopardize performance.

Existence of small holdings have underperformed standard gross margin which leads to lower yields both quantitatively and qualitatively speaking. In order to survive in an economic framework increasingly competitive direct payments could have a positive effect. It is necessary for this change to occur in the size of holdings, but the process is slowed of the rural exodus, of aging population from this environment of low interest in farming and reluctance that rural population has for association or cooperation as a result of injuries sustained in past.

## **CONCLUSION**

Any changes to align with European Union must take into account the specificity of Romania.

Without taking into account the identity of the Romanian rural areas as a whole any change becomes slow because Romanian people unlike other peoples 'love' land. Consequently shall be taken into account in order to develop solutions that do not involve changes in ownership.

Agriculture is one of the most precious treasures and one of the biggest dilemmas. One of the underlying elements in agriculture, prompting efficiency is the land market, The obligation to liberalize the Romanian land market will generate a number of effects on structures and land use.

Therefore the new CAP could have a positive influence in terms of sustainable development of Romanian agriculture, with measures taken on the market (which allow a equitable recovery of products) but also an increase in the living standards of the rural population. Simplification of procedures covered by the new CAP will help accelerate this process in Romania.

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# Overview of the evolution Romania-EU relationship in the field of agriculture

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## ABSTRACT

This article illustrates the difficulties that Romania had to endure in order to become a member of the European Union, also the programs and methods that were applied during that time.

It also details the challenges each program presented and what modifications they brought in the field of agriculture.

These new programs that Romania accepted brought many changes with the common agricultural policy (CAP) which transformed Romanian agriculture.

The changes made were in efficiency of production, competitiveness on the market and better management of our resources.

The objectives that Romania wanted to achieve in agriculture were the support vegetable and livestock sectors as well as those for irrigation.

*Keywords: Agriculture, CEFTA, ISPA, SAPART, PHARE.*

## INTRODUCTION ABOUT EUROPEAN UNION

On 7 February 1992 the European Union was officially formed on the basis of the Maastricht treaty and 12 states<sup>50</sup> signed in order to strengthen economic, social and political and to reduce differences across member states. Treaty entered into force on 1 November 1993.

The purpose of this treaty was to unite the people of Europe by economic, social and political relations.

The EU admits that the organization is open to all European States which wished to integrate and fulfill the political, economic and social set in 1993.

After 1990 they increased training efforts of former communist countries and the Nordic countries separated from the USSR for membership in the European Union.

### COMMON AGRICULTURE POLICY (CAP)

CAP is generally a set of mechanisms and rules necessary to regulate the production, processing and marketing of agricultural products in the EU and help rural development.

CAP is one of the first common policies and due to its distinct features they are of particular importance. The special features of this policy are:

- large consumers of financial resources;
- is an integration policy;
- is very vulnerable to pressure from farmers.

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<sup>50</sup> France, Germany, Italy, Netherland, Belgium, Luxembourg, Denmark, Ireland, United Kingdom, Greece, Spain, Portugal

Romania's relations with the EU were conducted during four distinct periods, successive and increasing intensity, when our country was in the status of:

- 1) Third country for up to 31 December 1994 when the run must address distinct events of December 1989 and the period immediately following the collapse of communism. Throughout the communist period, Romania's political and economic relations with the EU were insignificant as occurred in accordance with the doctrine of command economy and the limitations and restrictions resulting from obligations assumed by our country in trade agreements that were held under the umbrella of the Council for Mutual Economic Assistance (CAER<sup>51</sup>).

Remember attention in 1980, when he took the first step in Romania's relations with the European Community<sup>52</sup> by signing a trade agreement for industrial products. This political action had special significance because Romania recognizes the West European integration process and in domestic public opinion to inculcate the idea that totalitarian regime enjoys legitimacy against the West.

Because of the acute stage of economic crisis and worsening of the dictatorial regime in Romania, in the 80s, the Community unilaterally decides to cancel this agreement. After 1990, in Romania it triggers a powerful imbalance both political and economic terms that has led to the initiation and intensification of new relationships with most democratic states, especially those in the EU.

In turn, EU, based on the concept of open structure, the option favored and encouraged European countries recently cut from communist to weaken relations with the Soviet authorities in Moscow, which was on the brink of collapse, and to move towards European integration. In fact, Article 237 of the Treaty of Rome, which provisions were taken in other laws stated that any European state may apply to become an EU member.

There were concrete activities on both sides, extremely significant. Thus, in 1990, Romania and the European Union recognize each other and our country opens first embassy to the Communities. A year later, are negotiated, signed and enter into force the Agreement of Trade and Commercial and Economic Cooperation.

- 2) Romania gained the status of associated country, between 1995-1999, and followed the entry into force of the Treaty of association.

The concrete form is entitled "Europe Agreement establishing an association between Romania, on one hand, and the European Communities and their Member States, on the other hand" and is subject to law number 20/1993, published in Official Gazette number 37/12 April 1993.

It is worth mentioning that negotiations on this agreement began in May 1992 and took place over six rounds of meetings that were completed on November 17, 1992.

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<sup>51</sup> It was created at the initiative of the Soviet Union, in 1949, with a mission to boost trade between the countries of the Eastern bloc

<sup>52</sup> Romania was the first country within CAER who entered in commercial relations with the E.U.

Romania signed the act on February 1, 1993 but its applicability occurred after two years, with ratification by the parliaments of all member states including the EU parliament.

The Ministry of Agriculture, Food and Forests, developed strategic programs which had two directions:

- First, target preparation for EU agriculture
- Second, following preparation of transposition in Romanian agriculture (CAP).

Regarding preparation for EU agriculture, emphasis should be placed on: Going organizational reform efforts that aimed at establishing effective agricultural farms are large and producing viable commodity for domestic and foreign.

Establishment of cooperative associations and professional organizations were made to support farmers in the efficient management actions on agricultural markets, and also to assist their social and economic protection.

Elaboration and implementation of priority programs were designed to support vegetable and livestock sectors as well as those for irrigation. The most important component stocks of the objectives were:

- Creating a culture structures that allow efficient use of production conditions;
- Improving efficient operation mechanism food markets;
- Increased production of industrial crops and organic;
- Intensify efforts to develop animal husbandry should become the priority of agriculture;
- Recovery fruit growing, viticulture, vegetable and floriculture;
- Improvement and continuous improvement methods and procedures to prevent and control diseases and pests in order to increase the crop production and animal.

Continued investment program for expanding irrigation, agricultural and forest land erosion, prevent flooding, increasing technical equipment and farms, increased efforts to expand the network of forest roads.

Reorganization of scientific research for adaptation to the new conditions of U.E. membership, which means:

Intensification of technical cooperation, economic, scientific and educational line of agricultural and veterinary medicine;

Active involvement of research institutes and resorts in supporting agricultural producer;

Finalizing the legal and institutional framework for research, agricultural education and professional training.

## **Romania, AN EU MEMBER COUNTRY DURING 2008 - 2011 FINANCIAL PACKAGE FOR ROMANIA**

The "financial package" meant all financial and budgetary implications of the accession negotiations for Chapter 7 - "Agricultural", 21 - "Regional policy and coordination of structural instruments" and 29 - "Financial and Budgetary Provisions".

The U.E. budget is the instrument through which EU funding programs and actions to achieve its common policies. Given that many EU projects and activities conducted for more than 1 year to ensure financial discipline and financial resources available employment in the medium term is used "financial perspective". This involves defining

in advance the budget priorities for the next period (usually seven years) and the ceiling of EU expenditure in this period, which may not exceed 1.24% of EU GDP, according to current methodologies.

Agenda 2000 originally anticipated expansion costs 6 states 42.6 billion in commitments 2004-2006 (Estonia, Hungary, Czech Republic, Poland, Slovenia, Cyprus – Group Luxembourg – negotiations were opened with them in December 1997). It introduced the concept of "ring fence", meaning that they could be transferred amounts provided for those 15 and associated costs and vice versa.

Seville European Council – June 2002 – confirms closure of negotiations with 10 countries, while the costs of joining the 10 states were maintained within the ceiling set by Agenda 2000 (42.6 billion euros).

## **AGRICULTURE**

Agriculture is envisaged as the other 10 states, the gradual introduction of direct payments over a period of 10 years from the 25% level of direct payments allocated to the 15 Member States in 2007.

The amount proposed for direct payments for Romania three years is 881 milioane euro. These amounts do not require co-financing from the national budget. Amount paid for market measures worth EUR 732 million does not require co-financing. The amounts will be awarded starting in 2007, proportionally each year. Finance measures contained in Pillar I of the CAP prices, export subsidies, storage. Is a cash flow to be divided phasing-in; for the three years.

The amount for rural development is EUR 2.424 million in the three-year commitments. Co-financing from the state budget is 25%. According to the methodology for granting such funds, amounts committed to be spent in year n to year n + 2. For example, amounts committed in 2009 will be spent during the years 2009, 2010 and 2011. Finance measures in the second pillar of the CAP: early retirement, farming, attracting young people in rural areas, agro-tourism and services.

### **The proposal for the new financial perspective**

On 17 December 2005 at the Brussels Summit, the 25 EU Member States have adopted the EU budget.

For Romania, the EU budget completion of a priority to reduce economic and social disparities between the EU and poor areas.

## **CONCLUSIONS:**

Romania had to face many difficulties to be accepted as a member of the European Union, but the fight is not over.

With the acceptance of Romania into the European Union we have been granted access to the European Funds and other resources that can help Romanian agriculture to grow. The struggle to attract funds and foreign investors continue.

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# Concept of renewable energy in agriculture: Applications of wind power in irrigation systems

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## ABSTRACT

The present paper is a study which proposes a new integrate system of irrigation using clean renewable wind energy in the form of wind mills able to irrigate medium and large surfaces of agriculture lands using independent energy source produced by wind force and also able to deliver electric power to the National Energy System. In the present context, when Romanian agriculture is almost totally dependent on the meteorological conditions, this proposal represents an opportunity to rehabilitate the agriculture sector and the rural development and to improve significantly the agriculture production with direct benefic results on the entire national economy and the Gross Internal Product of Romania.

**Key words:** agriculture, irrigations, wind turbines, integrate systems, rehabilitation.

## OVERVIEW OF EVOLUTION OF THE IRRIGATION SYSTEMS IN ROMANIA

Former important producer and exporter of cereals on the European and worldwide market until 1990, Romania used to occupy the first places in terms of agriculture production. The statistics show that in 1990 Romania was on fifth place in Europe, as shown in the Table below:

**Table 1** *Wheat and corn production in 1990 in some European states*

kg/hectare

Country	Wheat production	Corn production
France	6,151	7,230
Germany	6,838	7,481
Czechoslovakia	5,283	5,460
Italy	4,760	7,492
Romania	3,364	2,473

This level of production was mainly due to land improvement works, using of fertilizers and other specific works but also due to irrigation systems for which the state used to provide important financial resources.

Nevertheless, twenty first century Romania suffered significant changes within the agriculture sector under the pressure of geo-political changes which resulted in the reconfiguration of the entire national economy with structural consequences on the Gross Internal Product of the last twenty years.

The social-political realities occurred during the second part of twentieth century contributed to the trend of improving of the conditions of agricultural production, mainly of cereals, obtained from large surfaces through the irrigation systems.

Between 1950 - 1990 in Romania over 3 million hectares of agriculture lands were arranged for irrigation which placed Romania among the first countries in Europe with the largest surfaces irrigated, such as Spain with 3.39 million hectares irrigated and Italy with 3.14 million hectares, and on the fifth place worldwide in terms of surface arranged for irrigation per capita.

Until 1989 the agriculture sector used to ensure places of work for 24% of the active population and out of the 15 million hectares of agriculture lands 9.5 million were cultivated. The surface of over 3.1 million hectares endowed with irrigation systems ensured the appropriate conditions for the cereals and vegetable crops, mainly along the shore of the Danube River.

However, the operation and maintenance of these systems required high cost if we consider that 60% of the surfaces arranged for irrigations included pumping heights of 75 meters while the rest of the systems were located at altitudes of over 200 m. The way that these systems were kept in operation proved in time to be too costly and consequently the state was unable to support the costs of maintenance and operation therefore these systems were almost totally abandoned.

After 1990 the arrangements for irrigation were ignored and after the privatization of the agriculture sector many of the former irrigation systems were destroyed or simply disappeared. Due to lack of investments and small funds allocated as well as the low interest of both the state and the farmers to invest in the rehabilitation of the old irrigation systems the subject of irrigation was forgotten. For the farmers these systems were much too costly considered be considered profitable investments and therefore they waited financial support from the state and, later on, from the European Union.

## **TECHNICAL AND CONSTRUCTIVE CHARACTERISTICS OF THE IRRIGATION SYSTEMS IN ROMANIA**

The irrigation systems in Romania, considered during their implementation and operation, in terms of design and construction, worldwide competitive before 1990, were defined by several characteristics such as: size, constructive solutions, water sources, location landscape, power specific consumption, level of projects' completion, etc. Compared to a scale where the hydro-improving systems exceeding 500 hectares are considered large, the surfaces arranged for irrigations in Romania can be considered, as a whole, giant systems. In terms of percents as irrigated surface out of 100 irrigation systems four were located on surfaces of over 100,000 hectares, 13 measured between 50,000 and 100,000 ha, 18 were between 25,000 – 50,000 ha, 29 between 10,000 –

25,000 hectares and 39 were under 10,000 h as surface. Thus, in average the surface of an irrigation system stretched on 28,144 hectare which represented a high surface. However, the constructive solutions were differently applied, according the land characteristics. Thus, for the water catching and distribution were used either open surface irrigation channels or overground reinforced concrete ditches. Also, for the inside arrangements was used the pressure piping system (about 88% of the surface of the greenhouses was irrigated like this). In the first stage for the water distribution a large number of pumping installations was used. In time, both these installations and the distribution system through over ground reinforced concrete ditches became non-operating and were replaced. In terms of energy consumption, due to the high levels of pumping and the large transport distance of the water, along with the giant dimensions of the irrigation systems in Romania during the communist period, these systems were considered some of the high consumption installations. Depending on the energy consumption, necessary for water pumping and distribution to the surfaces necessary to be irrigated, these systems were grouped in four power consumption categories:

- I – low consumption: under 700 Kwh/ha for 10.0 % of the surface;
- II – medium consumption: between 700 – 1,400 kwh/ha for 28.6% of the surface;
- III – medium-high consumption: between 1,400 – 2,100 kwh/ha for 48.2 % of the surface;
- IV – high consumption: over 2,100 kwh/ha for 13.2% of the surface.

**Table 2** *Evolution of the surface arranged for irrigation during the 1960-1989  
Thousands of hectares*

Year	Surface arranged for irrigations
1960	199.7
1965	229.9
1970	716.6
1980	2,221.8
1985	28,973.9
1989	3,109.0

**Source:** *Annual Statistic Catalogues of Romania years: 1960 - 1989*



**Table 3** Evolution of surface arranged for irrigation 1990 – 2007*Thousands of hectares*

Surface arranged for irrigation	1990	1995	1996		2005		2006		2007	
				Private sector		Private sector		Private sector		Private Sector
Total	3,215.8	3,211.1	3,190.6	2,165.0	45.7 <sup>1</sup>	42.0	96.2 <sup>1</sup>	90.3	320.2 <sup>1</sup>	241.1
Agriculture Lands	3,109.0	3,110.01	3,095.6	2,120.7	-	-	-	-	-	-
Arable lands	2,931.9	2,943.6	2,921.4	2,040.1	44.6 <sup>1</sup>	41.0	97.5 <sup>1</sup>	89.9	315.6 <sup>1</sup>	239.2

<sup>1</sup>Represents the surface irrigated only within the internal system of the National Administration of Land Arrangements (N.A.L.A.)

*Source: Annual Statistic Catalogues of Romania years: 1990 - 2007*

As shown in the above tables the irrigated surface, at national level, had a positive trend until 1989 when it reached a maximum level of 3,109,000 hectares arranged for irrigations followed by a decreasing trend up to 241,100 hectares in 2007. At present, the statistics data of N.A.L.A. show that the total surface arranged for irrigation is of only 340,562 hectares, including the following irrigation methods:

- spray irrigation 2,660 ha;
- furrow irrigation 281,982 ha;
- flooding irrigation 55,920 ha.

The overground ditches are not used anymore because of high cost reasons. The rest of the agriculture surfaces are dependent on the meteorological conditions. The above tables show clearly that compared with 1989, the surface irrigated was less and less with negative significant variations from one year to another. The statistics data of N.A.L.A. also show a significant decrease of the irrigation rates and the regularly irrigated surfaces which compared with 1989 slightly exceeded the irrigation rate. Poor rates of irrigation were recorded in the rainless years, such as: 1997, 2003, and 2007. In these

periods the vegetal production suffered prominently. The irrigation was applied randomly, irrationally and with high waste of power resources. Under these circumstances fluctuations of the agriculture production occurred, as shown in Table 4, while the dependency on the meteorological conditions constantly increased with negative consequences on the agriculture sector, in particular, and on the national economy in overall.

*Table 4 Evolution of the vegetal production at the main vegetables  
1997-2006*

SPECIFICATION	MU	1997	1998	1999	2000	2005	2006
<b>Cereals - total</b>							
Cultivated area	thou ha	6,319.8	5,920.6	5,370.7	5,655.2	6,294.9	6,038.1
Total prod	thou t	22,107.3	15452,7	17037,3	10477,5	18870,9	14356,5
<b>Wheat + Rye</b>							
Cultivated area	thou ha	2,424.4	2033,4	1686,9	1954,3	2496,7	2029,8
Aver prod	kg/ha	2,964.0	2561,0	2776,0	2280,0	5336	4818
Total prod	thou t	7,185.6	5207,9	4682,5	4456,2	7389,7	5561,9
<b>Corn</b>							
Cultivated area	thou ha	3037,7	3128,9	3013,4	3049,4	2628,5	2520,1
Aver prod	kg/ha	4171,0	2756,0	3627,0	1603,0	3952	3565
Total prod	tho t	12686,7	8623,4	10934,8	4897,6	10388,5	8984,7
<b>Sun flower</b>							
Cultivated area	thou ha	780,7	962,2	1043,0	876,8	971,0	991,4
Aver prod	kg/ha	1095,0	1115,0	1243,0	821,0	1381	1540
Total prod	thou t	858,1	1073,3	1300,9	720,9	1340,9	1526,2
<b>Sugar beet</b>							
Cultivated area	thou ha	128.8	117.8	65.5	48.4	25.2	39.8
Aver prod	kg/ha	21,166	20045.0	21608,0	13,787	28,932	28,942
Total prod	mii t	2,725.5	2361,4	1414,9	666.9	729.7	1,152.2
<b>Potatoes</b>							
Cultivated area	thou ha	255,0	261,3	273,7	282,7	284,9	278,0
Aver prod	kg/ha	12531	12642	14434,0	12249,0	13078	14191
Total prod	thou t	3206,4	3319.0	3957,1	3469,8	3738,6	4015,9

**Source:** *Annual Statistic Catalogues of Romania years: 1997- 2006*

One of the direct consequence of the decrease of the cereals production was the diminish of the animal breeding and meat production sectors during in the same period, as seen in the Table 5, which resulted in the increase of the meat and meat products import. Nevertheless, not only the lacks of irrigations lead to the decrease of the vegetal productions. Several factors such as the high costs of the agriculture inputs (fertilizers, fuel, etc), liquidation of the large slaughter units and meat processing such as the one in Timisoara, legislative problems, retrocession of the agriculture lands, after 1990, to the former owners as well as financial and economic factors determined these drastic decreases in the vegetal and animal sectors.

**Table 5** Evolution of the animal effectives and production  
1997-2006

Specification	UM	1997	1998	1999	2000	2005	2006
Cattle total	thou heads	3.43	3.23	3.14	3.05	2.87	2.42
Cattle meat production	thou t	421	371	364	362	357	318
Milk production	thou hl	52.58	50.90	49.24	48.51	50.03	48.01
Swine total	thou heads	8.23	7.09	7.19	5.84	4.79	4.25
Swine meat production	thou t	820	825	687	600	579	498
Sheep total	thou heads	9.66	8.93	8.40	8.12	7.65	7.20
Sheep meat production	thou t	138	130	120	119	112	120

**Source:** *Annual statistics catalogues of Romania years: 1997 - 2006*

Among the reasons which lead to drastic reducing of the irrigated surfaces we mention the following:

- Liquidation and dissolving of the large size agriculture production units, former agriculture cooperatives, at the beginning as result of application the Law no. 18/1993 regarding the Land Fund and later on Law no. 1/2000, regarding the Land Restitution, both implemented incoherently and even chaotically;
- Damage of the infrastructure of the hydro-ameliorative equipment existing at that time, by destruction, stealing, physical and moral outdated, abandon, lack of interest from the new (agricultural) land owners. All these effects occurred on the background of incapacity of the decisional factors to administrate, organize and operate an important patrimony of the agriculture and of the national economy at the same time;
- The mismanagement of the agriculture resources and the surfaces covered with forage crops lead to an unbalance between the vegetal and animal production;
- Constant increase of the tariffs for the irrigation water and mainly the differentiation on pumping speeds also contributed significantly to the diminish of the agriculture land owners to purchase rehabilitate the irrigation systems;
- Constant destruction of the electric power transport network existing, before 1990, along with dismantling of the network routes (stealing of the transformers) motivated by its malfunction;
- Failure to convince the land owners and poor of information regarding the economic advantages of the agriculture using the irrigation systems, despite of high costs, associated with the delayed establishment of the Associations and Organizations of

Water for Irrigation, Emergency Ordinance of Government no. 174/1999 followed by Law no. 138/2004;

- Lack of equipment necessary to manage the water for plants irrigation;
- Lack of correlation of the rehabilitation works of the irrigation infrastructure with the real water demand at the hydro technical system level;
- Unsafe marketplace of the production for the vegetal responding better at irrigations, such as: corn or vegetables, having in view the highly permissive policies regarding the imports.

Regarding the irrigation infrastructure it includes two basic components:

- ▶ Water pumping system including basic pump substations, re-pumping substations, water pressure substations;
- ▶ Transport infrastructure including channels, piping and afferent construction works.

Also, the water source related to the irrigation facilities is provided from Danube River for 2,547,859 ha (85%), from interior rivers and lakes for 449,621 ha (15%).

At present the National Administration for Land Arrangements has in administration 296 of complex irrigation facilities while the irrigation systems in the private sector are much to poor represented.

In terms of the existing infrastructure for irrigation facilities it includes:

- Water supply and distribution: 10,975 km;
- Underground piping network: 28,773 km;
- Floating and fix pumping stations as well as hydro technical structures: 2,908 pieces.

They also include: gates, automate hydraulic valves, small bridges, lateral spillways falls. The installed power of the pumping stations is at present of 4,134 MW.

However, only one fifth of the pumping stations are presently in operation which deepens even more the actual irrigation crisis. One of the consequences of drastic diminishing of the irrigated surface was the drastic decrease of the agriculture production in overall, mainly of the cereal grains as well as in vegetal sector with direct negative results on the rest of the agricultural sectors and on the food production sectors as seen in Tables 4 and 5.

As we previously mentioned most of the irrigation systems operating before 1990 were destroyed. Therefore the ones damaged cannot be considered as operational but their existing infrastructure, channels, remained piping systems, can represent a logistic support to reconsider new possibilities so that to be able to provide the necessary water to achieve efficient vegetal and cereal productions.

Thus, our proposal, through the hereinafter study, regards the implementation in the agriculture sector of the *integrate wind turbines irrigation systems* which should use renewable clean energy, i.e. wind power, to operate irrigation installations on medium and large agriculture surfaces. These irrigation systems could be either connected to the existing wind farms, in the vicinity of agriculture lands, or specially constructed for certain surfaces needed to be irrigated.

During the last 10 years the specialists and the investors begun to give more and more attention to renewable energy sources, such as wind power, solar energy, bio fuels, etc) which should gradually replace the classic fuel resources (coal, oil) which polluting emission generators.

However, in Europe and worldwide this type of energy is already over two decades used. Recently in Romania the investments in wind power turbines begun to be implemented and financially supported by the Government and the European funds granted to Romania starting with 2000, as a condition of joining the European Union structures. For example, the target provided for Romania in the Directive 2009/28/CE is 24% production of renewable energy out of the total national gross power production. Among the renewable power sources the wind power has a significant weight. Thus, according to the last Report of the National Authority for Energy Regulation (on 2011), in 2010 35.24% of the electric energy production was achieved from renewable and out of this percent 22% was produced by the existing wind turbines existing in Romania. Presently, the wind turbines, so called *wind farms*, which generate renewable electric power, are located mainly in plain areas in South, South East, West and North regions of Romania, see Picture 2, where the average wind speed of 4.5% m/s allows the efficient operation of wind turbines.

The present paper proposes the implementation of some innovative systems, called by us *integrate irrigation systems*, connected to the already existing wind turbines which will produce electric power to be delivered to the National Energy System and to ensure, at the same time, the power necessary to the operation of the irrigation systems whose aspersion pumps and pumping systems could be integrate within these wind turbines. Depending on the distance where the agriculture lands, necessary to be irrigated, are located these systems can ensure the transport of the water from the irrigation channels or rivers as well as water pumping to the sprinkler systems and their efficient operation.

## OUR PROPOSALS

If we consider that the irrigation systems having as water source ensure the largest arable lands, namely 2,017,420 hectares, and the energy consumption necessary to irrigate these surfaces is in average of 1,400 – 2,100 kwh/ha, as well as the fact that most of the wind turbines are located in the Romanian Plain counties, along the Danube River, we can easily see the advantages of implementation of these integrate irrigation systems in these areas. It is also important to know that the areas which ensure the optimal conditions necessary for efficient operation of the wind turbines are in the same location or in the vicinity of the agriculture lands which need irrigations to ensure increased vegetables and crops productions. These areas are located in the Romanian Plain, along Danube River, on a distance of 20 – 30 km from the river bank and in Dobrogea even on larger distances from the river bank.

Also, in case of larger distances from the river banks local wells can be drilled, at depths and distances determined based on hydrological studies. Thus, these wells can be drilled in the vicinity of wind turbines and the irrigation water shall be extracted and pumped toward the agriculture lands using the energy locally produced by the wind turbine. Depending on the dimension and capacity the wind turbines can also deliver energy to the National Energy System. However, the costs of the wind turbines' equipment are very high, for the moment, so very few investors would construct such independent wind turbines. Therefore, it would be more efficient if these integrated systems would be adapted to the existing wind turbines.

If we consider that in irrigations systems the most important costs are the ones related to the energy consumption, necessary to operate the pumps (the most used are the sprinkler

systems), in our opinion these integrate irrigation systems, which include renewable energy sources and electric equipment to operate the irrigation pumps, although expensive, would be able to increase the agriculture production with over 30%. The implementation of these systems would eliminate, on one hand, the independence of the agriculture production on the meteorological conditions and, on the other hand, would place Romania again in the first places in terms of agriculture production. Once integrated within the wind turbines these irrigation systems can be developed and implemented on various network configurations, such as: *honeycomb type networks*; *comb type networks* or can be placed on *amorphous networks*, depending on the geomorphological nature and the needs of the lands had in view.

Among the advantages of using these irrigation systems are the following:

- We consider that the financial effort for the construction of these irrigation networks will be reduced as a result of using, on one hand, of the same locations and the wind turbines, on the other hand;
- The irrigation systems can be developed out of plastic tubular modular elements in order to ensure their resistance and liability. Thus, the installation of the systems can be executed on the spot which reduces significantly the commissioning and putting in operation period;
- The removable character of the configuration of these modular irrigation systems provide the advantage to locate them on the land which need to be irrigated as well the possibility to extend them whenever necessary, depending on the local demands;
- Elimination of the electric power losses caused by the transport from the supply source (National Electric Network) to the user (electric pumps for water suction).

In order to diminish the energy loss a transfer of mechanical work can be carried out directly between the axis of the wind turbine and the irrigation pumps which would be placed within the infrastructure area (inside the wind turbines column ). The automate systems, afferent the wind turbines, will be able to administrate simultaneously the turbine operation so that to ensure both the irrigation system's functioning (water pumping and sprinkling) as well as the delivery of the electric power to the Electric National System. Thus, the power consumption shall be significantly reduced and the increase of the efficiency of these integrate systems shall be ensured. Another, advantage of these innovative systems is that the maintenance can be commonly done both for power producing systems and for the users, in our case the water absorption and pumping installation, which represents another way to reduce the operation costs.

## **OPERATION CHARACTERISTICS**

We consider that both the irrigation networks and the integrate component of the wind turbines can be developed based on complex technological designs. The documents regarding the development of these integrate irrigation systems should provide:

- Type of the crops to be cultivated on the irrigated lands, geo-morphological nature of these lands, topographical surveys, geological and technical surveys, land improvement studies;
- Wind speed surveys in the areas where the wind turbines are to be implemented (detailed wind maps). These surveys will be carried out in cooperation with the wind power plants investors.

In order to increase the efficiency of these integrate irrigation systems we propose complex surveys to determine the lands having high agricultural potential and appropriate wind speed able to satisfy as many as possible the requirements in terms of efficient operation of the wind turbines.

Depending on the morphology of the lands which need such irrigation systems the planimetric configuration is determined as well as the type of network:

- **Honeycomb type networks.** We consider that this type of network is appropriate for lands with minimum asperities as it has the advantage of a smooth and uniform distribution of the water in all the modular components;
- **Branch type networks.** Made up of main network tunnels this type of configuration is capable to transport the water toward the secondary branches which will ensure the soil humidity. Also, this type of network is able to operate on medium asperity lands and higher inaccessibility;
- **Mixed networks** made up of tubular modules able to ensure only the water transport toward the possible lands with agriculture potential and where, by case, honeycomb type networks branch type networks will be placed.

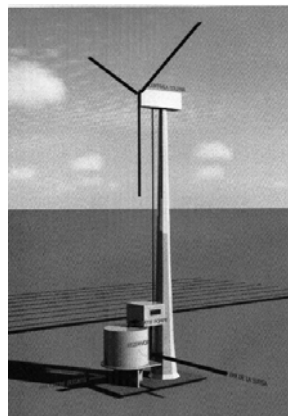
What, in our opinion, could diminish the chances to develop such systems? Here are few examples:

- High investment costs;
- Financial support for these investments sometimes difficult to obtain and heavy bureaucracy within the state administration institutions;
- Appropriate operation of these systems during the harsh winters in the limitary areas on the Danube River and in Dobrogea. During wither season these system will need additional logistic elements and maintenance operation to preserve and protect the wind turbine and irrigation equipment.

### **ECONOMIC EFFECTS PRODUCED BY THE LAND IMPROVEMENT ACTIONS**

By application only of irrigations the agriculture production could increase in average with 30-40% and by application of additional agro technical measures, such as fertilizers, pesticides and herbicides, the vegetal production could double with direct benefic effects on all the upstream and downstream activities in agriculture. By embankment works, drainage works and soil erosion prevention works important surfaces or arable lands are reintroduced in the agriculture sector. The direct effect of this action is the increase of the arable lands and the vegetal production. These lands could be included in the area served by the integrate irrigation system. The increase on the agriculture production creates the premises of transit from the subsistence agriculture to medium farms and associative type farms able to produce cheaply and efficiently.

**Picture 1.** Example of wind turbine operating in integrate system (power production and irrigation system – sprinkling and pumping)



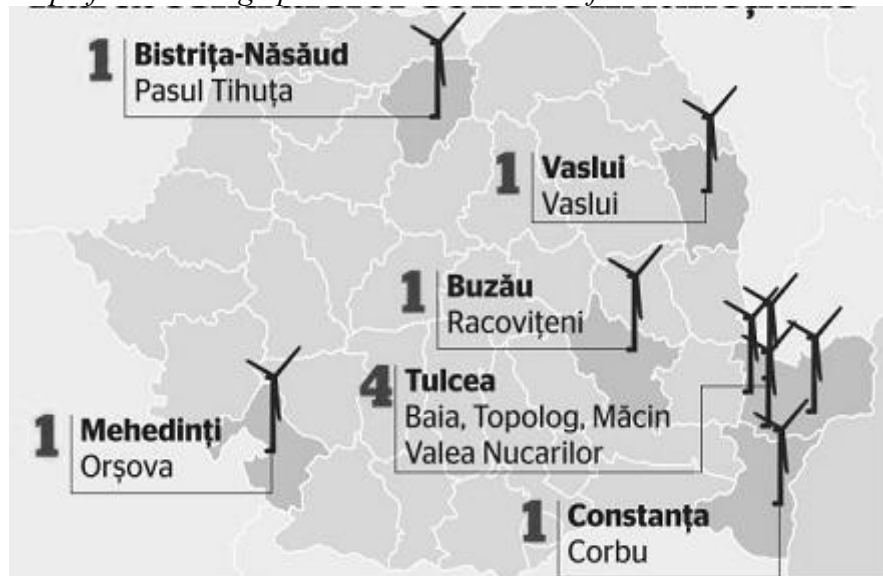
**BRIEF SWOT ANALYSIS ON THE IMPLEMENTATION OF THE INTEGRATE IRRIGATION SYSTEMS IN ROMANIA**

<b>No.</b>	<b>Strengths</b>	<b>Weaknesses</b>	<b>Opportunities</b>	<b>Threats</b>
1.	Agriculture potential and arable lands of large dimensions (6% of the Used Agriculture Surface of EU).	Excessive breaking up of the arable lands after 1990.	Integrate irrigation systems could encourage the farmers to form associations and to practice large surface agriculture	Poor informing of the land owners regarding the advantages of associations leads to lack of interest of the farmers/investors.
2.	Existence of water sources represented by large hydrographic basins of Danube and the interior rivers in the vicinity of large agriculture plains in Baragan, Western Plain, etc	Poor exploitation of these resources by lack of partnerships and associations to develop these investments.	Accessing the EU funds and for agriculture and environment protection could encourage the investors and farmers to develop such projects to produce electric power and for irrigations.	High costs of these equipment and long period of amortization.
3.	Good wind potential in several areas and in the vicinity of large agriculture lands and existence, in these areas, of wind turbine farms (see map at Picture 2)	Low interest of farmers and passivity of local authorities combined with lack of a detailed map, at national level, regarding the speed and wind direction.	Access of specific EU training programs for the interested investors and farmers and for elaboration of wind maps as well as irrigation demand maps.	Maintenance costs too high and incomplete legislation discourage the farmers to initiate associations in order to develop such investments.



## FOREIGN INVESTMENTS IN WIND ENERGY IN ROMANIA

**Figure 2** Map of the existing operational wind turbine farms in Romania



**Source:** Nature Energy Magazine

In the wind renewable energy sector in Romania investors such as: CEZ (Czech Republic), ENEL (Italy), Energias de Portugal (Portugal) și Iberdrola Renovables (Spain) developed wind turbine farms, in the last years. For example CEZ installed 115 turbines at Fântânele, Constanta County, out of which 90 are already connected to the National Energy System. The wind turbines have about 100 m height and are delivered by the giant industrial American General Electric.

Energias de Portugal (Portugal), the third largest worldwide investor in wind energy completed the construction of a wind farm of 69 MW at Cernavodă, Constanta County in May 2011. The energy produced supplies 70,000 domestic users and cost 200 million dollars. Presently wind several turbines are operational in Dobrogea area which produce in total 600MW compared with 2009 when only 14 MW were installed. In 2010, in total 462 MW of wind turbines were installed. Thus, in 2011 Romania reached 850 MW installed in total in wind energy.

At the beginning of 2012 over 500 wind turbines were installed. The Czech from CEZ, Portuguese from EDP or Italians from Enel invested in wind energy in Dobrogea.

At the beginning of 2012 Romania had over 1000 wind turbines which in total deliver 3% of the energy production. The investments in wind energy created about 1,000 places of work at the national level.

The wind turbines in Romania produce in average 150 - 200 de megawatts hour. The cost of wind energy is of 170 euro on megawatt/hour, three times over the power produced by the hydro power plants, which make them still costly for Romanian investors.

According to “green map” of Romania the renewable energy consists of:

65% biomass, 17% wind energy, 12% solar energy, 4% small size hydro power plants, 1% voltaic + 1% geothermal. However, in Romania except the mountain areas, where installing and maintenance of wind turbines are difficult because of the meteorological conditions, wind speeds of 4 m/s and over are in mainly in Moldavian Central Plateau

and Dobrogea. The Black Seaside has also a good wind potential as in this part of the country the yearly average wind speed exceeds 4 m/s. Moreover, in the seaside area on short and medium time periods the installed power potential of the wind turbines reaches about 2,000 MW with an average power production of 4,500 GWh/year.

According to a survey released in 2011 by Erste Group the wind potential of our country is estimated at about 14,000 de MW which is the highest potential in the South East of Europe and the second in Europe.

## CONCLUSIONS

Considering the above mention, in overall, the advantage of Romania in terms of wind potential and wind turbines already constructed is a reality which cannot be ignored. Also, the fact that significant surfaces of agriculture and arable lands are located in the areas of these wind turbines provides for agriculture sector/irrigations good perspectives regarding the implementation of the integrate irrigation systems.

On the other hand, important financial support is expected from the European Union for the rehabilitation of the irrigation infrastructure.

The European Fund for Agriculture and Rural Development is one of the financial instruments to support the agriculture investments. In this context the Ministry of Agriculture announced this summer that 60 million euro is available for investment in irrigation systems after some financial reallocations among supporting measures. Knowing that this summer was extremely dry the Government decided to take some measures aimed to encourage the farmers and the investors associate together in order to rehabilitate the old irrigation systems and to construct new ones where necessary. We consider that the integrate irrigation systems proposed by us would be an opportunity achieve these goals.

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# **Analysis of the social insurance debts.**

## **Case study: pig farms**

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### **ABSTRACT**

This paper reflected the principles of debt analysis on social insurances, on the basis of materials at the pigs' enterprises. The data from this paper are used from the enterprises of swine growing of the Republic of Moldova. It was possible with the scientific project financed by Academy of Science of Moldova. The objectives of paper are the determination of influences' factors on the debt modification of social insurances at swine growing companies, the modification of factors which contribute to increasing the social insurances debt.

**Keywords:** *debt analysis, pig companies, factors' influence, analysis of contributions*

### **INTRODUCTION**

One of the features of the short-term debt is the debt to the contributions of Social Fund of social insurances. Often the entities, particularly those related to the agriculture, can not pay their settlements to the social fund of social insurances for objective reasons, which are characterized by unfavorable natural conditions that have compromised the expected harvest, the failure of contracts of agricultural production supply to the suppliers, non-payment on time or non-payment according to the payment program, by the buyer of agricultural producers. All these reasons lead to insufficiency of available funds, including the observance of financial obligations to the territorial subdivisions of the National House of Social Insurance. In this context the need of an economic and financial analysis of the short-term debt on social insurances is one of the main priorities to identify the problems agricultural entities are facing at the moment, and to determine the internal reserves of a successful managing of these settlements.

### **MATERIALS AND METHODS**

In order to analyze this problem, were used data from financial reports and specialized forms of activity of agricultural enterprises of the State Enterprise "Moldsuinhibrid", a enterprise specialized in the restoration, conservation and the rational use of pigs genetic resources, on the efficient integration of science and production, on the creating of the appropriate conditions for producing competitive goods both on the domestic and foreign market. At the preparing of the report, the

author was guided by methodical and teaching materials in this field of V. Balanuta, N. Tcaci, N. Tiriulnicova, as well as the methodical and teaching works of the department of economics, statistics and analysis.

During the investigations were used the monographic method of description of the economic performances, the comparison of the obtained results, the induction and deduction in drawing the conclusions and proposals. Within the economic analysis methods was used the absolute difference method, balance method and direct and indirect relations method.

## **RESULTS AND DISCUSSION**

In the process of financial-economic activity of any enterprise appears the necessity for settlements with buyers, suppliers, budget and staff. Because of the fact that the term of paying the debts does not coincide with the moment of their necessity, the company generates debt that are expressed by the attracted funds that are reflected in the balance sheet at the liabilities section. The size, composition, structure and speed of the liabilities determine the enterprise's necessity of floating capital, a number of financial indicators and ultimately the company profits. As the company can change the way of making settlements and conditions of contracts, the permanent control of the debt state and their management, has a special importance.

In order to maintain the labor forces there are included the following expenses:

- fund of staff remuneration;
- fees and expenses that are not included in salary;
- other expenses for labor force.

The main component part of these costs is the salary fund, which includes the cost of staff salaries, bonuses and additional payments, payments in kind.

The payments and expenses that are not included in the salary cover contributions to state social insurance, the compulsory bonuses of medical insurance, and the expenses for training employees.

In the process of consumption analysis, concerning the labor remuneration is taken into account the following indicators:

- the consumption fund, which is made up of all the direct and indirect cash payments that have an individual character;
- the remuneration fund, represents the sum of direct and complementary salaries of employees from the basic activity as well as from other branches;
- direct salary that includes sum of costs for base and additional wages for the works done on the basic activity.

The result of dynamic analysis of mentioned indicators is presented in Table 1.

**Table 1 – Calculation of the factors' influence on the consumption changing concerning the labor remuneration including contributions for the state social insurance and compulsory medical insurance in the SE "Moldsuinhibrid", thousand lei**

Indicator A	Year		Absolute deviation (±), thousand lei 3	Result of factors influence 4
	2009 1	2010 2		
1. Consumptions concerning the labor remuneration with contributions to the state social insurance and compulsory medical insurance	3232	2676	-556	×
2. Consumptions concerning the labor remuneration	2555	2114	-441	+441
3. Contribution concerning the compulsory state insurances	588	486	-102	+102
4. Contributions concerning the compulsory medical insurance	89	76	-13	+13

Analyzing the data from Table 1 we observe that at the SE "Moldsuinhibrid" the consumption concerning the labor remuneration including the contributions to the state social insurance and compulsory medical insurance decreased in the in the reporting year compared to the previous year by 556 thousands lei. This decrease was positively influenced by changes of the following factors:

1. consumption on labor remuneration by 441 thousand lei;
2. contribution concerning the compulsory state social insurances by 102 thousand lei;
3. contributions concerning the compulsory health insurance by 13 thousand lei;

Actually the decrease of these consumptions is resulting from the decrease of the number of employees from the production activity in the reporting year, due to the decrease of pigs number, this decision has been taken by the administration of the enterprise, which decided to do the re-equipment and to repair the rooms and also to make the reproduction of the livestock in order to improve new breed of pigs.

Another aspect of the contribution analysis concerning the state social insurances is the change of contributions concerning the compulsory state social insurance under the influence of the following factors, and namely:

- the value of global agricultural production in comparison with the prices of 2005, thousand lei;
- contributions concerning the compulsory state social insurances, calculated at 1 lei of global production, thousand lei.

In table 2 we will perform the factorial analysis of contributions concerning the compulsory state social insurances in the SE "Moldsuinhibrid" applying the method of absolute differences.

**Table 2 - Analysis of contributions concerning the compulsory state social insurances SE "Moldsuinhibrid"**

Indicator A	Year		Deviation, (±) 3=2-1	including under the influence	
	2009 1	2010 2		VPG 4	CASS 5
<i>Factorials:</i>					
1. Value of global agricultural production in comparison with the prices of 2005 (VPG), thousand lei	8373	7278	-1095	×	×
2. contribution concerning the compulsory state social insurances calculated at 1 lei of global production (CASS) thousand lei <i>Resultative :</i>	70,2	66,7	-3,5	×	×
3. Contributions concerning the compulsory state social insurances, thousand lei	588	486	-102	-77	-25

According to calculations from the table we established that at the SE "Moldsuinhibrid" contributions concerning state social insurance in the reporting year have decreased in comparison with the previous year by 102 thousand lei. Two factors influenced negatively on this reduction. Thereby the reduction of global agricultural production value in the reporting year by 1095 thousand lei in comparison with the previous year, led to the reduction of contributions concerning the compulsory state social insurances by 77 thousand lei. A negative influence had the reduction of contributions concerning the compulsory state social insurances calculated at 1 lei of global production in the reporting year in comparison with the previous year by 3.5 lei which led to the reduction of contributions concerning the compulsory state social insurances in 2010 compared to 2009 by 25 thousand lei.

At the next stage of analysis it is determined the change of the contributions concerning the compulsory state social insurances calculated at 1 lei, income from sales, under the influence of the following factors:

1. sales incomes;
2. contributions concerning the compulsory state social insurances.

In table 3 it is presented the analysis of contributions concerning the compulsory state social insurances calculated at 1 lei income from sales, by applying the method of direct and indirect relations.

**Table 3 - Analysis of contributions concerning the compulsory state social insurances in calculated at 1 lei income from sales in the SE "Moldsuinhibrid"**

Indicators	Year		Calculation of factors influence	Influence result (±), lei
	2009	2010		
<p><i>Resultative:</i></p> <p>1. Contributions concerning the compulsory state social insurances in calculated at 1 lei from sales</p> <p><i>Factorial</i></p>	0,034	0,037	+0,003	×
2. Contribution concerning the compulsory state social insurances, thousand lei	588	486	$\frac{486}{12967} - \frac{588}{12967} =$ $= 0,037 - 0,045$	-0,008
3. Incomes from sales, thousand lei	17477	12967	$\frac{588}{12967} - \frac{588}{17477} =$ $= 0,045 - 0,034$	+0,011

According to calculations in Table 3, we establish that contributions concerning the compulsory state social insurance calculated at 1 lei income from sales, recorded an increase in the recording year in comparison with the previous year by 0.03 lei. Two factors have influenced on this change. Thereby under the influence of the reduction of contribution of compulsory state social insurance in the recording year compared to the previous year by 102 thousand lei, contributions concerning the compulsory state social insurances calculated at 1 lei income from sales felt to 0.008 lei. The decrease of income from sales by 102 thousand lei in the reporting period compared to the previous period, led to the increase by 0.11 lei of the contributions concerning compulsory state social insurances calculated at 1 lei income from sales.

## CONCLUSIONS

After the research performed on the analysis of contributions concerning the compulsory state social and health insurances, we can conclude the following:

1. the consumptions on labor remuneration for the compulsory state social and health insurances, decreased in the recording year compared to the previous year, this decrease being influenced by the reduction of consumptions concerning the labor remuneration, and contributions concerning the compulsory state social and health insurances and the bonuses for the compulsory state insurances ;

2. the reduction of the contributions concerning the state social insurance, is influenced by the decrease of the value of global agricultural production, compared to the prices of 2005 and reduction of contributions concerning the state social insurances calculated at 1 lei of global production;

3. the incomes from sales have influenced the contributions concerning the state social insurances calculated at 1 lei income from sales, increasing their value in the recording year compared to the previous year in the previous year.

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# Absorption capacity of EU funds in Romania

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## ABSTRACT:

Most Central and Eastern European countries have encountered problems in attracting EU structural funds in the post accession period. This paper analyzes the CEE absorption capacity of EU structural funds in 2007-2011, focusing on the case of Romania. Romania recorded at the end of 2011 the lowest rate of payment for contracted grants. Among reasons for poor absorption capacity we have identified a lack of governmental strategy, poor administrative capacity of central and local public institutions, public – private partnerships failure, deficient human resources.

**Keywords:** *absorption capacity, European Union, European funds, structural funds, contracted ratio, payment ratio*

## INTRODUCTION

The structural funds and the cohesion funds are financial instruments of the policy of economic and social cohesion. These instruments sustain the reduction of the gap between the development of different regions from the member states and support, to this purpose, the economic and social cohesion. (Droj, 2010)

In financial terms, these instruments take second place as a share of the EU budget after the Common Agricultural Policy. These include:

- European Development Fund (ERDF)
- European Social Fund (ESF)
- Cohesion Fund.

Through these instruments the EU aims to achieve three objectives: convergence, regional competitiveness and territorial cooperation.

Objective “**Convergence**” endorsing development and structural adjustment of regions lagging behind in development, is funded by ERDF, ESF, cohesion funds, covering areas of the regions whose GDP per capita is below 75% of the EU average. This objective targets growth for regions lagging behind, investing in the development, capacity institutional improvement and government efficiency increase.

Objective “**Regional Competitiveness and Employment**” (funded by ERDF and ESF) supports the regions not eligible for Convergence objective, covering smaller areas, including areas with socio-economic changes in industrial and service sectors, declining rural areas, urban areas in difficulty or dependent on fishing. Under this objective UE aims to anticipate and support economic change in industrialized areas by supporting businesses and individuals.

Objective “**European territorial cooperation**” (funded by the ERDF) supports regions, counties and traditional areas, covering areas that are the EU internal borders and certain external borders.

Since 2012, the EU have begun preparations to establish a new strategy and the amount of funding during 2014-2020. There should be a more complete and effective use of EU funds to achieve objectives within EU 2020 strategy and make the funding process more efficient. On 29 June 2011, the European Commission presented its proposal on EU budget for 2014-2020.

European Commission propose to allocate 36.7% of seven-year budget for cohesion policy, compared to 35%, as was allocated in the past. The main changes proposed by the Commission are:

- creating an intermediate category of regions whose GDP is between 75% and 90% of Average EU GDP. This new category will be added to the two existing (convergence regions and competitiveness regions). The poorest regions and Member States of the European Union would benefit from priority support to reduce economic and social gaps.
- the introduction of conditioning in cohesion policy. Cohesion policy will be based on performance and incentives to implement reforms needed to ensure effective use of financial resources.
- creating a common strategic framework for all structural funds in order to redefining strategy Europe 2020 objectives as priorities for investment.
- European Social Fund (ESF) will continue to have a key role in combating unemployment and high rates of poverty and in achieving the main objectives of Europe 2020 strategy. ESF will represent 25% of the cohesion policy budget (84 billion euro).

## **STRUCTURAL INSTRUMENTS IN ROMANIA**

For 2007-2013 the EU allocated to Romania 19,667 billion euro from the Structural and Cohesion Funds. These funds can be accessed through 8 operational programs: Structural Operational Program – Transport, Structural Operational Program – Environment, Regional Operational Program (ROP), Structural Operational Program-Human Resources Development, Structural Operational Program – Increase of Economic Competitiveness, Structural Operational Program – Technical Assistance, Operational Programs – Territorial Cooperation.

Trough operational programs Romania runs the projects funded by EU and effectively access the structural instruments. Seven of operational programs are framed

within the convergence objective. Documents of the seven operational programs are framed within the convergence objective. Documents of the seven operational programs have been developed by the Authority for the Coordination of Structural instruments.

**Table no.1 Operational Programs in Romania**

<b>Operational Program (OP)</b>	<b>Percentage allocated of the total budget</b>	<b>Structural Instrument</b>	<b>Management Authority of Operational Program</b>
<b>1. Transport OP</b>	23%	Cohesion Fund and European Regional Development Fund	Ministry of Transport
<b>2. Enviromental OP</b>	23%	Cohesion Fund and European Regional Development Fund	Ministry of Environment
<b>3. Regional OP</b>	19%	European Regional Development Fund	Ministry of Regional Development and Tourism
<b>4. Human Resources Development OP</b>	18%	European Social Fund	Ministry of Labour, Family and Social Protection
<b>5. Increase of Economic Competitiveness OP</b>	13%	European Regional Development Fund	Ministry of Public Finance
<b>6. Administrative Capacity Development OP</b>	1%	European Social Fund	Ministry of Interior
<b>7. Technical Assistance OP</b>	1%	European Regional Development Fund	Ministry of Interior
<b>8. Territorial Cooperation OP</b>	2%	European Regional Development Fund	Ministry of Regional Development and Tourism

*Source: Authority for Coordination of Structural Instruments*

European territorial cooperation programs involving cooperation with regions neighboring Romania (in cross-border cooperation), regions in a given geographic area (within the transnational cooperation), and regions from any EU Member State (the inter-regional), through projects managed and administred jointly by partners from participating countries.

## COMPARATIVE ANALYSIS ABSORPTION CAPACITY OF EU FUNDS IN CEE

During the 2007-2013 ten countries of Eastern and Central Europe were given the structural funds 172.6 billions euro, representing 2.7% of GDP.

Table no.2 shows the distribution of the structural funds among the 10 countries, their share in GDP amount per capita.

**Table no.2 UE funds in CEE countries**

	Population (million)	Annual GDP (billion euro)	GDP per capita (euro)	UE funds 2007-2013 (billion euro)	EU funds per capita (euro)	EU funds per GDP (%)
<b>Bulgaria</b>	7,6	36,0	4764	6,7	882	2,6
<b>Czech Republic</b>	10,5	145,9	13890	26,3	2502	2,6
<b>Estonia</b>	1,3	14,5	10821	3,4	2540	3,4
<b>Hungary</b>	10,0	98,4	9830	24,9	2488	3,6
<b>Latvia</b>	2,2	18,0	7993	4,5	2014	3,6
<b>Lithuania</b>	3,3	27,4	8232	6,8	2035	3,5
<b>Poland</b>	38,2	353,7	9266	65,3	1711	2,6
<b>Romania</b>	21,5	121,9	5682	19,2	895	2,3
<b>Slovakia</b>	5,4	65,9	12149	11,4	2094	2,5
<b>Slovenia</b>	2,0	36,1	17617	4,1	2003	1,6
<b>CEE total</b>	102,1	917,9	8990	172,6	1690	2,7

*Source: KPMG, EU Funds in Central and Eastern Europe, Progress report 2007-2011*

In the five years (2007-2011) of ongoing EU funded programs were signed contracts worth euro 110.2 billion representing 53% of the total funds. In the same period have made payments representing 17% of the total funds and about a third of the contracted grants. Table no.3 presents the projects contracted and payments within the 10 CEE countries.

**Table no.3 EU funds contracting and payment**

	Available budget 2007-2013 (billion euro) including co-financing	Contracted grants 2007-2011 (billion euro)	Paid grants 2007-2011 (billion euro)
<b>Bulgaria</b>	8	3	0,8
<b>Czech Republic</b>	31	17,2	8,1
<b>Estonia</b>	4,1	2,5	0,9
<b>Hungary</b>	29,3	15	4,8
<b>Latvia</b>	5	3,4	1,5
<b>Lithuania</b>	7,3	5	2,1
<b>Poland</b>	82,1	43,5	13,1
<b>Romania</b>	23,3	10,4	1,5
<b>Slovakia</b>	13,4	7,6	2,3
<b>Slovenia</b>	4,8	2,3	1,3
<b>CEE total</b>	208,2	110,2	36,3

*Source: KPMG, EU Funds in Central and Eastern Europe, Progress report 2007-2011*

Romania recorded the lowest rate of payments (7%), while Bulgaria has the lowest rate of contracting the European funds (37%).

In Romania, in terms of contracting the lowest rate is recorded by the operational Transport (15%), followed by Operational Programs Technical Assistance and Increase of Economic Competitiveness. The fewer payments recorded Operational Programs Transport (1%), Environment (2%), Administrative Capacity Development (4%). The highest rates of contracting and payment records Operational Programs Development of Human Resources (72% respectively 12%) and Regional (70% respectively 13%).

**Table no.4 EU funds breakdown by OP in Romania**

	<b>Available budget 2007-2013 (billion euro) including co-financing</b>	<b>Contracted grants 2007-2011 (billion euro)</b>	<b>Paid grants 2007-2011 (billion euro)</b>	<b>Contracted Ratio</b>	<b>Payment ratio</b>
<b>Human Resources Development OP</b>	4.089	2.929	476	72%	12%
<b>Regional OP</b>	4.384	3.074	589	70%	13%
<b>Environment OP</b>	5.611	2.390	122	43%	2%
<b>Increase of Economic Competitiveness OP</b>	3.011	1.016	276	34%	9%
<b>Administrative Capacity Development OP</b>	246	80	11	33%	4%
<b>Transport OP</b>	5.698	836	47	15%	1%
<b>Technical Assistance OP</b>	213	57	10	27%	5%
<b>Total</b>	23.251	10.383	1.522	45%	7%

*Source: KPMG, EU Funds in Central and Eastern Europe, Progress report 2007-2011*

## **FACTORS INFLUENCING ABSORPTION CAPACITY**

The absorption capacity is generally defined as the “capacity of the countries an low incomes to absorb productively a large volume of foreign aid”, the central issue here being to prioritize the granted aid (Bourguignon and Sundberg, 2006). Sumpikova and all defined absorption capacity as “the extent to which a state is able to fully spend the allocated financial resources from the EU funds in an effective and efficient way. From this perspective, the absorption capacity to make necessary adjustments to the administrative level to fulfill the minimum economic and administrative criteria for attracting EU funds (Cace and all, 2009).

Horvath (2004) considered based on past experiences that there is a “golden rule” of EU funds absorption: the smaller the number of institutions involved in implementation of structural instruments the more likely the state record a high rate of absorption of structural funds.

Woster (2008) establish three specific factors that influence absorption capacity:

- The macroeconomic absorption capacity, that depends largely GDP;
- The managerial-administrative absorption capacity which refers to the abilities and skills to make planning, to evaluate projects, to ensure coordination between the project partners, to deal with administrative and reporting documents required by the Commission, and to finance and supervise implementation suitability.
- Finally, the financial absorption capacity, which refers to the aptitude to co-finance EU grants, to plan the guarantee national contributions in multi annual budgets.

Georgescu appreciate that Romania’s incapacity to use EU funds is endemic, even if it can be explicated by the action of various causes, including blockage in public administration under the circumstances of general and local elections in 2008 and 2009 (Georgescu 2008). Due to reduced absorption of structural funds Romania is a net contributor to EU budget. This will increase the gap to the other CEE countries and the failure of the Convergence objective. Zaman and Georgescu (2009) consider that the main reason for poor absorption of EU funds in the lack of transparency of central government at the level of management and the ministries involved, unable to admit the existence of vulnerabilities, to identify and fix them. The central authority shows a truncated image of contracting and payments ratios, highlighting the positive and ignoring negatives ones.

Berica (2010) considers that there are two types of factors that influence the absorption of EU funds:

- Internal factors related to the beneficiaries of these funds,
- External factors related to the institutions that monitor the implementation of European projects.

My research was conducted through review of literature and direct observation of running European projects. The research can be classified as exploratory, representing an initial study that deals with the issue of poor absorption capacity of European funds in Romania.

Following my experience and research conducted, among the internal factors I have identified:

- lack of know-how in writing projects and the reluctance of beneficiaries to seek expert advice,
- underestimating the resources needed to carry out actions,
- overestimation of the capacity of carrying out activities to impress the evaluation committee,

- wrong choice of target groups,
- lack of funds necessary to ensure co-financing,
- non-involvement of partners in the writing projects where projects are partnerships,
- disagreements between partner regarding division of responsibilities and financial resources.

Among the external factors that negatively influence the absorption of structural funds I have identified:

- lack a clear strategy at government level to facilitate absorption of EU funds,
- administrative incapacity of institutions designated to runs projects financed from structural funds (managing authorities and intermediate bodies),
- fraud made by beneficiaries leading to blocking the entire line of funding,
- economic crisis has reduced co-financing capacity of potential beneficiaries,
- bureaucracy in the Romanian and European institutions leading to extensions of the time (evaluation, selection and payment terms).

## **CONCLUSION**

In my opinion, having in view the poor absorption of the European funds, it would be necessary to adopt (by the deadline set for the 2007-2013 program) a program of measures to strengthen administrative and financial capacity, as follows:

- establish a system of rewards and sanctions to accelerate payment processes,
- reduce/eliminate the current deficit of capacity and skills that continue to affect implementation of programs, thus jeopardizing the absorption,
- better targeting of funds through a more accurate interpretation of priority objectives,
- ensuring competent human resources necessary for policy implementation and evaluation of the effectiveness of operational programs,
- designing a system for planning applications in order to coordinate the timing of launches calls for proposal, thus preventing the occurrence of excessive peaks in the receiving and processing applications,
- review of public procurement legislation to remove legal and institutional barriers that hamper the absorption of structural funds,
- granting a greater role of the eligibility criteria that project selection criteria in filtering of applications,
- exempt SMEs from the obligation to provide pre-financing guarantees, which reduce liquidity, especially when working with low budgets and moderate risk,
- assuring coherence between the strategies related to Structural Funds, on the one hand, and national policies, programs and measures supporting socio-economic development, on the other hand,

- use of the external grant allocation without national co-financing or small national co-financing,
- setting realistic clear and coherent objectives, and a comprehensive indicator system of communication with potential and actual beneficiaries,
- harmonization of eligibility criteria with financial evaluation criteria of banks,
- letters of comfort recognition issued by banks and using them as part of the documentation submitted to obtain structural funds.

To summarize, it is necessary to classify interventions according to the total budget, complexity, risk implementation and sustainability of projects and redefining selection mechanism, so that it reflect the new classification. It should be also explored the possibilities of reallocating funds to counter the current economic crisis.

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# SUBSISTENCE AGRICULTURE AND/OR COMMERCIAL AGRICULTURE

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## **ABSTRACT**

The process of accession to the European Union economic and social structures included the major structural changes in agriculture through privatization and transition to a market economy. Directly related to these radical changes have occurred debates about issues large and small superiority agricultural production. In fact, this is a highly debated topic and agrarian economists studied worldwide, generated by complex impacts - economic, social, political, ambient environment, traditions etc. - that some kind of farms have on society in general.

The research method used in this paper is comparative analysis of the situation in Romania within the European Union 27 in terms of total number of farms and their composition by size class and the data were obtained from national and European statistics.

## **Keywords:**

*Agriculture, subsistence agriculture, commercial agriculture, economic size units, standard gross margin*

## **INTRODUCTION**

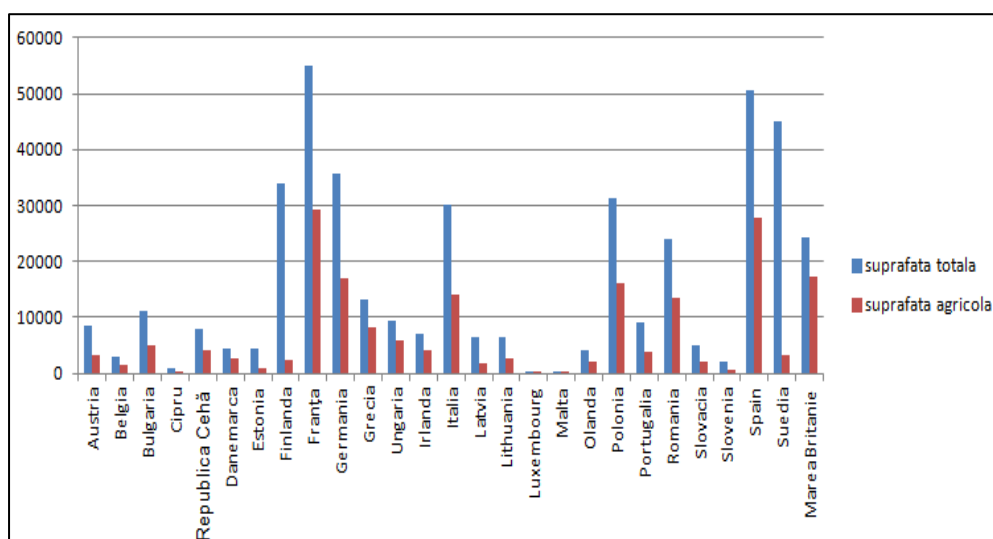
In European Union, farm size is characterized by two indicators: physical size, expressed in number of hectares utilized of agricultural area and economical size, expressed in European size units number. A European size unit corresponds to a certain amount represented by standard gross margin and expressed in euro currency. This amount is periodically updated for inflation; for example, in 1980 one European Size Unit count 1000 European Currency Unit; in 1982, 1100 European Currency Unit and now, 1200 Euro. Basically, a European Size Unit equal approximately 1.5 hectares cultivated with wheat

Standard gross margin is determined per hectare or per animal and is defined as production value per ha / animal head, minus the cost of variable inputs. Services which manage the Farm Accountancy Data Network determined every two years, for each region, unit amount of standard gross margin for all plant and animal. In this way, according to Utilised Agriculture Area and livestock it holds, each European Union farm can determine the total amount of Standard Gross Margin. Total Standard Gross Margin, expressed in euro shall be divided by 1200, resulting the number of European Size Unit of the establishment concerned. Depending on the number of units of a European dimension it holds, farms are classified into 6 economic size classes as follows: class 1: 0 - < 4; class 2: 4 - < 8; class 3: 8 - < 16; class 4: 16 - < 40; class 5: 40 - < 100; class 6:  $\geq 100$ .

## STRUCTURE ANALYSIS FARMS

European Union covers a total area of 432924900 hectares, on top whereas France, Spain and Sweden. Romania, with an area of 23.839 million ha is in 9th place. In terms of agricultural area, which is 43.52% of the total EU 188406100 ha respectively, ranked first being France, Spain and the UK.

Total agricultural area in EU Member States (Source: FAOSTAT)



Romania has an agricultural area of 13.523 million ha, which is 56.73% of the total and ranked 7 in the European Union. The state with the largest share in the total area of agricultural land is Hungary followed by Greece (62%). Sweden and Finland, countries with large areas, have the lowest share of agriculture in total surface area, respectively 6.84% and 6.78%.

The great diversity of agricultural structures encountered in the EU comes from the fact that each member state's minimum threshold size of agricultural farms is distinct.

Subsistence farms are farms that produce only for their own consumption. Subsistence farms and semi-subsistence farms are characterized as family managed small holdings associated with food production for their own needs with low market participation. However, there is no universally accepted definition of agriculture for subsistence and semi-subsistence agriculture.

Most definitions for agricultural / subsistence farms and semi-subsistence farms emphasizes their goal of meeting the food needs of the household. Drăghici (2010) define subsistence farms in accordance with the following characteristics: agricultural activities form a livelihoods strategy; own production is consumed directly; only some of the resources acquired in the production process; share of own production sold is low.

Difficulties in defining subsistence and the semi-subsistence from arbitrary element of set thresholds (Drăghici, 2004) and that subsistence can be considered in terms of consumption and production (Gavrilescu, 2007). Definitions subsistence agriculture can be grouped according to three different criteria, such as: physical size; economical size or market participation.

To define subsistence farms academic studies use, most frequently, the extension of their participation in the market. Giurcă (2006) refers to semi-subsistence farms as those entities that sell to the market a certain percentage of their output, which is, however, less than 50% of total output.

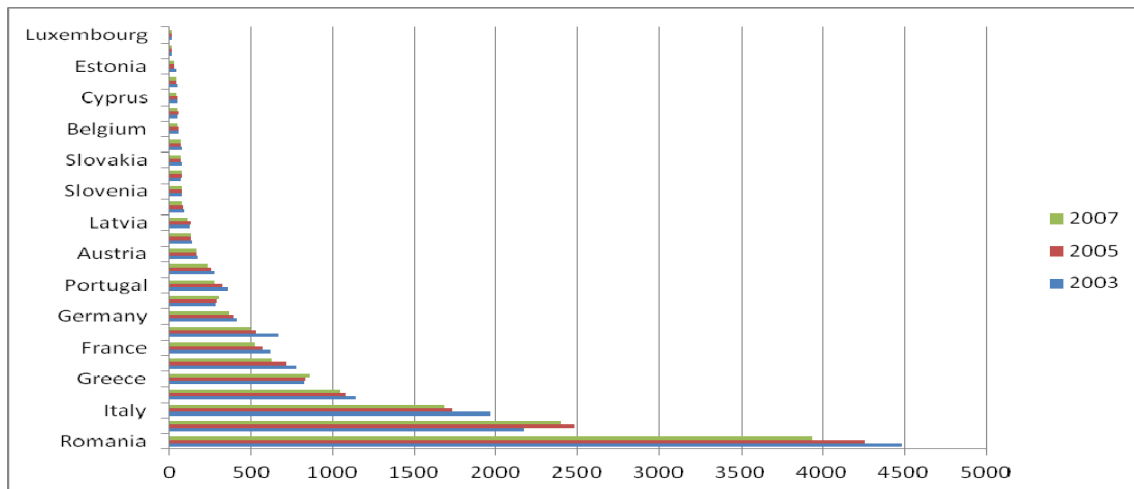
Applied current physical size of agricultural area is used. Among experts there is a broad consensus on the fact that small farms operate in an agricultural area greater than 5 hectares. The European Union agricultural structural investigations, Eurostat classify farms smaller than 1 European Size Unit as “subsistence” and those less than 8 European Size Units as small farms.

Farms exceeding certain thresholds of economic size farms are considered professional and observation fall under the Farm Accountancy Data Network. The other farms are considered unprofessional or leisure and are not Farm Accountancy Data Network records.

Analyzing the structure of agricultural holdings in the European Union in terms of size, it appears that Romania has the largest number of farms under 5 hectares. Thus, in Romania in 2007 there were 3530720 farms less than 5 hectares, representing 36.6% of total European Union amount to 9644820 farms (Zamfir, 2012).

In the European Union are dominant in number and size agricultural family holdings. Family farm is the basic unit of agricultural primary, form of organization to ensure political stability and economic motivation for farmers.

Number of farms in EU Member States (2003 – 2007) (FAOSTAT Source)



Of the 3851790 farms existing in 2007 in Romania, only 1246159 reaches European dimension of an economic unit. By comparison, the share of farms that had at least one European Size Unit was in Romania to 29.3% compared to 21.7% in Hungary, 62.4% in the Czech Republic, 78.9% in Slovenia, 43.7% in Poland and 50.8% in Lithuania (Cimpoieş, 2011).

### Farms by size class of utilized agricultural area

Size classes utilized agricultural area (ha)	Farms (number)		
	2002	2005	2007
<b>Total</b>	<b>4299361</b>	<b>4121247</b>	<b>3851790</b>
under 0,1	539893	414975	273544
0,1 - 0,3	581365	474857	522538
0,3 - 0,5	323452	283561	279419
0,5 - 1	724547	678442	609999
1 - 2	897891	869878	800066
2 - 5	952395	1014105	965594
5 - 10	218880	289575	299996
10 - 20	37408	65905	70128
20 - 30	5527	10130	9548
30 - 50	3950	5989	6559
50 - 100	3850	4939	4791
over 100	10203	8891	9608

*Source: Data for 2002 are from the General Agricultural Census, and for 2005 and 2007 are from the farm structure surveys*

Farms in Romania at least one European Size Unit used 74.4% of the agricultural area, compared to Hungary (94.8%), Czech Republic (99.0%), Slovenia (92.3%), Poland (89.0%) and Lithuania (83.7%). In other words, subsistence farms in our country (the economic dimension under European Size Unit) represented 71% of total farms, given that using less than 25% of the total agricultural area (Agricultura de semisubzistență în Europa: concepte principale și provocări, 2011).

Although semi and subsistence farms affect the performance of Romanian agriculture, these can play an important role from different perspectives (Programul Național de Dezvoltare Rurală 2007-2013, 2007): Government relieving social burden (as states the European Commission in its report on agriculture in the new Member States); 4 million for semi and managed to procure subsistence livelihood without any support from the state and many of them even without EU subsidies; conservation and biodiversity - these farms practice extensive farming without chemicals, not only environmentally, but also contribute to carbon fixation and reduction of greenhouse gas; use varieties and species with distinct specific value, helping to maintain diversity and conservation of rare breeds and varieties; their role in supplying local markets, providing largely self-sufficiency of local communities, thus relieving much of the trade professional, who can thus better focus on supplying major conurbations and international markets; providing fresh and high quality, many of them made by traditional methods, which are highly appreciated by local communities

The disparity between Romanian agriculture development and the more developed European Union states is based on the productivity gap in agriculture, main causes are represented by (Oțiman, 2011): reduced consumption of inputs (50% lower than in developed countries); an endowment with assets of farms lower (stock of fixed capital 10 times lower in Romania), due to agrarian structures that do not allow quick adjustment (in particular the consolidation of farms).

In conclusion, Romania needs massive investment program in agriculture, could transform agriculture in an attenuation of the shock current financial crisis, contributing to economic recovery nationwide.

## CONCLUSION

The great diversity of agricultural structures encountered in the EU comes from the fact that each member state's minimum threshold size of agricultural holdings is distinct.

According to the data and information derived from structural surveys of agriculture, there is a trend of relative stability threshold is the minimum size of agricultural holdings.

The number of subsistence and semi-subsistence farms is one of the key performance indicators in the EU agriculture. In Romania the number of farms that performed at least 1 ESU has been reduced by over 25% and 28.5%, in 2007 compared to 2003.

Upward trend in the average size is naturally accompanied by another trend, that of reducing the total number of farms. Thus, disappear every year a large number of small farms, economically unsustainable. This process was facilitated by the force developed economies, which provided employment and income sources other non-agricultural industries farmers who left agriculture.

Subsistence and semi-subsistence farms may have a role in: keeping alive the traditions and ethno-cultural specificity of the various regions of Romania; agricultural landscape mosaic appearance; biodiversity conservation; using low amounts of chemical inputs and low CO<sub>2</sub> generation. Subsistence and semi-subsistence farms are viable for: local products; handicraft products; traditional products.

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# Comparative Analysis of Rural Development Policies Romania – Poland

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## **ABSTRACT**

In this article will be presented in a comparative approach rural development policies in Romania and Poland, both members of the European Union, except that Poland is member since 2004 and Romania since 2007. The purpose of this paper is to form an overview on how funds are allocated to European development programs related to those two countries. Article objectives are: analyzing the current situation on differences for certain criteria such as total area, land area, total population and percentage of rural population, GDP / capita, number of farms and value of crop production, identify similarities and differences between Rural Development Programmes of Romania and Poland 2007-2013, highlighting the value of funds for each of the two countries from the European Fund for Agriculture and Rural Development and the contribution of each state to ensurance cofinancing.

**Keywords:** EAFRD, European funds, rural areas, rural development, Rural Development Programmme

## **INTRODUCTION**

In many countries, especially in the most developed ones, expressions of the modern trends of contemporary progress, national development strategies include the socio-economic composition of their structural and rural development. Fact, more common in recent decades is not by chance. Significant share of rural population and rural area and the importance of rural life are the problem of rural development to achieve both national and international importance.

The issue of rural development is a topical issue. In essence, it aims to achieve a balance between the requirement of preserving rural values, on the one hand, and the trend of modernization of rural life, on the other. Thus, rural development is at the confluence of the tendency of expansion of urban areas, industrial development and the requirement to maintain, wherever possible, the rural to the size of its quantitative and especially qualitative. (Rusu, M., 2005, p. 19).

More than 56% of the 27 Member States of the European Union (EU) live in rural areas, which cover 91% of European territory. This makes rural development policy to be an area of vital importance. Livestock and forestry remain crucial to land use and natural resource management in rural areas of the EU, representing at the same time, a platform for economic diversification in rural communities. Therefore, strengthening the rural development became a priority for the Union.

The European Union has an active rural development policy, as this can be achieved objectives for rural areas and valuable for those who live and work there. EU rural areas are an essential part of image and identity of the Union.

EU rural development policy addressing issues facing our rural areas and their potential exploitation. Theoretically, each Member State can decide and implement rural development policy totally independent. But this approach would not work well in practice. Not all EU countries could afford policy they need.

Moreover, many of the issues addressed to rural development policy is strictly limited to national territory or from a particular region (eg, pollution knows no boundaries, and the battle for environmental sustainability has become a concern to European and international ). Also, rural development policy is linked to a number of policies developed at EU level.

Therefore, the EU has a common rural development policy, which, in a relatively high, is controlled by the Member States and regions. This policy is partly financed from central EU budget and partly from national and regional budgets of Member States.

The main rules governing rural development policy for 2007-2013 and policy measures available to Member States and regions are covered by Regulation (EC) no. 1698/2005 the Council of Europe. Under this act, rural development policy for 2007-2013 focuses on three themes (known as "thematic axes"). They are:

- Improving the competitiveness of agriculture and forestry;
- Improving the environment and rural areas;
- Quality of life in rural areas and encouraging diversification of rural economy.

For a balanced approach to policy, Member States and regions are required to allocate funding for rural development based on these three thematic axes. An additional requirement is that some funding should support projects based on experience gained through the Community Initiatives Leader. Rural development, "Leader approach" involves highly individual projects developed and implemented by local partnerships to address specific local problems. (Chiritescu, V., 2011, p.220-221).

## 1. COMPARATIVE APPROACH BETWEEN THE TWO COUNTRIES ON CERTAIN CRITERIA

To do an analysis of rural development policy between the two countries, we need to know more information such as total area, land area, total population and percentage of rural population, GDP / capita, number of farms and value of grain.

### 1.1. Area

Romania's area is 238.391 km<sup>2</sup>, and Poland has 312.679 km<sup>2</sup>.

**Table 1. Area (1000 ha)**

GEO/TIME	2002	2003	2004	2005	2006	2007	2008	2009
<b>Poland</b>	31.268,5	31.268,5	31.268,5	31.268,5	31.268,3	31.267,9	31.267,9	31.267,9
<b>Romania</b>	23.839,1	23.839,1	23.839,1	23.839,1	23.839,1	23.839,1	23.839,1	23.839,1

Source: (Eurostat, Statistics Database)

According to the Rural Development Programme 2007 to 2013 (consolidated 2009 version) rural areas in Romania cover 87,1% of the territory. The RDP makes clear that Romania is endowed with 14.741.200 ha of agricultural land (or 61,8% of the total country's surface) and has significant agricultural resources. Forests and other wooded lands areas (6.742.800 ha) accounts for 28,28% of the total land in Romania.

According to Rural Development Programme of Poland (2007 version), rural areas in the Republic of Poland cover 93,2% of the country, and are extremely important from the economic, social and environmental point of view. The area of agricultural land used by agricultural holdings amounted to 15.906 thousand ha (50,9% of the country area). Arable land and permanent grassland had a dominant role among agricultural land and covered over 39% and 10,8% of the country area, respectively, i.e. 12.222 and 3.387,5 thousand ha.

## 1.2. Population

As shown in Table 2, Romania's population is over 21 million people, Poland has a population of over 38 million inhabitants.

**Table No. 2. Population (inhabitants)**

GEO/TIME	2004	2007	2008	2009	2010	2011
<b>European Union (27 countries)</b>	488.797.929	495.291.925	497.686.132	499.686.575	501.104.164	502.476.606
<b>Poland</b>	38.190.608	38.125.479	38.115.641	38.135.876	38.167.329	38.200.037
<b>Romania</b>	21.711.252	21.565.119	21.528.627	21.498.616	21.462.186	21.413.815

Source: (Eurostat, Statistics Database)

The rural population of Romania include 45,1% of the total population (9,7 millions inhabitants). The share of Romanian rural population reflects the high incidence compared to the EU countries with less densely populated, smaller-scale settlements as an alternative to urban concentrations. Many of these rural communities make a small contribution to economic growth but preserve the social fabric and the traditional way of life.

The rural areas of Poland are inhabited by 38,6% of the total population, i.e. 14,7 millions people, out of which 7,334 millions are male and 7,399 millions are female. It is worth emphasising that Poland is of a high population potential, being the sixth biggest country in EU in terms of population.

**Table No.3. Population density (Inhabitants per km<sup>2</sup>)**

GEO/TIME	2004	2005	2006	2007	2008	2009	2010
European Union (27 countries)	113,9	114,3	114,8	115,5	116,0	116,4	116,6
Poland	122,1	122,1	122,0	121,9	121,9	122,0	122,1
Romania	94,3	94,1	93,9	93,7	93,6	93,4	93,2

Source: (Eurostat, Statistics Database)

From data in the table above is noted that Romania has a population density below the European countries, including Poland.



### 1.3. GDP / capita

Following table shows that Romania's GDP is much lower than that of the Polish media and other European countries. If in 2004 GDP/capita of Romania represent 49,69% of GDP / capita of Poland, in 2011, it represented 61,28% of GDP per capita of Poland.

**Table 4. GDP / capita (euro / capita)**

GEO/TIME	2004	2007	2008	2009	2010	2011
<b>European Union (27 countries)</b>	21.205,6	24.367,5	24.987,7	23.872,6	23.918,0	24.764,4
<b>Poland</b>	5.286,2	7.620,9	8.577,7	9.677,6	8.456,5	9.685,6
<b>Romania</b>	2.627,2	4.819,1	6.219,3	6.073,6	5.416,3	5.935,5

Source: (Eurostat, Statistics Database)

### 1.4. Agricultural holdings

The data for 2007 shows that Romania has a far higher number of farms compared to Poland and a smaller total agricultural area, resulting in excessive fragmentation of land and a high number of subsistence and semi subsistence farms.

**Table 5. Total number of agricultural holdings**

GEO/TIME	2007
<b>Poland</b>	2.390.960
<b>Romania</b>	3.931.350

Source: (Eurostat, Statistics Database)

### 1.5. Production value at basic price (millions of euro) – cereals (including seeds)

Can also make a comparison between Poland and Romania in terms of crop production value. Except 2004, when Romania had a higher value grain production of 3.611.000 € and Poland of 3.042.000 €, although it has less agricultural area, the rest period, Poland has exceeded the total grain production of Romania.

**Table 6. Production value at basic price (millions of euro)**

GEO/TIME	2004	2007	2008	2009	2010	2011
<b>European Union (27 countries)</b>	48.983,20	49.269,22	51.887,87	35.397,00	43.043,81	52.903,49
<b>Poland</b>	3.042,46	4.439,68	4.570,50	2.995,06	3.502,59	4.730,25
<b>Romania</b>	3.611,54	1.628,33	3.876,69	2.042,62	2.558,91	4.679,47

Source: (Eurostat, Statistics Database)

Central and Eastern European countries go through a very difficult period of transition from command to market economy. Rural areas of these countries have potentially significant economic and human with problems and are facing relatively similar. Rural economies are described in terms such as economies decline, depopulation, high unemployment, low capital investment, reduced employment opportunities, low income, poor infrastructure and services, low degree of structural adjustments. The transition process in Central and Eastern European countries initiated and carried out at different speeds and different results in each country. For this reason it is difficult to capture a unitary on the situation. The main efforts have been and are aimed at harmonizing economic and social systems with the EU. (Rusu, M., 2005, p 54).

## 2. COMPARISON OF NATIONAL PROGRAMMES FOR RURAL DEVELOPMENT ROMANIA – POLAND

As before 2007, all Member States (or regions, where powers are delegated to regional level) should establish a rural development program, clearly stating which measures will be funded in 2007 -2013. For this period, is put more emphasis on the existence of a coherent strategy for rural development in the EU. This is done with national strategic plans that should be based on the EU strategic guidelines. This approach is intended to contribute to:

- Identify areas where the use of EU support for rural development is a higher value for the Union;
- Establishing links with the main EU priorities (for example, those in Lisbon, Gothenburg agendas);
- Ensuring consistency with other EU policies, particularly those aimed at economic cohesion environment;
- Implementation of the new common agricultural policy, market-oriented, therefore, the necessary restructuring of old and new Member States. (Chiritescu, V., 2011, p 221).

### 2.1. The period of coverage, financing, geographical area of applicability

The Rural Development Programme Romania and Poland covering the period 2007-2013, is funding from the European Agricultural Fund for Rural Development and Co-financing from national budgets. The whole territory of two states is classified as Objective "Convergence". Under this objective, the following areas will be eligible for funding under the objective "Convergence" regions whose gross domestic product (GDP) per capita is less than 75% of average GDP of the European Union (Structural Funds), those where GDP per capita exceeded 75% of EU average (due to the statistical effect of enlargement) those with a GNI less than 90% of EU average (cohesion Fund) and regions outermost (to compensate for additional costs caused by the difficulties they face).

### 2.2. Axes and measures

Both contain the same axis in Regulation (EC) nr.1698/2005 Council, but there are some differences in the measures to be funded.

Table 7. Axes and measures 2007-2013

Measure title/Axes	Public expenditure (€) Romania	Public expenditure (€) Poland	Total (€) Romania	Total (€) Poland
111 Vocational training for persons employed in agriculture and forestry	119.019.349	40.000.000	119.019.349	40.000.000
112 Facilitation of young farmers' setting up	337.221.484	420.000.000	337.221.484	420.000.000
113 Early retirement	-	2.187.600.000	-	2.187.600.000
114 Making use of the advisory services by farmers and forest owners	-	350.000.000	-	437.500.000

Measure title/Axes	Public expenditure (€) Romania	Public expenditure (€) Poland	Total (€) Romania	Total (€) Poland
121 Modernisation of agricultural holdings	1.020.505.603	1.779.932.000	1.894.191.612	4.449.830.000
122 Improving the economic value of forests	135.865.578	-	247.028.324	-
123 Increasing the added value to basic agricultural and forestry production	1.092.682.409	1.100.000.000	2.761.626.432	4.400.000.000
125 Improvement and development of infrastructure related to the development and adjustment of agriculture and forestry	483.246.816	600.000.000	604.058.520	600.000.000
132 Participation of farmers in food quality schemes	-	100.000.000.	-	100.000.000
133 Information and promotion activities	-	30.000.000	-	42.857.143
141 Support for semi-subsistence farms	476.077.390	440.000.000	476.077.390	440.000.000
142 Agricultural producer groups	138.855.905	140.000.000	138.855.905	140.000.000
143 Providing counseling and advice for farmers	158.692.463	-	158.692.463	-
<b>Total Axis 1</b>	<b>4.024.666.997</b>	<b>7.187.532.000</b>	<b>6.799.271.479</b>	<b>13.257.787.143</b>
211 Support of management in mountain areas and in less-favoured areas (LFA)	607.754.544	2.448.750.000	607.754.544	2.448.750.000
212 Support for disadvantaged areas other than mountain areas	493.083.876		493.083.876	
214 Agri-environmental programme (agrienvironmental payments)	996.408.184	2.303.750.000	996.408.184	2.303.750.000
221 First afforestation of agricultural land	229.341.338	653.501.520	263.610.733	653.501.520
223 First afforestation of non-agricultural land	-		-	
226 Restoring forestry production potential damaged by natural disasters and introducing appropriate prevention instruments	-	140.000.000	-	140.000.000
<b>Total Axis 2</b>	<b>2.326.587.942</b>	<b>5.546.001.520</b>	<b>2.360.857.337</b>	<b>5.546.001.520</b>
311 Diversification towards non agricultural activities	-	345.580.000	-	691.160.000
312 Establishment and development of microenterprises	395.147.628	1.023.583.600	607.919.428	2.047.167.200
321 Basic services for the economy and rural population	-	1.471.440.320	-	1.471.440.320
313 Encouragement of tourism activities	388.280.074		597.353.960	
322 Village renewal and development, improving basic services for economy rural population and upgrading rural heritage	1.726.070.331	589.580.000	1.759.691.392	589.580.000
<b>Total Axis 3</b>	<b>2.509.498.033</b>	<b>3.430.183.920</b>	<b>2.964.964.780</b>	<b>4.799.347.520</b>
41. Implementing local development strategies	176.687.609	620.500.000	253.613.867	1.023.615.385

Measure title/Axes	Public expenditure (€) Romania	Public expenditure (€) Poland	Total (€) Romania	Total (€) Poland
413. Quality of life and diversification of rural economy	94.394.750		115.115.548	
4.21 Implementation of cooperation projects	4.840.755	15.000.000	5.661.702	15.000.000
4.31 Operation of Local Action Groups, acquiring skills and animating the territory	53.546.507	152.000.000	54.884.291	152.000.000
431-1. Construcție parteneriate public-private	6.531.533	-	7.869.317	-
431-2. Operation of Local Action Groups, skills and animating the territory	47.014.974	-	47.014.974	-
<b>Total Axis 4</b>	<b>235.074.871</b>	<b>787.500.000</b>	<b>314.159.860</b>	<b>1.190.615.385</b>
<b>Total axes 1, 2, 3, 4</b>	<b>9.095.827.844</b>	<b>16.951.217.440</b>	<b>12.439.253.456</b>	<b>24.793.751.568</b>
511 technical support	376.119.793	266.600.000	376.119.793	266.600.000
of the expenses for the national rural Development	30.089.584		30.089.584	30.089.584
- (a) operating costs	7.522.396	-	7.522.396	-
- (b) action plan	22.567.188	-	22.567.188	-
611.Complementary direct payments	625.136.100	-	625.136.100	-
Total RDP (no 611)	9.471.947.637	17.217.817.440	12.815.373.249	25.060.351.568
<b>TOTAL</b>	<b>10.097.083.737</b>	<b>17.217.817.440</b>	<b>13.440.509.349</b>	<b>25.060.351.568</b>

Source data: Processing National Rural Development Programme of Romania 2007-2013, Rural Development Programme of Poland 2007-2013.

The table above notes the following aspects:

- In Romania may submit projects totaling 13,44 billion EUR, of which 10,097 billion EUR are public contribution and the difference comes from private contributions to project beneficiaries;
- In Poland can submit projects totaling 25,060 billion EUR, of which 17,217 billion EUR represent public contribution and the difference comes from private contributions to project beneficiaries;
- To Axis 1, Romania has 9 measures that can access, with a value of 4.024.666.997 € public contribution, Poland has 11 measures with a value of 7 public contribution of 7.187.532.000 €. In Romania, compared to Poland will not be able to submit projects for the following measures: 113 Early retirement of farmers and farm workers, 114 Use of advisory services, 132 Participation of farmers in food quality schemes, 133 Information and promotion, and in Poland can not depunde projects for measures 122 Improving the economic value of forests, 143 Providing advisory and consultancy services for farmers;
- To Axis 2 measures are similar except that in Poland can be accessed Measure 226 Restoring forestry production potential damaged by natural disasters introducing appropriate prevention instruments and financing value axis varies: in Romania are allocated funds amounting to 2.326.587.942€ and 5.546.001.520€ in Poland;

- To Axis 3, in Poland may submit projects on two measures in addition to Romania. These are: 311 Diversification into non-agricultural and 321 Basic services for economy rural population in Poland and the amount of public funding is 3.430.183.920€ and 2.509.498.033€ in Romania;
- To Axis 4 are intended Romania funds worth 235.074.871€, and Poland has allocated funds amounting to 314.159.860€. The measures in this axis are similar.

### 2.3. The funds allocated for rural development EAFRD

In the tables below is shown the amount coming from European funds, namely the European Agriculture Fund for Rural Development, the total public contribution and the EAFRD contribution rate.

**Table 8. Financial Plan Axis (in EUR, total period), total Romania.**

Axis	Public Contribution		
	Total Public Contribution	EAFRD contribution rate (%)	FEADR Amount
<b>Axis 1</b>	4.024.666.997	80,00%	3.219.733.597
<b>Axis 2</b>	2.326.587.942	82,00%	1.907.802.112
<b>Axis 3</b>	2.509.498.033	80,00%	2.007.598.426
<b>Axis 4</b>	235.074.871	80,00%	188.059.896
<b>Technical Support</b>	376.119.793	80,00%	300.895.834
<b>Complementary direct payments</b>	625.136.100	80,00%	500.108.880
<b>TOTAL</b>	10.097.083.736	80,46%	8.124.198.745

Source: National Rural Development Programme 2007- 2013, consolidated version in July 2011, Ministry of Agriculture and Rural Development.

**Table 9. Financial Plan Axis (in EUR, total period) - allocation for Poland**

Axis	Public Contribution		
	Total Public Contribution	EAFRD contribution rate (%)	FEADR Amount
<b>Axis 1</b>	7.187.532.000	75,00%	5.390.649.000
<b>Axis 2</b>	5.546.001.520	80,00%	4.436.801.216
<b>Axis 3</b>	3.430.183.920	75,00%	2.572.637.940
<b>Axis 4</b>	787.500.000	80,00%	630.000.000
<b>Technical Support</b>	266.600.000	75,00%	199.950.000
<b>TOTAL</b>	17.217.817.440	76,84%	13.230.038.156

Source: Rural Development Programme for Poland 2007-2013

For Romania, the total public contribution to support rural development policy is 10.097.083.736 €, of which 8.124.198.745 €, 80.46% comes from the European Agriculture Fund for Rural Development, and the difference is co-financing from national budget.

For Poland, the EAFRD contribution rate is slightly lower than in Romania, being 76.84%, but is the total 13.230.038.156€ and total public contribution is 17.217.817.440 €.

#### **2.4. Existing programs before 2007**

In Poland, most of the measures promoted under the National Rural Development Programme 2007-2013 is a continuation of Poland tools implemented between 2004-2006, the Rural Development Programme 2004-2006, which have complementary policy measures implemented in Poland CAP and the Sectoral Operational Programme "Restructuring and modernization of agriculture and rural development 2004-2006", implementing the EU cohesion policy objectives.

In Romania, between 2000-2006, existed SAPARD. On 31.12.2009, under this program were involved resources of approximately 1.354.929.000 €. In absolute terms, measures 1.1, 2.1, 3.1 and 3.4 have absorbed the largest share of total resources employed, accounting for 24,90% respectively commitments (measure 1.1), 45,69% (Measure 2.1), 17,01% (measure 3.1) 4,93% (measure 3.4) (Source: Final Report of the SAPARD Romania, p. 168). Payments under the program amounted to 1.348.015 euros, absorbing 88,60% of the total funds available in the period 2000-2009, suggesting a very good charge efficiency.

#### **2.5. Additional national financing per axis**

Neither Romania, nor Poland would not provide additional funding under Article 89 of Council Regulation (EC) nr.1698/2005 of September 20, 2005.

### **CONCLUSIONS**

After analyzing the data in this article can draw the following conclusions:

1. Rural development policy is partially funded by the EU central budget and partly from national budgets;
2. Rural areas in Romania covers 87,1% of the territory of 238.391 km<sup>2</sup> and rural areas in Poland covering over 93,2% of the surface of 312.679 km<sup>2</sup>;
3. Rural population is 45,1% of the total population (9,7 million out of 21,5 million), Poland's rural population is 38,6% of the total population (38,2 million), ie a total of 14,7 million inhabitants;
4. The whole territory of two states is classified as Objective "Convergence".
5. In Romania you can submit projects totaling 13,44 billion euros, of which 10,097 billion EUR are public contribution and the difference comes from private contributions to project beneficiaries; in Poland can submit projects totaling 25,060 billion EUR, of which 17,217 billion EUR represent public contribution and the difference comes from private contributions to project beneficiaries;
6. For Romania, the total public contribution to support rural development policy is 10.097.083.736 EUR, of which 8.124.198.745 EUR (80.46%) comes from the European Agriculture Fund for Rural Development, and difference is the co-financing from national budget; for Poland, the EAFRD contribution rate is slightly smaller than Romania, being 76.84%, but is 13.230.038.156€ of the total public contribution 17.217.817.440 €.
7. In Poland, most of the measures promoted under the Rural Development Programme 2007-2013 is a continuation of Poland tools implemented between 2004-2006, the Rural Development Programme 2004-2006; in Romania, between 2000-2006, there was SAPARD – at 31.12.2009, under this program were employed resources of approximately 1.354.929.000 €.

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# Evolutions of the coffee market in Romania

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## **ABSTRACT**

Worldwide, coffee is the second most consumed beverage, after water. In economic terms it is an important market, and for developing countries it is the second largest export commodity (after crude oil), with an export value estimated to USD 19 billion in 2010. The paper is analyzing the position of Romania on the world and EU coffee market, in terms of imports, consumption and re-exports, as well as the relationship between the level of the domestic consumption and the taxes paid by the Romanian coffee consumers. With the third lowest per capita consumption in the EU, the Romanian coffee market has an important potential for further development, but only in more favorable economic environment, after overcoming the crisis.

**Keywords:** *coffee, consumption, trade, excise duties, EU-27, Romania*

## **INTRODUCTION**

The international trade policy of the '80s in Romania was centered on the repayment of the foreign debt by increasing the exports (among which the agri-food products had a substantial share) and reducing as maximum as possible all imports (except for industrial raw materials and energy).

The first "victims" of the import cuts were the agri-food products that were not produced domestically and originated from abroad only, such as citrus fruit, bananas, coffee, tea, cocoa, spices etc. As a consequence, coffee, a beverage traditionally consumed in Romania for more than two centuries (due to the presence of the Ottoman Empire), disappeared almost completely from the markets. Along with the shift of political and economic regime, since the beginning of the '90s, coffee was imported again and consumption resumed, such as it doubled in 2005 as compared to 1990.

The present paper is examining the main evolutions on the Romanian coffee market in the context of the European and world coffee markets, in terms of imports, re-exports, and consumption, by comparison with other EU Member States and EU-27 as an entity. The Romanian coffee market is not particularly transparent, since it still has an important potential for expansion, and major companies are disputing it, thus information on sales, market shares, consumption patterns are made public in very rare cases. Therefore detailed data series for the domestic coffee market are difficult to find.

## **COFFEE PRODUCTION**

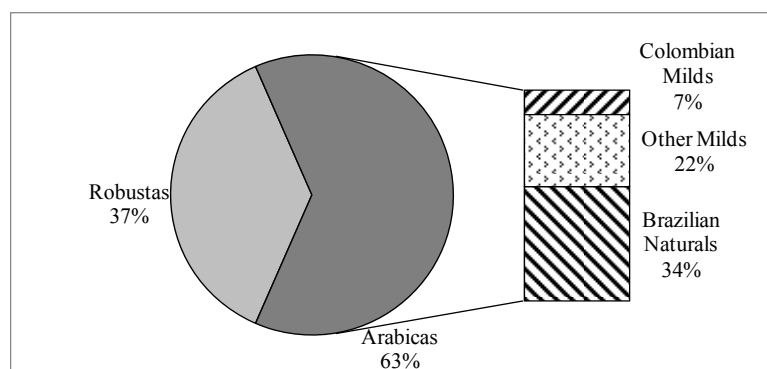
There are more than 60 coffee species, but only few of them are commercially cultivated (*Coffea Arabica*, *Coffea canephora (robusta)*, *Coffea liberica*). Their natural environment is in tropical and subtropical areas, with plenty of rain. The main



cultivation area is located between 22-24°latitude North and South respectively. Coffee is grown as well on higher lands (altitude from 200-1200 m).

The Robusta coffees (cultivated in Ethiopia, Vietnam) take about 1/3 of the total production (Figure 1). Among the Arabica types of coffee, important for the world exports are the Colombian milds (cultivated in Colombia, Kenya and Tanzania), the Brazilian Naturals (cultivated in Brazil, Ethiopia and Paraguay) and other milds (largely cultivated in India, Mexico, Ecuador, Peru).

Figure 1. Share of main types of coffee in the total world production (2010)



Source: author's calculations based on ICO data

The main producer and exporting countries are located in Central and South America, Africa, Asia and Oceania. Due to their geographical location, as well as to the specific variety mix, the coffee output comes on the market in three periods yearly: the April group (Brazil, Indonesia, Peru, Ecuador); the July group (Tanzania, Dominican Republic, Haiti) and the October group (Vietnam, Colombia, Ethiopia, India, Mexico, Honduras).

More than 50 countries are producing and exporting coffee on the world market. Coffee is a high value raw material export, and in some of the producing countries coffee is the backbone of the economy and their exports are relying almost completely on this product. Nevertheless, two countries alone account for half of the world production: Brazil and Vietnam (Table 6), while the top 7 producing countries are providing  $\frac{3}{4}$  of the total coffee output.

Table 6. Top world coffee producers

Production year	2010/11		2011/12	
	'000 tons*	%	'000 tons*	%
Total world	8063.2	100.0	7875.2	100.0
Brazil	2885.7	35.8	2609.0	33.1
Vietnam	1168.0	14.5	1200.0	15.2
Indonesia	547.7	6.8	495.0	6.3
Colombia	511.4	6.3	468.0	5.9
Ethiopia	450.0	5.6	390.0	5.0
India	302.0	3.7	320.0	4.1
Mexico	291.0	3.6	258.0	3.3

\*Note: GBE=green beans equivalent

Source: author's calculations based on ICO (International Coffee Organization) data

*By continent, about 45% of the production is coming from South America, 29% from Asia and Oceania, 14% from Mexico and Central America and 12% from Africa.*

## **COFFEE TRADE**

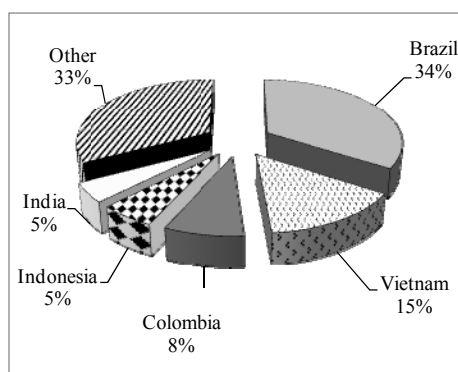
### **Exports by producing countries**

The two main future markets for coffee are London (Euronext/LIFFE) and New York (ICE). The total value of the world coffee trade increased by 58% (from 18.5 to 29.2 billion USD) between 2006 and 2010 according to FAO estimations.

Since coffee is a world-wide consumed product, all producing countries are exporting part of their output. The top exporting countries are the same as the producing ones (Figure 2), but ranking may appear different due to the volume of domestic consumption.

The top two producing countries are the top two exporting countries as well, and thus Brazil and Vietnam account for almost half of the total exports.

Figure 2. Top exporting (producer) countries (2010)

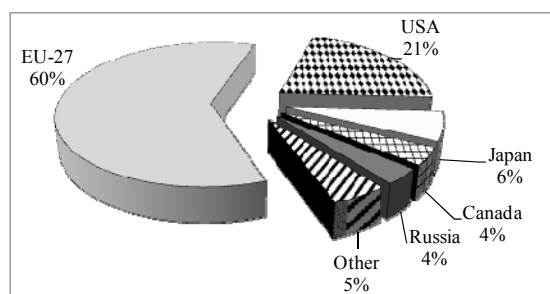


Source: author's calculations based on ICO data

### **Imports and re-exports by non-producing countries**

Traditionally, the developed countries are the main coffee importers (Figure 3). USA is currently the top coffee importer (21.2% of the total world imports in 2010), followed by Germany (17.9%), Italy (7.1%), France (5.8%) and Belgium (5.1%). Other important non-EU importers are Japan, Canada and Russia.

Figure 3. Main coffee importers (non-producing countries) (2010)



Source: author's calculations based on ICO data

A special mention is to be made here: the top producing countries are exporting mainly green coffee. Many developed countries are important importers of green coffee (at low import duties) and, after processing (roasting, blending, decaffeinating), they become exporters on the world market. The high import duties for processed coffee (such as 11.5% for soluble coffee from Brazil) prevent the exporting-producer countries to diversify their exports, by increasing the share of products with higher value-added. As an example, in 2010, 95% of the EU-27 extra-community coffee imports were green coffee, while the extra-community re-exports were divided almost equally between green decaffeinated, roasted and soluble coffee (Table 7).

Table 7. Share of processed and unprocessed coffees in the EU-27 trade (%) (2010)

Coffee product	Import extra-EU	Import intra-EU	Export extra-EU	Export intra-EU
Green	94.61	26.44	6.29	31.28
Green decaffeinated	0.08	4.60	29.23	5.84
Roasted	1.29	44.43	30.06	41.08
Roasted decaffeinated	0.11	1.26	1.09	1.28
Soluble	3.90	23.27	33.33	20.52

Source: author's calculations based on EU Export Helpdesk data

Thus, non-producing coffee countries such as EU member states or the USA appear as important re-exporters of coffee and coffee products (Table 8).

Table 8. Main coffee re-exporters (2010)

	2010		2011	
	'000 tons*	%	'000 tons*	%
Total world, of which:	2015.0	100.0	2097.0	100.0
EU 27	1734.2	86.1	1781.9	85.0
Germany	692.5	34.4	701.0	33.4
Belgium	303.2	15.0	293.6	14.0
Italy	146.8	7.3	160.1	7.6
Spain	108.2	5.4	100.3	4.8
Netherlands	74.2	3.7	105.1	5.0
UK	71.6	3.6	75.8	3.6
Poland	67.4	3.3	81.4	3.9
Non-EU				
USA	191.5	9.5	223.4	10.7
Switzerland	78.8	3.9	84.8	4.0

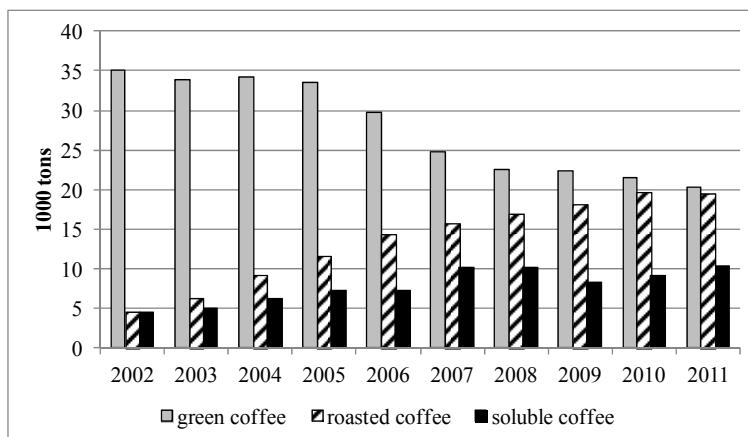
\*Note: GBE=green beans equivalent

Source: author's calculations based on ICO data

Romania is a net importing country for coffee. Since 2005, the total coffee imports are rather stable (around 50,000 tons yearly), but the shares of green, roasted and soluble coffee changed significantly over the years (Figure 4). In 2002, 80% of the imports were green coffee, while roasted and soluble coffee took 10% each; in 2011 the share of

green coffee halved (down to 40%), while the shares of roasted coffee quadrupled (up to 39%), and the share of soluble coffee doubled (up to 21%).

Figure 4. Romania – coffee imports (2002-2011)



Source: author's calculations using EU Export Helpdesk data

The main sources for green coffee in Romania in 2002 were Indonesia and Vietnam, with a share of 37.5% each. In 2011, Vietnam was the first source for imported green coffee to Romania (34%), followed by Uganda (11.4%), Brazil (10.9%) and Indonesia (9.8%). EU countries (Germany, Belgium and Italy) supplied only 9% of the green coffee.

The story is quite different for roasted coffee. In 2002, 2/3 of the imports were coming from CEFTA countries (Hungary - 48.5%, Czech Republic - 19.5%), then from EU countries (Germany - 12.8% and Italy - 8.8%). In 2011, 99.9% of the roasted coffee was coming into Romania from EU re-exporting countries (Germany – 32.5%, Bulgaria – 22.8%, Italy – 17.4%, Poland – 10.8%).

Romania is re-exporting insignificant quantities of roasted coffee on the EU market, about 1000 tons in 2009, 2010 and 2011.

### Protected Geographical Indications and trademarks

Up to now, the coffee has been distinguished just by the types mentioned above (Robusta, Arabicas – Brazilian Naturals, Colombian milds, Other milds). The producing countries are making efforts for obtaining specific identity and protection for their products. Very few have been successful so far, but the first steps have been made.

The “Café de Colombia” is the first non-EU entity that has recently been granted a PGI (Protected Geographical Indication). Although not for all types of coffee produced in Colombia, this PGI is already in force.

Under specific Trademark license agreements, Ethiopia is granting to roasters and traders the right to use the Sidamo, Yirgacheffe and Harar/Harrar trademarks for its coffee, and there are estimations indicating that the use of these trademarks is providing the Ethiopian farmers an 88 billion USD additional income (3).

### PRICES

The world coffee consumption shows a slight increase over the years, with no major variations. Therefore, the coffee prices are influenced mainly by the supply volume and

the quality of the production, which depends on its turn on the weather conditions of the year in the main production areas.

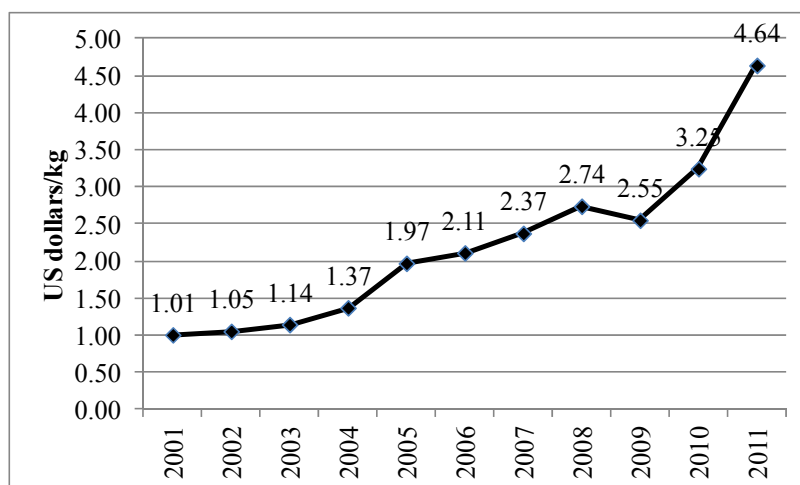
In 1963 the International Coffee Organization (ICO) was established, including as members 38 of the major producer and exporting countries (accounting for almost 89% of the world supply) and 6 major importing members - EU-27, Norway, Switzerland, Tunisia, Turkey and USA (accounting for almost 85% of the world imports by non-producing countries). Thus the organization is covering most of the world coffee market.

The first International Coffee Agreement (ICA 1962, entered into force in 1963), operating under ICO, contained provisions that allowed the withhold from the market (by means of country quotas) of coffee supply that surpassed excessively the demand, in order to avoid the fall of prices and subsequent speculations that would result in bankruptcy of small farmers and economic difficulties in the countries where coffee production is the backbone of the economy.

This system that intervened directly for regulating the international coffee market operated until 1973. The following agreements (up to the latest one, ICA 2007, entered into force in 2011) eliminated the direct intervention on the market, but promoted coordinated policies, financed projects that benefitted the world coffee economy, and mostly promoted coffee quality in order to allow sustainable development of the sector and avoid major crises on the international coffee market.

The prices for the four major types of coffee (Robusta, Brazilian Naturals, Colombian milds and Other milds) are rigorously surveyed, and a daily ICO composite indicator price is calculated, as a weighted price.

Figure 5. ICO composite indicator prices (yearly averages, 2001-2011)



Source: author's calculations based on ICO data

The year 2011 set a record as the year with the highest price for green coffee on the world market in the last 30 years, due mainly to an exceptionally low production in Brazil and Mexico, due to unfavorable weather.

The retail prices are influenced by the world supply and prices of the raw material (green coffee), but much more by the economic trends in the major processing and re-exporting countries. The retail prices for roasted coffee vary widely in the EU-27 (ex.: in Luxembourg prices are double as compared to France) (Table 9). On the other hand,

in 2011 retail prices for coffee increased visibly, as a direct effect of the high price of green coffee on the world markets.

*It is difficult to calculate an average retail price for Romania, due to lack of published data on various coffee segments sales, but direct observations on the market show that it ranges from about 9 EUR/kg for current coffees to 30 EUR/kg for super premium coffees.*

Table 9. Retail prices (current prices), annual averages in selected importing countries (EUR/kg)

Country	2010	2011	2011/2010
Finland	6.14	8.51	38.6%
France	6.02	6.56	8.8%
Germany	7.92	8.09	2.2%
Hungary	8.36	9.64	15.3%
Italy	12.21	13.52	10.7%
Luxembourg	11.78	13.04	10.7%
Poland	6.06	6.57	8.5%
Spain	6.52	7.00	7.5%
USA	6.50	8.23	26.7%

Sources: International Coffee Organization, the effects of tariffs on the coffee trade, ICC Study 107-7, August 2011, London; author's calculations

*Market observations indicated also the increasing trend of the retail prices for coffee in Romania in 2011 as compared to 2010, similar to the trend in EU-27 and USA.*

## CONSUMPTION

During the last 50 years, coffee consumption increased worldwide. Recent studies indicate as main factors: globalization, expansion of multinational food retailers, brands and caterers, improved travel opportunities, new media expansion and changes in traditional national food models. The highest increase rates in the coffee consumption occurred lately in traditionally tea-consuming countries, such as Russia, China, Korea.

In major importing countries which traditionally consumed coffee (such as France, Germany, Italy, USA), the coffee consumption increased slowly, but constantly, by 10% only over the last 20 years.

In Romania, coffee consumption decreased sharply in the 80's, due to the severe restrictions imposed to food imports. In that period, coffee became very scarce and the black market flourished.

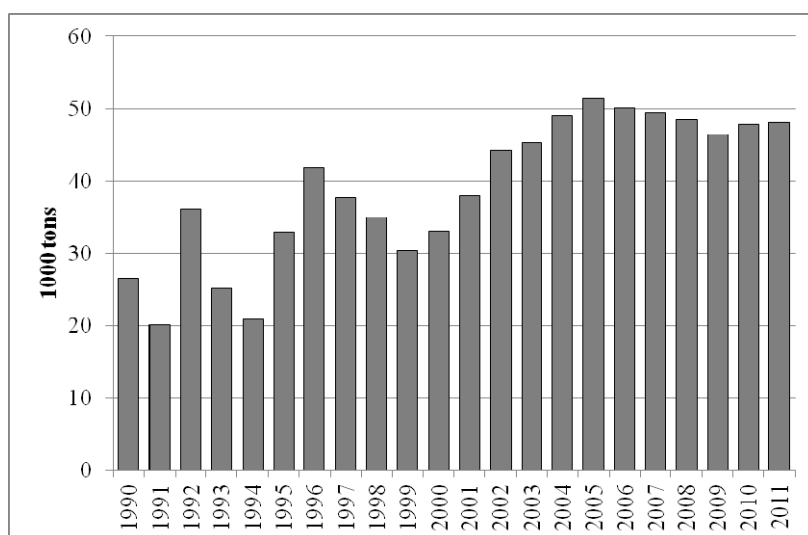
In 1990 imports were liberalized and coffee imports and consumption increased 2.4 times in 20 years (1991 to 2011). Consumption doubled between 1990 and 2005 (Figure 6) and then a diminishing trend appeared: it went down by 10% between 2005 and 2009, and then resumed a slight upward trend in 2010 and 2011. Still, the per capita consumption in Romania is the third lowest in the EU-27.

The EU-27 average coffee per capita consumption was 4.89 kg in 2010, with significant variations among the Member States. The highest coffee consumers were in 2010: Finland (12.12 kg/capita), Denmark (9.46 kg/capita) and Sweden (7.89 kg/capita). Romania, ranking 25-th among the Member States, consumed only 2.25 kg/capita.

## TAX POLICIES ON COFFEE

Since for the major consuming countries coffee is an imported commodity and its consumption is rather important (in the world, coffee is the second most consumed beverage after water), the public authorities deem it as a good and continuous source for budgetary income. Therefore there are various taxes and levies applied on coffee.

Figure 6. Coffee consumption in Romania (1000 tons GBE)(1990-2011)



\* Note: GBE= Green Beans Equivalent.

Source: author's calculations based on ICO data

They are applied in three main points along the product chain: first, when the commodity crosses the border of the importing country (custom duties), and then inland taxes: excise duties, and VAT.

### Import duties

The EU offers preferential trade access to an important number of exporting countries under various programs and agreements, such as Generalized System of Preferences (GSP and GSP+), Everything But Arms (EBA) program, Economic Partnership Agreements (EPA), bilateral arrangements; as a consequence, 37 exporting countries are granted 0% tariffs on coffee imported into the EU.

For most exporting countries, the import duty into the EU for green coffee is 0%. Yet, the major exporting countries such as Brazil, Vietnam, India and Indonesia do not benefit from EU preferential measures, therefore the import duties are for them 4.8% for green coffee (4).

In the EU, import duties are moderate; they vary from 0 to 9% (

Table 10). The EU-27 is the largest coffee importer on the world market (60% in 2010, that is about 4 million tons), followed by the USA (21% in 2010, about 1.5 million tons).

Table 10. Import duties and levies for coffee in the EU and selected non-EU major consuming countries

Country	Green coffee	Roasted coffee	Soluble coffee
EU member countries	non-decaffeinated: 0% (except Brazil, Vietnam, Indonesia, India – 4.8%)	non-decaffeinated: MFN:7.5%; GSP:2.6%	MFN: 9% GSP: 3.1% except Brazil (11.5%); EPA: 0%
	decaffeinated: MFN: 8.3%; GSP: 4.8%	decaffeinated: MFN: 9%; GSP: 3.1%	
Switzerland	0	CHF 63/100 kg gross; EU, GSP, LDC, FTA: 0%	CHF 182 /100kg gross; EU, GSP, LDC, FTA: 0%
Norway	0	0	0
Russia	0	10%, at least 0.20 €/kg	5%
Ukraine	0	5%	5%
Turkey	MFN: 13%; EU, LDC: 11%	MFN: 13%; EU, LDC: 11%	MFN: 9%; EU, LDC:0%; GSP: 3.1%
Tunisia	15%	36%	MFN: 36%; EU: 0%
Japan	0	MFN: 12%; GSP:10%; LDC: 0%; MFN: 20%	0
Canada	0	0	0
USA	0	0	0

Notes: MFN: Most Favored Nation; GSP: Generalized System of Preferences; LDC: Least Developed Countries; FTA: Free Trade Agreements; EPA: Economic Partnerships Agreements  
Source: International Coffee Council, *Obstacles to consumption, Position paper ICC 105-7 Rev.1, September 2010, London.*

### VAT rates for coffee

VAT on coffee varies very much among the member states (Table 11). It ranges from 0% (Ireland, Malta, UK) to 27% (Hungary).

Table 11. VAT and excise duties in EU-27 and selected importing countries

	General VAT (%)		VAT (%) for coffee			Excise duties		
	Standard rate	Reduced rate	Roasted coffee non-decaf.	Soluble coffee		Green coffee	Roasted coffee	Soluble coffee
Year	2010	2010	2010	2011	2010	2010	2010	2010
Austria	20	10	10	10	20	0	0	0
Belgium	21	12	6	6	6	0.1983 EUR/kg	0.2479 EUR/kg	0.6941 EUR/kg dry matter
Bulgaria	20	7	20	20	20	0	0	0
Cyprus	15	8	0	5	5	0	0	0
Czech Republic	20	10	10	14	20	0	0	0
Denmark	25	0	25	25	25	5.45 DKK/kg	6.54 DKK/kg	14.17 DKK/kg coffee extracts
Estonia	20	9	20	20	20	0	0	0



	General VAT (%)		VAT (%) for coffee			Excise duties		
	Standard rate	Reduced rate	Roasted coffee non-decaf.	Soluble coffee		Green coffee	Roasted coffee	Soluble coffee
Finland	23	13	13	13	13	0	0	0
France	19.6	5.5	5.5	5.5	5.5	0	0	0
Germany	19	7	7	7	7	0	2.19 EUR/kg	4.78 EUR/kg
Greece	23	11	11	13	13	0	0	0
Hungary	25	18	25	27	25	0	0	0
Ireland	21.0	13.5	0	0	0	0	0	0
Italy	21	10	21	21	21	0	0	0
Latvia	21	10	21	21	22	100 LVL/100 kg pure coffee		
Lithuania	21	10	19	21	21	0	0	0
Luxembourg	15	12	3	3	3	0	0	0
Malta	18	5	0	0	0	0	0	0
Netherlands	19	6	6	6	6	0	0	0
Poland	23	8	23	23	23	0	0	0
Portugal	23	13	13	23	23	0	0	0
Romania	24	9	19	24	19	153 EUR/ton	225 EUR/ton	900 EUR/ton
Slovakia	20	10	20	20	20	0	0	0
Slovenia	20	8.5	8.5	8.5	8.5	0	0	0
Spain	18	8	8	8	8	0	0	0
Sweden	25	12	12	12	12	0	0	0
United Kingdom	20	5	0	0	0	0	0	0
Japan	5% cons. tax	...	5	5	5	0	0	0
Norway	25	...	15	15	15		1.14%	0.71%
Switzerland	8	...	2.5	2.5	2.5	0	0	0
Tunisia	18	...	18	18	18	Consumption tax 25%		
Turkey	18	...	8	8	8	0	0	0
USA	According to state		0-8.25	0-8.25	0-8.25	According to state		

Sources: *International Coffee Council, Obstacles to consumption, Position paper ICC 105-7 Rev.1, September 2010, London; European Coffee Federation (2012), European Coffee Report 2011/12*

It is worth mentioning the fact that six member countries, Romania among them, increased their VAT rate in 2011 as compared to 2010: by 2% in Greece, Hungary and Lithuania, by 4% in Czech Republic, and by 5% in Cyprus and Romania (2).

Consumption is influenced by a wide range of factors, both economic and non-economic, and all cases should be individually analyzed.

For instance, in Romania, cumulated excise duties and increased VAT represent up to 27% of the retail price in 2010. They apparently influenced the consumption, by blocking its possible expansion.

On the contrary, in other cases one cannot observe a correlation between the consumption and the level of VAT and excise duties: in Denmark VAT for coffee is among the highest in EU-27 (25%), and excise duties are present; yet the consumption is 9.46 kg/capita, which is far higher than in countries with 0% VAT and no excise duties (such as Ireland, Malta, United Kingdom).

In these cases, non-economic factors such as national habits or fashion trends should be taken into consideration.

Coffee consumption in the major developed importing countries seems to be mostly unaffected by the changes in tariffs and taxes, since the market is mature and stable and coffee shows a low level of price elasticity (4).

### Excise duties

Romania is among the five EU member countries that still apply excise duties on coffee, together with Belgium, Denmark, Germany and Latvia.

Excise duties have initially been applied in Romania to the value of imports in customs (in 1990-1997), at very high rates: 50% of the coffee value in the customs, and since mid-1993 till end of 1997 they increased to 80%, thus placing a heavy burden on retail prices. Since 1998, excise duties changed from “ad valorem” to fixed amount per quantity unit, thus eliminating fiscal evasion by undervaluation. They varied between 1998 and 2001 (Table 12). The Law 343/2006 regarding changes in the Fiscal Code, enforced at the moment of Romania’s EU accession, included provisions that were stipulating the decrease of excise duties in four steps and their complete elimination starting 2011, but the huge need of budgetary incomes during the economic crisis imposed the continuation of their applicability up to the present day.

Table 12. Evolution of excise duties for coffee in Romania (1990-2012)

Period of application	Green coffee	Roasted coffee	Soluble coffee	Legal act*
23.10.1990 – 30.06.1993	50% (of value in customs)	50% (of value in customs)	50% (of value in customs)	GD 779/1991
01.07.1993 – 31.12.1997	80% (of value in customs)	80% (of value in customs)	80% (of value in customs)	Law 42/1993
01.01.1998 – 14.02.1998	900 ECU/ton	1200 ECU/ton	5 ECU/kg	GEO 82/1997
15.02.1998 – 31.12.2001	775 EUR/ton	1035 EUR/ton	4.50 EUR/kg	GO 27/2000
01.01.2002 – 30.04.2002	800 EUR/ton	1200 EUR/ton	4.50 EUR/kg	GER 158/2001
01.05.2002 – 25.12.2003	850 EUR/ton	1250 EUR/ton	5 EUR/kg	GER 48/2002
01.01.2004 – 31.12.2004	850 EUR/ton	1250 EUR/ton	5 EUR/kg	Law 571/2003 (art. 208)
01.01.2005 – 31.12.2006	680 EUR/ton	1000 EUR/ton	4 EUR/kg	GO 83/2004
01.01.2007 – 31.12.2007	612 EUR/ton	900 EUR/ton	3600 EUR/ton	Law 343/2006
01.01.2008 – 31.12.2008	459 EUR/ton	675 EUR/ton	450 EUR/ton	GEO 106/2007
01.01.2009 – 31.12.2009	306 EUR/ton	450 EUR/ton	1800 EUR/ton	
01.01.2010 – present day	153 EUR/ton	225 EUR/ton	900 EUR/ton	

\* Notes: GD=Government Decision; GER=Government Emergency Ordinance; GO= Government Ordinance

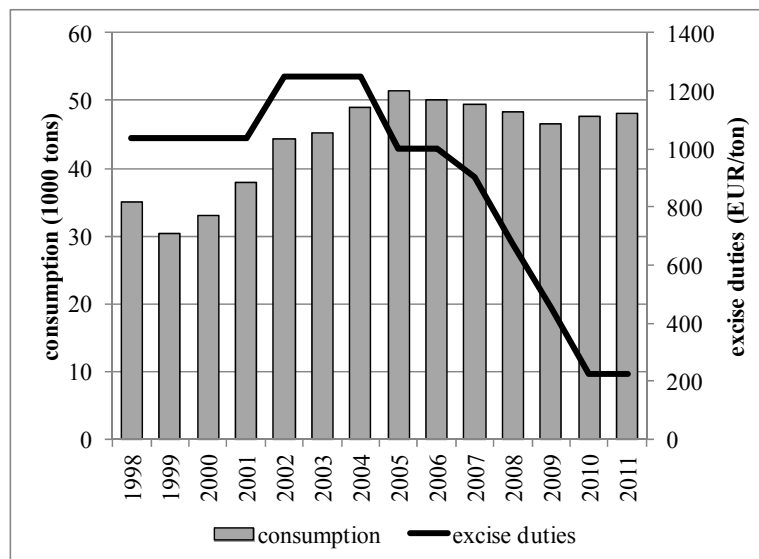
Source: Romanian Official Journal

Romania has high retail prices for coffee, which contain high VAT and excise duties. These statements are obviously true, but cannot explain the consumption evolution. In 1999 to 2001, consumption increased by 25%, while excise duties and import duties remained unchanged (Table 12). This evolution might be explained by the rise in households income associated with the economic growth of the period.

In the following years of the economic growth period, the increasing trend of consumption continued at a slower pace (13% in 2002-2006), while excise duties increased by 4% only.

The post-accession period (2007-2011) is really interesting, because of contradicting factors and evolutions: consumption decreased very slowly in 2007-2011 (by 3%), while excise duties went down sharply by 50%.

Figure 7. Coffee consumption (GBE) and excise duties evolution in Romania (1998-2011)



\* Note: GBE= Green Beans Equivalent.

Source: author's calculations based on ICO data

One might have expected a rise in consumption under such a tax cut, but the possible positive effect was most probably reversed by the strong impact of the economic crisis. The exchange rate went up by 26% in 2007-2010, the VAT rate increased by 5% (from 19 to 24%) in 2010 and the population's incomes went down due to severe wage cuts both in the private and in the state sector (by 25% in administration, health, education, research, defense etc.). These negative trends most probably blocked the consumption expansion which might be expected once the economic crisis will come to an end and economic growth will resume.

### SPECIFIC FEATURES OF THE COFFEE CONSUMPTION IN ROMANIA

A market study (5) performed in urban areas overall Romania (all regions) in 2010 showed that the main factors determining the coffee purchasing are: price (40%), quality (33%), brand and promotional offers (10% each). Other factors, such as the variety of the product range, attractive packaging, details on the label, availability in the shop and commercials have virtually no effect in the coffee purchasing decision.

In 97% of the cases, producer brands are purchased (as opposite to private brands – those of the supermarkets), despite higher prices.

Purchase of super premium coffees is quite rare (less than 5%) in supermarkets, but it is expanding in the “away-from-home” segment (coffee shops, restaurants). The segmentation of producer brands purchase by size of the town, age group and income group did not change the above-mentioned results.

A study on drinking patterns in Romania in 2007 (1) shows some interesting features. First, Romanians prefer by far the coffee to the tea.

The most consumed type of coffee is the simple roasted (65%), while simple instant coffee takes only 15%. The remaining 20% include other types of soluble coffee (coffee mixes, such as “3 in 1” with added sugar and creamer, cappuccino etc.).

The category of roasted coffee consumers is drinking daily about 2 cups per day, while the consumption frequency and quantity in the category of soluble coffee consumers is significantly lower.

Consumers drinking both roasted and soluble coffee are generally adding sugar (about 80%), but no milk (75%).

Another specific Romanian feature of the coffee consumption is the way it is brewed: 8% are using espresso machines, 32% coffee filters and – this is still very traditionally Romanian: 60% boiled coffee (called also Turkish or Greek coffee). This custom is inherited from the old Ottoman Empire which introduced in the first place coffee consumption in Romania, but, nonetheless, the result of several decades of virtually no appliances imports (coffee filters were sold in Romania after 1990 only and espresso machines even later in the 90’s).

The coffee market in Romania is estimated (6) at 250-300 million EUR per year (2010). Although showing a very slight increase in value terms (due to higher retail prices), the sales volumes diminished by 4.4% (2010/2009) and by 3% (2011/2010). The sales volume diminished both for roasted coffee (for at-home consumption), and for sales for away-from-home consumption (coffee shops, restaurants, vending machines).

The future evolutions on the coffee markets are uncertain. The continuation of the economic crisis lead to a contraction in demand, fueled by the decrease of incomes in southern EU countries, such as Greece, Spain and Italy, major coffee consumers on the European and world markets.

## **CONCLUSION**

Although the Romanians’ preferred non-alcoholic beverage, the coffee market in Romania is still underdeveloped as compared to similar markets in the other EU member states.

The country is a net coffee importer; the volume of coffee imports increased between 1990 and 2004, but, since 2005, they remained constant at about 50,000 tons per year. The main trend consisted of the increasing share of roasted coffee, at the expense of green coffee, and the constant increase of soluble coffee.

Retail prices in Romania are quite high, since they include the second highest VAT rate, after Hungary, and excise duties (Romania is among the five EU member countries that are still perceiving excise taxes on coffee). Excise duties were supposed to be eliminated starting 2011, but the need for higher budgetary revenues led to their continued application in 2011-2012, and most probably in 2013 as well.

Coffee consumption doubled in 1990-2005; since 2006, the consumption showed minor variations. The main factors which are blocking the expansion of the coffee demand in

Romania are: low incomes, high retail prices for coffee, high VAT, presence of excise duties.

As a result, the coffee per capita consumption in Romania was 2.25 kg in 2010, ranking 25-th in the EU-27.

There are some specific consumption features that are influencing the composition and magnitude of coffee consumption in Romania, such as preferences for roasted coffee, for the brewing method and the drinking frequency and location (at home versus away from home), as well as the upward trend in the soluble coffee consumption, due mainly to the strong expansion of coffee vending machines during the last four years.

The continuation of the economic crisis in Europe and its effects in Romania is probably the main obstacle for further expansion of the coffee market in Romania in 2013, but the potential for development is present, waiting for a better economic environment.

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# Analysis of Agro-food Products' Quality

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## **ABSTRACT**

Quality is essential element of any economic activities, in its absence cannot talk about competitiveness, profitability or about economic efficiency. It has a direct impact on the consumer of the product or service, as well as on to the producer.

In the case of agricultural products, quality influences final consumer (the individual), which change their desired quality products able to satisfy nutritional preferences, to maintain or to enhance the health status, but and their manufacturer.

Quality, through the structure in the different classes of product quality, influences directly the prices of the recovery, and indirectly the profit and gross profitability rate.

All of these elements are referred to, supported and exemplified in the case of fruit-growing products, when their revaluation is made, at harvest, in the different classes of quality.

**Key words:** *quality, quantity, measure, specifications, standards, certification, extensive, intensive, optimal size, average price, structure of production, profit, the cost-effectiveness.*

## **1. QUALITY AND ITS CERTIFICATION**

### ***1.1. Quality and its characteristics***

Definition of quality has multiple implications and shows a great practical importance, as it is used to measure labor productivity, affects the level of prices and, in general, determines the level of results.

At the origin of the quality concept there are several points of view expressed by national bodies and internationals.

- "Quality is the amount of all attributes and characteristics, including benefits of a specific product" – definition of US Department of Defense.

- "The assembly of characteristics of an entity that gives ability to satisfy the expressed or implied needs" – definition of ISO 8402/1994.

- "Quality is a systems approach and systematic in order to obtain excellence" – definition of American company for Quality Control (ASQC).

- "The quality represents the set of properties and characteristics of a product or service that gives it its ability to meet the needs of the customer's expressed or implied. (Manole V., Stoian M., "Agromarketing", ASE Publishing, Bucharest, 2001)

Quality cannot be put into question excluding the quantity. The correlation between quality and quantity can be expressed by the concept of measure, the latter being quantitative limit beyond which change quality of the product.

In the economic sense, quality is an expression of the measure where products satisfy the requirements of society. It is in a certain relation to the value of use, which individualizes products between them, according to the various needs that they satisfy; the quality differentiates products of the same type, depending on the number of useful characteristics to them and depending on that they meet to scope of use for which they were intended.

At the same time, internal and external market realities add an extra dimension of quality problem, namely the factor of 'competitiveness under competitive conditions'. New vision concerning the quality of agro-food products must have an integrative character, including a wide scope of interests, such as:

- In depth knowledge of agricultural and food producers strategy for the consolidation and to expand its market position;
- The importance of food products in the general program for the disposal and production;
- Establish the conditions for using the products;
- Knowledge of agricultural product processing program.

The concept of quality is complex and dynamic. The complexity of the notion of quality is conferred by its functions: technical, economic, social.

Dynamic character is determined by: requirements and demands of society in the development of the production forces; competitiveness products.

Therefore, the market requires a continuous improvement of the quality, which is why food products should be considered:

- Quality nutritional aspect (content of protein, carbohydrates, vitamins etc.) - that determines human health;
- Sensory quality, being based on organoleptic characteristics of products depending on the organoleptic characteristics of the products (smell, taste, color, texture etc.).
- Hygienic quality, determined by natural toxicity (poisoning on plant products), contamination or pollution or chemical and microbial contamination with other organisms;
- Aesthetic quality, namely the presentation of products on the market for the purpose of compliance the qualitative aspects (such as the packaging).

Product characteristics are numerous, but in practical terms, only some of them determine the quality, and they are called quality characteristics.

To assess product quality, how quality is consistent with consumer requirements and efficiency they induce in the process of use, we distinguish the following features for quality:

- Functional characteristics – are directly related to the use of a particular product, such as: physico-chemical characteristics and nutritional value of a food product, energy indices etc.
- Psycho features relate the aesthetic side, the emotional which food products can cause.
- Economic characteristics affects reliability (operation without faults) and easy to fix defects, referring to maintenance over time of qualitative characteristics of the products.

Functional characteristics and psycho demonstrate the intrinsic quality and they are included under the global name of „technical specifications”.

### ***1.2. Basic knowledge of the quality standard***

In Romania standardization activity is carried out in accordance with Law no. 117/1994, following mainly the protection of life, health and the environment, and also removing technical barriers to trade institutions. Quality elements included in the standards are linked to the achievement of science and technology and its use by manufacturing company promotes continuous improvement of production processes, resulting in quality products.

For the purposes of specialists, as well as legal documents, by standard means the document which provides, for common uses and repeated, rules, prescriptions and characteristics relating to activities or their results.

In Romania developed three categories of standards:

1. Romanian standards (SR), which applies nationally.

This standard is a document, with the character of law, which imposes uniform and rational rules for production, technology, size, quality, reception, classification, nomenclature mandatory in all branches of the national economy, quality technical requirements that must be met by products to be put into circulation, and requirements for the storage, packaging, transporting the products.

2. Professional standards applicable in certain fields, in professional organizations, legally established, which they elaborated.

Develop standardization programs for professional standards, drafting the projects for these standards, reconfirmation proposals, modification, suspension or cancellation of professional standards and approval is made by specialized institution, including standardization technical committees established by concerned institutions and organizations.

3. Corporate standards are applied in the autonomous administrations, companies and other legal entities that have developed them.

Drafting and approval for programs of the corporate standards and their reconfirmation, modification or cancellation shall be made by autonomous administrations, companies or other legal entities that have applied and developed them.

Standardization of agricultural products is the normative regulation regarding minimum technical conditions that must be accomplished by agricultural products, to be accepted and paid at the rate set by the customer. Standardization establishes quality indices and admissible deviations (tolerances), and rules for sampling and testing methods and determining the quality of agricultural products.

Also, the standards include regulations relating to the labeling, packaging, storage and transport. Standardization rules are set differently in the agriculture sector, nationally and internationally. The specific standards for agriculture take into account the crop production, animal, industrial-agricultural and agricultural mechanization.

### **Quality Certification**

Certification is a problem that allows attestation of conformity of a product, on the one hand, and a system of organization, on the other hand, a reference document (eg standard).



There are two types of certification:

- Product certification – certifying compliance of the product with a given referent.
- Company certification – proving especially quality assurance system complies a business or part of the company with a standard series ISO-9000 or EN 29000.

Certification has specific features of each country.

In our country technical and quality requirements impose:

- a) The manufacturer having a Quality Management System in accordance with the requirements of SR EN ISO 9001: 2001 certified by an accredited organization in Romania;
- b) The product having a certificate of conformity issued by an accredited organization in Romania;
- c) The product to be brand spokesman CE / CS or other internationally recognized brands;
- d) The manufacturer has obtained an award of excellence within the program "Romanian Award for Quality - JM Juran" or "European Quality Award" or similar.

Quality analysis of fruit-growing production

□ Case study □

Fruit consumption in our country registered a fluctuating trend, even with a certain downward trend. The causes were many, but we could refer mainly to the following: a precarious situation of the technique and technology fruit growing, the financial difficulties they have gone through and still go farms from agriculture, including fruit growing, the negative effects of action the restructuring promoted by now. And to ensure normal physiological requirements of rations, it is necessary that not only increase fruit production per capita, but take place also changes in structure of fruit plantations by species. Apple orchard, for example, ranks second in fruit growing bearing species composition after the plum, with an average area of about 72,000 hectares. Fruit production per capita was influenced by the decrease of total fruit production and yield average per hectare.

Fruit production efficiency

Expansion and even generalization of modern technologies intensive and super intensive culture of trees, including apple, zoning and micro-zoning actions are organically related to the use of energy resources and hydric of the climate and microclimate, the potentiation of pedological and biological resources and efficient use of resources energy materials and economic resources that require concentration and specialization of fruit growing production.

In apple case, we can say, for example, that it is grown mainly in southern Subcarpathian area, and northwest of the country. Diversifying and increasing the assortment of apple fruit quality have always been a major goal, reflected in the official list of varieties permitted to be multiply. Predominantly apple assortment in our country consists of 80% of winter varieties, 10-15% of autumn varieties and only 5-10% of summer varieties. In the surface of fruit plantations, it occupies the important place, autochthonous varieties adapted to diverse climatic conditions, appreciated by growers

and consumers. But lately, were focused concerns for disease resistant apple varieties, yields that began to influence consumer market.

When the plantation of fruit tree has reached full period of fruitfulness, between culture systems, in terms of production per hectare, no great discrepancies occurs. Instead, significant differences appear in the fact that full economic fruitfulness comes from extensive system after 13-14 years after planting, at intensive system after 7-8 years, and the super intensive – after 2-3 years. But large differences occur on fruit quality. As for example, 50% of fruits in extensive system falls into the category Extra, 35% in First Class and 15% in Second Class. In the case of intensive system, 70% are Extra fruit category, 25% in First Class and 5% in Second Class, while in the superintensive system , the quality represents 80% of total production, 15% First Class and Second Class – only 5%.<sup>53</sup>)

It is necessary to mention that after our calculations; nearly half of the country production is concentrated in Arges, Bihor Bistrita-Nasaud, Cluj, Dâmbovița, Iasi, Maramures, Mures and Suceava, each of those counties with a contribution of over 30000 tons.

There are significant differences between apple culture systems not only in terms of yield per hectare, but also on economic efficiency, reflected in particular by the level of income, spending, size of profit and rate of return.

For example, depending on the yield per hectare, we determined the profitability of a hectare planted with apple trees. If we refer to a yield of 20 t / ha, increasing production to 25 t / ha (with 25%) and 30 t / ha (with 50%) involving a financial effort resulted in the production costs by 7.4% respectively, with 16.9% higher. So, the effort growths together with the increasing rate of intensification for apples per unit area.

Comparatively, the effect level, resulted in incomes size at the same unit area, but grew with 25% and respectively with 50%, values much higher than the costs, which means that the activity is profitable, and the effort is financially justified. In fact, a final confirmation of efficiency is illustrated by profitability indicators: profit and rate of return. (Table 1)

Table 1

**Apple production efficiency capitalized at harvest,  
based on average production per hectare**

Nr. crt.	Specification	20t/ha	25t/ha	30t/ha
1.	Production costs	654	702,2	764,4
1.1.	Exploitation costs	611,8	660	722,2
1.2.	Amortization	42,2	42,2	42,2
2.	Incomes	784	980	1176
3.	Gross profit	130	277,8	411,6
4.	Consumed resources profitability rate (%)	19,9	39,6	53,8
5.	Commercial rate of return (%)	16,6	28,3	35,0

*Source: data from the firm*

<sup>53</sup> In Romania, according to Law of fruit growing, extensive systems are characterized by trees with great force and globular crown with 150-200 trees / ha; plantation economic period is greater. Intensive system is characterized by small and medium vigor trees with 600-1200 trees / ha, and fruit quality is superior in comparison with the first culture system. In the super intensive system, we can say that it is characterized by low vigor trees with flat crown and a very high density with up to 2500 trees / ha; fruit quality is very good.

Mass profit increases According to size of yield per hectare. Comparing to an apple production of 20 tons per hectare profit increased by 113.7% when the yield reaches 25 tons and with 216.6% at a yield of 30t.

The most significant indicator of economic efficiency is the rate of return size (consumed resources profitability rate) that have variations from 19.9% at a production of 20 t / ha to 53.8%, for a yield of 30 t/ha. The same situation is found in the case of determining commercial rate of return (profit carried forward to the incomes collected), which varies between 16.6% and 35.0%.

The calculations presented are hypothetical; they do not reflect the realities of our fruit growing in terms of efficiency. Rate levels of return can be achieved only in an accidental way, because market prices will adjust the size of the fruit and therefore of the incomes, including prices for fruit growing imports. That is why we believe that a rate of return of between 10-15% provides significant funding to build, to be used in the modernization of fruit growing, in its many aspects, from production to commercialization fruit growing production and fruit. Of course, the fruit production can be profitable only if they are organized in farms which tend to an optimal size about 20 ha.

Such size is the result of processes of concentration and specialization of fruit growing production, called optimal size economically. But this size could exist only under conditions of stable prices and optimal structure of production factors, which is difficult to achieve the fruit growing domain. As a result, "political structures" increase territorial farm size, but this does not necessarily mean lower costs.

Economic size of a farm is given by the optimal combination of inputs for each product and the optimal level of production costs, which allows for obtaining maximum profit possible. Increased production on intensive way, increases the average cost and marginal cost or profit rises to a certain level which defines the territorial dimension of economic optimum for a given production structure.

Fruit-growing production quality influence on a number of economic and financial indicators

Excessive territorial dispersion of the fruit crops creates difficulties in production, problems that are compounded by deficiencies manifested in the commercial network, characterized, also, by excessive fragmentation generated and by overly high number of intermediaries that appear on production – capitalizing flow. The existence of such intermediaries, through direct purchases from producers of modest amounts of fruit, they assume, due to unorganized producers, large gains, unaccounted, thereby increasing dimensions "underground market".

Increased demand for fruit market is spurred by specific mechanisms that stimulate production of new varieties of fruit with high quality for consumption and especially suitable for handling, storage, transport, processing etc.

Fruit production quality problem concerns not only export but also other economic purpose of the process of recovery. This is because the quality is an intrinsic attribute of any economic good, which expresses the content of its social utility, essential aspect of product policy, but also the price.

So quality is expressed not through a single feature, but through a set of characteristics, it having a dynamic character, and is manifested only in relation to requirements.

Consequently, the notion of quality can be assigned adjective "weak", "good" or "excellent". In fruit production, for example, these expressions are synonymous with "the second quality", "first quality" and "extra quality".

In food production, product quality has certain particularities related of their specificity, like: unstable and alterable character, their action on health, the pleasure of eating them, due to, organoleptic qualities. If a product is of superior quality, this implies a higher selling price for the product concerned, motivated by the fact that it requires production costs and higher conversion.

Value to the agro-food products affects the quality of economic and financial indicators significant in any economic agent activity in the agro-food domain, such as the selling price of the product directly, and profit and rate of return, indirectly.

In the case of the average selling price per unit can be used factorial model:

$$\bar{p} = \frac{\sum s_k \times p_k}{100}, \quad (1)$$

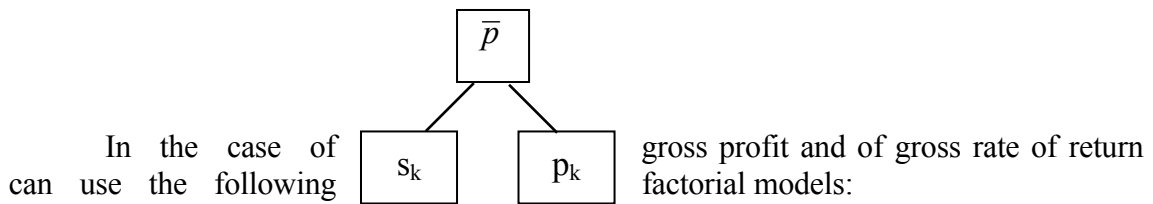
Where:

$\bar{p}$  – Represents the average selling price;

$s_k$  – Class structure of production quality;

$p_k$  – Sales price by classes of quality, per product unit.

Such a model is attached a scheme influences factors having this form:

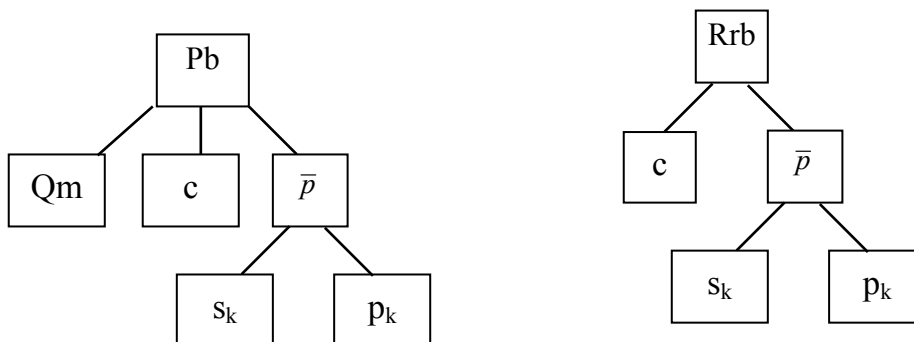


$$Pb = Qm \times (\bar{p} - c) = Qm \times \left( \frac{\sum s_k \times p_k}{100} - c \right), \quad (2)$$

and

$$Rrb = \frac{\bar{p} - c}{c} \times 100 = \frac{\frac{\sum s_k \times p_k}{100} - c}{c} \times 100, \quad (3)$$

Having the appropriate factorial schemes,



Where:

Pb is the total gross profit for the production;

Rb – gross rate of return;

Qm – total physical production;

c – the cost per unit of product.

Illustrating this influences we have also made it in the case of a fruit growing farm specialized in growing apples of the Jonathan variety, for a plantation of 20 ha. Getting class quality products and capitalization of them in two consecutive years are illustrated through a system of indicators presented in Table 2.

Table 2

**Valorisation for the production of apple fruit growing, for a company with an area of 20 ha, per quality class, in two consecutive years**

Nr. crt.	Quality classes	Year N-1 (25 t/ha)				Year N (30 t/ha)			
		Qm (tones)	s <sub>k</sub> (%)	p <sub>k</sub> (lei/kg)	ce	Qm (tone)	s <sub>k</sub> (%)	p <sub>k</sub> (lei/kg)	ce
1.	Extra	350	70,00	2,45	1,000	432	72,00	2,48	1,000
2.	First quality	125	25,00	2,05	0,837	132	22,00	2,12	0,855
3.	Second quality	25	5,00	1,84	0,751	36	6,00	1,88	0,758
4.	Total	500	100,00	2,3195	x	600	100,00	2,3648	x

Source: author calculation

The average cost per unit is: c<sub>N-1</sub> = 1,75 lei/kg; c<sub>N</sub> = 1,81 lei/kg.

Realising an analysis in terms of quality involves the calculation and interpretation of a system of indicators, such as: physical production structure per quality class and average coefficient physical production quality per product.

When referring to the first indicator, we can say that occurred, during the analyzed period, some changes: increased by 2% extra apple production, decreased by 3% first quality production, increased by 1% the second quality production. Such changes were reflected on the company's turnover.

Average quality coefficient we determined using one of the models factorial:

$$\bar{K} = \frac{\sum Q_m \times ce}{\sum Q_m} \quad \text{or} \quad \bar{K} = \frac{\sum s_k \times ce}{100} \quad (4)$$

where:

ce – is the coefficients of equivalence determined by comparing selling price per unit of product, per quality classes, at the price for the best quality.

This coefficient has subunit values, it's growth to value 1 representing an improvement of production quality structure.

In the example considered we conclude that:

$$\bar{K}_{N-1} = \frac{70 \times 1 + 25 \times 0,837 + 5 \times 0,751}{100} = 0,9468;$$

$$\bar{K}_N = \frac{72 \times 1 + 22 \times 0,855 + 6 \times 0,758}{100} = 0,9536.$$

Such a situation highlights the fact that the production quality of the company has improved since the average quality factor increased from 0.9468 to 0.9536, results determined both by the physical structure of production per quality classes and using equivalence coefficients (ce), coefficients that take into account the prices of products valorified on quality classes.

Improving product quality, in our case apple production, has effects on fundamental economic indicators, such as:

1. direct effects on the average selling price per product unit, after the relationship (1)
2. indirect effects on profits and rate of return on products after relations (2) and (3).

Determination of the factors action was performed using the information presented in Tables 2 and 3.

**Table 3**

**Estimated return on fruit growing farm in two consecutive years**

– lei –

Indicators	Year N-1	Year N
Turnover	1.159.750	1.418.880
Turnover expenses	875.000	1.086.000
Gross profit	284.750	332.880
Rate of return (%)	32,55	30,66

*Source: author calculation*

**In the case of the average selling price**

$$\Delta \bar{p} = \bar{p}_N - \bar{p}_{N-1} = 0,0453 \text{ lei / kg ,}$$

of which:

1. due to the influence of structure per quality of production ( $s_k$ )

$$\Delta \bar{p}(s_k) = \frac{\sum s_{k_N} \times p_{k_{N-1}}}{100} - \frac{\sum s_{k_{N-1}} \times p_{k_{N-1}}}{100} = 0,0059 \text{ lei / kg ;}$$

2. under the influence sales price by classes of quality, per product unit ( $p_k$ ).

$$\Delta \bar{p}(p_k) = \frac{\sum s_{k_N} \times p_{k_N}}{100} - \frac{\sum s_{k_N} \times p_{k_{N-1}}}{100} = 0,0394 \text{ lei / kg .}$$

### In the case of gross profit

$$\Delta Pb = Pb_N - Pb_{N-1} = 48130 \text{ lei},$$

which:

1. as a result of influence of the total physical output (Qm).

$$\Delta Pb(Qm) = (Qm_N - Qm_{N-1}) \times (\bar{p}_{N-1} - c_{N-1}) = 56950 \text{ lei};$$

2. under the influence of cost per unit (c).

$$\Delta Pb(c) = Qm_N \times (-c_N + c_{N-1}) = -36000 \text{ lei};$$

3. under the influence of average selling price per unit.

$$\Delta Pb(\bar{p}) = Qm_N \times (\bar{p}_N - \bar{p}_{N-1}) = 27180 \text{ lei},$$

which:

3.1. as a result of influence of graded structure of production.

$$\Delta Pb(s_k) = Qm_N \times \left( \frac{\sum s_{k_N} \times p_{k_{N-1}}}{100} - \bar{p}_{N-1} \right) = 3540 \text{ lei};$$

3.2. as a result of influence per quality class prices, per unit (pk).

$$\Delta Pb(p_k) = Qm_N \times \left( \bar{p}_N - \frac{\sum s_{k_N} \times p_{k_{N-1}}}{100} \right) = 23640 \text{ lei},$$

### In the case of the rate of return

$$\Delta Rrb = Rrb_N - Rrb_{N-1} = -1,89\%,$$

which:

1. as a result of influence cost per unit of product.

$$\Delta Rrb(c) = \frac{\bar{p}_{N-1} - c_N}{c_N} \times 100 - Rrb_{N-1} = -4,4\%;$$

2. under the influence of average selling price per unit ( $\bar{p}$ ).

$$\Delta Rrb(\bar{p}) = Rrb_N - \frac{\bar{p}_{N-1} - c_N}{c_N} \times 100 = 2,51\%,$$

which:

2.1. as a result of structure influence on production quality.

$$\Delta Rrb(s_k) = \frac{\frac{\sum s_{k_N} \times p_{k_{N-1}}}{100} - c_N}{c_N} \times 100 - \frac{\bar{p}_{N-1} - c_N}{c_N} \times 100 = 0,33\%;$$

2.2. as a result of influence per quality class prices, per unit

$$\Delta Rrb(p_k) = \frac{\bar{p}_N - c_N}{c_N} \times 100 - \frac{\frac{\sum s_{k_N} \times p_{k_{N-1}}}{100} - c_N}{c_N} \times 100 = 2,17\%;$$

Table 4

**Variation of economical and financial indicators  
determined by the influence of factors**

Indicators	U.M.	Deviations (+, -)
1. The average selling price ( $\bar{p}$ )	lei/kg	0,0453
which:		
1.1. influence the production structure ( $s_k$ )	lei/kg	0,0059
1.2. influence selling prices on quality ( $p_k$ )	lei/kg	0,0394
2. Gross profit related to the turnover ( $P_b$ )	lei	48.130
which:		
2.1. influence the total physical output ( $Q_m$ )	lei	56.950
2.2. influence the unit cost ( $c$ )	lei	- 36.000
2.3. influence the average price ( $\bar{p}$ )	lei	27.180
which:		
2.3.1. influence the production structure ( $s_k$ )	lei	3540
2.3.2. influence selling prices on quality ( $p_k$ )	lei	23.640
3. Gross rate of return ( $R_{rb}$ )	%	- 1,89
which:		
3.1. influence of the cost ( $c$ )	%	- 4,4
3.2. influence the average price ( $\bar{p}$ )	%	2,51
which:		
3.2.1. influence the production structure ( $s_k$ )	%	0,33
3.2.2. influence selling prices on quality ( $p_k$ )	%	2,17

*Source: author calculation*

The average selling price of apple production increased to 0.0453 lei / kg in the analyzed period, increasing due to the structure influence per quality class of production (with a contribution of 0.0059 lei / kg) and therefore recovery price by quality classes per product unit (with a contribution of 0.0394 lei / kg).

There are two observations we can make, namely:

1. production quality influenced to a lesser extent the increase of selling price for apples;
2. prices per quality class had the decisive role in increasing the valorification average price.

Higher contribution of these prices at the increase of average price can be interpreted as a purely circumstantial case, caused by discrepancies that existed between supply and demand for such products, the demand is greater than supply, allowing the firm to capitalize their production into prices charged by it.

As regards gross profit related to the turnover in the two years analyzed, we can say that it was an increase of £ 48,130 compared to the previous year. Growth which has a positive influence on total gross result and of net result for the year, and the resulting efficiency indicators based on them.



From the factorial analysis, a series of characteristics such as:

1. Apple increased production volume sold by 20% resulted in increased of gross profit with 48,130 lei.
2. Increasing the production cost per product unit of 3.43% resulted in a decrease in mass of profit with 36,000 lei. The influence of change at apple production unit costs can be explained by component elements (material costs, wages, indirect costs per unit of product) and their specific factors (specific consumption of resources, the physical productivity of labor supply prices etc.). Increased costs could be interpreted as being justified only if the consumption of resources is reflected in improved product quality and increased selling prices, the effect (income) is greater than the effort made (increased costs).
3. In regards average selling price per product unit, we can say that they were higher than the previous period (year N-1) with 1.96%, the effect materialized in an increase in gross profit of 48,130 lei. Such a situation can be interpreted as being determined by own effort of fruit growing farm to improve product quality and by company action of external conditions, such as supply-demand ratio, exchange rate evolution, inflation etc.

If we refer to the consumed resources profitability rate, also called return on costs, it reflects the correlation between profit of the turnover and total costs for sales. In such normal conditions the rate should be between 10% -15%.

Our analysis shows that the return on resources used, under the conditions of apple production, has been significantly above the level considered normal. It is noted, however, a reduction from the previous period, of 1.89%, while the mass profit increased by 16.91%. Such a situation can be explained by profit growth and growth in turnover expenses. Profit growth was lower (16.91%) increased expenses (24.12%), which reduced the reduction rate of return.

From our findings, we can say that we are in a situation somehow contradictory, namely: fruit growing farm profit registered a substantial increase, while the rate of return decreases, so decreases the efficiency of consumed resources (material and human). The ideal solution is when the two indicators of profitability (profit and rate of return) are in an upward trend, which allows the achievement of financial accumulations able to contribute to improve the production quality.

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# ENHANCING COMPETITIVENESS IN AGRICULTURAL SECTOR

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## ABSTRACT

Improving the competitiveness of agricultural and food sector has long been one of the key issues in the EU. As early as 70, the objective of agricultural policy was to modernize farms, particularly with grants direct payments to farmers for the hardware investments. these subsidies have significantly increased production per unit operating in the sector agriculture. During the last decade, due the evolution of the international context of European agriculture and new policy directions of common agricultural policy, the concept of agricultural competitiveness has evolved.

***Keywords:** competitiveness, agriculture, UE, CAP, rural development*

## INTRODUCTION

The attempt improvement that seemed to be gaining ground during 2010 and the first half of 2011 has given way to renewed concerns. The global economy encounters a number of eloquent and interrelated challenges that could entangle a genuine upturn after an economic crisis half a decade long in much of the world, especially in the most advanced economies. The persisting financial difficulties in the periphery of the euro zone have led to a long-lasting and unresolved sovereign debt crisis that has now reached the boiling point. The potentiality of Greece and perhaps other countries leaving the euro is now an unequivocal prospect, with potentially devastating consequences for the region and beyond.

This enlargement is connected with the risk of a weak recovery in several other advanced economies outside of Europe – notably in the United States, where political gridlock on fiscal tightening could dampen the growth outlook. Likewise, given the foreseeable slowdown in economic growth in China, India, and other emerging markets, strengthened by a potential decline in global trade and volatile capital flows, it is not clear which regions can drive growth and employment creation in the short to medium term.

Policymakers are attempting to attain ways to cooperate and manage the current economic challenges while preparing their economies to perform well in an increasingly difficult and unpredictable global landscape. Amongst the short-term crisis management, it remains critical for countries to establish the fundamentals that underpin economic growth and development for the longer term.

The convolution of today's global economic environment has made it more important than ever to remark and reassure the qualitative as well as the quantitative aspects of growth, integrating such concepts as social and environmental sustainability to provide a fuller picture of what is needed and what works.

Policymakers around the world continue to concern about high unemployment and the social conditions in their countries. The political brinkmanship in the United States persists to disturb the perspective for the world's largest economy, while the sovereign debt crises and the danger of a banking system meltdown in peripheral euro zone countries remain unresolved. The high levels of public debt coupled with low growth, insufficient competitiveness, and political gridlock in some European countries stirred financial markets' concerns about sovereign default and the very viability of the euro.

Given the multiplicity and the exigency of the situation, European countries are facing particularly difficult economic management decisions with challenging political and social ramifications. Whereas European leaders do not agree on how to address the immediate challenges, there is recognition that, in the longer term, stabilizing the euro and putting Europe on a higher and more sustainable growth path will necessitate improvements to the competitiveness of the weaker member states.

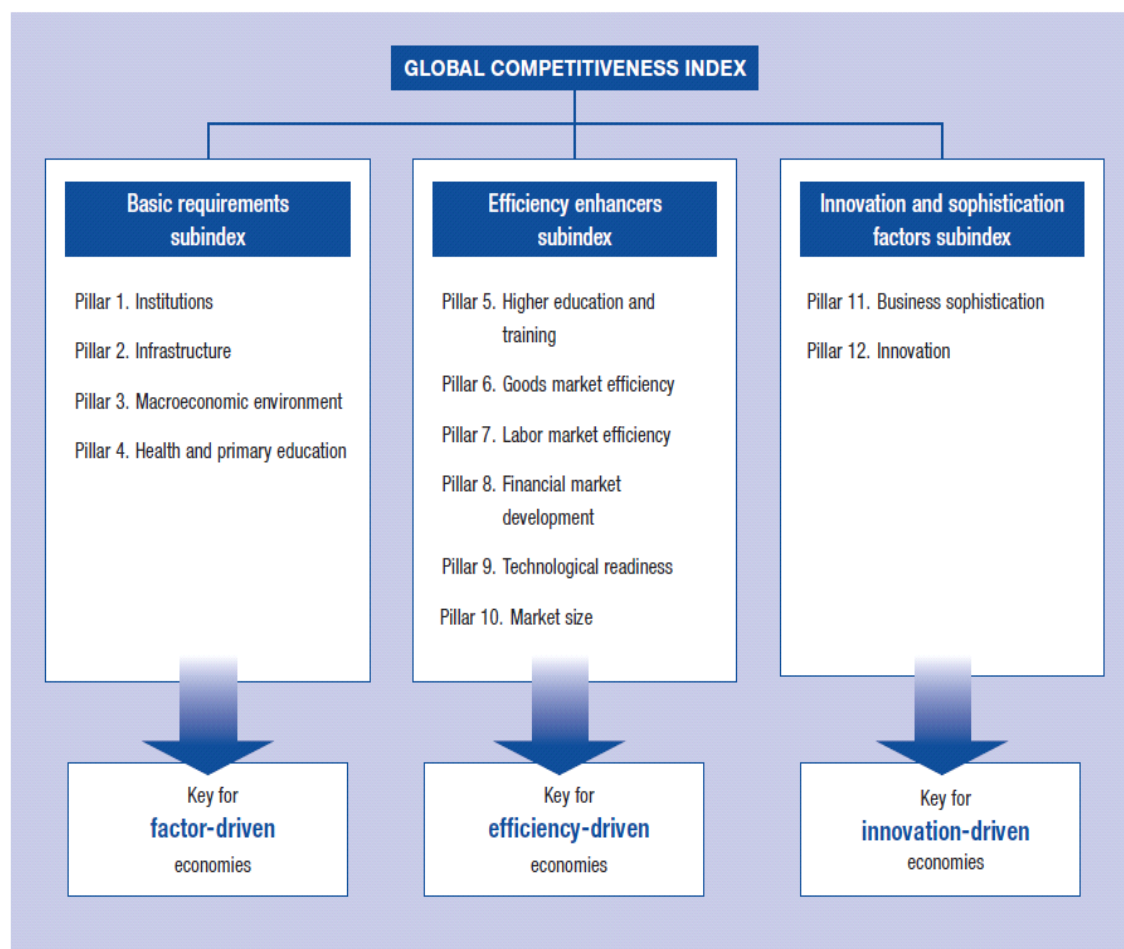
All these progresses are highly interrelated and demand timely, decisive, and coordinated action by policymakers. In light of these ambiguous global subdivisions, sustained structural reforms aimed at enhancing competitiveness will be necessary for countries to stabilize economic growth and ensure the rising prosperity of their populations going into the future.

Competitive economies drive productivity enhancements that support high incomes by ensuring that the mechanisms enabling solid economic performance are in place.

Competitiveness is defined as the set of institutions, policies, and factors that determine the level of productivity of a country. The level of productivity, in turn, sets the level of prosperity that can be earned by an economy. The productivity level also determines the rates of return obtained by investments in an economy, which in turn are the fundamental drivers of its growth rates. In other words, a more competitive economy is one that is likely to sustain growth.

The concept of competitiveness thus involves static and dynamic components. Although the productivity of a country determines its ability to sustain a high level of income, it is also one of the central determinants of its returns to investment, which is one of the key factors explaining an economy's growth potential.

Figure 1: The Global Competitiveness Index framework



Source: The Global Competitiveness Report, World Economic Forum

Many factors instigate productivity and competitiveness. Conceiving the determinants behind this mechanism has occupied the minds of economists for hundreds of years, instigating theories ranging from Adam Smith’s focus on specialization and the division of labor to neoclassical economists’ emphasis on investment in physical capital and infrastructure, and, more recently, to interest in other mechanisms such as education and training, technological progress, macroeconomic stability, good governance, firm sophistication, and market efficiency, among others.

Although all of these elements are likely to be important for competitiveness and growth, they are not jointly unique—two or more of them can be eloquent at the same time, and in fact that is what has been shown in the economic literature.

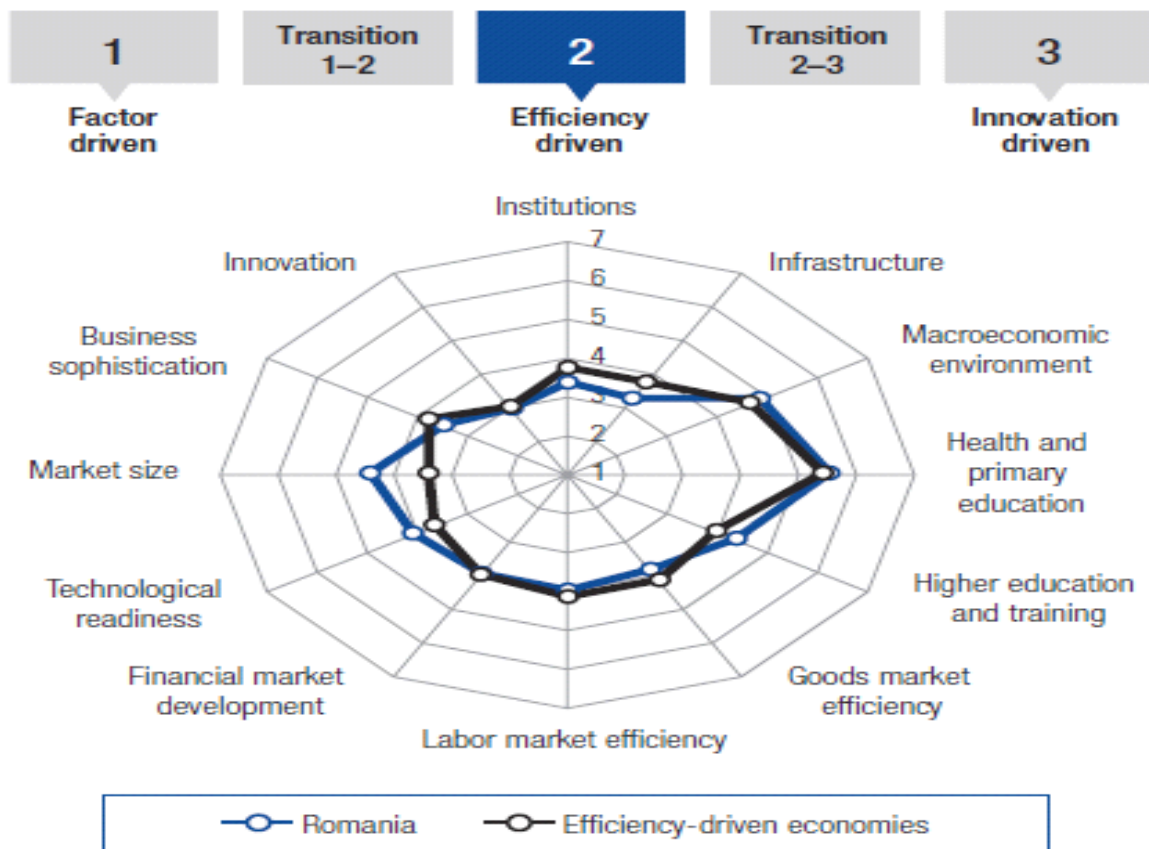
Furthermore, in terms of environmental sustainability, the existing economic model linked to a rising population has brought about increasing pressure on natural resources such as water, energy, and mineral resources, which are becoming scarcer in the face of rising demand. The undesirable environmental consequences of human activity, such as pollution, are leading to a less habitable world. The unpredictable consequences of climate change are also raising the costs of environmental management. Together, these alterations call into question the feasibility of an economic model that does not fully take them into account. As a result, social and

environmental sustainability have become increasingly significant components of, and complements to, economic performance. Consequently they need to be properly understood and measured in order to inform policies that will set and achieve the desired objectives, and to better track progress toward higher levels of sustainable prosperity.

The first relationship to analyze is the one between competitiveness and environmental sustainability, which comprises aspects such as pollution, resource scarcity, water availability, and the regulatory framework as far as it pertains to environmental policies and measures. A high-quality and well-managed natural environment is related to robust national competitiveness through multiple channels. It enables the efficient use of resources and ensures that future generations will be able to count on them to meet their own needs. A high-quality natural environment also supports a healthy workforce, circumventing the damaging effects on human capital (such as illness and diminished human capital productivity) that can be brought about by pollution and other forms of environmental degradation.

Finally, environmental degradation may directly reduce the productivity of sectors such as agriculture, which in turn can have negative implications both for the economy (especially for countries where GDP is heavily dependent on agriculture) and for matters of food security.

### Stage of development



Source: The Global Competitiveness Report, World Economic Forum

## 1. AGRICULTURAL COMPETITIVENESS

Agriculture and rural areas continue to be considered "vital issues" for the future of Europe. The continuation of this approach is consistent with the overall objective r Create an open economy sustainable to attract investment and employment in rural areas. Seen in this light, the ambitious program in matter of European Rural Development also contributes Headline Europe 2020 strategy for growth.

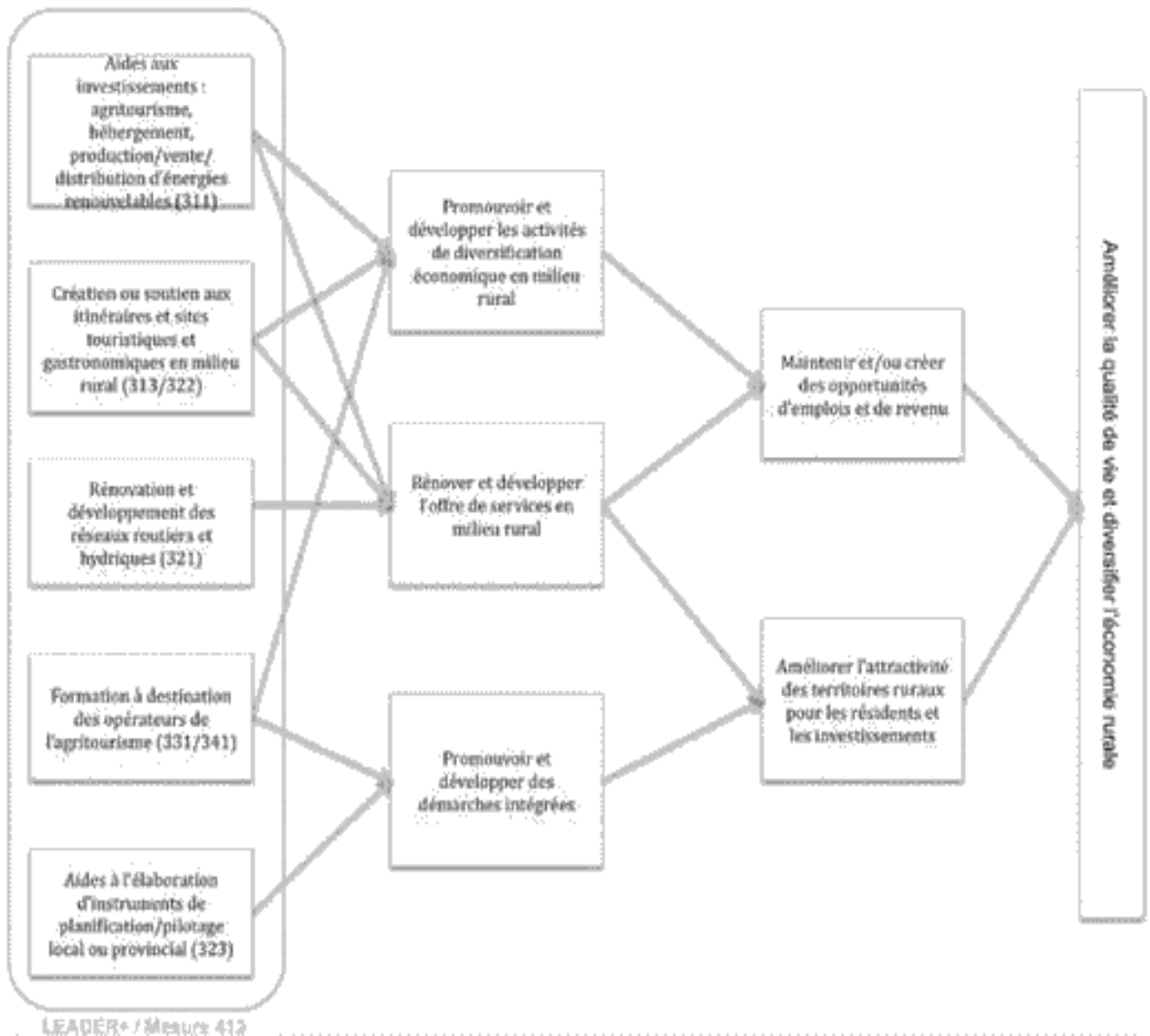
Agricultural, food and forestry sectors also offer considerable opportunities for 'green growth', a concern which the importance and significance are growing in all sectors. Regional and cohesion policy also plays a role in this area, the rural areas benefiting from additional EU funding initiatives that offer synergies in the field of the promotion of the market economy and of the economic competitiveness in rural areas of Europe.

In the wake of the health check of the common agricultural policy (Cap), the support of a smarter, greener and more inclusive rural development policy has benefited from the injection of new funds, these new funding sources began to play a role in support of the plans of rural development (RD) of the Member States.

The objective of improving the competitiveness of the agricultural and forestry sectors has been included in the Pro design and large sums from the funds allocated in the wake of the health check of the CAP have been invested in initiatives to improve competitiveness in the respect of the environment, namely, a more efficient management of energy and water a decrease in the risk of pollution and progress in the well-being of the animals, in addition to other measures aimed to increase efficiency and reduce waste.

Axis 1 of the development policy EU rural for 2007-2013 consists of fifteen measures to be financed by the Member States. Each country has selected the most appropriate measures for include in its development plan areas. Figure 1 shows the various measures and highlights are

Total incurred for measures by individual Member States EU level.



In accordance with the Lisbon strategy and the Europe 2020 strategy Council, which promote a knowledge-based economy, the EU needs of farmers and rural entrepreneurs better qualified in the double objective to ensure technical performance and to anticipate the market for greater guidance signals to the market, or to answer.

However, it is important that these improvements do not occur at the expense of the environment, but rather seeking to create synergies between competitiveness and sustainable development.

The rural areas of the Romania are distinguished from the rest of the EU by their large population of small farmers. As a result, the orientation of resources of axis 1 in the development of human capital to improve the competitiveness of agricultural, food and forestry, is a major challenge.

Romania is seen to be referred to as the land of contrasts and paradoxes. Not only about 30% of the Romanian national population is active in agriculture, or the largest proportion found throughout Member States of the EU and more than five times the EU-27 average (5.6%) and double that of Poland (15%), but the country also has a

fundamentally different agricultural structure of the other Member States. Its agricultural structure is very different from family farms of average size for which the agricultural policy of the EU is widely designed.

Rural development is still a relatively new concept for the Romania. Under the former Communist regime, rural areas were simply considered a reservoir of labour, cheap food and other resources to grow the urban economy. No attention was paid to the development needs of rural communities. On the contrary, rural communities were often impaired and weakened by the coercive process of agricultural collectivization.

The insufficient development of the counselling and training services is considered to be one of the main weaknesses of the agricultural sector in the Romanian national strategy 2007-2013 rural development plan.

Although it is agreed that emerging private consulting systems meet the needs of the largest operators who have the means to afford this Council, doubts had been expressed regarding the following points:

- the capacity of the National Agency for Agricultural Council (Agentia Nationala de Consultanta Agricola - ANCA), financed by public funds, to meet the needs of small farmers, including farmers in semi-subsistence with a potential of marketing increased;
- the limited and insufficient quality of professional training services and the need to focus especially on improving these services to meet the needs of training of young farmers and semi-subsistence farmers to create more market-oriented holdings, and that comply with European standards required.

## **CONCLUSIONS**

Among the priorities that Member States and the Commission could give:

- Create necessary incentives so that companies invest more in R & D;
- Encourage the filing of patents, for example by agreeing on the establishment of a Community patent to limit the cost of filing of a patent or by taking over part of it.
- Create an administrative and economic environment conducive to development companies European: this involves including to agree on the definition of an exchange rate policy to the Council of Ministers of the euro area economy, promote the development of venture capital and small business (for example through a Small Business Act European, guaranteeing SMEs access to public procurement and public research funds), and simplify administrative procedures for businesses;
- Investing in higher education (involving the private sector) and increase the number of students who have access to train a workforce qualified and suited to the needs of the European economy;
- The development of sectors with high added value, including helping them to form themselves into 'clusters', to find adequate funding and work with the universities and public research.

It is important that Member States themselves clearly on each of his subjects and engage the corresponding reforms. Accordingly, the European Union, rediscovering the virtues of modesty that makes the current state of play and turning ambition into action, can improve its competitiveness.



The Romanian RPD is full of good intentions in terms of use of the rural skills development to improve the competitiveness of the agricultural, food and forestry sectors. The realization of these good intentions however clearly exceeded the capacity of the competent authorities.

Many small farmers, often living in relatively isolated rural regions with inadequate infrastructure, are obviously not a group of recipients easy to target training and consultancy support. Many farmers may be reluctant to participate, unless they see clear and immediate benefits, and this requires training and board messages carefully formulated, which, in turn, requires also qualified and experienced consultants and trainers. The pursuit of investment in these capacity-building is crucial.

Longer term, Romanian subsistence and semi-subsistence farmers could also become essential players in the resolution of the problems in application of rural development in light of the CAP health check. Small farms could do step be if competitive in commercial food production, but they can be very effective to produce a range of desirable public goods, such as biodiversity, as well as broader socio-economic benefits.

About two thirds of the Romanian are occupied by hilly or mountainous regions and were grown for hundreds of years by peasants and pastoralists communities.

High nature value agricultural landscapes that result are of great beauty and a wild great richness and diversity of the point of view of the flora and fauna. These agricultural landscapes, by appropriate political support, could give a viable economic future and quality of modern life to local residents. Little intensive farming methods, quality food products, traditional crafts and rural tourism could be at the heart of sustainable rural development in most regions of the Romania. But encourage farmers to use sustainable natural resources that are available to them will continue to require, among other things, the introduction of new skills and competence through education, vocational training and targeted advice.

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# Financial stability analysis in processing agro-food products. Case study

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## **ABSTRACT**

In the knowledge of objective reality, an indispensable research method is analysis, through which it can not only research things and phenomena, but discovers their structures, is checked and established their causation, and factors that generate thinks and phenomena can take decisions for future activities. In all fields of science, the analysis plays a necessary means of knowledge as a research method.

Economic and financial analysis is aimed at assessing the firm's ability to generate monetary exedent, which ensures its financial stability and growth.

Financial balance can be defined as the company's capacity to ensure uninterrupted payment of debts previously contracted, including current liabilities generated by implementing business activities, or by taxes law sistem, or its revenues so that it can avoid bankruptcy . Maintaining financial stability is the essential condition of enterprise survival. Moreover, the balance evokes the idea of harmony between different elements of a system, which in finance means balancing resources and needs.

Financial stability analysis is performed using specific indicators, which are in a constant correlation of efficiency, as shown in our research with a case study on a processing food production firm.

**Keywords:** *gross profit, rates of return, breakeven point, operational risk rate, working capital, need for working capital, net cash, liquidity, solvency, scoring method.*

## **1. CASE STUDY: THE COMPANY LACTATE NATURA**

The company is organised as a stock company with whole private capital. The main activity of the company is processing and marketing of milk and milk products, bearing the mark "Natura", the largest milk processing factory in the Dâmbovița county, with a tradition of over 50 years.

In 2004-2009 the company has developed an extensive program for modernization of factory held in Targoviste, in which there were implemented three investment projects financed from European funds (SAPARD DEADER), worthing about 3 millions of euro, and investments made from the factory source, of about 600000 euros, which created a production capacity according to the EU requirements in food safety and which was approved in 2010 by ANSVA for products exchanges inside EU.

In this period, the processing capacity increased from 35,000 l per day to about 55 000 l per day. In this context, investments made in 2010 were aimed at providing the

necessary logistics for market development, raw material procurement and especially for marketplace development.

The products are distributed mainly in Romania southern counties and in Bucharest, the company facing competitors who have much broader distribution within the country, especially from Ardeal local area.

The main products offered by the company are, by category:

- milk;
- fresh dairy products;
- butter;
- cheese products.

The products are well recognized and appreciated by consumers, and the company has a good relationship with business partners. Short-term development goals are related to the development of the range of varieties.

The weights of the product groups in the total production achieved during 2007-2009 are presented in Table 1.

Tabel 1.

### Dynamic production structure at Lactate Natura SA

No.	Name	2007		2008		2009	
		- lei -	%	- lei -	%	- lei -	%
1	Drinking Milk	5,155,900	31.10	5.796,283	27.0	6.972951	25.00
2	Fresh dairy products	7,656,800	46.20	11.043.171	51.2	14739347	54.20
3	Butter	917,100	5.50	1,478,284	6.8	1,386,065	5.00
4	Cheese products	2,823,800	17.20	3,252,262	15.0	4,095,274	15.80
5	<b>Total</b>	<b>16553600</b>	<b>100</b>	<b>21570000</b>	<b>100</b>	<b>27193637</b>	<b>100</b>

*Source: data from the firm*

From the table above it can be shown that of all products made in the period 2007-2009, the largest share is held by fresh dairy products, followed by drinking milk, cheese products and butter.

## 2. RETURN ANALYSIS

To express profitability are used two categories of indicators: *profits* and *rates of return*. Absolute value is reflected in the profit return and the degree to which capital or enterprise resources generate profit is reflected in the rate of return (relative value of profitability indicator).

### 2.1. Analysis of gross profit (year result)

The outcome of the financial exercise had an oscillating trend registering the highest value in 2007 (110.8%) and decreasing drastically by the year 2010 (down to 3.85%) compared with 2005. The highest percentage of year result has financial result, 64.24% in the year 2010, although in previous years this share was owed by operating results. Operating result increased until 2007, then decreased greatly, in 2010 with a rate

of 1, 41% compared with 2005. This phenomenon is due to the increase in a slower rate of total income (158.64% ) than total expenditure (172.07%).

The financial result increased during 2005-2009 (1020%), but due to lower income from rents and increased financial expenses, it decreased by 81.1% in 2010 compared to 2009, although compared to 2005 it recorded an increase of 192.47%.

Table 2

**Financial results trend on SC "Lactate Natura" SA**

No.	Indicators	um	2005	2006	2007	2008	2009	2010
1	Result for the year, including:	thousands lei	1950	1991	2160	1541	766	75
		%	100	102	110,8	79,0	39,3	3,85
1.1	Operating result	thousands lei	1925	1941	2099	1412	511	27
		%	100	100,8	109	73,4	26,5	1,41
1.2	Financial result	thousands lei	25	50	61	129	255	48
		%	100	200,0	244,0	516,0	1020,0	192,0

Source: profit and loss account of the Company

**2. 2. Analysis of rates of return**

Relative profitability is achieved through a system of rates that characterize the company's capacity to provide, with available resources, the remuneration of invested capital. This system of rates is determined as the ratio between the economic and financial effects acquired and efforts to generate them.

Table 3

**Relative profitability trend at "Lactate Natura" SA**

No.	Indicators	2005	2006	2007	2008	2009	2010
1	Turnover (thousands lei)	22970	30039	35829	41041	42735	38242
2	Net profit (thousands lei)	1645	1761	1776	1255	604	25
3	Commercial rate of return (%)	7,17	5,87	4,96	3,06	1,42	0,07
4	Operating Result (thousands lei)	1271	2706	3751	3929	4439	1058
5	Operating Expenses (thousands lei)	21699	27333	32078	37112	38314	37184
6	Resource consumption rate (%)	5,86	9,90	11,70	10,59	11,59	2,85
7	Gross profit (thousands lei)	1950	1991	2160	1541	766	75
8	Total assets (thousands lei)	14799	17223	21075	22280	22693	20762
9	Economic rate of return (%)	13,18	11,56	10,25	6,92	3,38	0,37
10	Net profit (thousands lei)	1645	1761	1776	1255	604	25
11	Equity (thousands lei)	9886	11151	12711	13966	13981	14091
12	Return on equity (%)	16,64	15,80	13,98	8,99	4,32	0,18

Source: Data from company

**The commercial rate of return** characterizes the efficiency of *trade policy* (supply, storage, sale process) and especially *pricing policy* practiced by enterprise. It is observed a reduction of this indicator in 2010 compared to 2005 of 99.02%, a quite alarming situation, which requires the administrator to analyze the selling activity.

**The return on equity** is calculated by the lenders and is considered to be good if it has a higher value than market interest rate and by the associates who appreciate the efficiency with which the funds were estimated. In the analyzed period the rate was higher than market interest rate until 2008, then being under the interest rate, in 2010 being in a quite alarming situation of 0.18%.

**The economic rate of return** indicator serves comparisons between companies. As financial rate of return, it can be effectively compared with the interest rate for long-term loans contracted from financial market. *If the rate of return is higher, the company would be interested to borrow loans for growing the activity*, as the leveraged compensation will be covered by higher profitability. Economic rate of return in the period 2005-2009 had a downward trend, having in 2009 a value of 3.38%, which is below the interest rate. In this case the company is unable to borrow because will be impossible to pay its debts.

**Consumed resources profitability rate** is calculated by dividing an effect result indicator on resource consumption involved in obtaining it, expressing in this way the effort materialized in cost efficiency. *The optimal value of consumed resources profitability rate is seen between 9% and 15%*. In the analyzed period the amount of resources consumed exceeds the threshold rate of 9% between 2006-2009, which shows that the effort materialized in costs is efficient. The highest rate was recorded in 2007, of 11,7%. It can be seen that in the years 2005 and 2010 the rate did not reach the threshold of 9%, which indicates that in these years the effort materialized in costs was not efficient.

### 2. 3. Profitability analysis based on the critical point

Profitability analysis based on the critical point was made over a period of six years, 2005-2010. Therefore, we used the *value breakeven point method* because the company produces and sells a varied range of products.

The model of the value breakeven point is:

$$CA_{CR} = \frac{CF(absolute)}{Mcv\%},$$

Table 4

**Estimating Breakeven point for SC "Lactate Natura 'SA**

No.	Indicators	2005	2006	2007	2008	2009	2010
1	Fixed costs (CF, thousands lei)	1712	2224	2707	3150	3303	3108
2	Margin on variable costs (MCV %)	12.99	16.41	18.03	17.25	18.11	10.89
3	Critical turnover (thousands lei)	13179	13553	15014	18261	18239	28540

Source: Data calculated

During analysis, the breakeven point (critical turnover) had an upward trend due to increasing fixed costs faster than variable costs in turnover structure. In critical turnover, income is equal to expenditure and enterprise profit is zero.

**Risk of exploitation rate** in 2005-2010 had an oscillating trend, although both breakeven point and turnover had an increased trend. As it can be seen from Table 5, the smallest operational risk rate was in 2007, 41.92%, while the highest rate was recorded in the year 2010, reaching up to 74.60%. While *the operating risk rate increases, the risk is also higher*. In this case is desired a smaller risk rate, that wouldn't affect the business activity.

**Security index** in the period 2005-2010 showed an oscillating trend, ranging between 0.25 and 0.58. The value of 0.58 in 2007 indicates that in that year, the company had the lowest operating risk, compared with 2010, when the index value of 0.25 indicates a high operating risk. This index had a rapid decrease in one year, reducing its value even half, which shows that the company's security was very poor in the last 2 years.

**The absolute position (a)**, also named absolute flexibility, *highlights the company's capacity to adapt production to market requirements*. The company managed to have the highest value in 2009, when it has registered the lowest risk value. Anyway, the drop in 2010 of 60.37%, made difficult for the the company to adapt production to market requirements and growth the risk at greatly values.

**The Relative position indicator (a')** also named volatility coefficient, has *higher values when the risk is minimal*. It has the same valuable information as absolute flexibility has. As the absolute position, the lowest value of this indicator was registered in the year 2010, 34.05%, which means an increasing risk.

Table 5

**The evolution of operational risk rate at S.C."Lactate Natura" SA**

No.	Specification	2005	2006	2007	2008	2009	2010
1	Turnover (thousands lei)	22970	30039	35829	41041	42753	38242
2	Variable costs (thousands lei)	19987	25109	29371	33961	35011	34076
3	Fixed costs (thousands lei)	1712	2224	2707	3150	3303	3108
4	Margin on variable expenses in absolute amount (thousands lei)	2983	4931	6459	7079	7742	4166
5	Margin on variable costs (%)	12,99	16,41	18,03	17,25	18,11	10,89
6	Critical turnover (thousands lei)	13179	13553	15014	18261	18239	28540
7	Operating risk rate (%)	57,39	45,11	41,92	44,50	42,67	74,60
8	Security index (%)	0,43	0,55	0,58	0,56	0,57	0,25
9	Absolute position indicator (absolute flexibility) (thousands lei)	9789	16489	20809	22778	24512	9714
10	Relative position indicator (volatility coefficient) (%)	74,26	121,69	138,54	124,72	134,37	34,05
11	Time of the breakeven (days)	207	162	151	160	154	269

Source: Data calculated

#### 2.4. Analysis of the correlation between working capital, need for working capital and net cash

This analysis is based on concepts: *working capital, need for working capital and net cash*. As can be seen from Table 6, the net cash is positive (FRN > NFR), which means that bankruptcy risk is low. In terms of risk, the financial structure of the company is favorable, but it is possible that the cash balance reflects a certain fragility in medium and long term.

Table 6

#### Working capital, need for working capital and net cash at SC "Milk Nature 'SA

No.	Indicators	um	2005	2006	2007	2008	2009	2010
1	Net working capital	thousands lei	3257	4962	4970	6802	6485	6496
		%	100,00	152,35	152,59	208,85	199,11	199,44
2	Need for working capital	thousands lei	1177	1961	2920	3798	4458	3522
		%	100,00	166,66	248,15	322,79	378,87	299,35
3	Net cash	thousands lei	2080	3001	2050	3004	2027	2973
		%	100,00	144,26	98,54	144,40	97,44	142,93

Source: data processed from the company balance sheet

##### 2. 4. 1. Analysis of working capital

*Working capital* is the permanent resource that provides the finance for current assets. It can be said that financial balance is achieved when the company has sufficient working capital to ensure the need for working capital and a positive net cash.

Table 7

#### Elements of analysis of working capital SC "Lactate Natura 'SA

No.	Indicators	Um	2005	2006	2007	2008	2009	2010
1	Ongoing capital	thousands lei	9886	11151	12711	13966	13981	14091
		%	100,00	112,80	128,58	141,28	141,42	142,54
2	Assets	thousands lei	8973	9261	12000	11116	11492	10686
		%	100,00	103,21	133,74	123,88	128,07	119,09
3	Current assets	thousands lei	5806	7934	9055	11161	11200	10075
		%	100,00	136,65	155,95	192,22	192,89	173,52
4	Liabilities	thousands lei	2549	2973	4085	4359	4715	3579
		%	100,00	116,60	160,25	170,98	184,95	140,40
5	Net working capital	thousands lei	3257	4962	4970	6802	6485	6496
		%	100,00	152,35	152,59	208,85	199,11	199,44

Source: Company balance sheet

During analysis the working capital is positive and has an oscillating trend, increasing in 2005-2008, with 3.545 thousand lei (108.8%), due both to increase of current assets and debts. In 2009 compared to 2008, was a downturn to the working capital of 317 thousands lei, and in 2010 compared to 2009, we can see a sharp increase in working capital due to decreasing total debts faster than current assets.

**Working capital structure** includes: total working capital, net working capital, real working capital.

Table 8

The revolving fund structure at "Dairy Nature" SA

No.	Indicators	Um	2005	2006	2007	2008	2009	2010
1	Total working capital	thousands lei	5826	7963	9074	11164	11202	10076
		%	100,00	136,67	155,75	191,62	192,26	172,95
2	Net working capital	thousands lei	3257	4962	4970	6802	6485	6496
		%	100,00	152,35	152,59	208,85	199,11	199,44
3	Real working capital / permanent	thousands lei	913	1890	711	2850	2489	3405
		%	100,00	207,08	77,88	312,27	272,70	373,12

Source: data processed from the company balance sheet

**Total working capital** is positive and has had an upward trend until 2009, because of *total asset value increasing faster than fixed assets*, and an slow decrease in 2010, with 1125 thousands lei (10.05%), due to the assets decreasing.

In the analyzed period, **net working capital is positive** and has had an oscillating trend, increasing in 2005-2008, with 3,545 thousand (108.8%), due both to the increase of current assets and debts. In 2009 compared to 2008, was registered a downward of the working capital with 317 thousands lei, and in 2010 compared to 2009, we can see a sharp increase in working capital due to debt decrease, at a higher rate than current assets fall.

**Real working capital** is positive and has an oscillating trend, variations being caused by *increases in equity and fixed assets*. In 2007 real working capital showed a high down due to increasing more rapid of the fixed assets than the growth rate of equity, which negatively influenced the real working capital.

In this case, the value of the working capital shows the *short term default risk*, since current assets are higher than short-term debts and working capital is positive, *so there is no risk of insolvency in the analysed period*.

Net working capital analysis is performed generally through rate method.

**Working capital rate / security margin** of company in all years analyzed was between 49 and 61 days, which means that the rate is favorable for the company activity. Financing current assets rate by working capital in the period under review has values of 45%, which means that current assets are financed from working capital.

**Need for working capital coverage rate** shows the ongoing of the operating process and between 2005-2010 period it exceeded the threshold of 100%, although it had oscillating values. These variations were caused by the increase of need for working capital rate.



#### 2. 4. 2. Analysis of the need for working capital

Ties necessity of funding the production cycle are covered, mainly, from temporary sources (debt service). *The need for working capital is the part of current assets to be financed by current liabilities.*

Table 9

**Elements of analysis of need for working capital  
at SC "Lactate Natura" SA**

No.	Indicators	Um	2005	2006	2007	2008	2009	2010
1	Current assets	thousands lei	5806	7934	9055	11161	11200	10075
		%	100.00	136.65	155.95	192.22	192.89	173.52
2	Cash	thousands lei	2080	3001	2050	3004	2027	2973
		%	100.00	144.26	98.54	144.40	97.44	142.93
3	Assets	thousands lei	3726	4933	7005	8157	9173	7101
		%	100.00	132.41	188.01	218.92	246.18	190.59
4	Current liabilities	thousands lei	2540	2973	4085	4359	4715	3579
		%	100.00	116.60	160.25	170.98	184.95	140.40
5	Need for working capital	thousands lei	1177	1961	2920	3798	4458	3522
		%	100.00	166.66	248.15	322.79	378.87	299.35

Source: Company balance sheet

*Need for Working capital* had, between 2005-2009, an increasing trend, registering a growth with 3.281 thousands lei (278.87%), due to the fact that the growth rate of current assets was higher than the growth rate of debt. The decrease of current assets in 2010 also determined the drop of need for working capital of 79.52% compared to 2005.

*Time of working capital needs rotation* during the analyzed period was between 18 and 38 days, depending on the *increasing of the turnover and the need for working capital*. The increase of needs for working capital results in a net cash drop, which means that it has a negative effect also on the rate of financing, reducing also the level of this rate. This rate had an oscillating trend, depending on need for working capital and net cash.

#### 2. 4. 3. Analysis of net cash

*Net cash* is positive in the analyzed period, which means that working capital is sufficient to ensure not only the funding of current activity, but also to make investments, without affecting the continuity of company's activity. But a too high net cash also shows some managerial deficiencies, in correct placement of the cash, which should ensure profitability, optimum safety and liquidity.

## 2. 5. Liquidity and solvency analysis

**Current liquidity rate** during the analyzed period had an increased trend of over 1.5, an insurer level for company, highlighting the existence of a positive working capital and showing the *company's ability to meet short-term obligations*.

**Intermediate liquidity rate (rapid)** is great, exceeding the minimum threshold of 0.8 and growing up to 2010, amounting to 1.47, *therefore the company being able to meet payments due*.

**Shown liquidity rate** during the analyzed period had an oscillating trend, recording the lowest values in 2007 and 2009 (0.53 and 0.58), in those years it was registered a decrease of cash and an increase of short term financial investment. In the other years, the company had enough liquidity for ongoing the activity.

**The overall solvency rate** between 2005-2010 ranged between 4 and 5, the total debt of the company were very low and didn't compromise its financial situation. *The firm is solvent*, so it can easily take a credit.

**The economic solvency rate** has the value 1 in all 6 years analyzed; this means that the *company has resorted to loans to finance assets*; in this perspective is revealed a minimum financial risk (Table 10).

Table 10

### Liquidity and solvency analysis at SC "Lactate Natura "SA

- Thousand -

No.	Indicators	2005	2006	2007	2008	2009	2010
1	Current Assets	3726	4933	7005	8157	9173	7101
2	Current liabilities	2549	2973	4085	4359	4715	3579
3	<i>Current liquidity rate (general)</i>	<i>1,46</i>	<i>1,66</i>	<i>1,71</i>	<i>1,87</i>	<i>1,95</i>	<i>1,98</i>
4	Stocks	1596	1884	1957	2389	2456	1842
5	<i>Intermediate liquidity rate(rapid)</i>	<i>0,84</i>	<i>1,03</i>	<i>1,24</i>	<i>1,32</i>	<i>1,42</i>	<i>1,47</i>
6	Cash	2080	3001	2050	3004	2027	2973
7	Short-term financial investments	190	82	114	489	711	701
8	<i>Shown liquidity rate</i>	<i>0,89</i>	<i>1,04</i>	<i>0,53</i>	<i>0,80</i>	<i>0,58</i>	<i>1,03</i>
9	Total asset	14799	17223	21075	22280	22693	20762
10	Total debt	2549	2973	4085	4359	4715	3579
11	<i>Overall solvency rate</i>	<i>5,80</i>	<i>5,79</i>	<i>5,16</i>	<i>5,11</i>	<i>4,81</i>	<i>5,80</i>
12	Equity	9886	11151	12711	13966	13981	14091
13	Bank loans	0	0	0	0	0	0
14	<i>Economic solvency rate</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>

## 2. 6. Analysis of equilibrium financial rates

For synthetic expression of multiple correlations involved in the financial equilibrium are used a variety of indicators.

### 2. 6. 1. Analysis of financial balance by rates method

**Financial autonomy rate** in the analysed period has the value 1, which shows that the *company has financial autonomy and is financially stable, financing its activities only from own sources*.

**Working capital financing rate** is, in 2005-2010, more than 1.4, indicating that demand for working capital is fully secured by equity and net cash is positive.

**Current assets financing rate** had an oscillating trend, the largest recorded value was in 2010 level of 0.64. This rate shows the working capital percent that participate in the financing of current assets, observing that some of the fund is intended for them.

**Self-financing assets rate** in the period 2005-2010 showed a swing trend, with values between 60% and 68%, with a good level, which means that the equity volume covers over 60% of fixed assets and part of the current assets.

**Funding fixed assets from equity rate** in the period under review has seen a swing trend, but with values above 1, expressing the fact that the financing of fixed assets is fully made of its own capital and working capital increase is determined by the faster growth rate of capital than fixed assets growth (Table 11).

Table 11

**Analysis of financial balance SC "Milk Nature" SA**  
- Thousands lei -

No.	Indicators	2005	2006	2007	2008	2009	2010
1	Equity	9886	11151	12711	13966	13981	14091
2	Ongoing capital	9886	11151	12711	13966	13981	14091
3	Financial autonomy rate	1	1	1	1	1	1
4	Working capital	3257	4962	4970	6802	6485	6496
5	Stocks	1596	1884	1957	2389	2456	1842
6	Financing rate of stocks	2,04	2,63	2,54	2,85	2,64	3,53
7	Total asset	14799	17223	21075	22280	22693	20762
8	Self-financing assets rate	0,67	0,65	0,60	0,63	0,62	0,68
9	Total debt	2549	2973	4085	4359	4715	3579
10	Debt rate	0,17	0,17	0,19	0,20	0,21	0,17
11	Current assets	5806	7934	9055	11161	11200	10075
12	Funding rate of current assets from ongoing capital	0,56	0,63	0,55	0,61	0,58	0,64
13	Need for working capital	1177	1961	2920	3798	4458	3522
14	Rate financing working capital	2,77	2,53	1,70	1,79	1,45	1,84
15	Fixed assets	8973	9261	12000	11116	11492	10686
16	Financing fixed assets through equity rate	1,10	1,20	1,06	1,26	1,22	1,32
17	Financing fixed assets through ongoing capital rate	1,10	1,20	1,06	1,26	1,22	1,32

### 2.6.2 Analysis of financial balance by scoring method

**Statistical methods** are an improvement of empirical methods for determining bankruptcy risk. In terms of risk analysis, discriminate analysis is essential and was created by E. I. Altman.

**1. Altman model** was established after studying a sample of 66 companies, from which 33 recorded financial difficulties. Its construction started from a set of 22 rates.

$Z = 1,2X_1 + 1,4X_2 + 3,3X_3 + 0,6X_4 + 1,0X_5$ , where the variables  $X_1 \dots X_5$  are economic and financial indicators:

$$X_1 : \frac{\text{Fond de rulemnt net}}{\text{Total activ}};$$

$$X_2 : \frac{\text{Rezerve}}{\text{Total activ}};$$

$$X_3 : \frac{\text{Excedent brut de exploatare}}{\text{Total activ}};$$

$$X_4 : \frac{\text{Capitaluri proprii}}{\text{Datorii totale}};$$

$$X_5 : \frac{\text{Cifra de afaceri}}{\text{Total activ}}.$$

Table 12

Altman scoring function

Specification	Um	2005	2006	2007	2008	2009	2010
Net working capital	thousands lei	3257	4962	4970	6802	6485	6496
Total asset	thousands lei	14799	17223	21075	22280	22693	20762
X <sub>1</sub>		0.2201	0.2881	0.2358	0.3053	0.2858	0.3129
Reserves	thousands lei	2164	3290	4718	6463	7103	7698
Total asset	thousands lei	14799	17223	21075	22280	22693	20762
X <sub>2</sub>		0.1462	0.1910	0.2238	0.2901	0.3130	0.3708
Gross operating exedent	thousands lei	4626	6488	6141	5524	5055	4350
Total asset	thousands lei	14799	17223	21075	22280	22693	20762
X <sub>3</sub>		0.3126	0.3767	0.2914	0.2480	0.2227	0.2095
Equity	thousands lei	9886	11151	12711	13966	13981	14091
Total debt	thousands lei	2549	2973	4085	4359	4715	3579
X <sub>4</sub>		3.8776	3.7513	3.1114	3.2040	2.9651	3.9369
Turnover	thousands lei	22970	30039	35829	41041	42753	38242
Total asset	thousands lei	14799	17223	21075	22280	22693	20762
X <sub>5</sub>		1.5521	1.7441	1.7001	1.8421	1.8839	1.8419
Z		5.3791	5.8510	5.1250	5.3551	5.1791	5.7898

Altman model score function for the period, recorded values above 3, which shows that between 2005-2010 the financial situation of the company was very good. This function was influenced by economic indicators calculated to determine it. Thus,  $X_1$  represents the amount that the working capital finances total assets, its value increasing in the year 2010;  $X_2$  is a measure of internal financing capacity of the company, and this value increases over time, also increasing reserves at the expense of total assets;  $X_3$  is the efficiency of using assets, and in the analysed period has a descending trend;  $X_4$  is the indebtedness of the company and it has values between 2.9 and 3.9, pretty good value for the firm;  $X_5$  is an indicator of efficiency in using assets and total assets rotation in turnover exceeds 1.5, reaching the highest value in 2009.

**2. M. J. Conan and Holder model** uses several scoring functions in relation to the activity of the companies surveyed (industry sector, wholesale trade, transport). The scoring function is as follows:

$$Z = 0,24X_1 + 0,22X_2 + 0,16X_3 - 0,87X_4 - 0,10X_5, \text{ where:}$$

$$X_1 : \frac{\text{Excedent brut de exploatare}}{\text{Datorii totale}};$$

$$X_2 : \frac{\text{Capitaluri permanente}}{\text{Total activ}};$$

$$X_3 : \frac{\text{Creante + Datorii}}{\text{Total activ}};$$

$$X_4 : \frac{\text{Cheltuieli financiare}}{\text{Cifra de afaceri}};$$

$$X_5 : \frac{\text{Cheltuieli de personal}}{\text{Valoare adăugată}};$$

As the value of Z is lower, the company is more vulnerable. As in Altman model, *the score function is positive and has very large values, showing that the company situation is very good and bankruptcy risk is less than 10%*. In the analyzed period, the highest score function was in 2006, due to the high value of gross operating rate exedent and total debt, while the lowest value is registered in 2010, due to low values of X<sub>1</sub>, X<sub>2</sub> and X<sub>3</sub>.

Table 13

**Conan & Holder scoring function**

Specification	Um	2005	2006	2007	2008	2009	2010
Gross operating exedent	lei	4626	6488	6141	5524	5055	4350
Total debt	lei	2549	2973	4085	4359	4715	3579
X <sub>1</sub>		1,8147	2,1826	1,5032	1,2674	1,0720	1,2152
Ongoing capital	lei	9886	11151	12711	13966	13980	14091
Total asset	lei	14799	17223	21075	22280	22693	20762
X <sub>2</sub>		0,6680	0,6474	0,6032	0,6268	0,6161	0,6787
Claims + Debts	lei	4490	5940	9019	9638	10721	8138
Total asset	lei	14799	17223	21075	22280	22693	20762
X <sub>3</sub>		0,3034	0,3449	0,4280	0,4326	0,4726	0,3919
Financial expenses	lei	76	10	0,433	34	36	48
Turnover	lei	22970	30039	35829	41041	42753	38242
X <sub>4</sub>		0,0033	0,0003	0,00001	0,0008	0,0008	0,0013
Human resources expenses	lei	3005	3755	4750	5700	6163	5683
VA	lei	7847	10546	11293	11622	11617	10298
X <sub>5</sub>		0,3829	0,3560	0,4206	0,4905	0,5305	0,5518
Z		0,5899	0,6855	0,5199	0,4615	0,4146	0,4474

Source: data processed

**3. The Romanian Commercial Bank model uses indicators such as:**

- a) *Asset liquidity*
- b) *Solvency*
- c) *Financial return rate*
- d) *Rotation of current assets*
- e) *Dependence on supply and sales markets. Following situations occur in practice: : Ta>50% and Db>50%; Fa > 50% and Db>50%; Ta>50% and Db > 50%; Fa>50% and Db>50%*

- f) **Guarantees** which may consist of:
- a) deposits in domestic / foreign currency;
  - b) pledges, mortgages;
  - c) Goods purchased from loans; assignment of claims

Table 14

**Indicators to estimate the Romanian Commercial Bank model**

<b>Indicators</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Asset liquidity	1.6517	2.0356	1.7373	2.0124	1.8545	2.3000
Solvency	0.6680	0.6474	0.6032	0.6268	0.6161	0.6787
Financial return rate	0.1972	0.1786	0.1700	0.1104	0.0548	0.0053
Rotation of current assets	3.9561	3.7859	3.9568	3.6772	3.8173	3.7958
Ta > 50%	>50%	>50%	>50%	>50%	>50%	>50%
Db > 50%	>50%	>50%	>50%	>50%	>50%	>50%
Guarantees	Mortgages	Mortgages	Mortgages	Mortgages	Mortgages	Mortgages

**Liquidity asset** recorded values above 1.5 in all years of analysis and a swing trend, meaning that the growth rate of current assets was higher than the growth rate of current liabilities. **The solvency** shows how much from the total assets are financed by equity, and in all the years analysed exceed 60%, which demonstrates that the company is solvit.

**Financial profitability** shows the contribution of capital to achieve profits; over the last two years analysed, it registered a drastically decrease, because of the enterprise profit decrease. **Rotating current assets** shows the efficiency of production and commercial activities of the enterprise. It had a swing trend, ranging between 3.6 and 3.9, meaning that production and marketing activities weren't efficient. The company achieves raw materials from the domestic market, without realizing any import and export.

Table 15

**Maximum points and framing company within Romanian Commercial Bank model**

<b>Indicators</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Asset liquidity	4	4	4	4	4	4
Solvency	4	4	4	4	4	4
Financial return rate	4	4	4	4	3	3
Rotation of current assets	1	1	1	1	1	1
Ta > 50%, Db > 50%	2	2	2	2	2	2
Guarantees (mortgages)	3	3	3	3	3	3
<b>Total points</b>	<b>18</b>	<b>18</b>	<b>18</b>	<b>18</b>	<b>17</b>	<b>17</b>
<b>Category</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>

Based on the evaluation grid of Romanian Commercial Bank we gave notes to each indicator involved in business valuation, according to the value obtained in each year. In the period under review the company falls into B category of BCR grid, meaning that the firm situation is good, and it shall be granted for credits.

### **3. CONCLUSIONS AND PROPOSALS**

In recent years, SC "Lactate Natura" has followed a big process of modernization through significant investments in production technologies, in order to align to EU rules and to compete on foreign markets, but large enough financial resources were consumed, which were felt on other parts of its activities.

#### **Proposals include:**

- ✓ increase the profitability, so that it can be divided among the shareholders, the employees, and the sources of funding;
- ✓ better focus on marketing activities;
- ✓ use of unused production capacity;
- ✓ reduce all costs, especially the operating ones and increase the operating activities efficiency;
- ✓ entering new markets, especially the EU, to increase profit;
- ✓ accelerating earnings, slowing payments and seeking short-term loans to counter difficulties in terms of liquidity.

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# Rural Tourism Development Strategy for the Mehedinți County

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## ABSTRACT:

Mehedinti county has numerous and valuable tourism resources both natural and anthropogenic, and a long tradition in the ethnography, arguments for the inclusion of tourism among the main branches of the economy. The tourism industry developed on the background of exceptional natural resources, is a great chance of the county which has untapped opportunities, but may be the only chance of economic market conditions.

## Keywords:

*Rural tourism, sustainable development, touristic offer, touristic infrastructure*

## INTRODUCTION

South West Region of Romania comprises five counties: Olt, Valcea, Mehedinti and Gorj, with an area of 29,212 square kilometers. It is bordered by Bulgaria, Serbia and South-Muntenia and the West Region.

Mehedinti county's tourism potential is dominated by landscape formed by the Danube River and its gorge, the diversity of the mountainous terrain, the existence of particular elements of flora and fauna, many of which are written in scientific reserves, plus an impressive testimony millennia past, expressed through a series of historical, architectural and art, some unique, valuable and their specificity.

Very interesting sights of this county are landscapes of Mehedinti' mountains chain, Cazanele Dunarii, Hydropower and Navigation Systems Portile de Fier I and II archaeological remains, historical monuments (churches and monasteries), nature reserves, grouped by location.

South West Region has a relatively well developed transport infrastructure, the region is crossed by three European roads: E70, E79 and E81, and two of the three pan-European corridors crossing Romania, Corridor IV - Berlin / Nuremberg-Prague-Budapest -Constanta-Istanbul-Salonic and corridor VII- Danube.

The main environmental issues affecting Mehedinti County refers to soil quality due to erosion and desertification, landslide danger exists, and air quality due to mining and chemical agents. Poor conditions of the wastewater collection network generates a high level of pollution of river courses and the insufficient number of garbage have a negative influence on the environment.



## MATERIALS AND METHODS

In 2004, the South West region had a population of 2,317,636 inhabitants (10.69% of total population) with a density below the national average (79.3 inhabitants per km<sup>2</sup> compared to 90.9 inhabitants per km<sup>2</sup>). Rural-urban structure of the population is 52.8% vs. 47.2% (Romania – 45.1% vs. 54.9%), most rural counties are Olt (59.6%), Valcea (55%) and Gorj (53.3%).

Regarding Mehedinți according to provisional results of the census in October 2011, stable population was 254,600 people, of which 45.7% had resided in cities and towns, while the percentage was higher in common – 54.3% of the total resident population. Under this criterion the number of resident population, Mehedinți County ranks 39th in the ranking of counties in the country.

Workforce Southwest region is the factor that contributed most to the socio-economic development, which is motivated flexibilă, innovative and highly specialized, thus contributing to the development of a dynamic entrepreneurial environment.

Regarding labor, the share of employed population is reduced 36.6% at regional level and county-level, Valcea has the highest occupancy rate (39.1%), the lowest occurring in River (34.7%). The branches of the economy, employment is concentrated as follows: agriculture and forestry have high weight – 42.1%, Mehedinți County having a higher occupancy in these branches (48.4%).

Industry focuses lowest percentage of employed population (26.9%), while services have a higher share of 31%, this sector is more developed in Valcea and Dolj.

The number of unemployed has increased over time due to the liquidation of enterprises in the region, and the closing unprofitable mines, these changes have resulted in some economic and social disparities. Lack of urban jobs as people are led to rural areas, where practical, for maintenance, an inefficient agriculture, but also to other countries such as Serbia, Italy or Spain for unskilled labor.

Registered unemployment Mehedinți the end of January 2012 was 11,606 people (of which 6943 men and 4663 women) with 233 people increased from the previous month. Compared to January 2011 is a decrease of 1,794 people. After the training the 11,606 unemployed are grouped as follows:

- 525 people with higher education,
- With high school and post high 2746 people
- With primary, secondary or vocational 8,335 people.

Thus, the unemployment rate Mehedinți the end of January 2012 was 9.9% (11.3% in men and 8.4% in women), the highest unemployment rate in Romania.

Mehedinți county level, number of employees at the end of January 2012 was 40,714 people, up from 344 the previous month. Net average earnings of employees in Mehedinți in January 2012 was 1266 lei, down 201 lei / employee to that achieved in the country.

Real earning index, calculated as the ratio of the country's net nominal average earning index and consumer price index in January 2012 was 91.2% compared to December 2011 and 117.3% from October 1990, down 11.5 percentage points from a year earlier in late December 2011.

Growth followed a west-east direction, proximity to western markets by acting as a growth factor delivery. Economic growth has a significant geographical component, underdeveloped areas are concentrated in the Northeast, on the border with Moldova and the South, along the Danube. Underdevelopment appears to be largely correlated

with the prevalence of rural activities, the inability to attract foreign direct investment and a low rate of entrepreneurship.

Table No. 1: "The evolution of the main economic and financial indicators Mehedinti County"

– Percentage change –

Source: Years 2007-2011 – Statistical Yearbook

Years 2012-2014 – Estimates of National Commission for Prognosis, based on the data at the county level

<b>Indicators</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<b>Years</b>								
Real GDP growth	1,9	7,6	-8,9	-6,2	1,0	3,3	3,9	4,0
GDP / capita-Euro	3767	4282	3558	3532	3748	4150	4587	5061
Employed population by the end of year	1,3	-1,2	-4,2	-1,4	0,1	0,5	0,9	1,0
Average number of employees	2,1	0,8	-6,7	-4,1	0,1	0,4	0,2	0,2
Unemployment rate -%	8,1	9,3	14,1	9,8	9,7	9,4	9,0	8,8
Net average monthly earnings-lei / employee	1029	1261	1296	1319	1383	1431	1500	1563

Strategic program to develop tourism in the area consisting of the counties of Timis, Caraş-Severin and Mehedinti pursuing the following strategic objectives:

General objective

Promoting economic and social development in the area of the Romania - Serbia through strategic planning in tourism development to support sustainable development of the area.

Specific objectives

Development of regional tourism potential by promoting projects, partnerships and associative structures to strengthen cooperation between the main actors in tourism as a result of the strategic program.

Table no. 2: Development Strategy of tourism infrastructure in the area consisting of the counties of Timiș, Caraș-Severin and Mehedinți

Priorities	Intervention areas
Tourism infrastructure	<i>Rehabilitation and upgrading of access roads to tourist attractions with high potential.</i>
	<i>Completion and modernization of bookmark tourism sistem.</i>
	<i>Rehabilitation of landmarks</i>
	<i>Diversify tourism offer</i>
	<i>Development of rural tourism</i>
	<i>Promoting tourism border area</i>
	<i>Conservation of protected areas</i>
	<i>Thematic tourism development</i>
	<i>Rehabilitation and development of resort spas</i>
<i>Qualifications of tourism staff working</i>	

## RESULTS AND DISCUSSION

Analyzing economic and financial indicators for the period 2007-2011 shows that after 2008, there was a depopulation Mehedinți by lack of jobs both in urban and in rural areas. Thus, employees chose to migrate to larger cities that have greater labor absorption, but also to other neighboring countries. Since 2010 the situation began to fix the economy at the county level began to rise, employment modificându by 3 percentage points over the previous year.

Based on the data at the county level estimates were made of the main economic and financial indicators by 2014 reflects the following situation: GDP will grow continuously since 2010 with the repopulation of the county. This is due to favorable changes in the labor market, where the number of employees will increase the Mehedinti, reducing the number of unemployed also, all these phenomena are due and employment opportunities in tourism, in all its forms manifestation. Also in upward earnings will change and with a lower but steady.

Analyzing the South-West of the country and especially Mehedinți, the poor tourism development is due to factors such as relatively low population density in the area, infrastructure access (road and rail) to sights poor and underdeveloped, disinterest active population to develop tourist services, prices quite high existing tourism services, including ignoring the need to develop tourism by the communist regime. Also touristic offers and touristic products are competitive and the staff working in the tourism sector is under-qualified. Companies operating in the tourism sector are more interested in touristic destinations offer international and national law, thus directing customers to destinations outside the border area considered.

## CONCLUSIONS

The environmental issues of the area are:

- Insufficient capacity of wastewater treatment plants (70% required) and landfill (60% of needs);
- Constant air pollution, especially in cities and around industrial centers, with frequent exceedances of the maximum specific indicators for monitoring environmental factors
- Existence of many former industrial sites, completely unidentified, and for which there is currently a methodology for identification, remediation, ecological, and no strategy for their subsequent destination (their reintroduction into the economic circuit, turning them into green spaces, etc.)

Table no. 3: SWOT analysis of the county in terms of tourism potential

<b>Strengths</b>	<b>WEAKNESSES</b>
<p>High share of business travel and transit Local traditional market tour and transfer The county is crossed by European road Folklore and local traditions culinary, wine and wineries for wine tasting Bo vast cultural heritage: churches, monasteries, castles and monuments from antiquity to the present Lakes and watercourses can be arranged Parks and other protected areas with large areas The existence of surplus housing in rural households usable for tourism.</p>	<p>Lack of unified management of protected areas to allow tourism in this area. Spot pollution and pollution made by tourists Lack of points and tourist maps Lack of access roads to tourist attractions Lack of specialized human resources in the field Lack of promotion of rural tourism organizations Lack of garbage collection and use of river basin as a landfill satulu Offer tourist services is poor Progressive degradation of cultural heritage tourism</p>
<b>OPPORTUNITIES</b>	<b>THREATS</b>
<p>Opportunity to access grants of EU Structural Funds Existence of programs administered by the Ministry of Environment and Sustainable Development which may give tourism management and operation of protected areas Growing interest in cultural tourism The existence of funding programs for rural development by non-agricultural economic activities (crafts crafts, tourism, etc.). Regaining traditional tourist attraction centers for tourists local and neighboring countries Possibility of implementing relatively simple tourist circuit of hiking trails</p>	<p>Environmental protection measures to the detriment of tourism Delay privatization of tourism units The poor quality of the environment in some areas of attraction The lack of competitiveness of the tourism product offerings  Competitiveness of tourism products development in border areas Stagnation of rural tourism development in areas mono Low investment in tourism infrastructure Insufficient funds allocated for rehabilitation of transport infrastructure (especially road)</p>

<p>Reduce damage to agricultural and forestry roads created and spontaneous manner used by repair and maintenance as a result of practicing tourism</p> <p>Existence of educational programs to train and improve tourism workforce</p>	
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# Analysis of vitality of rural Romania

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## **ABSTRACT**

Rural Romania means individuals, living conditions, health care, education, citizens' safety, and almost 3000 communes and 13000 villages, 47,2% of the total population in rural areas, almost 45% of the total number of the families is in these areas, and, last, but not least, traditions. The public policy asks rural Romania to be clean, educated, trained, profitable, and diversified, but what is its vitality? This is the research question. The rural economy is seen as a good premise for Romania's economic development. The reasons for this approach are that the rural areas have almost half of the total population and, in the same time, rural economy should be diversified and might create real added value. The research used five aggregate indicators: living conditions, incomes and occupations, health, education, individual safety. Each of these indicators supported other different specific indicators' analysis and interpretation. The revealed results were used for a swot analysis and offered a real image upon rural areas, in comparison with urban centres. The two biggest drawbacks of Romanian rural areas are the lack of attractiveness for living environment and weak economic activity. The vitality of rural Romania is the start point of considering the further public policy for rural development from a sustainable perspective. If that will consider the identified weaknesses, the rural area will be able to achieve some of the objectives of the strategic growth in both economic and social levels.

**Keywords:** rural economy, vitality, quality of life, sustainable development, analysis

## **INTRODUCTION**

With a number of almost 3000 communes and 13000 villages, Romania has 47,2% of the total population in rural areas (Table 1). In the same time, almost 45% of the total number of the families is in these areas. This is the reason that we may consider rural Romania.

But rural Romania means more than just numbers. Rural Romania means individuals, living conditions, health care, education, citizens' safety and, last, but not least, traditions.

Traditions and mentalities make rural Romania what it is today. A place of paradox: luxurious villas constructed with money gain in agriculture and constructions in Western countries over the last decade, and streets with no sewerage or water supply; drivers with expensive limousines and no high-school diploma or university certification; huge number of persons involved in agriculture, and less profit from this occupation; the existence of both profitable and semi-subsistence farms. And the enumeration may continue.

Table 1. General characteristics of rural Romania

Indicator	Value
Number of communes	2861*
Number of villages	12965*
Rural population	8989000 (47,2% of total)
Number of households in rural areas	3.171.064 (44,7% of total families' number)
Occupied population in agriculture, forestry and fishing	2780000* (30,1%)
Average number of employees in agriculture, forestry and fishing	110000*
Monthly nominal average salary from agriculture, forestry and fishing	1047 lei/employee*
Agriculture's production in million lei current prices	64621 lei*
Number of agricultural exploitations	3856 000**
Utilised agricultural surface/ agricultural exploitation*	3,45 ha**
Work volume in annual work units	1608 000**
Producers' groups with accreditation on behalf of Ministry of Agriculture and Rural Development	107

Source: *România în cifre 2011; Provisional data from General Agricultural Census; \* at 1st of July 2010, according to România în cifre 2011; \*\* Provisional data from General Agricultural Census*

The rural development sector has the best absorption rate from all European funds, but the results still need to be revealed from all perspectives.

## THE LITERATURE REVIEW

The public policy asks rural Romania to be clean, educated, trained, profitable, and diversified, but what is its vitality? This is the research question.

The vitality is defined by Romanian Dictionary (1998) as “the feature of what is alive, life force, vital force, energy, power, dynamism”.

The rural space's vitality is a vast concept which indicates the rural area's potential of overcoming any possible problems, as the diminishing importance of agricultural production and operation of independent entities which survive without outside help (Koomen, E., 2011).

From another point of view, the rural vitality represents “the aggregate level of dynamism of the economic, environmental and social factors” (Wibberley, J. & Turner, M., 2010).

Therefore, we may define the rural vitality as the capacity of rural areas of generating development of rural economy.

## **THE RESEARCH METHODOLOGY**

The rural economy is seen as a good premise for Romania's economic development. The reasons for this approach are that the rural areas have almost half of the total population and, in the same time, rural economy should be diversified and might create real added value.

The research motivation is given by:

- the necessity of elaborating a pertinent analysis of the Romanian rural areas' vitality in order to identify the strengths and weaknesses that may corrected in order to rise quality of life and rural economy
- the pragmatic and new approach of this issue, throughout quality of life indicators quantification and analysis.

The research question is if the Romanian rural area may be the support for a real ad sustainable economic growth.

In order to reach the answer for this question, we aim at the following objectives:

- to identify the strengths and weaknesses of the rural areas' vitality
- to identify pertinent solutions for quality of life's improvement and, in the same time, the rural economy's development

The research used five aggregate indicators: living conditions, incomes and occupations, health, education, individual safety. Each of these indicators supported other different specific indicators' analysis and interpretation. The revealed results were used for a swot analysis and offered a real image upon rural areas, in comparison with urban centres and may constitute solutions to approach a new public policy for rural development in the next financial exercise 2014-2020.

## **ANALYSIS OF RURAL ROMANIA**

First of the five indicators that we analysed is "dwellings".

### **Incomes and occupation**

The total income/household is 2304,4 lei, 83,9% of which are money, 14,2% are self-consume, and 1,9% are allowances and social benefits.

The monthly nominal average gross salary from agriculture, forest and fishing is 1473 lei/employee/month.

The unemployment rate, 9,1% for urban areas and 5,8% for rural areas, is not a very relevant indicator for rural areas' vitality, as unemployment in agriculture is very difficult to be countered, taking into consideration the seasonal aspects of work, the lack of registered employment evidence etc.

### **Dwellings**

In Romanian, according to the last Romania General Census there are 8,5 million households.

Generally, in rural areas, the conventional dwellings have a bigger number of rooms, but they have a smaller average surface.

The number of the living rooms/dwelling is bigger in Ilfov, Giurgiu, Tulcea, Buzau, Calarasi, Ialomita counties, between 3,3 and 3,0 rooms/dwelling, and is smaller in Harghita, Vluj, Covasna, Hunedoara counties, and Bucuresti. This is a justified situation, as the first counties are in plain areas, and the last are in mountain or hills areas, or even in urban centres, like Bucharest.



Table 2. Living rooms and living rooms' area by locality type

	Total	Cities	Communes
Number of conventional dwellings	8.450.607	4.582.717	3.867.890
Number of living rooms	22.739.300	11.417.793	11.321.507
Living room area (thousands m.p.)	398.037	220.453,7	177.582,8
Average number of rooms per dwelling	2,7	2,5	2,9
Average size of living rooms (sqm) on:			
Dwelling	47,1	48,1	45,9
Living room	17,5	19,3	15,7

Source: Provisional data from General Census, 2011

The largest average surface of the living rooms is in Bucharest, Brasov, Satu Mare Ilfov, Sibiu, between 20,1 sqm/room and the smallest average surface is in Calarasi, Giurgiu and Teleorman, around 14 – 13 sqm/room. Obviously this is a reasonable situation, given the fact that the last counties have tradition in agriculture and the local population needed to have land in order to cultivate, and no construct upon.

### Health

There are 456 hospital units in Romania (Ministry of Health, 2011), but the majority are in urban centres, impossible to be reached by the rural inhabitants. The regional disparities in this issue of accessibility to health care units and services are huge, given the long distances from rural areas to urban centres, and lack of medical units in spaces where pour population is concentrated.

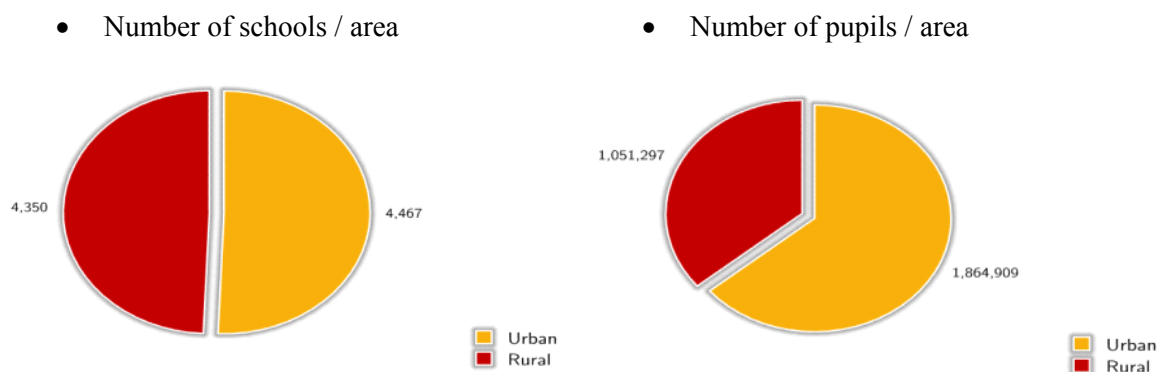
In the same time, the most disadvantaged regions are South, with 773 inhabitants/1 medic and South-East, with 655 inhabitants/1 medic. In rural areas there are 98 villages without any doctor and more than 1/3 part of Romania does not have doctors for all specialities.

### Education

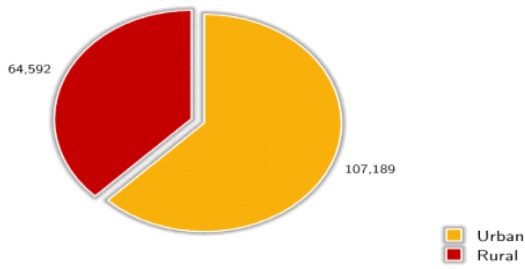
The number of schools in both rural and urban environments is balanced, but the number of pupils is almost twice bigger in urban areas, than in rural areas (Figure 1).

The important aspects are those regarding the lack of high quality education access to all rural pupils and children in general.

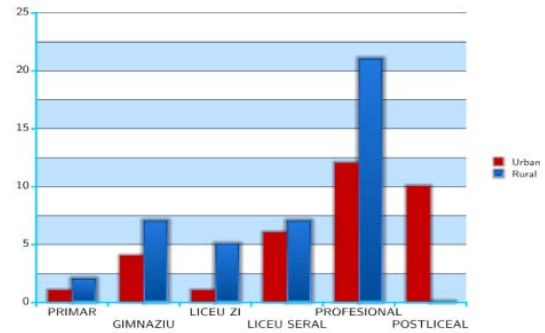
Figure 1. Education in rural and urban areas in comparison



- Number of qualified teachers / area



- The abandon rate / area



Source: *Raport asupra starii sistemului national de invatamant 2010*, (2010). Ministerul Educatiei, Cercetarii si Tineretului, Romania

Due to the lack of interest for education as profession and for rural areas as household's environment, the inhabitants from rural areas do not receive high educational services and seems not to have a chance for further personal, social and economic development.

### Personal safety

According to a Report of the Ministry of Interior in 2009, the number of the crimes rose in rural areas in 2009 with 39,6%, less than in urban areas. Moreover, the public cuts measurements in 2009-2010 stimulated the appearance of crimes and the criminals. Additionally, many of the criminals that were abroad in Western countries in the last decade, especially after 2007 when the population's movement towards EU was free, are coming back, and the police's prediction for future are even difficult for personal safety.

### A SWOT analysis of vitality of rural Romania's

According to data interpretation, we may consider to following SWOT analysis of the vitality of rural Romania.

Some of the relevant determinants of the current situation of vitality of rural Romania are given by number of population, the air quality, education and health services access, personal safety, incomes and jobs offer, interest for rural as living environment (Figure 2).

Figure 2. SWOT analysis of vitality of rural Romania's

Source: *Own processing*

### CONCLUSION

Rural Romania's quality of life has clear advantages, such as air quality, drinking water, housing density, but also clear disadvantages such as lack of occupational diversification, economic activity, infrastructure, income per capita, etc.

The two biggest drawbacks of Romanian rural areas are the lack of attractiveness for living environment and weak economic activity.

The vitality of rural Romania is the start point of considering the further public policy for rural development from a sustainable perspective. If that will consider the identified weaknesses, the rural area will be able to achieve some of the objectives of the strategic growth in both economic and social levels.

## AKNOWLEDGEMENTS

This work was cofinanced from the European Social Fund through Sectorial Operational Programme Human Resources Development 2007-2013, project number POSDRU89/1.5/S/59184 „Performance and excellence in postdoctoral research in Romanian economics science domain”.

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# **Financing the new concept of rural development applicable to Romania in 2014-2020 by the European Agricultural Fund for Rural Development**

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## **ABSTRACT**

The theme chosen for this work is of great interest for Romania, in the context of the new reform of the Common Agricultural Policy for the period 2014-2020. The manner how to design and apply the funding of programs for rural development in Romania could represent a chance that the Romanian economy to perform on the EU market. A new concept of rural development should be defined taking into account the needs to establish priorities more focused (better selective measures for young farmers, small farms, supporting agro-food sector competitiveness and quality of life of rural population Romanian).

***Keywords:** rural development, budget, actions, financing, opportunities, concept, objectives.*

## **INTRODUCTION**

### **IMPROVING MECHANISMS OF THE RURAL DEVELOPMENT PROGRAMMES IN THE EUROPEAN CONTEXT**

For the period 2014-2020 the European Commission proposed a reform process of the CAP for the two pillars, Pillar I - direct payments and market measures and Pillar II - Rural Development. The 3 main objectives of the CAP for 2014-2020 are: increasing the competitiveness of agriculture, environmental protection and balanced territorial development. To meet the objectives of the Europe 2020 Strategy Pillar II - Rural Development was established six new priorities of rural development: encouraging the transfer of expertise and innovation, increasing competitiveness, strengthening food production chains and risk management in agriculture, restoring, preserving and enhancing ecosystems, promoting the efficient use of resources and the transition to a low carbon economy and promoting social inclusion, poverty reduction and economic development in rural areas.

On a budget, there will be a change in the distribution of funds for rural development countries, on more objective criteria, to be subsequently determined by the Commission.

The EU co-financing rates will range between 50% and 85% and increase measures of knowledge transfer and innovation, cooperation, creation of producer groups, youth in agriculture and install LEADER projects. National allocation will be based on objective and past performance (allocation of 2013 set for RDP 2007-2013).

Also, the information provided by European officials estimated in terms of the forecast of European funds which could be accessed by Romania in the 2014-2020 budget year through rural development policy amounts to approximately 8.2 billion in community funding. This allocation is equal to that for the period 2007-2013. The main elements of the concept of rural development for 2014-2020 is based on combining measures programs and budgets that meet the specific needs of Member States.

Also, there will be one common strategic framework for all EU funds, to be developed by the EC. Thus, Romania will have a single strategy for all EU funds to reflect how they will be implemented thematic objectives of Europe 2020. Also European mechanisms have been improved and in terms of improving the quality of intervention tools to ensure EU funds and not simply quantity, currently measured by the absorption of EU funds. Thus, the prior approval of the programs will sign a partnership agreement between the European Commission and each Member States, including Romania. This agreement will cover Romania's priorities for thematic objectives of the Europe 2020 priorities related indicators in order to implement the Europe 2020 strategy for Romania and distribution of EU funds on selected thematic priorities.

Regarding the European Commission's proposal on rural development 2014-2020, the overall continuous current programming period instruments, but with fewer steps than at present, with other new measures (eg risk management tools to address economic risks, environmental and production), but with greater flexibility in the selection of measures for each priority, thus exploiting possible synergistic effects and eliminating the system of axes.

#### 1. News of the measures included in future rural development policy

Focus actions on information transfer and information tools and demonstration on practical aspects of agricultural activity. Supplementing farm management advisory services with consultancy activities in respect of cross-compliance conditions and greening for direct payments, organic farming, environmental and economic issues. As a new element, we can emphasize that there is no limit to the frequency of use of advisory services by farmers and are also supported training activities of consultants. In the new reform stated obligation for Member States to establish and implement advisory system for farmers. Regarding Romania is a big challenge and also an opportunity to make functional the Farmers Agricultural Chamber, which can benefit from European funding measure advisory services for farmers. Limitation of the support for setting up producer groups only to producer groups classified as SMEs. is difficult for Romania, especially to meet this requirement in view of national legislation currently applied for recognition of producer groups which do not require compliance with the SME category, ie a certain turnover and number of employees.

Support more substantial farms and business development by young farmers, development of non-agricultural activities in rural areas, developing small farms. The support maintain basic services and village renewal in rural areas, respectively technical infrastructure development (roads, water supply systems, sewage, gas, electricity, etc)

including infrastructure investment broadband, small-scale infrastructure, renewable energy, recreational infrastructure, tourism information, cultural and natural heritage.

It introduces a new measure, "cooperation" which are supported cooperation projects covering economic, social and environmental. The measure is intended to promote pilot projects, new technologies and production processes, promoting vertical chains between supply chain actors food and agriculture and to promote short supply chains and local shops food.

Risk management for crop insurance, animal and plant - is a measure compensation paid directly to farmers who have crop insurance contracts or animals, and cover economic losses caused by adverse climatic events, animal or plant disease or infestation parasite. As mentioned prerequisites destruction of more than 30% of the average annual production of the farmer, the crisis must be officially recognized by the competent authority.

Risk management by mutual funds for animal and plant diseases and environmental incidents - far consist of financial contributions to mutual funds for payment of financial compensation to farmers for economic losses caused by the emergence of animal or plant diseases or environmental incident.

Support covers: administrative costs for setting up the mutual fund (regressive support paid for a maximum period of 3 years); premiums paid by the mutual fund as compensation to farmers for loans and interest charged by the mutual fund in order to pay financial compensation in case of crisis.

Requirements:

- mutual fund must be approved by the competent authority of the Member State;
- mutual fund must follow a transparent policy regarding payments made to bet on bet on the fund and amounts withdrawn from it;
- mutual fund must provide for clear rules on the responsibilities of any registered debt.

Income stabilization tool – measure is financial contributions to mutual funds to compensate farmers who recorded a sharp drop in revenues. Support covers: the amounts paid by the mutual fund as compensation to farmers for loans and interest charged by the mutual fund in order to pay financial compensation in case of crisis, mutual fund payments to farmers cannot make up more than 70% of income lost. Loss of income must not exceed 30% of the average farmer's annual income (last 3 years average 3 years previous or the last 5 years proceeding except the highest and lowest).

LEADER – more consolidated approach which can cover all financing from EU funds allocation and is at least 5% of all allocation amounts from EAFRD new program. Advance can be granted operating expenses and animation (maximum 50% of the public aid for EAFRD). To note is that, in regard to Romania coordination with other funds to manage the Leader type measures may result in delays due to lack of experience of other authorities and difficulties in implementation for beneficiaries and institutions.

European Programme for Innovation in agricultural productivity and sustainability - to promote resource efficiency, building bridges between research and practice and generally encouraging innovation. Shares are held operational groups responsible for innovative projects and supporting them by the network. Operational groups are represented by farmers, researchers, advisors, business and other stakeholders together through innovation in agriculture. For Romania is a major challenge being a new field which require national legislation and organization and taking into account the difficult

situation in which the agricultural research sector faced in. In these situations, could be appreciated that this will be by far the most difficult implemented in the next programming period.

In conclusion, the new proposed reform for rural development for the period 2014-2020 has a more complex architecture, given compulsory coordination with the Structural Funds, but more flexible in the choice of measures by the Member State, which may be grouped into packages, to meet better the needs and priorities of rural develop the trainees chosen strategy.

Although the Commission launched the new CAP reform package in autumn 2011, the draft regulations are currently in the public debate and technical working groups in the Council and the European Parliament, which determines the timing regarding approval of basic regulations and the application to be a lag between the time the risk of approving the regulations establishing common strategic framework and specific EAFRD (including standards implementation) with consequences on completion of the programming process. This may cause delays in the filing and approval of rural development programs of the Member States. Consequently, Member States, including Romania will have very short deadlines for completing partnership contracts and programs. Period prescribed in the proposed regulation is that in 6 months after approval package Member States to submit to the Office programs, together with partnership contracts.

## 2. Designing new concept of rural development applicable to Romania in 2014-2020

Regarding the 2014-2020 RDP architecture propose an integrated approach objectives and key actions from the most important opportunities identified so far:

1. Romanian agriculture – remains a strategic sector in the economy;
2. Agriculture has an important social role – the balance in society;
3. High agricultural potential, but partially redeemed;
4. Potential non-agricultural rural insufficiently capitalized;
5. The potential to increase yields hydrological Romania vegetable sector;
6. Recovery rural areas with high natural potential;
7. Tourism potential of rural areas.

The new concept of rural development 2014-2020 applicable to Romania requires a much more integrated into the realities of rural needs.

The new concept of rural development should be based on three major and specific issues:

- Economic => increase the competitiveness of agriculture and forestry – continuation the actions during 2007-2013, but with a better prioritization of selected measures;
- Social => support small farms and actions combining the diversification activities and infrastructure investments as basic services for the rural population;
- Environment => support environmental services and public goods. Ensure the complementary of actions in the implementation of CAP support - by complementing measures financed by Pillar I and Pillar II.



**Agriculture and environment** – through actions of compensation to farmers for environmental services (agro-environmental packages, organic farming, LFA, Natura 2000) and combined with direct payments in Pillar I. The premises lead to the attractiveness of this approach less developed rural areas or high nature value, creating necessary conditions for the marketing of products "healthy" / "clean" (promoting local brands – e.g "Carpathian cheese"). Combining support farmers through direct payments and agro-environmental compensation payments are designed to ensure financial instruments continued agricultural activity and attenuation of abandonment of rural areas, especially mountain.

**Agriculture and tourism** – by supporting the investments in developing and promoting products of small farms in tourism structures, local shops. Premise of this approach leads to:

- Revenue growth of young farmers and small farms;
- Development and economic efficiency of small farms;
- Promote local products and maintaining local traditions, additional income from agri-tourism and crafts;
- The integration of these products into product offerings sought by consumers, marketing short chains (local shops and local markets);
- Simplify access by small farmers of simple projects with low value based on standard costs.

**Agriculture – vertical integration in the concept of "production-processing-marketing"**

The approach is suitable for commercial farms and associative forms. Premise of this approach leads to:

- Adding value to agricultural products;
- Easier access to credit and financial turnover ensured the implementation of all activities: agriculture, processing and marketing;
- Reduce production costs by recovering a significant portion of the profit made;
- Reduce the sales price by eliminating intermediation chain, double edge higher price for the seller and the buyer a lower price;
- Improved quality agro-food products and food diversification sought by consumers;
- Using long channel food sales (wholesale stores, direct sales);
- Diversification of economic activities (agriculture related services – production of packaging, opening their own local shops, transport services etc.).
- Introduction of investment in green energy used in production processes.

**Economic- social-environmental** – the cooperation measure, as a specific tool in order to promote joint economic, social and environment actions in the rural areas. The measure can be a solution for the development of cooperation projects aimed at economic, social and environment that promote:

- New products, best practices, processes and technologies required in agriculture or related fields;
- Pilot projects (e.g. local farmers market fruit growing basin Voinești);
- Cooperation projects between stakeholders involved in agro-food chains to promote short supply chains and local stores (e.g. network information, natural products catalog from Rucar-Bran area);

- Environmental cooperation projects (e.g. promoting farming practices that use natural fertilizers);
- Facilitating the purchase of inputs and technologies, facilitating access to local markets, shortness of agro-food chains;
- Measure has novelty and is significantly extended compared to existing measures of association so far.

**Socio-economic** – public projects promoting basic services and infrastructure of utilities in rural areas to increase the attractiveness of rural areas and create jobs.

**Forestry and the environment** – the development of forest areas and improve forest sustainability attractiveness of areas affected by natural constraints and reducing the effects of unfavorable climatic conditions through afforestation, establishment of agro-forestry systems and forest-environment.

## CONCLUSION

Rural development in Romania depends on various types of support available and the importance of developing programs is evident in this regard. They are designed to address rural development and planning, which involves striking a balance between conservation requirement rural economic, environmental and cultural capital in rural areas and modernization trend of rural life. Quality of life in rural areas continues to rise, as it provides a link between social and economic life, cultural amenities of culture, education, creative arts, health with the model and present reality in Europe.

System support for farmers is not based on clear objectives on the type of agriculture and mining to be developed in Romania in the future. Forms of exploitation duality forms conjugates with support farmers. Budgetary resource allocation priority for the large companies but also to small subsistence farms have not given the expected results so far. Sector is lack of a strong medium farms producing for the market. These can be family and / or associative. Although the association is stimulated by applicable law, payments per hectare mechanism contributed to the destruction of associative forms, owners are better stimulated by individual amounts received as grants, rather than following the results of the association.

Ensuring an optimal level of performance in the agricultural sector remains sustainable long-term solution for solving problems farmers' income. Given the factors in the development, influence each other: population, natural resources and environment, agricultural production, industrial production and pollution - to develop RDP 2014-2020 should consider addressing priority areas most suitable for optimization of the report of needs - resources and means necessary to achieve objectives based on mutual compatibility in time and space and applying a new concept of rural development.

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# Blue Ocean Strategy as instrument of underpinning entrepreneurial initiatives

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## ABSTRACT

Blue Ocean Strategy is a relatively new methodological approach, which provides a number of useful tools for making extensions in the market to the less competitive areas. This new concept is based mainly on the creation of new market niches, addressed to customers whose needs are not yet known or met by competitors, thus creating "blue" areas, characterized by high added value and lack of competition. Specifically, Blue Ocean Strategy facilitates the process of creating new markets through innovation and value and the transfer from known traditional areas in the market (called red oceans, due to fierce competition) into these new markets created.

In these circumstances, the strategic orientation of the agri-food economic agents to launch new products with high added value, for which demand is well defined may provide an incentive to facilitate entrepreneurial initiatives, especially in rural areas.

This study is structured in three parts. The first part has a theoretical and methodological character and presents the main elements of Blue Ocean Strategic Concept. The second part of the study makes a diagnosis on the wine market in Romania, and the last part presents the research conducted to implement the Blue Ocean Strategy on the wine chain as a tool for grounding and stimulating entrepreneurship.

**Keywords:** *entrepreneurial, wine, strategies.*

## 1. BLUE OCEAN STRATEGY – A NEW APPROACH TO MODERN MANAGEMENT AND MARKETING

The Conduction of efficient activities inside of organizations proved to be conditioned by the development of coherent strategies, their content often influencing decisive effectiveness of the supersistem interface which includes the extent to which they maintain and increase their held market share.

There is a long history of fierce competition between companies fighting for better market share, trying to differentiate each other from the rest of the companies. In today's overcrowded economy, competition creates red oceans, where rivals struggle to seize smaller and smaller profits. Under these conditions, future market leaders will

succeed not trying to eliminate competition, but creating blue oceans, undisputed market areas that are capable of rapid growth and high added value.

Blue Ocean Strategy provides a systematic method for transforming the competition into an irrelevant element. Success in business does not come from fighting competition, but transforming it into an insignificant variable. Instead of dividing existing (and often declining) demand and rate competitors, blue ocean strategy is about dealing with a growing demand and competition predation. Therefore, blue ocean strategy offers companies ways to escape the fierce competition from a market where there is a growing number competitors, addressing a constant number of consumers, by creating a new market area where there is no competition, or is insignificant.

In red oceans, the limits of each business are defined and accepted, and the competitive rules of the game are known. In this situation, companies try to outperform rivals to grab a larger share of existing demand. To stay in the market, managers build their strategies primarily by reference to the competition, evaluating competitors and trying to provide products and services better than them. But as the market gets crowded, expectations for profits and growth are reduced. Those products are becoming household items, and fierce competition makes the oceans bloody.

In contrast, blue oceans are defined as areas of virgin markets, with a demand to be created with a high probability of profitable growth. Although some blue oceans are created far from the limits of existing domains, most arise within red oceans by expanding existing business boundaries, making the competition irrelevant.

There are a number influencing factors, which generates a louder need to create blue oceans. The accelerated technological progress has significantly improved productivity in the economy and allowed manufacturers to market launch many innovative products and services that significantly differs from existing ones. The result is that in a growing number of sectors of the economy supply exceeds demand and the trend of globalization increases the disadvantage for entrepreneurs. As the trade barriers between countries and regions are removed and information about products and prices are available globally in a very short time, niche markets and monopoly havens are disappearing. At the same time, supply is rising as global competition intensifies and there is not a clear evidence that is rising anywhere in the world. The result was the rapid transformation of products and services in commodities, the increase of the price war and the squeeze of the profit margin. All this suggests that the business environment in which worked the most strategy and management approaches of the twentieth century is in an accelerated decay stage. Since the current competition red areas are becoming more "bloody", management will have to build strategies increasingly more based on the approach of "free zones – blue ocean".

Of course, there is no risk free strategy. Strategy will always involve both opportunities and risks, whether it's a red ocean or blue one. But now, the general economic situation dramatically tilts in favor of analytical tools and work contexts characteristics of the red oceans. As long as this situation would persist, red oceans will continue to dominate the company's strategic plans, even if the imperative to create blue oceans in the business world becomes obvious. As to maintain and improve long-term productivity and profitability, organizations need solutions to overcome time and develop feasible strategies in the medium and long term period.

Under these circumstances, we believe that blue ocean strategy can be a successful tool in Romanian business environment in most areas of activity, because these strategies shows the development potential in the economic market in process of

growth in Romania. Moreover, we believe that the strategic orientation of the agri-food economic agents on retaining existing customers, by offering products and services more accessible to the final consumer and to make them as an easy choice, may be an incentive to facilitate entrepreneurship, especially in rural areas.

## **2. WINE MARKET IN ROMANIA – AREA OF THE BLUE OCEAN STRATEGY APPROACH**

Further, the study focused on achieving a diagnosis competitiveness on the wine chain in Romania, in order to establish preconditions for strategic direction of the wine market by Blue Ocean approach.

In order to determine the competitiveness of Romanian wine-growing chain were used as indicators of analysis:

Market share of exports (XMS)

Net export index (NX)

Balassa indicator (RCA)

Regarding the market share of exports of grapes, as shown in the calculated values of this index, we see that in the period under review (1961 - 2011), the market share of exports of grape has a tendency to decrease, maximum value was recorded in 1974. Also, the fact that Romanian exports with grapes has an insignificant share in world exports of grapes, may be due to the low price of this product, on the one hand, and on the other hand the lack of competitiveness of this product. In the same period of analysis, market share of wine exports had an oscillating evolve, both in terms of quantity and value. This phenomenon can be explained, on the one hand, by the fact that grape production is strongly influenced by the evolution of climatic factors. On the other hand, if we consider the market share of export value, low price of wine exports has a strong negative influence on this indicator.

During the same period under review, the net export index values reflect a tendency to flare imports on both grapes and wine. This leads to a decrease in the overall competitiveness of these products. In regard to the net export index of Romanian wine, we see that its value sets our country as one of the net importers of wine, aspect reflected in the trade balance of this product. When referring to the competitiveness of wine in terms of this indicator, we estimate that in the period under review, its competitiveness shows a downward trend.

After determining the Balassa index values, that lies between 2000-2011, Romania has not held a comparative advantage in wine sector, but what we see is that it is an improvement after 2007, when our country joined the European Union. Access to the single market had a positive impact on the competitiveness of Romanian wine of this indicator. This can be justified by the impact of EU funds to modernize the wine technology and increase its quality.

As expected, the maximum values of this indicator are held by Italy, Spain and France, the countries with the largest area of vine crops and of grapes production.

As a general conclusion, we can say that the competitiveness of Romanian wine shows a rising trend in recent years, a phenomenon that creates the conditions in the market for a new strategic orientation, such as Blue Ocean.

### 3. THE MARKETING RESEARCH FOR LAUNCHING A INNOVATIVE WINE PRODUCT BY IMPLEMENTING BLUE OCEAN STRATEGY

To launch a new wine product, we resorted to conducting marketing research.

After conducting this study it revealed the following information:

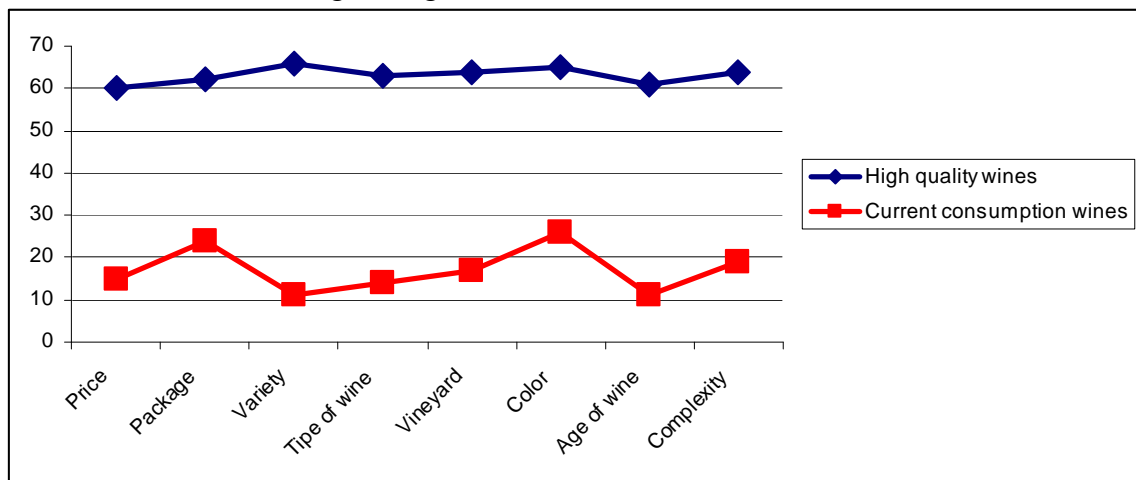
Were surveyed the most important characteristics that are need to have a quality wine brand, in the vision of the consumers / buyers, thereby facilitating the effort of constructing the matrix Develop – Decreases – Remove – Creates required to implement such strategy as Blue Ocean;

From the study we could identify the competitor who has the largest market share;

We determined the maximum price that buyers / consumers are willing to pay in the event of the market launch of a new innovative product.

To determine the efficiency of implementing Blue Ocean strategy additional cost and effort of creating a new undisputed market access were analyzed, reported to the economic benefits that this approach could bring. After performing these calculations we can proceed to the actual implementation of the strategy and to the new product promotion through various ways and means, some of them revealed on the marketing research.

One of diagnostic methods for designing a feasible blue ocean strategy is the identification of the strategic sail. This captures the current state of the wine market, including factors of influence that we are facing currently. Thus, the wine market in Romania has the following strategic sail form:



**Fig. 1: Wine market strategic canvas**

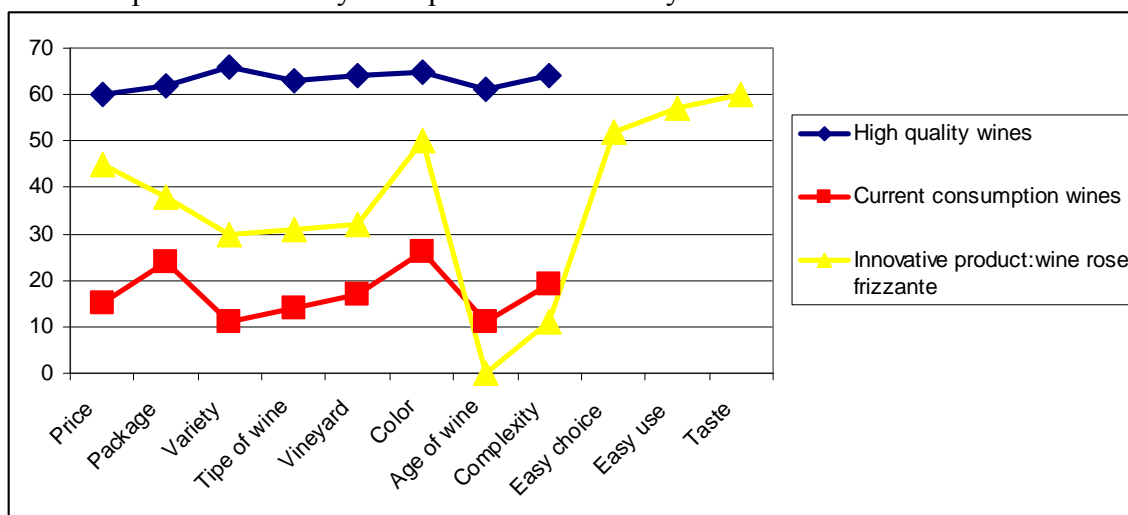
The main factors identified in the study are:

- Price paid for a bottle of wine;
- Packaging, through which we transmit refined images;
- Variety of wine;
- Type of wine;
- Vineyard;
- Color;
- Age of wine;
- The complexity given by the diversity of wines and of grapes which covers all varieties of consumer preferences.

It is noted that in the case of quality wines, great importance is given to all factors of influence, while the wines for current consumption the importance of the factors varies.

However, the market study reveals that in the decision to purchase a bottle of wine, some influencing factors specified above change their importance, while others are even eliminated, being replaced with new selection criteria.

Thus, to determine the characteristics that will be retained (and developed) and those to be removed, we create the matrix Develop – Decrease – Remove – Create, reporting the innovative product features (Frizzante rose wine) that will have after the Blue Ocean strategy implementation, as with its direct competitors, in line with consumer preferences / buyers expressed in the study.



**Fig. 2: Diagram Develop – Decrease – Remove – Create**

Looking at the above figure, diagram Develop – Decrease – Remove – Create, which is the method of implementation of Blue Ocean strategy on the wine market, we see that the desired market entry in the blue area is through the following changes: we will try practicing a lower price than competitors offering quality wines, for this decreasing the costs of aging and storage of wine. Eliminating the criteria of aging, we reduce the need for capital investment in wine waiting to age, resulting in faster transformation of the wine produced in cash. Also, we will try using the new element introduced to provide a product that can be easily used at any time and does not assume ownership of specific information so that the buying decision is made easy. The new product will taste fresh, refreshing, slightly punctured, like champagne.

The element of novelty brought by the implementation of the Blue Ocean strategy is offering such a young wine with Frizzante foam and fine effervescence, rose color, bouquet and taste with enough acid. In this way, consumers / buyers will increase satisfaction of consumer needs, also loyal by the idea of innovation and facilitating the purchase decision process of a wine.

### **CONCLUSIONS**

In conclusion, we can say that the example of Blue Ocean approach may be a viable alternative to the current model for the actual organization of markets and competition, confirming that the effects of the implementation of the new strategic concept is justified and appropriate to support and develop business initiatives in rural areas.



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# Scenarios of increasing agricultural production of vegetal origin to cover the gaps between production and consumption

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## ABSTRACT

This study aims to identify solutions for increasing agricultural production of vegetal origin, with the final goal of decreasing the share of imports in total supply of the market and ensuring, accordingly, a high level of food self-sufficiency. The overarching research question is: Which is the agricultural area needed to be cultivated in order to increase production to the upper limit of domestic consumption? Our reasoning starts from the hypothesis that imports have negative effect upon trade balance, and they should reduce as total value and as share in total supply. We suggest covering the gaps between domestic production and demand by growing the level of agricultural output, as result of increasing the area cultivated with different crops. In order to answer the research question, statistical data about structural components of food supply and demand are analysed and the area needed to obtain a higher level of production of vegetal origin is projected, considering the yield of different crops. Results show that, to cover the gap between domestic consumption and production of food products of vegetal origin, an area of 215,800 should be cultivated with potatoes, pulses, sugar beet, sun flower, vegetables, and orchards.

**Keywords:** domestic availabilities of consumption, agricultural production, vegetal products, imports, trade balance

## INTRODUCTION

This paperwork presents scenarios of increasing agricultural production of vegetal origin, in Romania, with the aim of ensuring food self-sufficiency. The first issue that this study is trying to answer is: Does the level of domestic agricultural production of vegetal origin cover the market demand for food? Furthermore, the agricultural area (and its structure) needed to be cultivated in order to increase production to the upper limit of domestic consumption is estimated.

For answering these questions, statistical data from the Statistical Yearbook of Romania, other publications of the National Institute of Statistic and results of previous studies have been analysed. The methodology of research consists in data analysis, critical analysis, and literature review in various fields of agro-food economy.

The research objectives consist in elaborating scenarios of restructuring the Romanian agro-food system, considering food demand, so that the share of domestic production of agro-food products of vegetal origin in total supply to increase and the share of imports in total supply to decrease.

In Romania, the agricultural area is 14,685,000 ha, of which the agricultural area utilized is 13,753,000 ha. It results a difference of 932,000 ha that can be drawn in culture in order to obtain high agricultural outputs. If domestic production satisfies the main part of the demand, the imports would decrease.

Typically, reducing the gap between domestic production and consumer availability is achieved by importing agricultural products and foodstuffs. In authors' opinion, reducing the negative gaps between domestic consumption and availability should be done by increasing the level of production and not on account of imports; situation that results in trade imbalance. Agricultural production can increase extensively and intensively. Extensive path involves increasing the cultivated area. For this, uncultivated agricultural areas can be attracted in culture. Intensive way means to increase yields, considering the same farmland cultivation. In order to cover the gaps between production and consumption, we suggest increasing the level of total production extensively, by growing the area cultivated with different crops.

Firstly, the gaps between domestic production and internal availabilities for consumption are identified for the main agro-food products of vegetal origin: potatoes, pulses, vegetables, fruits, sugar beet, and sunflower. Previous research show that the share of imports varies from one product to another: 4.5% to potatoes, 13% vegetables and vegetables products, 21% to refined vegetal oil, 24% la fruits and fruits products, 24% to vegetal and animal fats, 25% la tomatoes, 30% to dried pulses, 43% to sugar and sugar products. In the second part of the paper, the area needed to be cultivated in order to increase the production level is estimated.

The outcomes of the research are relevant for macroeconomical policies' orientation in direction of increasing production of agro-food products and decreasing the share of imports in total supply of the Romanian food market.

## MATERIALS AND METHODS

The projection of the area needed to increase the production of animal origin is made starting from identifying the gaps between production and internal availabilities for consumption (table 1). Further more, yields of different crops are needed to estimate the agricultural area.

**Table 1 Designing the area required to obtain agricultural production of vegetal origin needed to cover the gaps between production and consumption**

No.	Product	Gaps between production and domestic availability of consumption (tone)	Yield (t/ha)	Agricultural area (ha)
1	Potatoes	134292	15	9000
2	Pulses	24166	1.2	20000
3	Vegetable	404761	15	27000
4	Fruits	494228	10	50000
5	Sugar and sugar products *	51836	40	10800
6	Refined vegetal oils **	59408	1.5	99000

Extraction yield for sugar 12%, Extraction yield for oil 40%

Source: own calculation based on statistical data

The yields considered for estimating agricultural area needed to reduce the gaps between domestic production and availabilities for consumption are: 15 t/ha for potatoes, 1.2 t/ha for pulses, 15 t/ha for vegetables, 10 t/ha for fruits, 40 t/ha for sugar beet, and 1.5 t/ha for sunflower.

For a yield of 40 t/ha of sugar beet, an area of 10800 ha must be cultivated to obtain 432000 t of sugar beet. Of this quantity, 51850 t of sugar are obtained, with an extraction yield of 12%.

For a yield of 1.5 t/ha of sunflower, an area of 99000 ha must be cultivated to obtain 148500 t of sunflower. Of this quantity, 59400 t of oil are obtained, with an extraction yield of 40%.

Overall, to cover the differences between production and consumption, for agricultural products of vegetal origin, an area of 215800 ha must be cultivated.

## RESULTS AND DISCUSSIONS

In Table 2, data regarding agricultural area projected have been centralized. Most returns to sunflower, followed by orchards, vegetables.

Table 2 The structure of agricultural area projected

No.	Crop	The projected agricultural area	
		ha	%
1	Potatoes	9000	4.2
2	Pulses	20000	9.3
3	Vegetables	27000	12.5
4	Fruits	50000	23.2
5	Sugar beet	10800	5.0
6	Sunflower	99000	45.9
7	Total area for vegetal origin products	215800	100

Source: own calculations

Further more, the revenues and expenses related to the area projected are estimated (table 3). They have been calculated by multiplying the levels of revenues and expenses per hectare, for each crop, to the area projected accordingly. High levels of economical efficiency return to sunflower, fruits and vegetables.

Table 3 Estimation of economical efficiency\*

No.	Crop	Projected agricultural area (ha)	Revenues per hectare (lei/ha)	Expenses per hectare (lei/ha)	Total revenues (lei)	Total expenses (lei)	Profit (lei)	Rate of profit (%)
1	Potatoes	9000	51400	47530	462600000	427770000	34830000	8.1
2	Pulses	20000	3200	3041	64000000	60820000	3180000	5.2
3	Vegetables	27000	72380	65212	1954260000	1760724000	193536000	11.0
4	Fruits	50000	60770	54175	3038500000	2708750000	329750000	12.2
5	Sugar beet	10800	5800	5400	62640000	58320000	4320000	7.4
6	Sunflower	99000	3160	2721	312840000	269379000	43461000	16.1
7	Total area for vegetal origin products	215800	-	-	5894840000	5285763000	609077000	-

Source: own calculations

## CONCLUSION

The paper examined the current status of supply and demand for food products of vegetal origin in Romania, reflecting imbalances between their components. Domestic production is supplemented by imports in order to meet consumers' needs. Projecting the cultivated area to cover the gap between production and consumption has been achieved taking into account the average yields per hectare.

Results show that, to cover the gap between domestic consumption and production of food products of vegetal origin, an area of 215,800 ha with potatoes, pulses, vegetables, sugar beet, sunflower and orchards should be cultivated.

To exploit the surface projected, the estimated revenues are 5,894,840,000 lei; the estimated expenses are 5,285,763,000 lei, obtaining a profit of 609,077,000 lei.

At least two limits of the research can be taken into account. The first relates to production. Even if it grows, this does not mean that all is delivered to market, because the main problem of the food system in Romania, for many branches, is collecting the agricultural outputs from producers. The second limit is the fact that in many cases, the prices of imported food are lower than their counterparts in Romania, which means that the market will continue to absorb food imports until, at a certain level of economic efficiency of domestic production; Romanian products will have lower prices than imported ones.

## ACKNOWLEDGEMENT

This work was cofinanced from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/89/1.5/S/56287 „Postdoctoral research programs at the forefront of excellence in Information Society technologies and developing products and innovative processes”, partner Bucharest Academy of Economic Studies – Research Centre for “Analysis and Regional Policies”.

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# BUILDING RESILIENCE-KEY RESPONSE TO FOOD PRICE VOLATILITY

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## **ABSTRACT**

Food insecurity and resilience are, more than ever, the two dominant global challenges humanity is facing, and resilience is increasingly perceived as one of the greatest challenges for food security. This is why in 2010, the Committee requested the HLPE to work on Food Security and more specifically to *review existing assessments and initiatives on the effects on food security and nutrition, with a focus on the most affected and vulnerable regions and populations, including the challenges and opportunities of adaptation and mitigation policies and actions for food security and nutrition.*

**Keywords:** *price volatility, resilience, EU, agriculture, resilience*

## **INTRODUCTION**

The extinction of hunger and poverty, and the sustainable use of natural resources, depend in large measure on how people, communities and others gain access to land, fisheries and forests. The sustenance of many, particularly the rural poor, are based on secure and equitable access to and control over these resources. They represent the origin of food and shelter; the support for social, cultural and religious practices; and a central factor in economic growth.

Recent and recurrent food crises in the Sahel region and in the Horn of Africa, where more than 30 million people are suffering from hunger, have underscored the need to work on a long-term and systematic approach to building the resilience of vulnerable countries and populations.

The sequel of economic shocks, rising and fluctuating food prices, demographic pressure, climate change, desertification, environmental degradation, pressure on natural resources, inappropriate land tenure systems, insufficient investment in agriculture, have, in many parts of the world, resulted in greater exposure to risk, notably from natural hazards. The effect of these global trends is revealed in the increasing number and intensity of natural disasters and crises. The poorest households are the most vulnerable and in many cases this vulnerability is compounded by political instability and conflict. In the instance of food insecurity, in defiance of some progress, one billion people are still suffering from hunger and the issue is particularly acute in drought-

prone areas where most of the population depends directly on agriculture and pastoralism.

The European Union represents one of the world's largest contributors providing life-saving assistance to people constrained by various crises. In the last few years the requests for such assistance have increased substantially – far outstripping the resources available. Such assistance is vital, but it is aimed mainly at coping with emergency situations and needs to be supplemented by support to populations at risk to withstand, cope with and adapt to repeated adverse events and long-term stress.

Enlarging resilience is a long-term effort that needs to be firmly implanted in national policies and planning. It is an item of the development process, and genuinely sustainable development will need to tackle the root causes of recurrent crises rather than just their consequences.

Managing with vulnerable populations to strengthen their resilience is also a primordial element of poverty overthrow which is the ultimate purpose of EU development policy, as has been reaffirmed by the EU in the Agenda for Change.

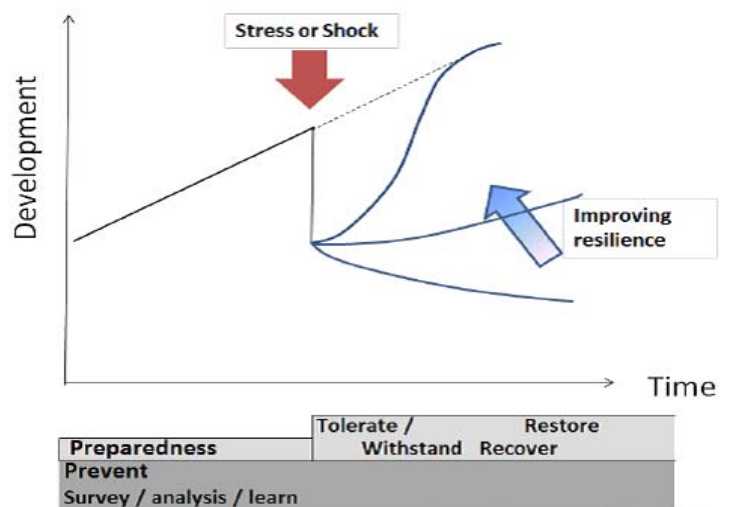
Resilience is the ability of an individual, a household, a community, a country or a region to withstand, to adapt, and to quickly recover from stresses and shocks. The concept of resilience has two dimensions: the inherent strength of an entity – an individual, a household, a community or a larger structure – to better resist stress and shock and the capacity of this entity to bounce back rapidly from the impact.

Accelerating resilience (and reducing vulnerability) can therefore be achieved either by enhancing the entity's strength, or by reducing the intensity of the impact, or both. It demands a multifaceted strategy and a broad systems perspective aimed at both reducing the multiple risks of a crisis and at the same time improving rapid coping and adaptation mechanisms at local, national and regional level. Increasing resilience stands at the interface of humanitarian and development assistance.

Strengthening resilience inquires for a long-term approach, based on alleviating the underlying causes conducive to crises, and enhancing capacities to better manage future uncertainty and change.

## **1. PRICE VOLATILITY**

Volatility in food prices requires the fundamental human right to adequate food. High and volatile prices not only increase, but also worsen poverty and food insecurity. The impact of food price volatility falls on the most vulnerable – particularly the urban poor and the landless – who may spend as much as 75% of their income on food. The diets of the poor also often lack diversity so the scope for switching to less expensive foods can be limited. As richer consumers are able to maintain more or less the same level of food consumption, price surges result in increasing inequity in the distribution of food.



Adapted from Moutpellier Panel – "Growth with Resilience: Opportunities in African Agriculture", March 2012

Food price volatility over the last four years has hurt millions of people, undermining nutritional status and food security. The level of price volatility in commodity markets has also undermined the prospects of developing countries for economic growth and poverty reduction. After staying at historic lows for decades, food prices have become significantly higher and more volatile since 2007. A first price spike occurred across almost all commodities in 2007/2008. After a drop in 2009/10, prices are now climbing again and volatility remains high. Periods of high or low prices are not new. In fact, price variability is at the core of the very existence of markets. Since 2007, however, the degree of price volatility and the number of countries affected have been very high.

This is the reason of which food price volatility in the context of higher food prices has induced considerable anxiety and caused real problems in many countries.

At this juncture, price volatility has been attracting a lot of attention as a key obstacle to progress towards achieving food security for all. Volatility itself is the consequence of fundamental, structural problems in the functioning of markets including those which do not involve the trade of agricultural commodities. Un-coordinating policy responses to supply or demand shocks also contribute to price volatility. High and volatile food prices contribute to civil unrest and political instability. Recent acquaintance exhibits that the food security and nutrition of poor rural and urban populations can severely depreciate following food price spikes, given the large share of their income that poor households spend on food. Nevertheless, high food prices and experiences of poor performance of international food markets have also increased incentives for agricultural investment, including cross-border capital movements. Alike assets are not regularly advantageous to recipient countries and poor populations, nor have they always considered nutritional results. Inconsistent energy prices have subscribed to food price volatility, and lack of infrastructure for market access creates a context in which farmers find it difficult to operate profitably and meet their own food and nutrition needs.

Poorer people are especially influenced by fluctuations in the food prices, as well as costs of inputs and transport. Price volatility also poses social and political



challenges to national authorities. Feedback to alike challenges often involve ad hoc and uncoordinated interventions in food and agriculture markets, which may exacerbate price volatility and the global market situation. There is a constraining requirement for a correspondent policy response by countries to price volatility, including transparency in transactions in all markets and provision of better information, and action to address the underlying structural causes of volatility.

In the longer term, a considerable defiance will be to meet enhanced global request for sufficient and appropriately nutritious food, resulting from population and income growth and changes in diets, in the face of decreasing availability and quality of natural resources. Meeting the challenge calls for yield increases and overall productivity gains in food and agricultural production in the context of a “green agriculture” as well as significant reductions in post-harvest losses. It will also enclose widening the food basket and the diversity of plants and animals used in making food (dietary diversity). The current decline in yield growth rates will have to be reversed. The role of agricultural research institutions in developing local and global solutions will be critical. The impact of climate change on agricultural production and on food systems will increase the risks of food insecurity, especially for producers living in marginal environments and for smallholder households. People unable to access land or employment are at greatest risk and should be prioritized for protection, especially during times of crisis.

Food prices are expected to remain high. Growing population and income in emerging and developing countries significantly strengthens the demand for food. By 2050 the world’s population is expected to have reached about 9 billion people and the demand for food to have increased by between 70% and 100%. Support policies leading to increased demand for crops by the biofuel sector in developed countries also contribute to strengthening the demand. On the supply side, the rate of growth in agricultural production is expected to fall to 1.5% between now and 2030 and further to 0.9% between 2030 and 2050, as compared with 2.3% per year since 1961. If the rate of growth of agricultural production does not keep pace with demand, there will be upward and continuing pressure on prices. With the supply-demand balance already tight, an external shock can result in significant food price surges and extreme volatility.

## **CONCLUSIONS**

Resilience can only be built bottom-up. The boundary line for the EU resolution to resilience therefore is a firm allowance of the leading role of partner countries. The EU will align its support with the partner's policies and priorities, in accordance with established Aid Effectiveness principles.

Operation to enhance resilience demands to be founded on sound methodologies for risk and vulnerability assessments. Alike appraisals should provide the basis for developing national resilience strategies, as well as for designing specific projects and programmes. The EU will sustain the expansion of national resilience strategies as part of wider development strategies. The EU will engage with partner countries and key international actors to ameliorate the procedures for developing the assessments underlying such strategies. In order to provide effectiveness, the EU will moreover put in place a framework for measuring the impact and results of its support for resilience.

In countries confronted with recurrent crises, increasing resilience will be a central purpose of EU external assistance. EU-funded programmes will be based on a common operational assessment prepared by humanitarian and development actors,

covering medium to long-term interventions. They will focus on addressing the underlying causes of crises, notably through support for prevention and preparedness activities. It will work closely with partner countries to establish capacities to elaborate and implement strategies and Disaster Reduction Management plans at national and regional level.

The Commission will systematically include resilience as an element in its Humanitarian Implementation Plans. The Commission will moreover strive for joint programming of the resilience-related actions in its humanitarian and development assistance so as to ensure maximum complementarity, and to ensure that short-term actions lay the groundwork for medium and long-term interventions.

Flexibility will be key to responding to the needs of disaster-affected countries. The Commission will continue to ensure maximum flexibility in implementing its humanitarian programmes. For development funding, in times of unforeseen crises and major disasters, the Commission will seek maximum flexibility in mobilising non-programmed funds. Additionally, the Commission will introduce flexibility into the programme design to allow quick and timely action. The EU will consider the use of Trust Funds to intervene in emergency or post-emergency situations.

When working to improve resilience in fragile or conflict-affected states, the EU will pursue an approach that also addresses security aspects and their impact on the vulnerability of populations. This will include an active political dialogue with partner countries and organisations in the region concerned.

The EU will inquire to reproduce existing initiatives such as SHARE and AGIR, as well as successful projects on Disaster Risk Reduction (DRR). It will distribute and exchange lessons with its partners in order to expand and scale up successful approaches – with the objective of incorporating them in national resilience strategies. The Commission will review regularly progress made on the resilience agenda, looking in particular at programming, methodologies and results.

The EU will endorse innovative resolutions to risk management. Working with the insurance and re-insurance industries is a particularly promising way forward. The Commission will bring forward a Green Paper in early 2013 on the role of insurance in disaster management.

For countries facing recurrent crises, the EU will work with host governments, other donors, regional and international organisations and other stakeholders to create platforms at country level for ensuring timely exchange of information and coordination of short, medium and long term humanitarian and development actions to strengthen resilience.

The EU will promote resilience in international fora including the G8, G20, the Committee on World Food Security (CFS), the Rio Conventions, the process for revision of the Millennium Development Goals, the development of Sustainable Development Goals and discussions on the follow-up to the Hyogo Framework for Action of 2005-2015. Resilience will feature as a key theme in its partnerships with organisations such as FAO, IFAD and WFP, as well as UNISDR, the World Bank, and civil society organisations.

Increasing investment in agricultural productivity growth is central to reducing food price volatility at both international and national levels. Other policy solutions that directly reduce food price volatility in the global markets include the removal of policy distortions, such as restrictions on imports and exports or biofuel subsidies and mandates. Better and timely food market information to governments, producers and

consumers can calm markets and reduce the likelihood of price surges. Enhanced transparency in agricultural commodity futures markets can enhance their price discovery and risk transfer functions and decrease volatility in the short term.

In times of food price surges, compensatory mechanisms can assist food deficit low income countries to meet increased food import bills.

Investing in agricultural productivity growth and resiliency, as well in agricultural and food market institutions, is central to addressing food price volatility. For the majority of poor countries a healthy agricultural sector is essential to reduce vulnerability to international price

Volatility, to overcome hunger and poverty and to also provide the platform for wider economic growth. Analysts suggest that Gross Domestic Product (GDP) growth arising from agriculture is almost four times as effective in reducing poverty as GDP originating outside the sector.

Agricultural productivity growth enlarges not only resilience to shocks, but also acts as a multiplier in local economies, eventually leading to higher rural wages and vibrant rural markets where farmers and workers spend their earnings. Such investment should give attention to the demands of smallholder farmers and women farmers in particular who make up about half of smallholder farmers in the world.

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# THE SPECIFIC FEATURES OF VEGETABLE PRODUCTION IN ROMANIA

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## ABSTRACT

The present paper takes into account a theme of great importance and of actuality namely agriculture and this is because it is one of the key fields of the Romanian economy. The agriculture of Romania is far from what it is practiced in Europe both as production, and as technology. The products “*made in Romania*” are presented in small qualities on the external market, while the importations grow from year to year, the former granary of Europe becoming a clear importer, for special segments – the most conclusive examples are the vegetables, the fruits and the meat. The capital grants in the vegetables field in our country were for a long time under the development necessities the fact that curbed its development for a long time. This field is also important because of the way it functions it depends the life quality too.

**Key words:** horticulture, exploitation, producer, hectare efficiency.

## INTRODUCTION

In Romania horticulture represents a traditional activity, of great economic importance developed along the centuries, as a result of the favorable natural conditions. The natural fertilizing of soils, the climate variety, as well as the farmers skill, were the main factors that contributed to Romania to have a high potential for the horticulture production. From the point of view of the total surface cultivated with vegetables and fruit trees, Romania is situated on the six place in E.U. after France, Spain, Poland, Italy, Germany. The surface occupied by vegetables represents 3,4 % from the total cultivated surface. At the level of the European Union, the weight is about the same with the difference that, at present in Romania the consumption necessity is not assured from internal resources yet.

In Romania there was for century a strong tradition of the family farms. The continuity of this tradition was interrupted by the collectivity process during the communist period, when the traditional farms were replaced, in the most regions, by administrative structures controlled by the state, and the people of the rural regions changed gradually in state employees being paid in cash or in agricultural product. After the decay of communism it began the returning of the nationalized fields to the former owners, through some laws, whose consequences were felt mostly over the production systems, over the infrastructure, the research and the agricultural consulting. This fact generated dramatic diminutions at the levels of producing Romanian products and Romania was changed from an exporter country into an importer country of vegetables.

- **THE CHARACTERISTICS OF PRODUCING AND SALE VEGETABLES IN ROMANIA**

The reorganization of the system of producing-marketing the vegetables, as well as the improving the socio-economical level of the rural regions represent the priority objective of the present politics. Romania has a high potential for producing field vegetables, because of the high natural fertilization of soils and of the climate variety. From the data presented by the Agriculture and Rural Development Ministry results that both for vegetables and fruits dominate the farms with surfaces up to three hectares. The situation is critical enough if we take into account that over 90% from these are managed by producers physical persons. This explains the reduced level of technology for exploitation, professional training for farmers, of organizing production as well as the big quantities of vegetables marketed at the farm gate or in the street market.

From the information of the NSI (National Statistics Institute) the surface cultivated with vegetables had a fluctuating evolution down from 289,6 thousand hectares in 1989 to 151,9 thousand hectares at the end of 2005, at about a half in less than ten years, and later registered an upward trend in 2011 reaching an area of 258,0 thousand hectares. Also, from table 1 it can be noticed the strong decreasing trend of the production of greenhouse vegetables, the production was reduced at about a half in 2007 in comparison with 2004 when it was a production of 65 thousand tons of greenhouse vegetables. This production of 2001 up to 2004 had an increasing evolution, then the vegetable production was slowly reduced only to 28,4 thousand tons of greenhouse vegetables in 2011.

*Table 1. The situation of the surfaces with greenhouses and of the total obtained production*

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011
Surface (thousand hectares)	1,14	1,04	1,19	0,92	0,65	0,50	0,42	0,30	0,32	0,31
The total production (thousand to)	49,4	55,1	57,5	65,3	46,6	45,2	38,1	58,2	44,2	28,4

*(Source: MADR, 2012)*

It is certain that the Romanian production of vegetables cultivated in greenhouses was reduced and this is because the farmers came to the sad conclusion that the ratio price-work is not profitable, on one side and because of the absence financial support from the state and of the bad climate conditions sometimes. Although the offer of products is diversified, the added value of the products is small, mainly because of:

- the absence of marketing knowledge that suppose methods of preparing the production for marketing and presenting (packing, labels) for assuring the product appeal in front of the consumer;
- the absence of the technical ways of washing, of sorting, of packing, of labeling of keeping and of transporting the production to the market;
- the absence of a planning system for production according to the market requests.

A small added value of the products stimulates difference of the producers incomes. Because of the small sizes of the vegetables farms as well as the absence of the farmers experience in relation with the assurance system of the crops, the warning mechanism of the crisis play a very important role in saving the producers incomes. Taking into account the reduced number of farmers who get an assurance bill for the production of fruit or vegetables, we can say that the negative effects caused to vegetables crops and tree plantations by the climate phenomena and the diseases attack are totally supported by the producer. Exception is for damages caused by the diseases and the quarantine pests for which the affected farmers can get financial support. The number of exploitations that assure their crop is very reduced and in these conditions for the vegetable field we can talk about an assurance system of the crop. "The causes are numerous but the most important deficiencies are linked by (Giurea M., 2010)":

- the absence of the producers interest;
- the absence of an attractive offer from the assurance companies;
- the absence of the collective approach;
- the absence of a preoccupation from administration for creating a guarantee fund to participate the administration, the assurance companies and the producers.

The horticulture exploitation from Romania are characterized by the insufficiency of the financial resources they have, that leads to the stopping of investments, to reducing the performance technical ways. The great number of sustenance exploitations represents the main problem that the Romanian agriculture should solve in the shortest time. For stimulating the change of the peasants farms into family agricultural farms with commercial character, the forming and the consolidation of the middle class in the rural field, there were taken measures for supporting investments in the rural area, stimulating banks to participate and to develop their competences for crediting agriculture.

From the yearly horticulture production of Romania, according to the data of MADR, 35% represent vegetables plus melons, 35% potatoes, 15% grapes, 15% fruits. The average consumption/in habitant /year is about 110kg according to the data of the Agriculture Ministry, in comparison with the average of the European Union that is between 180-200kg/inhabitant. Probing the average productions in the last three years (2007-2010) related to the total production of vegetables of European Union resulted the following data according to MADR: Romania produces 22,8% from the production of melons and water melons, 17,9% from the production of cabbage, 12,3 % from the production of eggplants, 4,9% from the production of onion, the production of the other vegetables representing less than 3% from the community production, the tomato production represents 2,1% from the community production.

For 2009 the total surface cultivated with vegetables (field and greenhouses) was about 267,1 thousand hectares and the production was about of 3901,9 thousand tons. For 2010 the surface cultivated with vegetables was about of 235,4 thousand

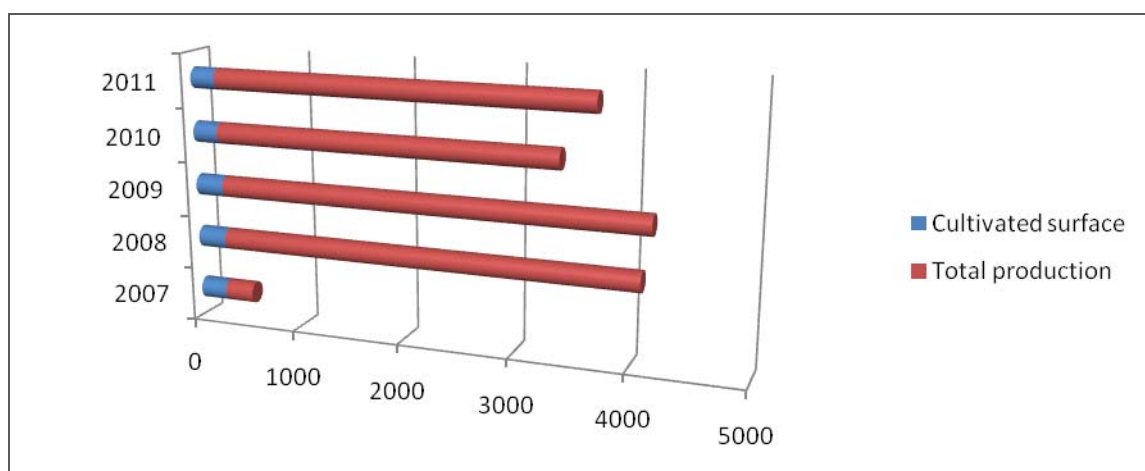
hectares and the total production was about 3155,17 thousand tons, as it is shown in the following table:

*Table 2. The evolution of vegetable production (field and greenhouses) in Romania*

Details	UM	2007	2008	2009	2010	2011
Cultivated surface	thousand hectares	253,4	268,6	267,1	235,4	232,9
Total production	thousand tons	3116,8	3819,9	3901,9	3155,1	3462,3

(Source: MADR, 2012)

Graphical representation of the development areas under vegetable fields and greenhouses, as well as production achieved in 2007-2011 in our country can be seen in the figure below:



**Figure 8. Developments of vegetables (field and greenhouses) in Romania**

Although in 2011 the vegetable productions were good, the Romanian farmers couldn't enjoy big profits because of the small selling prices, of the absence of stipends, but also of the epidemic of E-coli. According to the data of the Agriculture Ministry, the surface cultivated with field and hothouse vegetables were reduced from 262,7 thousand hectares in 2010 to 232,9 thousand hectares in 2011, while the production increased with about 300 thousand tons, up to 4163,6 thousand tons. The differences of vegetable productions determine unstable offer, with negative effects over the price, their yearly increase affects the consumers. This, according to MADR, the internal vegetable consumption is assured 35-40% from the Romanian production, the difference is assured from importation.

The causes of the low productions are due to the low genetic potential of the planting material, deficiencies in cultivating techniques, the absence of mechanizing ways that represent an obstacle for the majority of producers. The vegetable producers are menaced by the big hypermarkets but also by the massive importations. On one side, the great chains of shops refuse to buy the goods at a correct price, and on the other

side, importations conquer the internal production. About 60% of the Romanian production of vegetable is marketed in peasant markets organized in towns and at the farm gate. Although the prices have an increasing tendency, even when the farmers finished commercial contracts, the beneficiaries don't come to take the goods unless the prices were reduced.

The appearances of the big chains of shops, the change of consumers preferences towards selected, packed and labeled products which respect the principles of quality and certainty food, continue to reduce the percentage from the marketed production at the farm gate in favor of the organized markets. But this percentage is increasing as a result of intensifying the trade through intermediaries.

In this sense a decisive role have the producers organizations whose main objective is to concentrate the offer. The most supermarkets, hypermarkets prefer to sell imported products to which they have rapid access. In these conditions, the rigidities met establishing the prices of the food products on the local market will not be diminished, while the local production of agricultural products will continue to find hardly the way to the final consumer. Excepting July and August, when the local production of vegetables reaches a maximum yearly level, in all the rest of the year the importations have the supremacy. However, the supermarkets and the hypermarkets can't be accused totally by this situation, because they need an assure sale through adequate firm contracts and in volumes, so that the eventual risks should be minimized in a great extent.

The reunion of the forces of the local producers in associations is very important for their future, because the competition from the countries of the European Union will remain high. The studies showed an increase of using fruits and vegetables in the people's daily diet. However, the total consumption of vegetables remains inferior to the advice of the nourishing doctors in spite of the advantages this consumption has for health, being an important source of vitamins, minerals, microelements and a factor for preventing fatness through reducing the power contribution of the food. The specialists recommend a rational consumption of vegetables with a diverse structure along all the year. The structure of the physiological necessity of vegetables is shown in the below table:

*Table 3. The structure of the physiological consumption of vegetables*

*Kilo/person/year*

Specifying	Quantity	
	Minimum	Maximum
Tomatoes	35	60
Cabbage and cauliflower	25	30
Onion and garlic	20	25
Cucumbers	10	15
Pepper	8	10
Eggplants	5	10
Root plants	10	15
Pea and beans	5	10
Greens	6	10
Other vegetables	6	10
<b>TOTAL CONSUMPTION</b>	<b>130</b>	<b>185</b>

*(Source: Adrian T.Rahoveanu and contributors., 2009)*



In comparison with the recommended consumption, the vegetable consumption for some varieties is much more reduced than the necessary. The most important socio-economical factors associated with the vegetable consumption are the people's age and income. The young people and the people with small income consume reduced quantities of vegetables. Also, it is shown that it is, beside this classification, a great part of the people for which the vegetable consumption doesn't represent a priority. Unfortunately, the diversity of the fruit and vegetable offer doesn't imply automatically an increase of consumption.

## CONCLUSIONS

It is certain that because of the small prices and of the absence of financial support for the economical organization of marketing, the producers abandoned some traditional vegetable crops, like the case of pepper, of tomatoes that are massively imported. Relaunching the vegetable field is also a necessity for processing the prime material that was continuously degraded. Its use at a maximum capacity in the production process, would assure jobs, would stabilize the income of the small producers. In conclusion, "the production potential of the vegetable field is affected by the following reasons"( Ministry of Agriculture and Rural Development Sector Market Policy Department of Horticultural Crops, national strategy for operational programs in the fruit and vegetables, 2008):

- the great number of exploitations of reduced dimensions;
- the reduced level of endowing the exploitations with modern technical means for producing and harvesting;
- the reducing of the surfaces cultivated with vegetables;
- the high level of breaking up the vegetable surfaces and the absence of a coherent strategy for consolidating the lands;
- big surfaces of abandoned protected spaces and/or built in the basis of some old techniques;
- the increase of the frequency of extreme climate phenomena with effects over the production.

The market of the Romanian agricultural products is chaotic, unsettled, at the disposal of the circumstantial merchants, of those who store, who speculate the pressures of the settling days, the absence of the storing conditions of production and, implicitly of the negotiation possibilities. This is the farmers conviction from Romania. There are also speculated, the absence of information as well as of market consulting. At the same time, the absence of a legislation regarding the agricultural products market, of a common law regarding the use of firm contracts about price, payment ways and terms harm farmers of predictable income, implicitly of development programs and encourage illicit transactions.

The farmers need possibilities of storing the production for negotiating the marketing terms, of establishing an organism for settling a relationship between request and offer, that can offer then many possibilities for capitalizing the production, as well as the future requests of the market, for structuring their activity. At the same time, the production potential of the Romanian sector for fruit and vegetables is remarked by:

- Numerous exploitations;
- Great range of vegetables varieties;
- Favorable climate conditions for cultivating vegetables;
- The increase of the cultivated surface with vegetable competitive varieties;
- The increase of the cultivated surfaces with vegetables in modern protected spaces;
- The modernizing of the processing units.

“It is necessary the establishing of some politics, that can assure the farmers better conditions for achieving some food products of good quality and in quantities that can cover in more and more measure the consumption needs of the people”(Istudor N, 2006). This sector has now a reduced competitiveness on the international markets, a fact also shown by the data regarding the foreign trade. These problems refer especially to the food industry whose performances were also situated under its potential.

In the conditions in which the consumers of all the world direct to the ecological products, our country could produce ecological vegetables on at least 10-15% from the agricultural surface. The cultivating of ecological vegetables is a future business, with sure profit, even if on short term, the cost prices are high. Those people who will defeat the bureaucracy for getting grants for such a crop, will probably succeed.

A comparison with the outputs got for the vegetable species in the countries of the European Union demonstrates that the production potential of our country is not used at maximum, that in Romania the technologies are not at the level of those that are used in the European Union, where the vegetables works are mechanized, chemicalized and irrigated. This aspect places the vegetables got in the agricultural exploitations of our country in the range of the vegetables that are close, by some characteristics, to the ecological vegetables. The big disparities between the outputs got in our country and those got in the European Union, disparities that arrive at some species up to four times, are due to the modern technologies used in the community countries.

The disadvantages of some reduced productions on hectare are compensated by the quality of our products, in the strict sense of the absence of chemical substances or of their reduced use. The ecological variant for getting vegetables must constitute in a modern system, based on the increase of the outputs for the ecological vegetables, using organic fertilizers, using irrigation water in adequate conditions, maintaining traditions referring to the crops association.

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# THREATS AND OPPORTUNITIES IN ROUMANIAN VINEYARD VERSUS UE

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## ABSTRACT

Given favorable conditions of viticulture practice performance, eco-climatic conditions and environment friendly, Romania's ability to reform this important sector and obtaining quality wines competitive with those of major wine producers in the world. The area currently occupied by vineyards in Romania decreased after 1993, this process unfolding along with worsening quality of products produced, the area planted with hybrid varieties owning a share of about 50% of the wine capital of Romania. Even in this unfavorable context, global Romania ranks 9 in the world (3.12% of the world's vineyards. Entire grape production amounts to 1 to 1.1 million tons, accounting for 12th in the world and the wines at an average annual production of 5.6 million hectoliters.

*Key words: SWOT, threats, opportunities, trends, wine*

## INTRODUCTION

Unstable economic environment that characterized Romania since 1989 has led to imbalances in agriculture, lower living standards in rural areas, because the product was more for consumption, rather than for the market, agriculture is the main source of income.

Viticulture, the important branch of agriculture, is in the same situation. Poor law in this area, measures to delay the fierce competition in the market for European producers of wine, made Romanian wine sector to develop slowly.

For these reasons we chose to analyze the sector seeking to identify the weaknesses and strengths, to highlight elements that characterize viticulture and wine market, elements that can guide the development of a strategy for development of the wine sector in Romania.

### *Characterization of the EU wine sector*

At EU level wine is one of the most important products are the first places importance in agriculture of countries like France, Italy, Spain. In all countries with tradition wine, wine history falls during more than two millennia, which is part of the history and traditions of many European nations and now figure prominently in terms of the economic impact of agriculture, tourism, Gourmet.

For the last decade, significant decreases in quantity at Community wine sector: 13% of areas under vines in the EU and 17% of wine production.

Area occupied by vines fell amid EU structural changes, sluggish consumer demand coming from and after 2008, when the economic crisis include all sectors, including food, the downward trend of areas under vines is widening.

Romania, occupying 5th place in the EU area planted with vines as Spain, Italy, France and Portugal had the same trend, the area planted with vines decreasing due to fragmentation of ownership, low interest granted viticulture and not least because of the economic crisis.

These decreases occurred due to loss of interest in obtaining grapes, on the one hand and on the other hand the application abandonment premiums for the three wine years 2008-2009, 2009-2010 and 2010-2011, the allocation of the EU budget for deforestation being 1074 million euro.

Reducing areas planted with vines resulted in a reduction in the production of wine at Community level, this is actually the first application policy pursued by the effect of abandonment, and to note that the decrease in production was recorded in the table wine category. The following table summarizes the balance sheet reflected wine at Community level.

### **SWOT analysis of EU wine sector**

Environmental factors internal and external to a company of a sector favorably act on them or not. Therefore need to consider the strategic situation arises as a result of the simultaneous action of these internal and external factors. The best known and widely used model is the SWOT model.

Analyzing the state of the EU wine sector found that it has both strengths and weaknesses we identified opportunities that the EU has wine, and the threats it faces.



**Figure 1. SWOT analysis of EU wine sector**

From this analysis shows that the EU wine sector has many strengths, global market leaders in this region are countries with extensive experience: Italy, Spain, France. In recent years, however, the sector has faced numerous problems (weaknesses), and threats. Therefore decision-makers, wine producers should leverage the opportunities offered by this sector.

A report by McKinsey suggests that the use of a measuring system based on tangible performances is inappropriate because it considers the competitive generating key resources, such as intangible resources (knowledge) and talent relations.<sup>54</sup>

### ***Wine analysis in Romania***

In Romania, the wine is a basic occupation, approximately 300,000 families are involved in this field, which means that approximately 1 million people practicing their activities ensures the existence of vines and wine.<sup>55</sup>

### **Area occupied by vine**

<sup>54</sup> Lowell, B. L.: 2007, 'The New Metrics of Corporate Performance: Profit Per Employee', The McKinsey Quarterly 1, 56-65. [www.mckinseyquarterly.com](http://www.mckinseyquarterly.com).

<sup>55</sup> Burja Camelia – Restructuring and Economic Performance in viticulture and winemaking, Ceres Publishing House, 2005, p.8

Developments areas under vines, after 1989, was under the incidence of a variety of factors including growing property regime change, the restoration of private property in this area and wine capital structure composition imposed by the integration of Romania in the Community wine chain, a process that has intensified with the start of EU accession talks and continuing to the present, vineyards size will stabilize in 2013. Diminution busy living was mainly due to the faulty manner in which the appropriation was former owners or their heirs, especially the last group practicing mass deforestation to obtain high incomes and immediate.

In 2009 living area bearing for table grapes was 9.7 ha and come bearing surface for wine grapes was 174 700 ha, representing a total of 184 400 ha

Table grape production for 2009 was 74,500 tons and wine grape production was 915 700 tons, which resulted in a production of 6.703 million hl of wine.

In 2010, grape production declined, mainly due to reduction of cultivated areas, both grafted plantations (-2.1%) and the hybrid vineyards (-2.2%). The yield per hectare was lower by 6.6% compared to 2009.

In 2011, grape production increased by 18.9%, mainly due to higher yield per hectare, both grafted plantations (+13.2%) and the hybrid vineyards (+31%).

### **Wine production in Romania**

In the past three years, the economic crisis, total wine market fell from approx. EUR 450 million about 350 million. During this period, wine producers and traders had to readjust to a new application form directed mainly to medium and cheap wine category. Premium wine category showed significant decreases in market share. Wine production in 2011 was 2.166 million hl.

Massive imports of wine poured during the year is due to lower production of wine in 2010 and the tendency of large national producers / bottlers to meet the need of domestic consumption.

In the wine industry there are about 100 producers, most having a low level of business. The most important wine producers in Romania are: Murfatlar Romania, Cotnari Jidvei Vincon, Angell, Zorești House Wines, Wine Cellars Recaș, Vinexport Trade-Mark Halewood Winery, Vineyard Tohani areas, Vinexport SA Focsani Dealu Mare, etc.

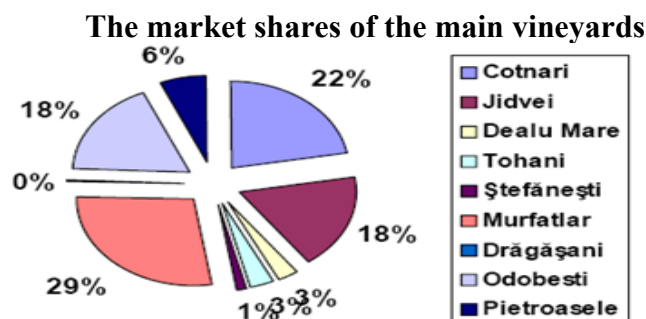


Figure 2

Murfatlar wine producers wine remains the market leader with a market share of 29% followed by 22% Cotnari, Jidvei and Odobești with 18%.

Production of wine from 2004-2011 analyzed an involution know in 2005-2006, increasing to 2008 and then again becomes a downward trend thanks crisis that manifests itself in all areas, but also because hybrid vines grow as a percentage the total bearing vineyards, in detriment of the noble. These factors have led to lower yields per hectare of grape production decrease.

### **Import and export of wine**

Romania, the wine country, which is among the top 15 producers in the world and occupies sixth place in the European market export wine in quantities of more than, unfortunately, and imported wine producing countries in a amount ever greater if we consider the period 2007-2011

Wine imports exceeded 734,650 hectoliters (hl) in the first 10 months of 2011, eight times higher than in the same period exports, which amounted to 87,250 hectoliters, according to data released Monday by the National Employers of Vine and Wine.

In 2011 the EU Romania 7,590,918 liters sold and bought in the EU 79,816,171 liters. Non EU countries Romania exported and imported 2,022,918 liters of non-EU countries 3,322,634 liters.

### **Wine consumption**

In terms of average wine consumption per capita in Romania ranks 8 in Europe. Average consumption of wine per capita in 2009 was 23 liters more than in France, for example where it was almost double or Italy. Also Czechs, Germans and Greeks were located in the top league in terms of average consumption of wine per capita. In 2011 Romanians quality wine consumed more than the previous year, while the consumer level have been felt improvements in terms of food consumption budget. According to data obtained from manufacturers, Romanian wine drinking bottled in 0.75 L bottle of over 12 USD price category increased shelf between 9 and 20%. This is confirmed by the organization of wine producers, who announced that, unlike 2010, when 28,490,000 were sold by the producers of DOC certification marks last year their number reached 32,765,000.

Wine consumption in Romania is between 26 and 27 liters / capita / year, Romanian consumers prefer white wine sweet.



Figure 3

Source: [www.oiv.int / OIV / info / en conjuncture](http://www.oiv.int/OIV/info/en/conjoncture)

Wine consumption has declined in all countries by 2007 to 2008. Up to that time of economic turmoil, wine consumption had an upward trend (since 1998).

Wine consumption in Romania has decreased in 2000-2004. In 2005 greatly decreases by half. Increase in 2006, followed by 2009 to decline due to the crisis, small budget for wine consumer product. The 2010 wine consumption grows slowly, consumer orientation is towards quality wines.

### **SWOT analysis of the wine sector in Romania**

Every country, regardless of the degree of economic and social problems facing the balanced economic development of the territory, determined by a number of objective and subjective factors that determine the unequal development of the economy.<sup>56</sup>

Sector analysis, the joint influence of internal and external factors that the wine is rendered accurately using SWOT analysis.

Analyzing the wine sector in terms of cultivated area, production of grape wine import and export, but also we could use a picture of the main weaknesses, strengths, threats and opportunities in the form of a SWOT analysis.

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<sup>56</sup> Istudor N.-Regional and rural development in Romania in the perspective of the European Union, ASE, Bucharest, 2006





**Figure 4. SWOT Analysis of the wine sector in Romania**

## CONCLUSION

Romania is a country with a rich wine heritage and extensive experience in the sector, the history of this country is the wealth represented weaving grape wine. Large area occupied by vineyards and grape production obtained ranked top both the European market and worldwide.

Viticulture, under the influence of environmental factors, temperature, sunstroke, humidity being the determining factors in obtaining quality wines. Quantification of losses, the influence of climatic factors help us to develop strategies to practice a sustainable viticulture on ecological criteria.

EU market, Romania plays a very important role, being among the first European wine producers. Europe includes market leaders Wine, Italy, Spain, France, Portugal, the largest wine producers in the world. And yet, the economic crisis has been present in this area, recorded a decline in all aspects: area, production, consumption, imports, exports, revenues, profit. The positives, the negatives, strengths and threats we have analyzed the SWOT model.

The economic crisis, which affected all sectors, including the food has left its mark on the wine sector in Romania.

The current lack of centralized data (revenues, expenses, turnover, results on wine), I made an analysis sector considering the area under vines, grape production, wine production, import and export of wine and consumption. Data analysis was done with the help of SWOT models, as the EU wine sector.

After a pretty heavy (2008-2010) Romanian wine starts to recover, bringing a slight increase in 2011 both in terms of area, production and consumption of wine. Also in 2011 the number of certification marks DOC wine increased by 15% compared to 2010, manufacturers selling increasingly more quality wines. They recorded hub, increase sales of wines in bottle 0,75L, increased by 9 to 29% compared to 2010.

Wine market evolution becomes so positive, beneficial aspects of both the producers and consumers of wine. Consumers are becoming more interested in eating quality wines.

An important role in revitalizing the sector and the Ministry of Agriculture was that the projects and programs (program support projects with grants) made wine to get on track.

Because investments in recent years in the wine sector, the use of advanced technologies for obtaining wines, improve storage conditions and packaging, quality Romanian wines search new meanings both domestic and world markets.

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# Stages of fruit growing development in Romania

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## **ABSTRACT**

Economic and social importance of culture of trees may consider several aspects, among which domestic and foreign holdings, providing raw materials for manufacturing. Fruit is also a function of soil conservation climate and introducing a part of the population in the fruit growing business. The main objective of the orchards, the sub-sectors of agriculture, is to create the conditions to relaunch agricultural producers, increase productivity both domestic fruit products, and on the external contribution to GDP.

*Key words: development of fruit growing, pomiculture, economic growth, research.*

## **INTRODUCTION**

District work of fruit growing scientific criteria used in drawing up development program and started the transition from extensive to the intensive system. He started to reorganize fruit tree nurseries, providing vegetative rootstock mother plantation, organizing genetic base-graft branches. For the year 1970 was established an annual production of 9 million trees grafted accomplish in 100 units.

Apple is a culture prevalent in cooler areas: Maramures, Suceava, Bistrita, Dambovita. Centers with the greatest potential in apple production: Baia Mare, Teleajen, Gaesti, Arges, Prahova.

Plum, the most widespread species, is very adaptable in most counties, a great demand on domestic and foreign. Ponds Consecrated: Arges, Horezu Ramnicu-Valcea, Buzau, Viseu.

Cherry is the largest expansion in Vaslui and Botosani, Iasi, Arges, Prahova.

Apricot is spread in: Dobrogea (Ostrov, Baneasa), Zimnicea, Bihor.

Walnut is mainly grown in: Honedoara, Targu-Jiu-Tismana.

## **POMICULTURE DEVELOPMENT<sup>57</sup>**

### **Period 1945-1950.**

During this period there was land reform, which, however, had a special contribution to the development of fruit growing. This situation led to the knowledge state of affairs Romanian fruit growing inventory of new issues proposed for the next period. The Ministry of Agriculture and Public Domains has decided to set up the Technical Committee to study agricultural problems and proposing solutions for the rehabilitation of the situation. During this period, 60% of the production was mainly used to plum production.

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<sup>57</sup> Nicolae Stefan Coord, Gh, Glaman - Horticulture Romania over time Vol 2, Romanian Academy, Bucharest, 2008, pag 143.

Fruit has evolved considerably after World War by introducing foreign varieties in culture, the establishment of capitalist holdings. Also developed much fruit trade within the country and industrialization fruit.

The area cultivated with fruit trees was about 344,000 ha, most of the trees in the hills, and the rest on plain (apricot). Orchards condition was bad due to the aging of many orchards and their infestation by insects. Another weakness he represented poor construction of the crowns of trees.

Problems drawn in this period could be solved by:

- Replanting old orchards and the establishment of new orchards;
- Execution of works required: clean dry wood, plowing;
- Effective control of insects;
- Equip with necessary inventory orchards, spraying pumps;
- Turning and keeping fruit tree production for consumption
- Establishment of departments of fruit trees;
- Creation of factories for the production of spray equipment;
- Implementation of laws and provisions regarding the protection of plants;

In the same period were founded interventions for horticulture development by adopting measures of infrastructure:

- Agronomic education reform, creating the first college of horticulture in 1945 and 1952 in Bucharest and Iasi;
- In the period 1949-1950 were first established in Fruit experimental station at Bilcesti-Muscel, Voinesti-Dambovita;
- Have created conditions for fruit growing economy in the country;
- Were established first state agricultural units

### **Period 1951-1960<sup>58</sup>**

The importance of action at this time were with reference to Romanian agriculture cooperative, technical advice and economic organization of state agriculture, primarily aimed at development of fruit growing. The period 1951-1953 was marked by the development of a Department of viticulture and fruit growing activity designed to realize on own first plantations and orchards and areas of Dobrogea along the Danube-Black Sea Canal. Sites were established at Cernavoda, Medgidia, for an area of 1100 ha. In 1952 they planned plantations.

Another highlight was in 1956 when it was set up Horti-vine Research Institute in the Ministry of Agriculture and Forestry. Experiments were taken three resorts vines (Dragasani Odobesti, Bilcesti) from ICAR and have established other new resorts experimental tree (Falticeni, Istria). Following these actions, heritage fruit trees has been improved both in terms of production and the state fruit plantations, such as foundations for further improvements.

### **Period 1961-1970**

It was a heyday of Romanian fruit growing and because of the experience accumulated over time, and quality of scientific research in the field by all who have served this sector.

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<sup>58</sup> Ibidem, pag.152.

- There were, however, and negative elements because the previous situation, namely:
- About 54% of the fruit trees were sparse and modest economic contribution;
  - Some of the valuable species: apple, pear, walnut, were insufficient in relation to consumer needs;
  - There were still orchards, tree age, and plots were fragmented and heterogeneous.

Thus, detailed study was needed natural conditions in a work that take into consideration the details indicating species and varieties-book called " Microraiolare of orchards".

The results obtained revealed that Romania has great potential for fruit growing.

### **Period 1971 – 1980**

Under Order 854/14 April 1970, Ministry of Agriculture and Forestry has developed guidance and study program of measures. An important measure was the organization and management by specialist fruit growers, as generalized in all units with economic: state agricultural enterprises, agricultural production cooperatives, research stations, production companies.

Fruit growing organization across all the farms specialized units led to fruit production concentration and specialization. At the end of 1980 there were: 1500 specialized fruit farms, of which 500 state-owned, the rest of 1000 being specialized or mixed farms.

Firm fruit with very good results:

- IAS Baicoi: – two important centers Baicoi -intensive type;
- IAS Magurele: Lipanesti and Magurele;
- IAS Arges;

Cluj County farms were organized specialized intensive apple orchards in addition to the classic, Cluj IAS-1120, Baci-540 ha.

In Sibiu – 990 ha Sibiu IAS and Dumbraveni – 330ha;

Ialomita – IAS Fetesti – 500 ha of which 18 ha orchard with almond.

In Constanta, the first intensive peach orchard of 60 ha with important varieties in Italy was made to IAS Mangalia in 1963/1964 to supply the coast. Hence graft branches were taken to produce planting material that was distributed at several nurseries in the country. IAS Medgidia, intensive orchards of peach and apricot ones were a total of 600 ha. Outstanding works were applied in these areas: mechanical cutting, sorting peaches, application of phytosanitary treatments.

Intensive peach orchards have been planted around the capital during 1962/1963 to IAS Mogosoia Afumati Mihailesti, 1500 ha were used to supply the capital with peaches of good quality and at affordable prices.

Establishment of the Council of State and cooperative agroindustrial Single favored the establishment and promotion of specialized farms.

The State Council Decree No. 38, in 1977 it was reorganized in the General Economic horticulture, where each branch was fully coordinated . In the same period was established Trust Research, Design and Manufacturing based in ICPP Maracineni Fruit, at 7 km from Pitesti. Economic Trust was founded in 1980 for Fruit Production in Bucharest.

The main tasks were:

- organizing all activities of fruit,
- conduct research to improve fruit production,
- providing planting material development schedule,
- economic development of technical documentation development objectives,
- realization and modernization plan planting orchards,
- providing for enforcement measures,
- coordinate the supply of chemical fertilizers or other materials,
- the system for proper machinery,
- coordinate the diseases and pests in orchards,
- collaboration with institutions and scientific bodies.

### Period 1981-1989

During this has been consolidated and developed fruit growing industry. At the end you made a structure of international varieties for each fruit tree species. He made careful selection of nurseries, have made arrangements and facilities for the production of planting material.

Tehnic and organizational level of activity and quality of nursery staff have created international acclaim and prestige.

### FRUIT PRODUCTION IN ROMANIA, DURING 2005-2010

Table nr.1- Categories of fruits

Categorii de fructe	Years					
	2005	2006	2007	2008	2009	2010
	UM: T					
<b>Total</b>	1647017	1486363	1085756	1179222	1322977	1419618
<b>Plums</b>	622357	598753	372631	475290	533691	624884
<b>Apple</b>	637979	590413	475370	459016	517491	552860
<b>Pears</b>	88890	62425	62852	52576	66111	60375
<b>Peaches</b>	29104	17150	16850	16322	16453	10856
<b>Nectarines</b>	:	258	130	110	679	385
<b>Cherry and cherries</b>	117859	104791	65163	67664	67874	70290
<b>Apricots</b>	52410	38754	27566	32125	32499	23804
<b>Nuts</b>	47810	38471	25516	32259	38329	34359
<b>Strawberries</b>	18158	21612	16496	21233	21969	21434
<b>Other</b>	31757	13736	23182	22627	27881	20371
<b>Family gardens</b>	118939	45925	9062	11170	13578	27743

Source: <http://www.insse.ro>

The area covered by fruit orchards

Use of the land	Years					
	2005	2006	2007	2008	2009	2010
	UM: Ha					
Orchards and nurseries	218241	213416	206601	207311	205221	198583

Source: <http://www.insse.ro>

At present, there is a lack of research on how varieties react to certain factors. For this reason it is necessary to deepen the scientific concept of fruit trees, with the purpose to achieve competitive production and ensure the necessary conditions for developing the full potential fruit growing.

Fruit growing in Romania is far removed from European standards in the following aspects:

- the number of viable farms, specialized farms is practically negligible; culture systems are still extensive
- exports of fresh plums is reduced approx. 800 to 12,000 tons annually and the dehydrated form is virtually nonexistent.

In sec. XIV and XV, in the hills of Moldova, Transylvania and Romanian Country, most important cultures are: apples, pears, plums, walnuts, cherries and peaches. In 1864, following the unification of the Romanian Principalities, was a development of orchards, nurseries were established in Braila and Giurgiu. Significant volumes of publications on tree culture have left scholars such as Ion Ionescu de la Brad C. Nicoleanu, Gheorghe Ionescu.

Prerequisites for development research in crop trees have been achieved through ICAR (Institute of Agronomic Research of Romania). In 1937 he organized a subsection of horticulture, made important contributions in this respect was made by Th. Bordeianu and N. Constantinescu.

In the fruit of action developed in the years 1931-1932 were outlined four parts fruit:<sup>59</sup>

- Region I, Northern Bassarabia:
- Sub Bassarabian Bucovina;
- Region II Bukovina with:
- Prut sub-region (Bucovina between the Prut and Siret)
- Region III Northern Moldavia (Dorohoi)
- Region IV North Carpathians (Nasaud and Maramures).

In the same period have made significant groves of walnut culture in Oltenia region (Florida and Mehedinti).

Between 1933 and 1935, Ministry of Agriculture has made delineation of the main tree in the Subcarpathian region of Moldova and Valahia with development centers for specialized fruit. Between 1961 and 1963 were established culture species and varieties recommended for each area of the country in order to increase production and fruit quality, fruit also new centers being developed in Dobrogea, Valahia and Transilvania.

Improvements were made simultaneously on mechanization, development of network storage. All this was made possible by substantial investment. In the same period have established new ones where they introduced the most valuable varieties of trees, the most popular domestic and foreign species are: apricot, cherry, blueberry, gooseberry.

In the last 25 years took modernization and restructuring of the culture of trees by switching from extensive system (traditional culture) in the intensive and super. Fruit has grown by introducing a variety of machines and high efficiency.

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<sup>59</sup> Adrian Turek Rahoveanu, Raluca Ion, Victor Manole - Chain analysis of vegetables and fruit sector, University Publishing House, Bucharest, 2008, pag.115

In 1939 450,000 lei were allocated for action in the purchase of 140,000 fruit trees and 25,000 walnut apple, plus the freight and packaging costs. These tree species were planted in regions: Vrancea, Mehedinti, Severin, Maramures, and payment was made by tree grower ministry in three annual installments, starting from the 6-th, that the 11th year of planting.<sup>60</sup>

An important action carried out by the Ministry of Agriculture and Domains since 1940 was an order by the Chambers of Agriculture in order to achieve an action program for five years. Shares of the program aimed at: increasing areas planted with trees, establishment and authorization of new plantations, fruit organizing fair exhibitions, training courses in the winter for fruit growers. That same year, the results were not very satisfactory, the harvest of 1940 was very weak in almost all species. To obtain high yields per hectare was proposed following a set of rules contained in the minimum program. Minimum program of work in orchards should include the following actions:

- Control trees in orchards, gardens;
- Carrying out the actions of planting trees;
- Carrying out maintenance work, cutting crown fruition, maintenance;
- Maintenance work the soil of plantations;
- Make statistics tree (nr.de trees, species, varieties);

In 1942, orchards Service achievements were:<sup>61</sup>

- Obtaining an investment program of 90 million lei;
- Identify the best tree species to obtain the graft branches;
- Control of private nurseries;
- Purchase of pumps 250 and 100 tons roadway insecticides fungicides substances;
- Establishment of 15 centers fruit;
- Provision of necessary facilities for 12 fruit processing factories in cities: Falticeni Valeni, Voinesti, Hateg;
- Have been organizing training courses with practical applications in the orchard for uniform working methods and exchange of experience.

Organization and the fruit tree production were due to internal market development, increasing demand and better prices obtained by producers.

## **RESEARCH IN FRUIT GROWING**

Research in fruit growing has experienced two stages. <sup>62</sup>The first lasts until early 1850, and the second was included in the period 1851-1918. The first stage is characterized by translations from foreign languages and attempts to organize research in fruit growing or the appearance of modest works into Romanian. In the book "Descriptio Moldavie" (1716) there are some information on fruit quality and spread of trees. A relevant work was "teaching for upon raising trees" – Frantschek Heintz (Bordeianu T. 1963). This included guidance on getting trees in nurseries, as well as information on different species (cherry, plum, apple).

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<sup>60</sup> Ibidem, pag.116

<sup>61</sup> Ibidem, pag.119

<sup>62</sup> Milu Oslobeanu coord, A.Gherghi - Horticulture in Romania over the years Vol 1, Romanian Academy, Bucharest, 2003;



In 1850, his "Elementary Course of agriculture and rural economy", Ion Brezoianu chapter addresses a category of works in the nursery of apples and pears. Also, there were magazines "Rural School" (1834), "Master, villager" (1840), "Road village" (1840).

In the second stage (1851-1918), scientific events are more representative than the first, given the fact that during 1889-1904 were set up 12 modern nursery, which also contributed to the expansion of international assortment of valuable varieties . Ion Ionescu de la Brad published in 1870 "Lesson basic agriculture" and approaches in a chapter and growing of fruit.

In 1871, John Hentescu published book "pomology" which presents the main works of tree maintenance, tree species classification, recommendations on the number of varieties can be planted.

P. Alexandrescu writes about breeding and planting trees in the works "Getting fruit growing and gardening practice" and "Treaty of horticulture".

D. Ionescu, in his "pomological issue in Romania" (1889) presents the main centers and recommended fruit varieties suitable for each area.

In 1908, W. Knechtel, in his "Course of pomology" culture technology deals and the differential of the orchard work depending on the species of trees and shrubs in culture.

D. Comsa publishes work "Pomaritul" (1877) and "Upon raising trees" (1890) dedicated to planting and caring for trees and fruit tree planting material production.

In Bucovina, Grigore Halipu, in his "Rational Pomar" (1883) writes about the maintenance work for trees and varieties grown in this area. Another representative work of the same author published in 1905 - "Cult of strawberries and asparagus culture."

Were also published in German and Hungarian works with the authors: Mate Bereczki, Albert Wachsmann.

After 1989 the ownership of land was restored by Law 18/1991 - Land Law in 1997 so that private sector owns 72% of the total agricultural area, 84% of arable land, 51% of the natural meadows, 76% of area occupied by living and 69% of the area occupied by fruit orchards.<sup>63</sup>

What prompted the Ministry of Agriculture and Domains to be involved in guiding Agriculture to increase and diversify agricultural production have been issues raised by supplying the population with food after the outbreak of world war. MAD reorganized Department of Agriculture and county agricultural counselor role established to advise farmers on the problems they face.

In 1918-1920 it creates the General Directorate of Agriculture and Viticulture in the MAD. Issues that caused the establishment of this directions were to resume activity nurseries to produce planting material needed to make plantations of fruit trees.

In 1923, General Directorate of Agriculture was organized into two divisions: General Guidance and General Directorate of Agricultural Farms in order to guide the state nurseries, the manufacturing sector in particular and the entire country. The wine was separated from the orchard in 1925. These institutions have had more: introduce best local varieties, producing a large number of grafted trees.

Department orchards established two special nurseries to improve the range of plums to Smelly-Dambovita and the bear-Buzau. Here were brought valuable plum varieties from

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<sup>63</sup> Ibidem, pag. 190

Germany, France and Italy. In 1929, the General Director Farms turns into farms with two services: viticulture and horticulture.

Ministry of Agriculture and Estates guidance was modest possibilities of fruit growing, their absence is exacerbated by insufficient or no skilled workers, technicians and agronomists with higher education. A person who has contributed to the development of fruit growing was DI Stefanescu, who in 1912 organized the first school of gardening in Romania in the village of Vale-Ilfov Dragomiresti. The initiative is part of the Horticulture Society. In 1920 is framed in the Ministry of Agriculture and Horticulture range by inspector, thereby reorganizing the network of tree nurseries. DI Stefanescu is a recognized authority in horticulture because they have multiple tasks: horticulture, fruit growing sector guidance, university professor and other additional duties. As a director of horticulture substantiates a "straightening program" of the sector, the following actions:

- Establish the real situation of Romanian fruit growing, number of fruit varieties and species in each branch, county, determine the most important varieties and those to be replaced;
- Reorganization of active propaganda for public education in the spirit of love for fruit trees. Means: experimental gardens of fruit trees, horticultural exhibitions, publications;
- Organizing the fight against insects phytopathological reasons led a resort center with branches in several centers fruit;
- Rational use of fruit.

## **RESEARCH AND DEVELOPMENT DIRECTIONS IN THE PERIOD 2008-2013<sup>64</sup>**

National Strategy for Research and Development and Innovation proposed action following directions:

- Developing new technologies and getting new products to consumers vulnerable fruit (with therapeutic action);
- Review of quality standards and procedures for quality and alignment of the fruit by the provisions of the European Union (39 rules on the nature, content, production, quality, packaging, labeling, marking and transport of fruit and 36 Romanian Standard – SR commercial quality fresh products).
- Developing a quality management system based on the management of food chemical risks;
- The elaboration of marketing, organization and economic efficiency in the exploitation and marketing of fruit (market research and feasibility)
- Extending fruit storage;
- Modernization and optimization technologies;
- Creation of a specialized laboratory in evaluating the quality and food safety;
- Research in order to create a specialized system of organic production;
- Establish ways to protect the ozone layer;

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<sup>64</sup> Nicolae Stefan Coord, Gh, Glaman - Horticulture Romania over time Vol 4, Romanian Academy, Bucharest, 2008;

## CONCLUSIONS

It can be effectively extended shrubs crops: blueberry (there are many centers with acid soil pH 4.5 to 5.5) currant, raspberry. Climatic conditions that help accumulation of romanian hills in fruit flavors and a variety of specific minerals and vitamins.

The outlook for fruit growing are enormous given large areas of land in slope. In order to develop power and economic resources can be used with maximum efficiency throughout the land fund, and by replacing in the agricultural system and high land. This can make land reclamation works, activities to prevent and combat soil erosion, reducing soil acidic reaction.

Fruit and wine are the most intensive areas of vegetable production and takes the first place in terms of economic efficiency. These two branches meet multiple functions in the use of natural resources, production resources - human and material, as well as the use of primary and secondary. Fruit, the content of its work should be a top branch in Romanian agriculture.

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# Rurality: renaissance economics

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## ABSTRACT

This paper sets out the concept of a renaissance economics model that counters some of the issues of conventional economic models when applied to rurality. The impact of such models on EU enlargement and accession programmes as we move towards 2020 and the next CAP reform will be explored. It will reflect on the legacy of rural development programmes since the establishment of the EU and on alternative approaches to stimulating rural economic development that conforms to the author's rural renaissance model for a vibrant, vital and viable community and regional based economy. The paper will highlight some of the transition points of EU CAP policy past and future together with the impact on the nature and scale of the rural businesses that have now emerged from these policies. It speculates that CAP has simply maintained a largely irrelevant lifestyle for the majority of the rural population or has there been a paradigm shift in the balance between social and economic capital in the competitiveness of modern rural economies.

*Keywords: rural economics, social capital, comparative advantage, CAP reform*

## INTRODUCTION

The unexpected nature of the global economic crash of 2007 -2008 virtually coincided with the most recent enlargement of the EU from the EU 15 to EU 27. The after effects of the global financial crash on the world's economies exposed some of the fundamental flaws within the EU and the misalignment of pragmatic political strategies over economic reality. The major economies of the world have used a range of conventional economic policies and more radical approaches such as quantitative easing in an attempt to mitigate the impact of the financial crisis on society. However, these approaches remain steadfastly aligned to conventional views of traditional economic theory and fail to explore more disruptive and radical approaches in the search for a new economic model. In general current economic policies are informed by the very institutions that failed to forecast impending doom and indeed set the policy drivers in place to initiate the potential for an uncontrolled meltdown.

This paper explores an alternative approach to CAP reform that focuses not on Euro zone, nation state or regional economies but on the comparative advantage of clusters of local entrepreneurs. It is proposed that EU convergence models and existing CAP reform preserve rural lifestyles rather than radically develop viable rural economies for the future. Therefore, it seeks to set out the basis for a disruptive and innovative approach to a new rural economic reality: Renaissance Economics. Through this approach entrepreneurial drivers for change (Hitt, M.A. et al. 2001) support clusters of individuals to build trust and value chain within a common vision that have the potential

to invigorate social capital and refresh the opportunities from which rural communities can benefit. Thus Renaissance Economics when combined with rapid communication infrastructures could potentially provide the same range and diversity of opportunity provided for in urban environments. This would reduce migration from rural to urban areas and the availability of skilled and talented human capital would be moderated only by lifestyle and quality of life decisions rather than purely economic ones.

## **UNCONVENTIONAL TIMES**

Most economists lack consensus at micro and macro economic levels about the causes of the global economic crash and are, in general, confused about the appropriate long term strategies required to counter the deficits in conventional economic theory that were highlighted by the crash. These deficits have been made more transparent by the combined inability of politicians and economists to address alternative proposals to resolve the current fiscal austerity measures. This inertia highlights the systemic failures underpinning the original drivers for the formation of the Euro zone and the globalisation of banking while still pursuing solutions bounded by national politics. Many western democracies have used quantitative easing to prop up ailing and corrupt banking systems rather than look for alternative ways to write off the debt in less conventional ways. Companies undertake these practices regularly in periods of recession. Given that we are living through an uncertain period what is it that makes a nation's balance sheets different from that of a commercial institution and what alternative theories for real world economics can be invoked to manage inflationary pressures.

Iceland, a nation that did go bankrupt and defaulted on a range of loans, emerged from its purdah having re-financed the public sector (Chohan,J.,2011, Icelandic Government Report, 2012a, 2012b) rather than bale out a corrupted banking system. This unconventional approach while still to be proved has stimulated growth in the economy at a fraction of the funding cost provided to the banking sector elsewhere in western economies.

The majority of other mainstream approaches have chosen to re-capitalise the banking sector in an attempt avoid over stimulation of personal indebtedness and increases in inflation. However, the flow of money into the economies appears limited and the question must be asked about the legitimacy of applying conventional economic theory in unconventional times. This has been compounded by the EU parliament and Council of Ministers seemingly incoherent delay in coming to any strategic approach to the financial restructuring of Europe and the Euro. Perhaps this crisis has exacerbated the errors made in setting the entry criteria for the Euro and the arrogance of politicians who thought that they could both overcome and manage the incongruities of fusing the German deutschmark with the Greek Drachma in a single currency and at a single interest rate.

Mundell, R.A., (1961) built on his theory of optimum currency areas in developing his views on the Euro zone. Optimum currency areas do in fact encourage clustering around local comparative advantages rather than necessarily at nation state level. Thus rather than a Euro zone approach driven by supra national comparative advantage it is entirely feasible to consider the development of a local cluster of comparative advantage which itself can combine with another cluster of comparative advantage to grow cluster by cluster into a functional currency area. This is the basis for Renaissance Economics. Some developments in the re-appearance of local currency (Guimard, E. 2012 ) and

microfinance arrangements are indicators of a local response to a local needs to stimulate local economies. None of these approaches seem to address the fundamental issues of using old economic models for a new economic reality but they begin to tackle local community and social cohesion issues by providing alternatives to national currency system. Nation states', whether individually or federally, are constrained by traditional forms of economic policy intervention to overcome a market failure. Alternatively a more radical approach would be to allow the market to determine how best to address market discontinuity and inefficiencies. An ideological journey from Keynes, J.,M. (1936) to Hayak, F.,A. (1978).

## **RURAL RENAISSANCE**

The Rural Renaissance programme as developed and deployed by the author and his team since 2000 sets out to develop an approach based on social capital to develop regional comparative advantages. This concept has been applied in several projects across different segments of the food chain and rural economies. This model chose a model that embraced social cohesion and social capital programmes as the foundation of developing trust and value chains that were able to develop and capture comparative advantages in the market.

Rural Renaissance is based on three high level objectives. First, the creation of a viable, vital and vibrant rural economy that provides economic opportunities across all age and skill groups. This is not simply relevant to the agricultural economy but to all stakeholders in rural ecosystems. Second, the development of social capital capacity in communities to promote employment opportunities for the young and minimises the migration of talent and skills to urban centres. In the UK and the EU the majority of farmers working on commercial farms are over 55 years of age and farming is not seen as an attractive profession to younger generations. Third, by diversifying businesses and refining value chains to increase the rate of return available to rurally based businesses from their product range. This could be achieved by attracting and retaining younger entrepreneurs and workers through the diversification of businesses while improving their value chain to market.

In this article the word entrepreneur is used to focus on the collective attitudinal and aptitude skills required to drive forward comparative advantages, rather than necessarily the impact of an individual entrepreneur. Significant benefits can be gained through streamlining marketing and operational businesses activities as a result of facilitating agile collaborations or consortia of businesses integrated vertically and horizontally. This latter approach does align to the current CAP and future CAP pillars for rural development. Indeed the majority of rurally based enterprises now generate more money for off-farm or value added activities (Reardon, T. et al. 1998).

The current tension in the Euro zone rests in the lack of clarity in the continuing benefit arising from the re-distribution of wealth between rich and developing nation particularly where there is not comparative advantage in doing so. It is clear that there is a real compromise being made in terms of Nation state versus the European Union. Ultimately, the individual voter faced with the choice of having a job to pay for their current lifestyle and a social responsibility need to donate funds to another community of comparatively greater need than themselves, becomes one of self-interest particularly when the comparative need is no longer clear.

## **DRIVERS OF ECONOMIC THEORY**

Adam Smith (1776) in his treatise *The Wealth of Nations* set aside the mercantile concepts of production led economics with his views on consumerism driven production. When combined with the thinking around comparative advantage (Ricardo, D., 1817) and extended by others demonstrated that while there may be no obvious reason to enter into a trading arrangement none-the-less comparative advantages can exist to make a trade a profitable option for all parties concerned. Where is the appropriate locus for establishing this comparative advantage: national state; regional state; community or an other cluster. Indeed what role does politics have in establishing these comparative advantages over those created by individual entrepreneurs acting singly or collectively. Does comparative advantage develop as a result of a Nation state's ability to satisfy infrastructural needs or does it arise from the collective efforts of individual investment decision. MacAskill (2011a,b) demonstrated that comparative advantages can exist at the local level and that social capital and wealth creation could be placed in the hands of local entrepreneurs or consortia of like minded people.

The current state of austerity suggests that CAP reform demands a more radical approach as proposed by renaissance economics to stimulate independent rather than a dependent society that promotes the efficient exploitation of social capital. This support could encourage viable, vibrant and vital sustainable economies around the world if individual mind sets can be changed from the exploited to the entrepreneur. Renaissance Economic modelling is based on long term individual wealth creation through collective action rather than short term interventionist funding. Such funding is often transient, of limited impact, often in competition with other donor agency schemes and only occasionally do they demonstrate coherent transition points into future funding streams. They have limited impact as a result of institutional bias, policy inertia and lack of institutional capacity. In contrast individuals can choose to create wealth through their individual or collective actions. Through their "entrepreneurial" actions social cohesion and job creation can be a positive outcome. Rural renaissance requires that state interventions such as CAP are dramatically reduced to allow entrepreneurial activity to tackle and provide solutions for fractured markets. The transition points between funding streams should be determined by the entrepreneur not the state. The Nation state's role is to unblock barriers to those solutions not apply interventionist measures at the individual business level through direct or decoupled direct subsidy payments.

### **Renaissance economics**

Renaissance economics is the power of the small over the large in an echo of "small is beautiful" concepts (Schumacher, E.F., 1973). Building on this concept large organisations will be successful only if the business ecosystem in which they operate mirrors that of the equivalent small businesses. Correspondingly, renaissance economics proposes small operations can become large organisations if they remain aligned with the principles that made them a success in the first instance and the local entrepreneur is driven by social as well as financial capital motives. It counters the arguments that the only option is for large scale investments premised on large single foreign direct investments. Renaissance economics works through a preference for multiple smaller scale investments able to embed within the community a raft of

divergent skills to support comparative advantage development through localised expertise. This approach promotes cluster development (Delgado, M., Michael E. Porter, M.E. & Stern, S. 2011. Solvell, O. et al 2003) and further enhances the potential to create and capitalise on local and regional comparative advantages. Therefore, these entrepreneurs engage in activities to maximise both but recognise the benefits of communities and sustainable use of natural resources and social capital as a means of maintaining their comparative advantage. They will use technology and resources that are appropriate and sustainable in order to embed their comparative advantage both geographically and in the markets they serve. Alternative technologies and the use of the world-wide-web can support reduction in carbon footprints and promote efficient logistic support. They also support a range of skills and competency requirements that are more relevant to younger sections of the community.

Too much emphasis has been placed on large traditional economic projects based on single foreign direct investments. Such projects can but rarely embed and stimulate a diversity of businesses. Rather they create a dependency supply chain pushing stocking costs onto suppliers and seducing many employees into an urban poverty trap that adds to the social welfare burden. A focus on rural businesses and the impact of wealth creation in rural economies and the relative quality of life improvements can contribute to reducing poverty as well as localising food security. It is important that citizens retain a link to their rural past with potential to be sustainable rather than an urban sophistication that can only ever be dependent and unsustainable. The impact of previous recessions, particularly in the recently accessed states, led many families to rely on retreating, albeit temporarily, to their rural origins to obtain basic food ingredients and a safe and self-sufficient alternative. It is important to reflect on these challenges in promoting new economic models to build wealth if they sacrifice our ability to build a sustainable future with different values. It requires a radical mindset change in the political elite and in policy formulation as well as individuals in the rural communities themselves. The relationship between the individual and the state will require to change (Frizzell, E.2010).

Governments around the world are focused on food security and industrial farming models. However, it is likely that global food supplies are entirely capable of keeping pace with population growth and food demand (Von Grebmer et al. 2012) However, localisation of food security is a major issue as it is a major hurdle in reducing particular issues around creating dependency cultures rather than locally sustainable economies.

We are conflating two fundamental issues in our drive towards sustainable development for food resources and democratic progress by failing to tackle the issues facing sections of the population at risk of exclusion. Take the Sahel region where dramatic shortfalls in production raised alarm in availability of food (Von Grebmer et al. 2012). However, average production was down only 3% and neighbouring countries actually produced 9% more food during the same period. Indeed the entire West African group of countries produced 5% more food than demand required. Adding in commercial imports then there was an entire surplus in supply. So generating headlines is good for raising charity funds but disrupts strategic policy developments and breeds a dependency culture. A similar dependency culture has been masked as transition funding as a result of sequential CAP reforms arising from the strong farming lobby's present in the EU.

In 1826 the economist Von Thunen (cited in Samuelson, P.A 1983) developed the concept of concentric rings around a city for the logical distribution of agricultural



activities. Today we might extend this concept towards that of cluster development and there use to promote not simply agricultural production but a raft of different rural enterprises with a range of skills and competences that result in a set of comparative advantages. Renaissance economics embraces the concept of clusters or indeed consortia as means of creating and scaling comparative advantages at the local level. Many “box” schemes for the local supply of organic vegetable are localised on this basis even where they operate at a national level (Brown, E et al. 2012).

In this way local communities can trade across various market levels. Given access to the world-wide-web trade has freed those boundaries to trade other than through protectionist non-tariff barriers to restrict trade. Therefore, there is a reasonable expectation for value chain improvements for clusters demonstrating comparative advantages.

The Chinese model for economic growth is unconventional and based on a two system approach. First, an apparatchik economic model that limits involvement to process and stability of the institutions of government over the long term, by which it meant to extend on a multiple generational basis. Second, an economic model based on social capital where individuals determine wealth creation at a local level. The idea of Nation state does not form part of the Chinese system as it is based on the premise of a civilisation that has endured over thousands of years. Therefore, decisions at the State level are based on long term returns and not necessarily the enforced short term returns of western democracies. The system is not perfect but is proving to have a range of comparative advantages attractive to trade. Thus in the Chinese policy for a New Socialist Countryside (Green, S. 2006., Chen, X., 2006) the state builds highways into villages: but makes no provision as to how the people are to capitalise on the highway; provide transportation services or support the development systems to support access to new markets. The development of these policies remains within a multiple generational context while the interventions are delivered at the level of the individual entrepreneurial and community (Guo, X., 2009). This type of approach does not happen rapidly as it takes time to mobilise resources at the level of entrepreneur. The individual is responsible for their quality of life not the State.

## **CONVERGENCE ECONOMICS**

The convergence and comparative advantage models deployed by the EU have not provided sustainable and viable rural economies nor has CAP reform moved beyond a policy essentially based on some form of production subsidies. Renaissance Economics proposes that direct payment subsidies stifle new market opportunities and enterprise models and result in an intrinsically unstable and flawed economic model for global competitiveness. The EU has grown through a series of enlargements and successive policy developments have attempted to regulate growth across business and economic cycles. While, encouraging elements of renaissance economics the dominant EU policy direction is focused too heavily on the internal market and internal consumption models that has reduced the impact of competitive global advantages at the local level. It remains, predominately, vested in short term interventionist planning that encourages entrepreneurs to divert their main competitive advantages into areas that attract funding but may dissipate their long term comparative advantage.

Most of the EU programmes focus on the re-distribution of industrial wealth from developed economies to developing economies. MacAskill (2011a) highlighted issues around convergence theory and the ability of current EU policy to do anything other

than maintain these differences and at worse pull down and produce long-term reductions in GDP of the economies of the net contributing countries.

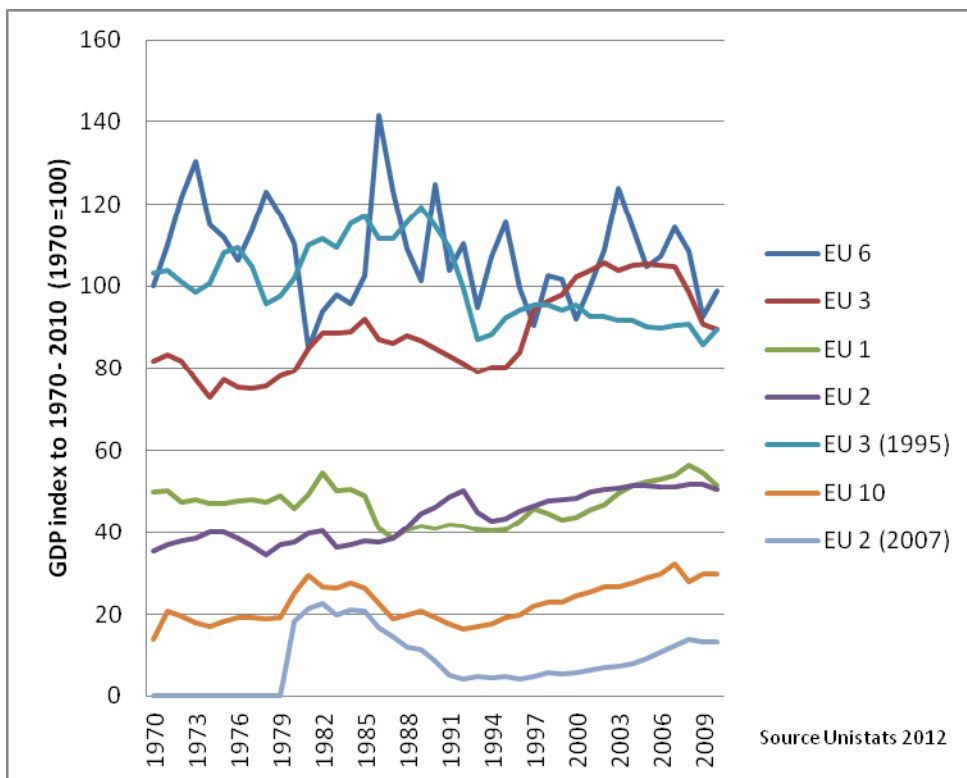


Figure 1. EU convergence GNP per capita current US\$ 1970 to 2010 - index to 1970 (updated 2012)

Thus large single FDI such as in Slovakia (Jakubiak, M., et al. 2008) in the car industry or the mobile technology investments in Hungary (Fodor, P.& Weiner, J. 2010) have exploited transitory labour and skills advantages. Conventional economic policy would infer that large capital investments generate a significant local wealth effect through employment and spin out feeder industries supporting the core investment. This has the potential for creating technology and wealth clusters that could cascade a raft of innovation bubbles and spin-off opportunities over the long term. The issue is the nature of long-term investment and commitment required (Brown, R. 2000). How the long term welfare benefits to local economies are as yet unproven and many single FDI projects have yet to demonstrate wealth creation through a cluster cascade (Moran, T.H, Graham, E. & Blomstrom, M., 2005). During periods of recession retrenchment from international operations is common and has repeated itself (Beckfield J. 2006. Caballero, R. J., & Hammour, M. L. 2000)). Figure 1, updated from MacAskill (2011a), highlights a key finding that the relative GDP growth of member states reflects the economic performance of the member state at the time of accession and their ability to absorb structural funds. Thus member states cluster in parallel pathways of EU economies that represent the deep deterministic impact of the level of economic development on entry to the EU particularly those economies with greater agricultural legacy or in southern Europe. These essentially divide the EU into developed northern states and less developed southern states.

Therefore, Renaissance economics sets out to refocus enterprises on comparative advantage at a local level that ignores the skewing of commercial models by subsidies and supports entrepreneurs in their desire to create social and financial capital.

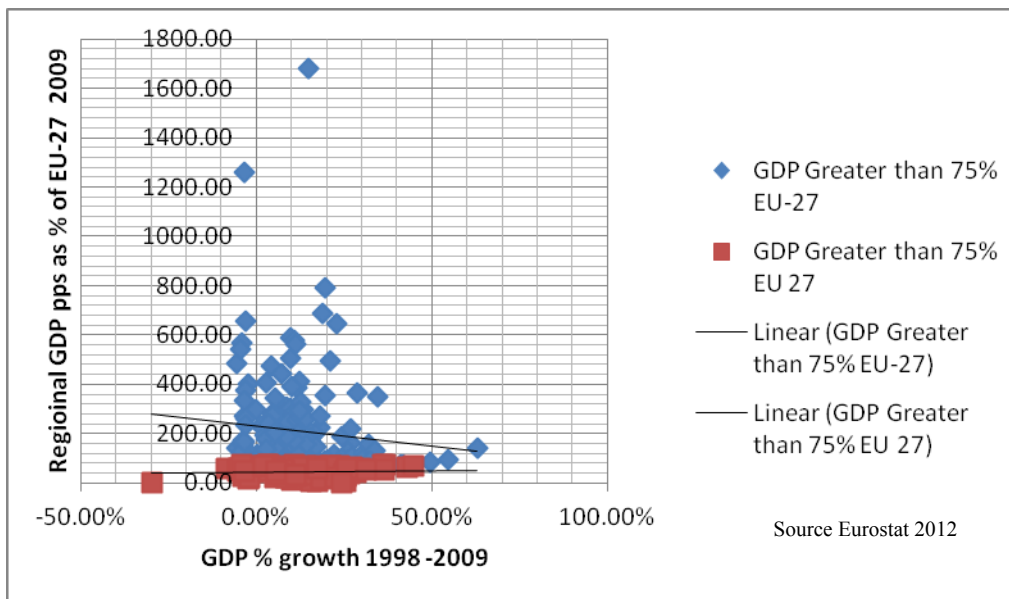


Figure 2: EU comparative advantage index from 1998 to 2009 across EU-27 (2009 =100)

The gross aim of the EU is to promote the convergence of individual nation state economies into a single monetary and fiscal union. To facilitate this EU has set out a series of infrastructure funds to promote convergence and exploit comparative advantages along the way. Figure 2, updated from MacAskill (2011a), illustrates the dilemma for EU convergence strategies demonstrating large disparities across the EU 27. However, from a regional comparative advantage perspective the opportunities are considerable for internal market competition between northern and southern member states as well as markets outside the EU.

However, capital centres are getting richer and rural areas getting poorer (Von Breska, E. 2010) with the impact of urban migration resulting in aged populations in the rural communities and corresponding skills deficits as a result of absence of opportunity or investment potential. This leads to social and health care deficit budgets in these rural communities as a determined by the associated demographic and unemployment rates.

In a deeper analysis of this convergence model along side the reasons underpinning the unexplained economic crash one must assume a blending of economic and business cycles. When aligned with concepts of destructive innovation (Christensen, C. (1997) it perhaps suggests that the economic crash was a signal of the closing of one industrial revolution and the beginning of another. The trend over the last 250 years has been one of boom and bust typified by a traditional “S” shaped growth profile and the relationship between adjacent curve transition points may determine the smoothness of future economic prosperity (Curry, A & Tibbs, H. 2010). Such a model implies the long term relationships between social cohesion and social capital momentum as modernising influences and their impact on society through their associated environmental impact (Inglehart, R. 1997). The impact of Kondratiev cycles

([Korotayev, A., & Tsirel, S. 2010](#)) on evaluating long term interaction between business cycles and economic models supports the importance of understanding long term developing models for a sustainable future rather than the necessity for convergence.

Historically the economic models and growth curves has been driven through classical supply and demand models. Economies of scale and comparative advantage over layered these in determining price and value of potential trades. However, from the 1960's financial models moved away from the monetary unions to more complex and globalised financial instruments. Thus the clarity of historic links between supply and demand with value added became more tenuous and globalised (Albrow, M. 1996). The continuous desire for sustained expansion that model implies became a corner stone for sustained economic growth. However, could it be that globalisation and listening to your customers too well or having an ability to control your existing markets you may in fact progressively move away from the real market opportunity (Christenssen C. 1997). Those organisations able to introduce a disruptive innovation can gain a comparative advantage. If one applies this concept to rural economies then EU convergence models and CAP reforms have perhaps resulted in a policy drift that has moved the EU away from implementing a real disruptive innovation that will sustain the market moving forward. Renaissance Economics suggest the destructive innovation required is to release social capital to determine the future vitality of rural economies by supporting entrepreneurial activities and removing direct input subsidies.

Since the age of enlightenment in Europe historians and economists have viewed the momentum that positioned Britain as the crucible of the industrial age rather than a mere island backwater provides some perspective on how it is important to precisely frame the context for the challenge or opportunity to be addressed. Thus in the 18<sup>th</sup> century the world view shifted and new drivers for change lead to a fundamental shift in economic models. During this period there was a dramatic transfer of wealth from an agrarian economy to an industrial one (Brook, T. 2009).

The economists view might be one driven by innovation and invention that led to the ability to use different materials in greater quantities and access cheap and accessible energy supplies to fuel the increased production. Increased production was required because of the global markets available to the UK at that time and improvements in scale of transport and logistic systems. This technology push produced a virtuous cycle that led to a range creative and innovative solutions to accessing deep coal seams through better water pumps and heavier lifting gear as a result of the invention of practical steam engines. This also allowed greater loads to transported to the market and thus the parallel development of the train, canal and ship technology. The cycle continued and the number of patents registered grew exponentially as did the wealth of the individual and the country.

The historians view might be one where most economies in Europe at that time had access to natural resources, shipping for transport and through greater urbanisation cheap labour to convert the raw materials into products for the market. France, Germany, Spain, the Netherlands all had the capacity to be the centre of the industrial revolution. However, the political structures in these countries were contra-innovative and bureaucratic. They also had come through over 200 years of mercantile wars with Britain who had dominated the main transport system to cheap raw material, the sea (Roessler, S. E., & Miklos, R. 2003). Britain in winning the mercantile wars of the 18<sup>th</sup> century had in effective cornered the market both through its Empire and the speed and access to the markets through its naval power and merchant fleets.

Therefore it is possible to frame an analysis that states that the EU is laying out economic policies doomed to failure as the political and resource base is not commensurate with the needs of a new model economy. It is entirely possible to suggest that the EU is moving into a post-information technology society and one where corporate social responsibility allows a re-assessment of globalisation as maturation phase in a growth cycle rather than a macro economic theory.

Creative destruction (Schumpeter, J. A .1994) and the drive for a sustainable future in a post hydrocarbon age must transition to the next generation of technology. Efficient social capital helps embed the increasing pace of technological change and the ability of society to integrate useful technologies and discard non-essential ones (Christenssen, C. 1997). Perez (2009) developed the concept of “surge” through the transition points between cycles based on first, growing on from the maturity level of the previous cycle and second, its particular form or shape that allows the new paradigm to become ubiquitous.

Energy drives economies, their revolution and evolution. In the current hydrocarbon dominated economy the price of oil & gas (Heinberg, R. 2003) merely substitute the historic role of coal in determining the future sustainability models that will shape our short term future. As emerging economies absorb more and more of the limited conventional energy resources the pace of transition will increase from traditional forms of energy to post-hydrocarbon or alternative technologies in response to declining production capacity or increasing environmental threats. The current models of energy production do not work and the hunt for unconventional solutions will become more intensive and more funds looking for the next wealth curve will search out opportunities.

## **TOWARDS 2020**

The concept of Renaissance Economics draws upon the analysis of Schumpeter, Schumacher and Christenssen by considering the current fragility of rural economies and the growth in urbanisation. It is now no longer viable to support inefficient rural economies time warped in an age when farmers saw themselves as independent small businesses yet demanded subsidies from the state. Renaissance Economics contemplates a new approach to building rural economies based on expanding social capital and entrepreneurial rewards rather than social welfare.

The most recent CAP towards 2020 proposals (Commission Staff Working Paper, 2011) go some way to extend the previous rural economic development model but fails to radically reform rural communities. CAP remains a contract with farmers to receive a direct subvention in one form or another. Further CAP reform misses the opportunity to grasp the real means of delivering multiple Public “Good” outcomes by addressing the social welfare traps for the elderly. Renaissance economic measures propose a radical reform to improve the vitality of the rural economy and the proposed CAP reform beyond 2013 (Ciolos, D. 2012) simply sustains an existing and unsustainable model. The CAP proposed still consumes 41% of the EU budget.

*Table 1: Summary of CAP spend on direct subsidies to farmers 1980 to 2009*

CAP Phase	Intervention	Percentage of CAP
1980-1993	Market support	25-30%
1992-2006	Direct payments	25-30%
2005-2009	Decoupled Direct payments	25-30%

The conclusion of this must be that the EU continues to subsidise people to stay in rural areas rather than support rural renaissance and renaissance economic programmes to stimulate entrepreneurship and new enterprise models.

CAP in its current form is no longer required. It was created at a time when the EU was emerging from conflict and food supply crises. A modern Europe needs to stimulate local comparative advantages through disruptive change. It is no longer acceptable to support inefficient farming practices or use it as a proxy for social welfare payments that simply preserves some idealised view of the countryside.

CAP should be preparing itself for an affordable and sustainable food security programme in parallel to building its vital, vibrant and viable rural economies to meet the challenges of the future. Rural economies will only become independent of CAP if social capital can be harnessed and diversity of opportunity for the young and talented is realised. We are drifting towards a post information technology age and now is the time to look towards a new agrarian revolution. Rural renaissance requires rural economies to function as any other market and to develop their own comparative advantage at local and regional levels. In this way clusters develop at local levels and can trade with other clusters and who themselves can expand the scale of their operations all the time maintaining local comparative advantages at every stage. Such an alternative prospect may lead to the development of viable business clusters capable of themselves extending beyond regional and national boundaries.

## **REFLECTION**

Renaissance economics drives change in the way public and private sectors contribute through the development of Trust and Value chains and the harnessing of social capital in local communities. Through this approach inefficient processes can be stripped out and scales of economy gained through entrepreneurial action in consortia or other sharing of resources. This ensures that the producer gains maximum value for their products and minimizes handling fees along the supply chain.

To be competitive rural economies must shake off the subsidy “junk” perception of the EU citizens they are expecting to support them. Through looking afresh at their current mix of rural businesses and opportunities for business diversification and development that add value then a radical rural renaissance can take shape.

Renaissance economics seeks to build a cyclical approach to local comparative advantage and thus develop vibrant viable and vital rural economies:

- Change mind sets and set new aspirations
- Develop value through social capital based communities and consortia
- Establish comparative advantage through social capital action
- Create wealth and employment through local entrepreneurial activities
- Streamline value chains to gain direct access to consumer markets and stimulate demand through business diversification
- Remove support for inefficient business models
- Gain additional comparative advantage through clustering of businesses to promote economies of scale and sharing of knowledge and technology
- Review and reset aspirations and expand clusters of comparative advantage

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# Using cognitive maps for rural development perspective in Mexico<sup>\*</sup>

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## **ABSTRACT**

This paper seeks to represent the differences in perception between different stakeholders on the effects of open market policies on micro and small agricultural producers in rural areas of Michoacán (Mexico). Starting from a bottom-up perspective we made use of mental models and cognitive maps. This process has permitted us to deal with the dynamic nature of the process for identify strategic objectives and policy actions.

**Keywords:** *Mexico, cognitive maps, small agricultural producers*

## **INTRODUCTION**

In recent years there is an increasing recognition that technocratic approaches to rural development have limitations, especially to solving complex problems that involves multiple stakeholder groups in a local context (i.e. research institutions, extension, rural

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<sup>\*</sup> The work is the result of a full collaboration of the authors

communities, NGOs). Where policy problems are characterized by a certain level of complexity, and where existing institutions are too weak to manage these problems, empirical evidence suggests that social learning should occur among the different stakeholders to produce solutions that are more beneficial. By understanding stakeholder perceptions and motivations, shared values can be created within multi-stakeholders framework.

Starting from concerns about the economic and social effects of the North American Free Trade Agreement (NAFTA), in this paper we used mental models and cognitive maps to analyse its consequences as perceived by small producers of rural communities with respect to this different status of markets. In addition, it allows us to have a better awareness of what drives the local behaviours' community and their decision making process.

For many Mexicans open market policies in Mexico appeared to promise a rapid entry into the First World but high rates of poverty, unemployment and business failure persist. While export sectors have experienced notable growth, small - scale productions for the domestic market has suffered and in many cases entered in serious crisis. The economic integration process has been very challenging process for micro and small-scale agricultural producers in Mexico since they are too small to achieve economies of scales (Wise and Waters, 2001).

The paper is structured as follows. The sections 1 introduce the theories underlying concepts of mental models and cognitive maps. Section 2 discusses a case study in Michoacán based on a collaborative process of creating shared visions of the rural developing policies. Section 3 presents results and conclusions on the potentials of this approach to deal with dynamic nature of the process for a future identification of strategies and actions.

## **MENTAL MODELS AND COGNITIVE MAPS**

In recent years there has been an increasing interest for understanding of the ways in which different representations of the world are organized and socially influenced (Kellert et al., 2000; Gadgil et al., 2000; Armitage, 2003; Brown, 2003; Davis, 2003). Shared mental models in communities provide interpretation and structure of an external environment and are therefore an important component of how individuals make decisions.

Mental models in a farm community provide a tangible method to represent similarities and differences between the knowledge, understanding, and goals of various stakeholder groups.

The mental models framework are external representations of the way in which participants have constructed and organized internal versions of external reality in their

minds. The mental models have been referred to as simplified mathematical models of belief systems and have been used to represent both individual and group knowledge.

Cognitive mapping is a concept linked to mental models. The term “cognitive map” has a long history. It was originally coined by Tolman (1948) in while studying decision making in “rats and men” and based on the theory of Kelly (1955) of “personal construct”. Cognitive mapping shares many of the same base theories of cognitive psychology used by mental model theorists. Kelly gives the foundation for this theory, based on a particular cognitive psychological body of knowledge. It argues that humans being are continually striving “to make sense” of their world in order to “manage and control” that world. In this way it implicitly sees the individuals as a problem finder/ problem solver and using concepts rather than emotion to guide action. Checkland (2001) calls this approach as “soft systems thinking” as a constructivist way of thinking about “problematic situations”; i.e. systems don't exist as objective entities but are mental constructs to learn one's way through problematic situations.

According to Cossette and Audet (1992) “a cognitive map is a graphic representation of a set of discursive representations made by subject with regards to an object in the context of a particular interaction”. They stressed the importance of the researcher in the process, since much the work of the researcher as the subject whose map is being drawn.

Eden (1992) is also broadly in agreement: “Cognitive maps can be seen as a picture or visual aid in comprehending the mapper’s understanding of particular, and selective, elements of the thoughts (rather than the thinking) of an individual, group or organisation”. A cognitive map shows a representation of how humans think about a particular issue, by analysing, arranging the problems and graphically mapping concepts that are connected between them. In addition, it identifies causes and effects and explains causal links (Eden and Ackermann, 1992).

Mapping can be used in many different ways, with individuals, groups, for the analysis of documents. Detailed descriptions of cognitive mapping techniques are offered by Ackermann and Eden (2005), Bougon (1992), Bryson et al. (2004), and Laukkanen (1998). Huff (1990), Nelson et al. (2000), discuss the range of mapping techniques available and how they have been used.

## **A CASE STUDY IN MICHOACÀN**

The study described in this article reports the results of an international collaboration in the framework of a project carry out by Vive Mexico (NGO) and Colegio de Estudios Científicos y Tecnológico del Estado de Michoacán. The project involved many integrated activities with the aim to promote local sustainable development in rural areas of Mexico. The purpose was to achieve a sustainable access to economic and social services for particularly poor and disadvantaged groups. Indeed, our case study

has been conducted within a subproject in the agricultural areas in Michoacán, one of Mexico's main producers of agricultural products (D'Amico et al. 2010).

Formally, the NGO “*Vive Mexico*” was responsible for an evaluation of policy actions to assist agricultural smallholders. Our research group has developed a research activity to evaluate a number of measures that can enhance the competitiveness of micro and small agricultural producers in Mexico.

During the second half of 2010, a numbers of meetings and workshops were held in different parts of the Michoacán region and designed to involve a range of producers and social organizations active in rural areas. Participants invited to take part at meetings (focus group and workshops) can be divided into three groups:

(1) Small agricultural producers of four representative production areas: Morelia, Patzcuaro, Uruapan and La Piedad. In these areas there are the most important production of traditional crop, and avocado. These areas of analysis allowed us to analyse the impacts of the economic integration process in Mexico and the issues that they could raise.

(2) Federal and provincial governments employees from rural development, tourism, environment and communication institutions; and local stakeholders such as NGOs, private landowners, presidents of municipalities and official representatives of *ejidos* and indigenous communities.

(3) A special focus group was directed to officers of *Secretaría de Desarrollo Agro-Pecuario* (SDDAP), rightly considered one of most important part of local socio-economic system. Aim of this Agency is the recognition and management of statistical data on agriculture of Michoacán State and their diffusion to producers, with the support of technical and economic activities, serving as a liaison between the central government (Ministry of Agriculture) and the peripheral public units.

## **DISCUSSION AND RESULTS**

In our case study, a cognitive map was used to work with groups of experts and stakeholders active in rural areas of Michoacán (Mexico). This technique was particularly useful to reach agreements about how to deal with the identification of strategies able to strengthen policy actions related to the integration of production activities of the agricultural smallholder in the context of open market strategic issues.

This process has been first carried by employing manual techniques (such as the Oval Mapping Technique - OMT), discussed by Bryson et al. (1995) and refined by other researchers (Ackermann and Eden 2005; Bryson et al. 2004).

The resulting map was later captured digitally using Decision Explorer and/or Group Explorer - Baxia to show cause-effect or influencing relationships identified during the mapping process and help the people involved to “figure out what they can do about an area of concern”(Bryson et al. 1995).

Individual maps, have been later congregated into an “aggregated map” (Eden and Ackermann 1992). Identical concepts (i.e., similar wording, same context but different maps, or both), have been merged into the aggregated map by combining the wording used in individual maps. This process gave each person a sense of ownership of the map.

In the final step, we used some facilities provided by Decision Explorer to carry out several analyses that could help us in identifying key issues. Cluster analysis was performed to find groups of closely linked concerns. Each cluster can correspond to one or more key issues according to some parameters introduced into the software, namely the target and the minimum size of the cluster.

In figure 1 is reported one the cognitive map constructed, which shows farmers perception of issues involved in the agricultural system of Michoacán.

The principal focus of discussions was the negative effects of the liberalization policies, such as decline in local commodity prices, lack of economic and technical support for agricultural enterprises, low efficiency of agricultural policies that have been particularly dramatic in rural areas.

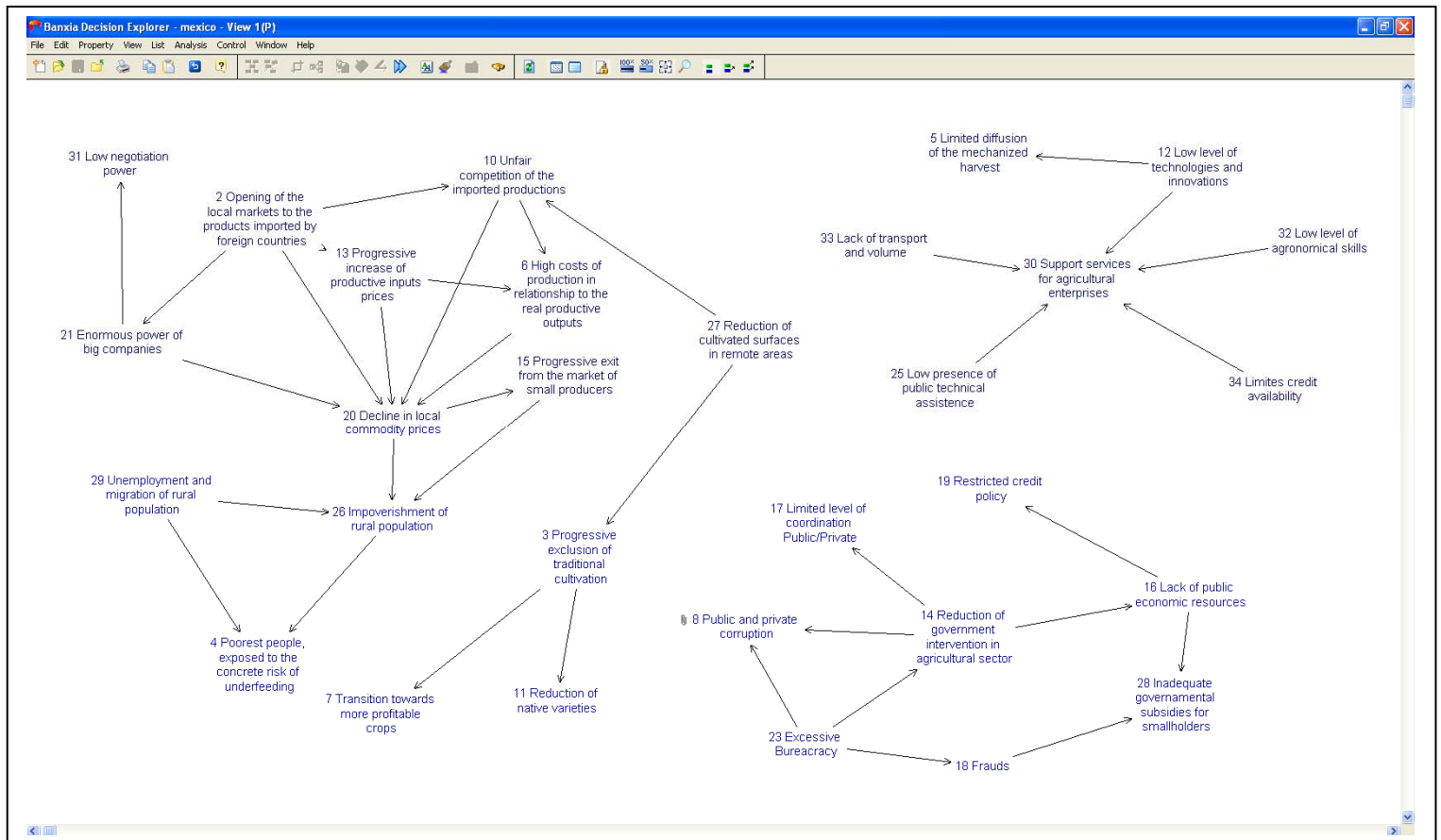


Figure 1. Cognitive Maps resulting from a cluster analysis

During focus group and workshops, participants described a progressive decline of living conditions of rural population as a consequence of the reduction of price supports for basic grains and the elimination of subsidies for productive input. Besides, according to the participants, smallholders and family farmers have seen their production costs rising while the relative price of their products has fallen. As showed in table 1 the main themes resulted trough the analysis of cognitive Map can be clustered in different critical factors.

*Table 1. Main themes of conflicting interest between stakeholders with regards to political actions of Government*

<b>Themes</b>	<b>Potential conflicting issues</b>	<b>Basis for consensus on common goal</b>	<b>Objectives</b>
<b>Production management</b>	<ul style="list-style-type: none"> <li>- High cost of production</li> <li>- Low price sale of local agricultural products</li> </ul>	<ul style="list-style-type: none"> <li>- Agricultural technical assistance</li> </ul>	<ul style="list-style-type: none"> <li>- Increase of efficiency</li> <li>- Improving access to credit for smallholder farmers</li> <li>- Create basis for cooperation among smallholder</li> <li>- Reduction of trade of raw materials</li> </ul>
<b>Human and environmental resources</b>	<ul style="list-style-type: none"> <li>- Survival of agricultural smallholder economy</li> <li>- Lack of adequate environmental protection</li> <li>- Progressive impoverishment of rural population</li> </ul>	<ul style="list-style-type: none"> <li>- Development of research programmes for school and universities</li> <li>- Innovation in agriculture</li> </ul>	<ul style="list-style-type: none"> <li>- Facilitate the access to the market</li> <li>- Improve information flow and the reduction of information asymmetry</li> </ul>
<b>Institutional and political support</b>	<ul style="list-style-type: none"> <li>- Lack of planning by public management</li> <li>- Corruption</li> <li>- Expanding system of informal economy</li> </ul>	<ul style="list-style-type: none"> <li>- Strategy for innovation and good governance at local level</li> </ul>	<ul style="list-style-type: none"> <li>- Transparency and public trust</li> </ul>
<b>Prices of commodities</b>	<ul style="list-style-type: none"> <li>- relevant bargaining power of big agricultural companies</li> </ul>	<ul style="list-style-type: none"> <li>- control prices of factors production</li> </ul>	<ul style="list-style-type: none"> <li>- Increasing the Competitiveness of Market chains for Smallholder producers</li> </ul>

Participants pointed out that these processes determined an increase in basic-grain imports and the dismantling of the production chain in Michoacan agriculture and its agro-industry, with a consequent reduction of employment opportunities in the sector and a massive migration towards urban areas as well as across the border to the United States of America. Concern was expressed about unsustainable use of natural resources, leading to greater environmental degradation and the loss of biodiversity.

Participants concluded that liberalisation policies are serving to exclude one-half of those who had been making their livelihoods through agricultural production, particularly small-scale producers, from being able to earn a living in the agricultural sector.

Almost all respondents agree in pointing out the risks arising from oligopolistic dominant positions of multinational corporations that operate in most representative industries of agricultural sector.

The survival of small farmers and poverty reduction is prejudiced from the enormous bargaining power of big economic companies (Vindigni et al, 2011). In this sense, a strengthening of activities and coordination of *ejidos* could reverse the

predisposition of current market trends. The *ejidos* are certainly more democratic and egalitarian organizations, able to better take into account the specified requirements of smallholders, protecting efficaciously their interests.

The study also identified some aspects closely related to technology and public intervention. In the opinion of the respondents the government should provide more assistance and credit facilities could benefit from the modernization of the sector, especially as regards the cultivation techniques. In this sense, according to some producers, the government should intervene in order to facilitate the granting of low-interest credit for the purchase of inputs and machinery, making economic agreements with major banks of the country. Many producers further require a public action by the State to subject price control of inputs, through direct subsidies aimed at establishing maximum prices and as a consequence decreasing in purchase prices. Finally, was stressed the point of the lack of adequate environmental protection for specific cultivation such as avocado. The deforestation of large parts of the territory (linked to the need for land to cultivate) and the excessive use of pesticide has led to an alteration of balances environmental (pollution of groundwater and increasing phenomena of hydrogeological disruption) damaging the overall living conditions of many indigenous and rural communities.

## CONCLUSION

Research based on cognitive mapping is an effective approach to enhance learning. This study allowed us collective identification of farmers' perception about political and economic constraint as well as solutions based on farmers' context-dependent knowledge. The approach adopted permitted us to deal with the dynamic nature of the process for identify strategic objectives and actions as well as to have a better awareness of the problems they face. In addition, there was a better understanding of the local farmers and the actors involved with better organizational, analytical, experimentation, and communication capabilities. They have seen the relevance of sharing results as agents of agricultural and community development. A generalized worsening of the conditions of small agricultural enterprises has been observed in several studies (Hoffman, 1998; de Ita 2003, Carrà et al, 2011). The lack of appropriate rural development policies after the NAFTA Agreement, as well as the delay in the individuations of suitable agricultural policies such as support of the prices, credit to the production has exposed the Mexican economy to the strong international competition in the agro food sector. This has increased of disparities in poor rural areas of the country. Our results show how depths changes of the world economic context (such as globalization and internationalisation of the markets, worldwide increase of population, etc.) if its non balanced by the support of an accurate and territorial based policy has been perceived as a critical factor that has worsened smallholder and rural population's conditions.

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# The traceability of agricultural products in Direct Selling Organizations (DSO)\*

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## **ABSTRACT**

Ten years after the enactment of the Community Regulation n. 178/2002 on traceability of agrifood products have increased the public or private systems on the market and many of them concern the traceability of fruit and vegetable production. The weak point of such systems is related to the fact that they are often self-referential (voluntary certifications, certificates of other companies, etc.) And do not have the credibility that the consumer can have a local authority to provide a warranty imprimatur on specific and detailed aspects, the origin - in the first place - and the margins reliability, understood in terms of control of production processes employed. This communication summarizes the research activities carried out by the working group of the Department of Agricultural Economics and Policy of the Department of Economics and Business, University of Catania, which has led to the development of a software prototype for the certification of the origin of Sicilian fruit and vegetables within a Direct Selling Organization (DSO) model. The project idea behind this system considers the traceability of local products in a logic of “territorial system” and not mere “commercial chain” and combines the consumption of the agricultural product where it comes from “certified” by the system, such as tourist vehicle (and not just in food and gastronomy) in the area. The system differs from the traditional procedures of “traceability” prepared primarily to comply with the legislative requirements, allowing to switch between traceability, where the relations between the actors are closely linked by trade-related aspects, traceability to a “network” that focuses on the territorial aspect.

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\* The research has been carried within the project of the Sicilian Region “Organizational innovations in the Sicilian fruit and vegetable supply chains” (cod.20104035006) coordinated by Prof. Placido Rapisarda of the Department of Economics and Business, University of Catania. The work is the result of a full cooperation and is therefore a joint responsibility of the authors. The material preparation of paragraphs 1 is due jointly to Department of Economics and Business, University of Catania. The work is the result of a full cooperation and is therefore a joint responsibility of the authors. The material preparation of paragraphs 1 is due jointly to the two authors, while 2, 3 and 4 paragraphs is attributed to Marcella Rizzo. Paragraph 5, the final one, is attributed to Manuela Pilato.

**Keywords:** traceability of agricultural products, software prototype, Direct Selling Organizations (DSO), territorial system

## INTRODUCTION

EC Regulation n.178 of 2002, drawn up at the time as a measure of food security safeguard, from which derived the hygiene package in 2004 (these are Regulations n. 852, 853, 854, 882 of 2004, together with the directive n. 41 and 68 again in 2004, which aim to ensure the hygiene of foodstuffs at all stages of the production process, from primary distribution to sale to the final consumer and, therefore, to extend the system HACCP (Hazard Analysis Critical Control Point) or Hazard Analysis and Critical Control Points), has provided a series of interventions focusing on traceability procedure of food products.

In the Green Paper on “General Principles of Food Law” in 1997<sup>\*\*</sup>, inspiring document of the abovementioned operations, the European Commission had coined the slogan “farm to table” to indicate the need for an extension of protection applicable to all links in the food chain. The Regulation establishes the European Food Authority and introduces a fundamental principle, namely *the principle of precaution*. This provides that where there is any uncertainty about product safety, it should consider dangerous until there is evidence that prove the opposite. In fact into European concept of “traceability” was introduced in the first place to ensure consumers against certain industrial products (this is the EC Regulation 3821/85, monitoring equipment in the road transport field and Directive EC 6.14.93 for medical devices) and was later extended to various food products (Rizzo, 2006):

- EC Regulation 2092/91, the organic production method;
- EC Reg 104/00, labeling of fishery and aquaculture products;
- Reg CE1760/00, beef;
- EC Regulation 2065/01, traceability of fishery products and aquaculture products;
- EC Regulation 1019/02, olive oil
- Regulation 1830/03 the presence of Genetically Modified Organisms (GMOs). Furthermore, the Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001, on the deliberate release into the environment of Genetically Modified Organisms, requires Member States to take measures to ensure the traceability and labeling of Genetically Modified Organisms (GMOs) in all stages of their placing on the market in order to facilitate the monitoring of environmental impacts and, where appropriate, on health, and the implementation of the appropriate risk management, including, where necessary, the recall of products (Bellia and Pilato, 2011);
- EC Regulation 21/04, sheep and goat meat.

The law therefore aims to introduce rules and procedures to ensure traceability of the actors of the production and distribution process for an early identification and certainty any critical points and the corresponding liability in the event of damaging and harmful to the health of the consumer, to report and give the food is in the production process

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<sup>\*\*</sup> The documents called “Green Papers” collect the observations of the European Community on a given topic, and disseminated widely to open a debate within the collective in the EU. Often this type of document follows a document that sets out the following operative proposals (White Paper).

and in subsequent marketing and distribution process. Indirect confirmation of this primary objective and “exclusive” of the Community legislation and the subsequent Italian legislation, it can be seen by the Agreement of 28 July 2005 between the Minister of Health and the Presidents of the Regions and Autonomous Provinces entitled “Guidelines for traceability of food and feed for public health purposes”, about an obligation to keep documents relating to the “traceability” of fresh fruit and vegetables and therefore perishable. Ministerial circular states that the obligation to keep the documentation is of three months from delivery of the product to the next actor in the commercial chain, on the assumption that after this period the product has been consumed or vegetable without producing harm to the consumer or was destroyed because of its perishable nature and therefore is no longer capable of producing damaging events to the health of citizens. Decaying therefore any need to keep “trace” of the path of the commercial product.

Traceability was then seen as the exclusive means of ensuring the “traceability” of the trade route of the product, traceability, however, delegated and reserved to the court in the cases provided by law. No other reason or procedure can therefore allow any person to access information “traced” from the identification process required by the standard. But the real problem, deliberately neglected by the companies who attend these voluntary certification, is the legal relationship between these procedures, in fact voluntary, and obligatory provided by law. Not only that, but throughout the market chain the obligation of each party is limited to its direct supplier and its subsequent customer, not having any obligation to know the previous business steps and the final destination of the product, according to the procedure described as “a step forward, one step back”, that is, limiting the obligation of knowledge and previous actor to the next.

The Regulation makes it mandatory procedures to ensure traceability, however, only by defining the general principles of such procedures, without going into the details on how to design traceability system, leaving plenty space for companies to organize themselves freely both on the procedures that the technologies to be adopted.

## **BUSINESS TRACEABILITY AND SUPPLY CHAIN TRACEABILITY**

According to a widely accepted classification (Rizzo, 2005) should distinguish “internal” traceability (intra-company) that indicates the ability to reconstruct the phases and stages of production within the enterprise perimeter, from the “outside”, oriented towards the identification of the different actors the commercial chain that operates primarily through record transactions of goods (Ranconi, 2004). The concatenation of traceability procedures internal to the parties with the external ones, lots of passing between the players, it gets the whole defined traceability. Actually, “supply chain traceability” is widely used, which, however, is not yet an official definition or universally accepted. It has been given many, each with different meanings and especially referring to situations that are very different, but what is most striking is the expression itself. The words “traceability” and “chain”, in fact, are often used separately and in different contexts. Talking about traceability, for example, in ISO 9000 (quality management systems), but according to business logic (just inside), which depletes its effects at the level of suppliers and customers of the company.

In addition to the binding legislation, related to obligations arising from Community legislation, including organizations certification have developed, proposed and introduced procedures, voluntary for operators, defined collectively as the “supply chain traceability”. Today the chain traceability is based on the international standard UNI EN

ISO 22005:2008 (Traceability in the Feed and Food Chain - General Principles and Basic Requirements for System Design and Implementation), which replaced the national standards UNI 10939:2001 (System of Traceability in food and agriculture) and UNI 11020:2002 (Traceability in the food and agriculture system firms), which is a voluntary certification applicable to both food chains as well as individual farms. The bodies of those who are concerned with the certifications have created a national standard (in Italy UNI standards), one European (CEN standards) and one International (ISO standards).

Traceability required by Community legislation (mandatory) involving individual companies individually which of course can only take responsibility for the processes of production and/or business who make their own, while competing judicial authority to connect the various stages of production and distribution process and trace the point or the process that gave rise to the critical encountered. In contrast, the traceability, if done in compliance with the voluntary standard that refers to private standards, requires the adhesion of the companies inside the industry and the preliminary formalization of a “pact” that establishes tasks, roles and ways to collect information. The document - business technical specification or tracing manual must be approved by an official certificate attesting to the validity and will follow the correct application.

Essentially this voluntary traceability is based on the full co-operation, in fact voluntary, the persons who for various reasons make up the marketing chain, from farm to table to tie in a cognitive process only the information that different actors are compulsory (standard binding Community) hold individually.

The voluntary traceability chain does not replace the process of tracing under Community law, it being the ends of the single person responsible for the actions. In fact voluntary compliance with the law does not allow the company to rise from liability in case of a hygienic and sanitary problem.

In place then the voluntary standards of traceability do not integrate fully with that binding, but is a stand-alone system intended to provide information to the consumer, the information that the subject of the supply chain manager decides and want them to be transmitted “from farm to fork”, while it remains in the hands of the individual companies to collect, store and possibly provide the information to the judicial authorities “binding” indications.

Who is therefore the UNI on the “traceability chain” and especially what is its purpose? The answer may seem obvious. Traceability is designed to “meet the needs of the consumer” and “regain his confidence”. Through traceability is to ensure the security and transparency to the consumer and not compulsory, it is used by manufacturers or distributors as a lever to differentiate themselves from competitors. This could be compared and insert between the marketing mix tools, defining it as the “fifth tool” because it allows to enhance company’s image and identity linked to the territory in which it operates. Increasing the perceived value of the product, the manufacturer may negotiate a “premium price” on the market or acquire new customers pay attention to issues of quality food, in a time when the guarantees food security is one of the main instruments of competition on the market. For example, a system of “supply chain traceability” does not care of flows in continuous processes, but only of static points (lots) of departure and arrival. For example, if it produces pasteurized milk does not care about the conditions of pasteurization, which although are crucial information for quality, safety (and costs) and as such can be used to identify any

critical points of the process. The traceability detects only the start of the tank raw milk and the arrival tank pasteurized milk with its overall contents.

## **THE TRACEABILITY OF FRUIT AND VEGETABLES**

The supply chain traceability reports firstly between the different links in the commercial, which by definition are identified in the supply of goods, since the distribution of fruit and vegetables chain, in Italy, still rely on several changes of ownership: manufacturer to conditioner, from them to the wholesaler, then to the distributor and finally to the retailer (often through a common platform to several stores). Even in the case of associative structures the current tax law allows to manipulate goods regularly acquired by third party manufacturers which then escape from the informed participation in the pact chain. These transfers still today organized with the supply of goods and then on the full availability of it by each actor; practice that allows in every step, handling, packaging, training of new and different lots without the other links in the chain are entitled to have cognizance. Looks very different in the case of processed products where very often companies organize their own distribution up to the retailer and then have full control of the entire logistics and distribution process.

The voluntary procedure ISO 22005, shows some critical issues related to the typical circuit distribution of fruit and vegetables. First, the company “leader” who takes on the task of coordinating the supply chain, may decide to certify the product documenting all or part of the supply chain. The actors in the chain can therefore choose the size (and that is where it begins and where it end) and depth (number of products and/or components to be considered). In addition, the basic element of traceability is the production lot, which the configuration is substantially delegated to the person who assumes the role of leader and organizes the system of traceability, choosing the organizational model. According to the UNI definition the lot represents a defined quantity of homogeneous elements formed as far as possible from the elements produced in the same conditions. Under the Italian law, Legislative Decree 109/92, a lot is a set of sales units of a certain foodstuff produced, manufactured or packaged under practically identical circumstances, referring to the finished product and not raw materials or semi-finished products. Throughout the market chain the minimum lot is reconfigured according to the needs of the different actors picking techniques and logistics of the various platforms that host the product.

But the main *vulnus* of these procedures that connect functionally links in the market chain “from farm to fork” by assuming the role of “chain” can be activated only in commercial circuits with actors stable and defined. Practically in cases where the flow of products flowing through the LRO (Large Retailers Organized) organizational platforms but with defined and stable supply contracts between the service provider (operator of the agricultural co-operation and/or commercial enterprise that handles relations with farms) and final customers. It so happens that the structures of the LRO to assume the role of leader of the “chains” deciding the characteristics of the information to be collected and creating two-way relationships with different suppliers.

All commercial channels linked to the traditional schemes that supply the stores of the neighborhood, local markets, weekly, monthly or occasional markets, street trading - distribution channels for fruits and vegetables in Italy still hold 55% of domestic consumption - are excluded *a priori* the possibility of organizing themselves into “supply chain” structured, precisely because of the uncertainty of trade flows that

change suddenly depending on the needs of the market. This rate of fruit and vegetable production that reaches the consumer through these channels, thus lack the basic requirements to form chains provided by the standard ISO 22005.

The preliminary establishment of the “pact”, and then the precise identification of companies that make up the different supply chains, at least in the part that is decided to “trace” the need to draw up a preliminary document that remains constant over time (being approved by the certification body is not unilaterally changed) allows to define the *static* the business organization that allows the application of regulations and voluntary basically to “hourglass”: many manufacturers, concentration points (associative or commercial), the distribution of retail platforms in multiple points of sale..

### **CIRCUIT OF DIRECT SELLING ORGANIZATIONS (DSO)**

In addition to these two established models for the distribution of fresh fruit and vegetables, the traditional model and a model of supply chain, due mainly to supermarket chains in Italy is starting to spread, thanks to a specific rule that allows for tax deductions and organizational (Article 4 of Legislative Decree 18 May 2001, n. 228 *Orientation and modernization of the agricultural sector*), direct sales by farmers in an organized manner (DSO).

The “direct selling” of agricultural products has been interpreted in Italy as a sale near the farm of production (near the production area, the so-called food miles) to simplify the organization that involves (e.g. sale within the company itself). But the Italian national legislation does not limit the exercise of direct sales of agricultural products to local, even if a subsequent standard implementation (This is the Decree of 20 November 2007 issued by the Ministry of Agriculture Policy that dictates the guidelines at national level for the implementation of “farmer’s markets”), referring in particular to the “farmer’s markets” limits the activity of these structures - which organize direct selling of more farmers - to regional (delegating regions to indicate areas even smaller).

The first organization of national scope, which has already enabled many local was sponsored by Coldiretti, representative Italian body farmers, with the initiative called “Campagna Amica”, is promoting selling outlets throughout the country, connected in a single network commercial offer where the consumers with the products of its members, regardless of the geographical location of the area of cultivation in the country.

Recently, the Region of Sicily has enacted one specific regulation that provides incentives for the development of networks for the distribution of Sicilian food products under the “direct selling” by the farmers themselves. The regional law n. 25 of 2011, Interventions for the development of agriculture and fishing, in Article 10 has provided incentives for the development of “Activities of direct selling and trading”. The organizational model of direct selling (DSO), foreseen of paragraph 5 of that Article. 10, is based on the realization of “promotional showcases and trading points”. The initiative is still in the pilot project, but have already revealed the first specific questions related to the “traceability” and other operational features that may descend, and it can connect.

In these circuits “direct selling”, where the farmer by definition offers the product “directly” to the consumer and then checks all the logistics from farm to fork, the problems related to compliance with the requirements traceability assume different connotations. The supply chain is by definition “short”, and fully controlled by the



agricultural producer, making it largely redundant and therefore unnecessary activation of complex procedures “chain”, but more important it becomes “horizontal” traceability necessary to distinguish and identify multiple suppliers (producers) compared to the number of outlets in a distribution that losing configuration “hourglass” no physical points of concentration (conditioning system/or platform) but a network traceability configuration that needs “virtual” structures that can provide the services necessary for the operation of the “network”, including the role of inspection and certification usually done in the pivot points of the “hourglass”.

The activities usually performed in the early stages of cultivation, pre-harvest, harvest and conditioning are handled in both organizational models described above, a series of figures that “trace” the fruit and vegetable products throughout the production phase in the traditional way, ie relying on direct knowledge and specific districts, manufacturers, local customs and not only climatic occurrences. This is the network of the traditional figures which are still involved in the sector and shall promptly - even if not always efficiently, but certainly effective - the information they have at the time of supply in the field.

Figures are often at the limit of commercial “parasitism”, as numerous investigations and journalistic and also by authorities have shown - but whose usefulness has not yet been fully replaced by other instruments and/or methods of organization.

In the structure of the “hourglass” the packing plant, where it can take physical control of the production sent (or acquired) by companies, optimizes the flow of incoming goods with the orders received. This is all the operational decision that determines membership in business and continuing social problems for which no universal protocols have been proposed so far.

In “network” structure which is triggered by “direct selling organizational” these controls “on demand” must be replaced by effective operational and organizational protocols that can be effectively combined with procedures for recording information that, in any case, the requirements on traceability require operators.

As previously explained the traceability involves the preliminary definition of the bodies that make up - in fact - the supply chain and their link to a “pact” to carry out common activities, linked to each other and coordinated by the person who is proposed as responsible for the supply chain.

This approach requires that as initial ring put a membership structure that can represent and coordinate in a stable manner, Sicilian productive reality composed of numerous companies, associations rarely aggregated into large and have considerable mobility association.

In the absence of a strong tradition of association, the largest commercial structures are organized, to make up for this organization gap of Sicilian agriculture activating new mechanisms, that allow to operate with low levels of real aggregate (grade II organizations, groups of cooperatives, mixed structures associative and private law, etc.).

## **A SOFTWARE FOR THE MANAGEMENT OF TRACEABILITY IN THE DIRECT SELLING ORGANIZATIONS: FROM THE SUPPLY CHAIN TRACEABILITY TO THE TRACEABILITY SYSTEM**

In the case of “direct selling” the market chain is composed of only two rings (manufacturer and point of sale) closely related, while, in the preparation of a model of Direct Selling Organizations (DSO) with a wide distribution network, many will be

stores and several (or many) farmers during the year sometimes provide niche products and thus small volumes and for limited periods of the year.

The traceability system that operates in a large agricultural area must be transformed so disconnected from a series of sector agreements, mutually independent and controlled by the trade agreements entered into by the different signs of the LRO, in a network system - to be widely accepted - must be coordinated by an external institutional and contracted out to the same actors in the network.

The inclusion in the system of a company and its production, thus is independent from participation in a predetermined chain (supply chain) distribution that will bring the product to the consumer, but notes - in the first phase - only the existence of the company and the formation of its offer. Only later, with the input of production in the distribution circuit, shall be determined by the specific channel that will lead to consumption and therefore can be conducted “trace” from farm to fork.

The dynamism inherent in the system will allow the farm to find – and then tell the system – immediately the process that will bring the production to the consumer, respecting the business strategies that market dynamics require advance without committing to schemes extremely common but not yet generalized in reality Sicilian farmhouse.

From a market survey conducted in 2009 by the Department of Economics and Quantitative Methods, University of Catania (Rapisarda and Rizzo, 2010), the software available on the market are based on the procedures for traceability in compliance with relevant UNI, so to meet the needs of the setting of the direct sales organizations has been necessary to develop specific algorithms.

In particular, the changes introduced were divided into experimental software created *ad hoc*, which placed particular emphasis on three main aspects, proposing specific procedures for:

- a) The certification of the origin of the agricultural product
- b) The control of the freshness
- c) The introduction of additional information relating to:
  - 1) cultivation techniques
  - 2) information on ethical and social
  - 3) formation of the consumer price

### **The certification of origin**

Fruit and vegetable production in the farm greatly determines the quality of the final product, that being consumed “as is” does not undergo any transformation process that would affect the organoleptic qualities intrinsic. These are certainly according to the favorable climatic conditions of the company and the application of correct manufacturing procedures, but it is known that the quality in terms of nutrients is also highly determined by climatic events and weather. Events that can alter significantly from one year to the qualitative yield (and of course also quantitative).

The next phase of commercialization of the fruit or vegetable product is complex to deal with in terms of traceability procedures currently available. It should be noted that the history of the product at this stage, after the packaging can have a significant effect on the quality and safety (temperature, package integrity, durability and expiration times, etc.). Compared to many processed foods that do not require cold chain and often have wide ranges of expire. It should also be, as far as possible, exclude that occur counterfeiting of goods and inputs from different sources.

The procedures for traceability proposals provide that the “point” of the initial chain is arbitrarily chosen by the person responsible for the supply chain. It so happens that usually the beginning of the “supply chain” is located in the center of the first packaging of the product. Now when it comes to a consortium structure, the members who deliver the product are given, well-defined companies provided for reference and note all the relevant information. But as the initial input is a commercial structure the purchase of goods on the market can lead to acquisitions “not traced” and therefore no longer traceable.

In any case, to define clearly the agricultural origin of the product, as well as identifying some of the farm and its geospatial (procedure much easier for PDO and PGI products whose production rules for the certification system identifies a very specific area of production thereby responding the requirement of a certain origin) (D’Imprima et al., 2005) location, it must have information on its productive potential in terms of species, variety, quantity and specific references related to its calendars commercial expiry.

In network tracing information must leave the farm that signals in the first place its production capacity, not only in terms of species, varieties and cultivars but also in terms of quantity and quality.

The “notebook” in the country, and its phytosanitary indications, become an integral part of the system and binding - in quantitative terms - the flow of goods to the market. Initial accreditation of the product in the system coincides with the collection in the company and not with the entry into the warehouse packing center. The difference is not insignificant. Responsibility moves from the store man, which is not required to know and then to record the actual origin of the goods but only one declared by the carrier, which in turn takes the information from your supplier, farmer who certifies the origin of a certain fund and cultivation practices.

For both products of primary processing industries connected to the traditional agrarian and for those activities that are considered “connected” by Italian law the fact of starting the traceability procedures in the company could significantly reduce the margins of so-called counterfeit products *made in Italy*, a phenomenon which has assumed in recent years considerable size, both in terms of value and loss of image. The traditional agrarian industries (oil mills, wineries and activities cheese) are those where the primary processing of raw materials (grapes, milk, olives) is carried out in local places within the same companies. After the reformulation of art. 2135 of the Civil Code are considered to be related to agricultural activity and therefore fall under the agricultural income, those relating to the handling, storage, processing, marketing and promotion of products obtained mainly on the bottom, with reference to the goods identified every two years in a special ministerial decree. The final list of agricultural activities considered related is contained in the decree of the Minister of Economy and Finance of 17 June 2011 (Official Gazette n. 147 of 27 June 2011).

### **The control of the freshness**

All packaged food products carry an expiry (including mineral water), after which the product, though still perfectly edible, does not preserve the organoleptic qualities and initial merchandise.

For fresh fruit and vegetables have not yet been issued detailed rules on the period of use of labeling, and for the presence of significant amounts of aliquots marketed and sold in bulk, that the evidence of the state of wasting of the commercial product .

In effect preservation techniques evolved may cause a consumer to an incorrect evaluation of the freshness of a fruit or vegetable product, altering the visual and tactile sensations related to its traditional knowledge of the product. Whatever course of production which by their nature accept shorter or longer preservation processes (potatoes, apples, etc.) that the consumer knows and understands and therefore implicitly accepts.

The software provided over the quantities also indicates the dates of collection, allowing to calculate every moment of the distribution process time and therefore the freshness according to the specifications of all varieties and cultivars.

The information is entered into the computer system directly from the manufacturer (from the field), which collects the product and sends it to the packing station, and this regardless of the form of the social structure (associative or purely commercial) the information is “picked up” by the archives of the system directly from the consumer, regardless of the distribution channel that the product has followed to reach “the table”.

To encourage the consumer to exercise appropriate controls on the product, enabling effective information, appropriate techniques combine loyalty reward an operation control that “transforms” the consumer in controller and indirect and involuntary employee of the manufacturer. Collaboration that detects particularly useful for the manufacturer that having entered information at the source, to the complexity and tortuosity of the current distribution channels, is not able to follow the end of its commercial product, even when the end is composed of two actors only: a producer organization that supplies directly from their packing station platform of the large retail chains.

### **The introduction of additional information**

More and more often is present in the segment market of consumers that show high sensitivity towards “attributes” of the food different than those traditionally considered by marketers and not related only to the organoleptic and nutritional quality but also relative to side, generally defined as ethical or social, which consider aspects which are indirectly related to the production process that still have an impact on appreciation of the product.

The absence of child labor and other forms of exploitation of man by man (illegal hiring, illegal labor, etc.), foreignness manufacturer’s environments and misconduct (subject colluded with criminal organizations or slaves to them). With regard to the production cycle are considered increasingly important information on local specificities, the food product, the farming techniques that do not allow ill-bred animals (battery cages, improper forms of slaughter, etc.), the use of forms intermediate between extreme ones coded under the heading of organic or biodynamic.

This information can be gathered from the sw and sent to the consumer upon certification and forms of control agreed with bodies and organizations can attest to the statements and complete product details.

Periodically, the Italian public opinion is “covered” by waves of outrage over “speculators” of the distribution system with the fruit and vegetable business practices “unfair” trigger speculative processes leading to the formation of wholesale prices and then unequal retail than the price at production. Certainly the balance of power within the marketing chain can lead to monopolistic positions supported by undue pressure on production structures as evidenced by the numerous judicial investigations systematically turned against the operators of the major commercial nodes Italian

(Funds, Victory, etc.), but apart from the difficulty of separating completely in each step of the long chain leading commercial fruit and vegetable products “from farm to fork”, the portion of costs from that of the parasitic income, the result of (undue) dominance, the pricing “in the field” is not methodologically easy.

Physiological loss of the product (drop lost), commercial waste to meet the specific demands of the market (ratings of unsuitable products that are not answered on the market even though productions adequate in terms of taste), conditioning processes and packaging details and then expensive (trays, monodose package, etc.), transport and distribution complex for the number and territorial spread of traditional retail outlets (and in the network of retail that has numerous affiliates) and especially the high randomness of the “destruction” of wasting products commodity (and the associated cost of disposal), are all factors that do not allow to end with unique methodologies of the assets of the value chain which is formed from production to consumption. Professional organizations of the agricultural world have also gained legislative action to impose an indication of the “double price” (origin and consumption) in the card exposed in retail but with almost no operating results.

The proposed algorithm, defined by “dynamic tracing” allows also prices trace that are determined in several steps and /or commercial organization enabling them rational consumer communication.

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# Features on structural policies in regional development of the European Union and their main effects<sup>\*</sup>

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## **ABSTRACT**

The study moves from the observation that, at EU level, has assisted in the last 15-20 years a process of general economic and social transformation. And in this context, the seasons of the program of structural policies have been evolving, despite the disputed assessments, and sometimes conflicting, the results achieved by the academics of the field (but also of public operators) between those who advocate policies intervention more or less innovative, and those who prefer to focus on traditional development policies, even if with some adjustments. Whatever model is chosen and applied, structural policies would (or should have) the objective of reducing socio-economic gaps between regions of the European Union, the enlargement processes occurring - in the transition from a Union of 15 countries have contributed to a 27 to stress, combined with the impact of global financial and economic crisis, manifested since 2007 and still in progress. The proposed analysis may contribute to the need to identify a non-trivial definition of the concept of evaluation of public policies in order to capitalize on the experience of community programs in general and political cohesion and Structural Funds in particular, in a transition period in which they tend to spread as the ordinary practices of government.

**Keywords:** *structural policies, cohesion policy, economic growth, convergence*

## **INTRODUCTION**

In the present paper we are reassuming the main features of a triennial project of research carried out on the nature and on the effects of the structural politics in the European Union (Pilato, 2012; Basile, 2009; Bellia, 2010), project whose conclusion, expected for the end of 2010, has been extended for another triennium, having made necessary further analyses and details.

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<sup>\*</sup>The work is the result of a full cooperation and is therefore a joint responsibility of the authors. The material preparation of paragraphs 1 and 2 is attributed to Claudio Bellia, while that of paragraphs 3 and 4 to Manuela Pilato. Paragraph 5, the final one, is due jointly to the two authors.

As the results till now reached, even partial, are outlined as worthy of interest, it is considered useful to publish a first contribution postponing to a following paper the final results, in which we also take into account the outcome of the ongoing investigations.

The analysis starts from the observation that, at EU level, we have witnessed in the last 15-20 years a general process of economic and social transformations. And in this context, the seasons of the program of structural policies have gone evolving, despite the controversial assessments, and sometimes contrasting, the results achieved by the academics of the field (but also of public operators), between those who advocate intervention policies more or less innovative, and those who instead prefer to focus on traditional development policies, albeit with some adjustments.

Whatever model is chosen and applied, structural policies have (or should have) the aim to reduce economic and social disparities between the regions of the European Union, the enlargement processes occurring - in the transition from a 'Europe of 15 countries' to 'Europe of 27' - have contributed to accentuate, in a scenario in which an important role is played and play the impact of the global financial and economic crisis, as manifested since 2007 and still in progress.

The turnover of the positions that have affected especially the last decade, the evaluation of the results obtained by the structural policies has assumed contrasting aspects: on the one hand, there was an awareness of the value of the tools adopted that promotes them as bearers of new planning capacity and incentives for a more concrete attitude in the management of public expenditure, on the other hand, it has called into question the effectiveness of these policies as a tool for public governance, in a historical period of profound economic and social change, emphasizing the "disruptive" effect rather than the established practices, the pitfalls inherent in speculative forms of financial management and the episodes of changes taken so far.

However, the initial enthusiasm now seems broken by the critical reading of the efficiency of the tools adopted as such and their real ability to arouse the desired effects.

Reflection on the concept of innovation policies in Europe through the Structural Funds has involved and involves, therefore, a reading of new elements and changing not only rhetorically speaking, but also in the light of empirical evidence gained. Only in these conditions, in fact, it would be possible to discern innovation elements compared to simple repetition, mostly in masked form, operational pipeline and cultural approaches already known.

The analyses take the moves from an overview of the main theoretical contributions on the problems of growth and convergence of the paths of development of national or sub-national economies, as well as an early synthesis of empirical evidence on these phenomena.

The paper was divided into two different sections, the first of which was directed to examine the main results of the policy of economic, social and territorial cohesion of the European Union, pursuant to the art. 174 of the Treaty on the Functioning of the European Union (TFEU) issued in 2007, to promote the harmonious development of the Union, including the reduction of the gap of development in the various regions. Then, we have been examined the articulation of each Structural Funds program 2000-2006 and 2007-2013 that compose them, tracing the evolutionary framework and analyzing the main features.

Thanks to the measures put in place with the policy of economic and social cohesion, and then thanks to the use of the Structural Funds, the differences in per capita income

between the European Union countries have gradually reduced, but not sufficiently, so there remain significant socio-economic gaps between regions in Europe.

The theme is broad and relies on an extensive literature relating to the theory of economic growth and convergence, to which has been made reference with the objective of proposing answers to some questions, the main of which can be formulated as: is there a need for cohesion policy? what was the effect of the European integration in the income gap between regions? through which instruments do cohesion policies aim to promote convergence?

Once it is established what may be the motivations and goals that led to the establishment of the EU Structural Funds, the next step has consisted in analyzing whether the proposed policies were in fact coherent with those reasons that had promoted the realization, also for the purpose of achieving the goals set.

As regards the effects of Cohesion Policy, it has been necessary to develop some analyses, which can be summarized in the following points. The first concerns the limits more or less relevant that arise in the evaluation of these effects both for the objective measurement difficulties, the problematic both for visibility, especially in the interventions of reduced dimensions. The second point relates to the fact that the programs implemented under the Community Support Framework (CSF), because of the difficulties encountered in the use of financial resources allocated within a given programming cycle, the use of resources of competence has fully realized in some countries a few years after the reference period, not allowing that analytical work planned on the basis of the CSF of competence. The third point relates to the need to establish general rules for the implementation of public policies and to make such rules consistent with the criteria for identifying /defining these, the patterns of representation *ex ante* and *ex post* evaluations of their objectives and their results and, finally, the systems of accounting classification of public expenditure to achieve them.

The second section of the paper has focused on the generalized phenomenon of changing structure that have occurred in some countries, as a result of which the policies of economic and social cohesion and structural policies in general seem to currently move towards a model of regulation whose characters appear to converge.

Starting from the considerations outlined above, this section is part of the debate on the effectiveness of cohesion policy by presenting an empirical evaluation of the impact of Structural Funds on regional growth in Italy and other Mediterranean countries of the EU, with specific reference to those belonging to the regions' Convergence objective (ex-Objective 1), in particular, it has focused the attention on the analysis of the allocation of community resources which are related to structural programming periods 2000-2006 and, as far as possible, 2007-2013.

On a more general level, the discussion is part of the debate on the complex relationships between the process of EU integration and the level of economic disparities between its regions, attempting to answer the following basic questions: what are the effects achieved by European integration on interregional disparities of income? and what the potentially achievable effects in the coming years?

## **FINANCIAL AND SPATIAL ANALYSIS**

In view of the duration of the most recent periods of community programming, fixed, as is well known, for the subsequent septennium, 2000-2006 and 2007-2013, the scope of the analysis has been developed from the dual standpoint of the financial and spatial dimension.



The majority of the relevant accounting closure documents of the programming period 2000-2006 were presented by the Member States in September 2010. The general framework for the closure of the appropriations granted under the Structural Funds 2000-2006 was established by the Commission decision C (2006) 3424, as amended by decisions C (2008) 1362 and C (2009) 960 of the Commission. In fact, in 2010, the eleventh year of implementation of the programs and projects of the Structural Funds of the period 2000-2006, a total of 718 intervention programs were funded in the European Union, regardless of their financial consistency 226 belonged to the programs for Objective 1 and Objective 2, while 47 were programs for Objective 3, and 12 programs (FIG outside Objective 1), 81 INTERREG, 71 URBAN, 27 EQUAL programs, the 73 LEADER PLUS programs and finally 181 programs of innovative actions.

The economic recovery plan proposed by the Commission in response to the international economic and financial crisis has permitted to grant extensions on delivery of individual programs to the Member States concerned. This flexibility has allowed the countries and regions to maximize the rate of absorption of funds allocated, by addressing the most of the unexpected difficulties arisen in the implementation of programs and, consequently, to achieve the planned objectives.

The focus on profiles and critical issues in the use of EU funding was allocated based on the recognition of a not always fully utilized by the central and peripheral target, resulting in the loss of funding and possible reallocation to other countries or regions of funding. This aspect appears strongly related to the types of investments, and the efficiency of the coordination mechanisms and monitoring existing between local, national and European.

From this point of view, it has been taken into consideration, among others, that the European Regional Development Fund (ERDF), which - by definition - is in charge to promote the development, the area of intervention, the focus analyzed, has been limited to a few countries in which the focus of most of the regions' ex-Objective 1, called in programming Convergence Objective, such as Italy, Spain, Portugal and Greece, ie the Mediterranean countries of the EU, regions where the Gross Domestic Product (GDP) per capita is less than 75% of the corresponding average value of the European Union in the complex. Another reason has been to assess what effects have generated the appropriations of the Structural Funds in those countries most affected by the economic and financial crisis.

It's interesting to note the position of the European Commission, which over the years has provided an expansion of the partnership in different stages of decision-making to new actors, such as regional authorities and local authorities, economic and social partners and non-governmental organizations.

Therefore, the multi-level governance, which is one of the fundamental principles of cohesion policy, is essential to ensure the quality of decision making, strategic planning and the realization of the objectives pursued; then it would consider to be obligatory in the future, to have an integrated approach for the implementation of these policies. It is also clear that the principle of subsidiarity, the broader concept and strengthened in the Treaty on the Functioning of the European Union, is a principle of partnership that should be defined in a more clear way.

There is no doubt that subsidiarity and transparency are essential elements for a successful implementation of all EU policies and that they would deserve to be boosted accordingly.

Cohesion policies implemented by the Union, according to the literature reviewed, may be justified in the trend of convergence and divergence of regional economies interested. Based on the first, cohesion policies would not be strictly necessary to fill up the gaps of regional income, since this process, in the medium to long term, should aim to be realized with the necessary gradualness. At most, it could intervene to accelerate it, acting, among other things, on the mobility of production factors (labor, capital etc.), which should be made easier.

If instead we suppose the existence of some form of economies of agglomeration externalities and positive space, the picture would change dramatically: in fact, if the goal is the total wealth of the Union, such policies might even be counterproductive, as it would introduce the distortions in the process of concentration of production in the most efficient.

In other words, cohesion policies, in the form in which they are organized, take on redistributive aims to increase equity over efficiency, assuming a rigidity of labor. On the other hand, mobility of workers highlights one of the paradoxes of Community policies: it is considered one of the key factors to promote the development of a united Europe, but at the same time the cohesion policies would tend to counteract the migration from regions poorest to the richest (Boldrin and Canova, 2001a, 2001b).

Finally, if we consider the Structural Funds in the light of “strong” divergence theories, they would become the instrument through which, in the integration process are compensated regions lagging behind. The theories examined, in fact, lead to the conclusion that a process of economic integration between countries contributes to feed (if not accentuate) regional disparities, promoting and accelerating the transfer of resources from the poorest to the richest and the concentration in these last activities with higher added value. This position, of course, has been also emphasized in some official documents of the European Commission.

In relation to the comments made, in a limit scenario, the Structural Funds represent therefore a kind of artifice with which to get at the same time political consensus in poor regions and a significant increase of the total wealth of the Union.

Despite the large number of documents produced by the European Union on the subject (more or less consistent with each other), the complexity and variability of situations observed in several countries and in several regions of the European Union, it is difficult to determine whether the changes occurred, following the delivery of the Structural Funds, fall or less to the economic theory of reference.

If the goal is to increase the competitiveness of regions lagging behind, this suggests that the funds in question are instrument of policies aimed at increasing the productivity of these regions (in this case we would refer to the “weak version” of the theories of divergence). However, considering the nature of these funds and the numerous references to the need for a rebalancing of the Commission in the process of European integration, including advanced regions and regions lagging behind in development, we cannot confirm that cohesion policies tend to be seen as public interventions mainly for redistributive purposes.

In light of the enlargement of the European Union and the entry of countries with a GDP per capita of about one third of the European average, the prospect might have contradictory implications. Furthermore, the effectiveness of the intervention is not guaranteed, in consideration of the degree of opening of regional economies, with the result that the impact on income and employment tends to distribute itself also in the regions adjacent to those interested.

## **TRENDS OF REGIONAL DEVELOPMENT**

The study of the causes and effects of a possible convergence, conducted through the analysis of the policies that characterize the areas lagging behind, has been so far addressed in the literature through a triple methodological approach.

The first approach is theoretical: it is peculiar in that vast literature that investigates (a) the genesis and especially the causes of persistent divergence between regions, (b) convergence processes and therefore the implications and (c) on the broad policies that have been adopted at the regional, national and European level in different socio-economic contexts.

The second approach is descriptive and/or evaluative, aiming in essence to analyze the performance of some countries are lagging behind, using the comparison method in order to compare certain phases of processes similar to each other.

The use of economic models aimed to explore the trends of regional development can be useful for predicting the impact of the policy of economic and social cohesion and to identify the role that must be the key factors in order to reverse the trends in the GDP and consequently reduce the gap in per capita income among the countries under study, thus pursuing the goal of convergence.

The European Commission, in the first annual report on cohesion, published in 1996 had outlined three main conclusions that emerge from the analysis of such models.

First, if the trends previously recognized should continue, it will take a number of decades for regional disparities in the EU 27, still within the Union, in its present form, can be eliminated if at least reduced.

Secondly, there can be no guarantees that the processes put in place achieve their goals. In particular, while the national economy and/or regional authorities may tend in the long term to a certain level of balance, so that the realization of this convergence becomes an essential change of the context conditions and especially of its equipment of inputs.

Third, it is of fundamental importance for the convergence of regions towards the EU average per capita income, the disparity in terms of human capital - that is, the amount outstanding of the workforce - are significantly reduced. This implies the need both to improve the systems of education and training in countries lagging behind and to stimulate companies to use the potentially available capacity more efficiently, adapting more quickly to changes in technology and work organization.

The last approach is what might be called analytical-descriptive. For the purposes of an investigation into the allocation of Structural Funds to the regions belonging Convergence Objective identified by the policy of economic and social cohesion, it could use the time series of Regional Public Accounts (RPA), which constitute a tool of territorial distribution cash flows of the public sector.

The database of RPA, which is part of the National Statistical System and for which data are available since 1996, has the characteristics of completeness, flexibility and regional level. In addition to referring to a particularly large universe of spending centers and all public financial flows (revenues and expenditures, current and capital), the data allow flexible articulation for various sub-aggregates, such as, for example, macro-areas and administrative regions, different sector classifications, different definitions of expenditure, final several providers. The RPA system represents a useful tool for the analysis of structural and, consequently, is widely used to define and

evaluate the addresses of local economic policy within the public sector enlarged\*\* (Pilato, 2010).

The RPA series, in particular with regard to the expenditure data are also used to verify the principle of additionally requested by the EU in order to determine whether the resources with which the Structural Funds contribute to the achievement of the objectives of Community policy have additional character compared to the national public resources allocated to the same goals.

With regard to the present study, the analysis of data at Community level, the information and the sources were mainly taken from the databases of the European Union, Eurostat and DG Region for the periods 2000-2006 and 2007-2013, for each country investigated.

The analysis of the breakdown of the expenditure at EU level aims to future evaluation and comparison of data collected, even if the programs implemented under the Community Support Framework (CSF), because of the possibility of using the financial resources allocated for the cycle 2007-2013, will be closed from an accounting standpoint presumably in 2016, and do not allow consequently, at this stage, analysis of other type.

As regards the temporal aspects, where not specified, the period respect to which are referred the analyzes is that relating to the period of 2000-2006 and, in some cases, to the programming period 2007-2013, through the use of forecast data obtained from sources community statistics cited above.

The goal of strengthening economic and social cohesion, as already pointed out, is explicitly mentioned in article 2 of the Treaty and the primary objective of the Union. And in particular, article 158 states that cohesion is a precondition for a harmonious development in the EU.

The Treaty makes explicit the goal of reducing disparities in economic development between the countries and/or regions of the EU, requires implicitly that European policies and cohesion measures in particular, are able to influence the allocation of factors and the allocation of resources, promoting economic growth.

It should be noted that, cohesion policies are aimed, of course, to increase investment and do not concern in any way the policies for the expansion of consumption, nor those designed solely for the purpose of redistribution.

In this sense, the budget of the European Union becomes a key tool for the analysis of cohesion policies: first, even if part of the cost is not explicitly directed towards this goal, it is a significant percentage, in the second place, the contributions to the budget must take into account the different capacities of Member States payments and the measures taken shall be appropriate to improve the unfavorable situation of the regions lagging behind in development.

In the Community Strategic Guidelines (CSG) in the field of economic, social and territorial programming of the Structural Funds 2007-2013 (the basis of the regional policy), approved by Decision of the Council of Europe n. 702 of 6 October 2006, are drawn the three priorities of the new program:

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\*\* The network of the creators of the data is extremely detailed and extensive on the territory, including, in addition to the Central Team, working at the Public Investment Evaluation Unit of the Department for Development and Cohesion Policies, 21 regional Teams, operating at each Italian region. The database is part of the 2004 National Statistical System, the network of public and private entities providing public information, ensuring products of the survey the status of official statistical information and ensuring that the obligation to respond by all stakeholders

1. To improve the attractiveness of Member States, regions and cities by improving accessibility and ensuring adequate quality and level of services, many also protecting the environment. The specific objectives identified on this point are as follows: enhancement of transport infrastructure, strengthen the synergy between environmental protection and growth, deal with the intensive use of traditional energy sources in Europe;
2. To promote innovation, entrepreneurship and the development of the knowledge economy by strengthening research and innovation capacities, including new information and communication technologies. The specific objectives of the point are as follows: increase and better target investment in research and technological development; facilitate the adoption of innovations and promote entrepreneurship, promote the information society for all, improving access to credit;
3. to create more and better jobs, by attracting more people into employment or entrepreneurial activity, improving adaptability of workers and enterprises and increasing investment in human capital. The specific objectives of the point are the following: to ensure that a greater number of people and retain the labor market and modernizing social protection systems, improve adaptability of workers and enterprises in a more flexible labor market; increase investment in human capital through better education and skills, and improve the administrative capacity; help to keep good health the population..

The views expressed by the European Council Decision mentioned above represent a frame of reference the Commission Regulation 1828/2006 published in the GUCE series L n. 45 of 15 February 2007. The guidelines express a context that Member States and regions are invited to use when developing national and regional programs and to assess their contribution to the objectives of the Community in terms of cohesion, growth and employment.

The programming of the Structural Funds 2007-2013, is based on the pursuit of three main goals, precisely:

- a) Objective 1 *Convergence* (funded by ESF, ERDF and CF), including regions that fall in the level of GDP per capita below 75% of the enlarged EU, calculated based on data for the last three years prior to the adoption of the Regulation on the Structural Funds n.1083/2006; while regions that exceed this threshold, due to the so-called statistical effect, where GDP per capita is less than 75% of the average EU 15 Member States but more than 75% of the average of the enlarged EU, it is recognized transitional arrangements decreasing (statistical phasing-out);
- b) Objective 2 *Regional Competitiveness and Employment* (funded by ESF and ERDF) including regions with per capita GDP equal to or higher than 75% of the enlarged EU and the ex-Objective 1 with a GDP of more than 75% of the average EU 15, which is recognized until 2013, decreasing transitional support (phasing-in growth);
- c) Objective 3 *European Territorial Cooperation* (financed by the ERDF), which replaces the Community Initiative EQUAL, INTERREG, LEADER PLUS and URBAN and covering all EU regions.

**Tab. 1 - Schematic illustration of the key objectives of the financial programming of the Structural Funds in the regions of the EU enlarged in the period 2007-2013 (\*).**

Objective typology	Accessibility conditions	Financing sources	Aims pursued	Degree of diffusion
<b>Convergence Objective (ex Objective 1)</b>	<b>regions with income per capita &lt;75% average GDP per capita EU enlarged</b>	<b>ESF-ERDF-CF</b>	<b>growth and convergence towards the more developed regions of the EU and the less developed regions</b>	<b>84 regions from 18 Member States: Bulgaria, Estonia, France, Germany, Greece, Italy, Latvia, Lithuania, Malta, Poland, Portugal, United Kingdom, Czech Republic, Romania, Slovakia, Slovenia, Spain and Hungary. 16 regions of 8 Member States as phasing out statistic: Austria, Belgium, Germany, Greece, Italy, Portugal, Spain and the UK</b>
<b>Objective 2 (Regional Competitiveness and Employment)</b>	<b>regions with per capita incomes &gt; or = 75% of the EU average GDP per capita enlarged</b>	<b>ESF-ERDF</b>	<b>competitiveness and attractiveness of regions and employment growth at the regional level</b>	<b>155 regions in 19 Member States: Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, United Kingdom, Czech Republic, Slovakia, Spain, Sweden and Hungary 13 regions 9 Member States in phasing in growth: Cyprus, Finland, Greece, Ireland, Italy, Portugal, United Kingdom, Spain and Hungary.</b>
<b>Objective 3 (European Territorial Cooperation)</b>	<b>all regions</b>	<b>ERDF</b>	<b>cross-border, transnational and interregional</b>	<b>all regions of the European Union</b>

(\*). Our elaboration on data of the European Commission, *Regional Policy InfoRegio*.

Within the financial perspectives for such programming period (2007-2013), cohesion policy has been assigned 35.7% of the planned expenditure in the EU budget. With decisions n. 3472, 3473, 3474 and 3480 of 4 August 2006, the Commission allocates resources between the objectives and the Member States and the corresponding regions.

For a better elaboration of the subject has been prepared a specific table, which summarizes the key objectives of the financial programming of the Structural Funds in the EU regions, highlighting, for each objective, accessibility, sources of financing, the aims pursued and the degree of diffusion, as shown in Table 1.

Finally, it should not be underestimated the action in the field of technical assistance provided in the broad sense according to Regulation (EC) n.1083/2006 (preparatory, monitoring, administrative and technical support, evaluation, consultancy, audit and control). Interventions support actions for the realization of various objectives.

Regarding to the financial breakdown the Commission shall fix annually an indicative allocation by Member State for each fund and for each objective, depending

on the eligible population, the degree of regional and national prosperity and the unemployment rate, as a result, each state decides specific breakdown of the budget for the region, taking into account geographical eligibility. However, there is an obligation: to the countries and regions concerned by Objective Convergence, 60% expenditure must be allocated to priorities arising from the EU strategy for growth and employment for the countries and regions of Competitiveness and Employment Objective, this percentage rises to 75% (the Commission commits the first annual tranche before the adoption of the OP, the subsequent tranches will be committed by 30 April of each year. The total appropriations allocated to each Member State shall not be transferable between them, except in some cases under Objective 3. The Commission shall automatically decommit any part of the budget appropriations not used). Each Member State shall prepare and submit to the Commission within 5 months after the adoption of the Community Strategic Guidelines on a National Strategic Reference Framework (NSRF), or even more simply NSF, in accordance with the Guidelines themselves.

This Framework defines, as is well known, the strategies chosen by States or regions and proposes a list of Operational Programmes (OPs) that they intend to implement. These programs present the priorities of the State and/or regions and how they are oriented to manage their own programming. These activities are carried out by its Management Authority of each country and/or region, by a Certificate Authority and Consulting.

Once adopted the Decision of the Commission of the Programs mentioned, in the Member State and regions have the task to implement the programs.

The main differences compared to the previous management programming period are that the financial management rules also apply to the Cohesion Fund, the rules governing eligibility of expenditure laid down at national and community level. Transfers of resources are assigned by priority (and not to fit as they did in 2000-2006), was also introduced in the rule “Year +3” instead of “Year +2”, which applies to the 12 new Member States and Greece and Portugal.

As a result of the changes with the new programming, financial management has been made more flexible as it allows the partial closure of transactions already completed before it is defined the entire program.

In the period 2007-2013, compared to the previous program, the Cohesion Fund no longer operates independently, but is part of “Convergence” Objective, as shown in Table 2. Other funds (ERDF, ESF and CF), they also involved in financing the Objective above, are subject to the same rules of programming and management.

**Tab.2 - Comparative analysis of Structural Funds allocated by the European Union of 27 in the periods of 2000-2006 and 2007-2013, by fund typology (\*).**

Fund typology	2000-06	2007-13
<b>ERDF</b> (Convergence Objective ex 1 Objective - Regional Competitiveness and Employment Objective ex 2 - European Territorial Cooperation Objective)	X	X
<b>ESF</b> (Convergence Objective ex Objective 1 - Regional Competitiveness and Employment Objective - ex 2 and 3)	X	X
<b>EAGGF</b>	X	
<b>FIFG</b>	X	
<b>LEADER PLUS</b>	X	
<b>CF</b> (Convergence Objective ex 1 Objective)	X	X
<b>INTERREG III</b> (financed by the ERDF European Territorial Cooperation Objective 2000-06/ 2007-13)	X	X
<b>URBAN II</b> (financed by the ERDF Convergence and Competitiveness Objectives 2000-06/integrato in Regional in 2007-13)	X	X
<b>EQUAL</b> (funded by the ESF Convergence and Competitiveness Objectives 2000-06/integrato in Regional in 2007-13)	X	X
<b>RURAL DEVELOPMENT AND RESTRUCTURING OF THE FISHERIES SECTOR IN AREAS EXCLUDED OBJECTIVE 1</b>	X	
<b>EAFRD</b>		X
<b>EFF</b>		X

(\*). Our elaboration on data from the European Commission, Regional Policy InfoRegio. The meaning of acronyms indicated in the table is, as is well known, the following:

*ERDF: Social Fund for Regional Development.*

*ESF: European Social Fund.*

*EAGGF: European Agricultural Guidance and Guarantee Fund.*

*FIFG: Financial Instrument for Fisheries Guidance.*

*CF: Cohesion Fund.*

*EAFRD: European Agricultural Fund for Rural Development.*

*EFF: European Fisheries Fund*

The new objectives complement the missions of the previous Objectives 1, 2 and 3, as well as those of the three previous Community Initiatives, namely Interreg III, Equal and Urban. Interreg III is inserted under the “European territorial cooperation”, while Urban programs and Equal are integrated into the “Convergence” and “Regional competitiveness and employment”. Other changes will have for the LEADER PLUS and the European Agricultural Guidance and Guarantee Fund (EAGGF), flowed into the European Agricultural Fund for Rural Development (EAFRD) and the Financial Instrument for Fisheries Guidance (FIFG) is referred to as the Fund European Fisheries Fund (EFF). The EAFRD and the EFF can now to rely on their legal basis and no longer fall within the cohesion policy (European Commission, 2011).

In the period 2007-2013, which has had to take account of the EU from 15 to 27 countries, has opened a wide debate focuses attention on the allocation of financial



resources and the possible redefinition of the parameters regional access to these resources.

Objective 1 regions in EU 15 feared the loss of transfers of resources for development, as a result of the accession of new Member States on average poorer, it was thought that most of the countries and/or regions, with the new parameters, would remain outside Objective 1, finding himself so completely out of the distribution of this type of resources, or even partially, for which regions of some countries would enter into phasing out, not so much for a real increase, but for pure effect statistic. To all this was added the danger of a general reduction to a single State, the transfer of resources from the Structural Funds, because of the need to distribute them among a larger number of Member States.

In fact, also due to other factors and conditions linked in large part to the economic and financial crisis, these predictions have been contradicted by the facts, so that, for example, most of the regions of southern Italy (D'Amico et al., 2011), as well as in Spain, Portugal and Greece, fell back and will fall for the 2007-2013 (INEA) programming period, and possibly for the period 2014-2020, within the scope of the Convergence Objective.

Two fixed points were established in 2006 by the European Commission: (a) the reaffirmation of the centrality of cohesion policies, with the maintenance of 0.45% of Community GDP allocated to these policies, and (b) the continuation of strong actions support amid weak regions in the EU 15.

With this reform, implemented through regulations of the Council and Parliament in. 1080 of 5 July 2006 (which repealed Regulation (EC) n. 1783/99), the Framework Regulation of the Council of 11 July 2006 n.1083 “provisions on the ERDF, ESF and Cohesion Fund” (which repealed Regulation (EC) n. 1260/99) and Commission Regulation n. 1828 of 8 December 2006, the key objectives of the structural policies remain three, but take into account the enlargement processes.

With specific reference to Italy, the qualifying element of the Structural Funds programming started in Italy with the 2000-2006 CSF was to subject the program to constant monitoring, based on the identification of quantitative variables measurable and verifiable during the programming period, for each of the 7 “Axes” identified, with specific reference to the policy objectives of the co-financed by EU Structural Funds. And the same happened for the CSF 2007-2013, in which, however, the areas of activity have been termed “Priority”, which in a number of 10 marked an expansion in which they were called to work in the EU Structural Funds.

As to the indicators used, it is a large set of socio-economic variables identified as crucial to briefly describe the situation of Objective 1 and grasp, at least in part, the profiles from which comes the convenience to live, to work, to do business in a given territory.

A comparison between the indicators of regional context adopted in Italy in the 2000-2006 and 2007-2013 emerges, as shown in Table 3, which to an increase in the number of indicators (7 to 10) corresponds to a significant change of content, leading to an expansion of the areas of intervention, the sphere of operations.

It should be noted that the above indicators have contributed and help in identifying the priorities selected and verify *ex post* whether public action taken has actually helped to improve the business environment. During the *ex ante* evaluation of programming, through the indicators was also possible to organize periodic monitoring program to assess the evolution due to the construction of the planned measures.

Despite the link between the strategies implemented by the CSF and indicators selected is sometimes indirectly, through them it has been possible to have elements that allow to appreciate the impact of the program. In addition, for those indicators for which the available information was adequate, were established target values that the program was designed to reach at the end of the period.

The overall set of context indicators consists of variables, each of which is processed by area (regions, territorial divisions, total regions) and year (time series that, in general, starting from 1995).

**Tab. 3 - Comparative analysis of context regional indicators applied in the programming in Italy 2000-2006 and 2007-2013 (\*)**

Community Support Framework (CSF) 2000-2006	Community Support Framework (CSF) 2007-2013
<b>Axis 1</b> <i>Natural resources</i>	<b>Priority 1</b> <i>Improvement and enhancement of human resources</i>
<b>Axis 2</b> <i>Cultural resource</i>	<b>Priority 2</b> <i>Promotion and dissemination of research and innovation</i>
<b>Axis 3</b> <i>Human resource</i>	<b>Priority 3</b> <i>Energy and environment: sustainable and efficient use of resources for development</i>
<b>Axis 4</b> <i>Local development system</i>	<b>Priority 4</b> <i>Social inclusion and services for quality of life and territorial attractiveness</i>
<b>Axis 5</b> <i>City</i>	<b>Priority 5</b> <i>Enhancement of natural and cultural resources for the attractiveness and development</i>
<b>Axis 6</b> <i>Networks and service nodes</i>	<b>Priority 6</b> <i>Networks and links for mobility</i>
<b>Axis 7</b> <i>Gender indicators</i>	<b>Priority 7</b> <i>Competitiveness of productive systems and employment</i>
	<b>Priority 8</b> <i>Competitiveness and attractiveness of cities and urban systems</i>
	<b>Priority 9</b> <i>International opening and attracting investment, consumption and resources</i>
	<b>Priority 10</b> <i>Governance, institutional capacity and competitive and efficient markets</i>

(\*) Our elaboration on ISTAT data, 2012.

The choice of indicators had to take account of the need to respect some requirements and in particular, the regional significance of the data and the possibility of timely updating and certain dates.

In addition to indicators, describing the conditions of economic development and the situation of the labor market, has been used with other indicators to test the degree of social cohesion, such as poverty, education, crime and safety assurance, and to investigate the mode of management or regulation of certain sectors, such as water supply, the environment, the use of electrical services, plus those more innovative, such as information services, telecommunications, computerization and quality of life .

Furthermore, it has been subject of monitoring, with the same modalities, another set of variables, used during the definition of the strategy as variables that jointly capture the potential development area. These variables, called break variables, because they are

able to grasp the improvement in the productivity of factors induced by the public, are intermediate objectives focus on strategies to be adopted to supplement and/or replace the main ones. Thus during the simulation of the macroeconomic effects of the program they have been identified funnels consistent with the improvement in the trend of growth in the area, which is the central aim of the program.

## **EFFECTIVENESS OF INTERVENTION**

In order to establish whether and to what extent the policy of the Structural Funds has been able to achieve the goal of mitigating the inequalities national and/or regional per capita income over the last twelve years (2000-2011), it was necessary to conduct an *ad hoc* study based on the data acquired by Eurostat, the results of which will only have a value orientation largely because - despite the attenuations of interregional differences in income per capita in the European Union - such attenuations are not due only to the transfer of resources, but also to other factors and circumstances.

The persistence of gaps in the face of considerable financial resources for cohesion policy, the question arises in the full effectiveness of these interventions.

Hereinafter, after analyzing the income gaps between countries and/or regions in Europe documenting the developments and examining the economic changes on the national level (with special attention to changes in differences in per capita income, employment and in the location of economic activity), will examine the results of transfers of resources at community level, in view of an output interesting for the evaluation is given by the ability to pay. An institution is in fact much more efficient as the sums allocated are actually delivered and used (Pilato, 2010).

Of course it should be able to measure those results that are attributable to the transfer of funds disbursed according to the Structural Funds, is in fact the correlation product-measured effect, which then allows, through the costs incurred by the administrator, to trace the political costs, up of the State budget, thereby ensuring the “traceability” of the financial flows that can, only in this way, actually be connected to policy outcomes measured in the field, within the limits which we have referred.

The possibility that must not be neglected effects of the medium-term, or those due to negative externalities, not always directly observable, requires the integration of sectorial measurements, carried out by a single administration, with other surveys, also made according to sample mode, which ensure detection of all the possible effects of the provision of financial resources in a given period of time.

Following the completion of the internal market and the entry into force of the Union Treaty, on the process of European economic integration has accelerated: a decade after the establishment of the euro, in fact 12 of the 15 countries already part of Union adopted the single currency. Taking into account the successive enlargement processes, in the same time period, 17 of the 27 countries that are part of the enlarged Union have adopted the euro.

The process of realization of Economic and Monetary Union (EMU), which led to the establishment of the single currency, was accompanied by an intense and structured debate, which relates mainly to the issues of loss, for individual Member States, the possibility to use the exchange rate against possible shocks asymmetric (country-specific shocks).

The vast economic literature, which finds its foundations in the theory of Optimum Currency Areas (OCA), analyzed the problem and consider the various alternative channels of adjustment of the exchange rate instrument, focusing on the topic of money

and paying, comparatively less attention to its effects on the processes of regional growth (Martin, 2001).

There are many causes that contribute to explain the disparity national and/or regional, which assume varying configurations and can also be the result of changes in accrued during shorter or longer periods of time. And yet the main causes of disparities can be traced back to the following, that is:

- a) the allocation of physical capital;
- b) human capital;
- c) the capacity for innovation;
- d) the supply of natural resources;
- e) the efficiency of the institutions;
- f) the role of power elites;
- g) the effectiveness of economic policies;
- h) the characteristics of the social structure;
- i) the system of values;
- j) the inclusion in the global economy;
- k) the phenomena of path dependency<sup>\*\*\*</sup>.

Of course, in the context of the European Union, the performance of regional economies are no less important than for the purposes of national social and economic cohesion.

The reduction of the wide disparities in levels of economic and social development between the regions of Europe, namely the convergence, which results in the commitment to offer similar standards of living (or at least not dissimilar) to all citizens of the Union, appears as an essential tool to achieve the policy objective of cohesion (Leonardi, 1995, 1998, 2005), (Milio, 2007, 2008, 2009), European Commission 1999 and 2001). The convergence of economic and social of regions is, therefore, for the European Union, an issue of great importance, not only from an analytical point of view, but also in view of the recent enlargement process, which in recent years, have allowed, as is well known, in recent years, the transition from a Europe in 15 countries to 27.

The effects of integration on regional economies were considered by both the preparatory studies by the community institutions, both in economic literature. While in the first is not *a priori* definition of the potential effects on the many regional realities, economists have instead taken articulated positions.

It should be noted, however, that the administrative delimitations may not be adequate to the analysis of regional disparities and the identification of areas of intervention, they do not allow to identify the specific economic and productive at the local level. To that end, territorial partitions that maximize economic flows inside the area and minimize those outside (defined, for example, with reference to the barriers that slow down the external mobility of the factors of geographical origin, infrastructural, but also historical or capital) may be more appropriate to study the local market, their rigidity and possible spill-over.

The main socio-economic indicators of the countries in Europe, which are taken into account in relation to EU programming periods 2000-2006 and 2007-2013, show a picture of wide disparities.

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<sup>\*\*\*</sup> The path dependency is a noted feature of the institutional change that can be summarized in a simple definition: existing institutions significantly influence the possibilities of change and prefer a kind of transformation incremental and marginal to the “institutional matrix” existing

As shown in the literature, it is, in fact, gaps quite high, especially when compared with those of the United States (USA), in which only two states have a GDP per capita below 75% of the average of the Federation, for a population equal to 2% of the total (Puga, 1999 and 2001).

The existence of wide gaps national and/or regional levels of development between countries and/or regions in Europe, where the socio-economic differences between the regions are largely greater than those between states, can only be an expression of structural inequality more or less strong, as is evident from the start of the integration processes. As early as 1958, for example, GDP per capita in the region of Hamburg (Federal Republic of Germany) was five times higher than that of Calabria (European Commission, 2010).

As is well known, the European Union (EU) includes 27 Member States which form a community and a single market of 493 million citizens. However, there are still major economic and social disparities between these countries and especially among their 271 regions.

## **CONCLUSIONS**

The European Commission has recently proposed several significant changes to how the design and implementation of cohesion policy, relating to (1) the concentration on the priorities set out in the document "Europe 2020 Strategy for smart, sustainable and inclusive growth", (2) the granting of funding based on the results, and increasing support for integrated planning, (4) attention focused on the results obtained on the basis of monitoring progress towards agreed objectives and (5) the strengthening territorial cohesion and simplification of operations. According to the OECD, the United States has the largest number of biotechnology firms (6 213 firms), followed by France (1 359 firms) and Spain (1 095 firms). Agricultural biotech can increase yields by 6%-30% on the same amount of land, helping to protect biodiversity and wildlife. The areas planted "biotech" in the world denote a steady increase in the last 10-15 years, with the notable exception of Europe. This evolution leads us to other issues on the table on which is appropriate to reflect. Interventions should not be overlooked, as some agricultural economists have this debate still in progress (Bellia and Pilato, 2011; Bellia and Safonte, 2012).

In the proposal, the Commission has determined that the policy should continue to be an essential element of the next financial package and has highlighted the central role in the implementation of the Europe 2020 strategy.

Moreover, the development of genetically modified organisms in agriculture is, in the field of biotechnology research, the most important sector - as genetically modified plants represent almost all of GM made to date, which must have added the huge amount of economic, social and environmental problems that have inspired and inspire (Bellia and Pilato, 2011).

It should be noted, however, that the Commission's proposals, that the analysis of the European Commission on economic, social and territorial cohesion does not imply that all regions can or should achieve all of its goals national or community. In fact, in some regions, the distance from the objective is such that it could hardly be filled. Also, in reference to other matters, to achieve the same goal by all regions is not realistic or desirable (Seventh Intermediate Report on economic, social and territorial cohesion (COM 2011-776 final)).

In addition to the issues put in evidence, are to be considered also those relating to cultural nature that characterizes the system. Current assets - on which decisively affects the allocation of financial responsibility between the Commission and Member States - have focused on the imposition of controls and the definition of forms of verification of formal correctness of administrative behavior rather than on the achievement of objectives.

This is therefore a system of essentially careful considerations of regularity and accounting issues related to the speed of the expense.

The first aspect has inevitable consequences in terms of articulation procedure, and overlapping control functions between the different administrative levels and limitations in terms of results. As emphasized by the Court of Auditors, the percentage of irregularities that characterized the regional policies, there is still, in fact, higher than those found in the average of European public policies.

The second leads, however, to the development of mechanisms of acceleration of expenditure, through the use of already existing projects that, if they contribute to avoid or to limit the loss of available resources at the national level, often do not constitute the most effective form for invest the funds available. And all this is because they can be attributed priority to issues of financial absorption than those of design quality, and because it may discourage the development of innovation processes in the management and control of funds.

The analysis also indicates that if, on the one hand, the distribution of funds is consistent with the criteria for the allocation of more resources to the regions lagging behind, are found, on the other hand, several performances in the management capacity of the funds between the regions concerned.

A depressing the effectiveness of regional, national and community competition has the poor quality of the interventions. In this regard one of the main shortcomings of the basic can mention at least two, namely: the dispersion of additional resources to finalize accelerate the development in the area in an excessive proliferation of actors, responding to questions too often local interests, and the slowness, the incoordination in the conception, design and implementation of specific interventions, which translated into often residues formation.

The final Report of ex-post evaluation of the European Commission has also highlighted the limited effects of investment grants, which are characterized by a large "dead-weight", ie the use of incentives for initiatives that would have been made anyway, and the lack of clear guidelines for economic policy in various productive sectors, compared to the processes of globalization that have affected to a greater extent the less developed regions, precisely those that would be needed to define and pursue specific policy guidance and support in changes in the production structure necessitated by the objectives to be pursued to reduce the gaps existing development.

In the light of critical evaluations on the history of programming cycles, currently the main concern, in fact, not so much and not only the achievement of the targets of expenditure that is required to avoid the return of community resources, but the need for an immediate redefinition of priorities and focus of interventions, as well as the redevelopment of the procedures and mechanisms of the design and implementation of the interventions themselves.

The proposed analysis may also provide a useful contribution in order to identify a non-trivial definition of the concept of evaluation of public policies, and all also in order to capitalize on the experience of EU programs on structural policies in general and

those of cohesion, in particular, in a transition period in which they tend to spread as ordinary practices of government.

And especially it is to be hoped that the architecture of cohesion policy in the next programming period (2014-2020) will be able to make a transition fair, simple and transparent, taking into account past experience and recent trends in the economic and social context of the regions concerned, and also allowing them to pursue their own path of growth and development.

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# Applications of the principle of precaution in environmental law

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## ABSTRACT

The precaution principle is applied in the article 191 TUE and aims to ensure a high level of environmental protection through preventive decisions in case of risk environmental degradation.

**Keywords:** *precaution, risk, prejudice, legislation, strategies, pollution*

## INTRODUCTION

To apply the mechanisms of the principle of precaution to the world practice means to foresee those factors able to take decisions in case of a possible prejudice. *the reason of how to prevent such prejudices consists in the measures to be taken against the known risks, then when the probability of their appearance is very high* (Agathe, 2003).

The concept of the *principle of precaution* applied to the law of environment states that the policy of the environment - be it referred to the world, regional or national scale - should always be based on the well-known scientific principles and errors should be avoided by manifesting precaution whenever sufficient data are or are not available.

It was in Germany that this principle was, for the first time, referred to; at that moment it was known as the principle of *precaution* or of *anticipation* but later, it spread over other European states. After 1960 it was included in the national strategies of each individual state.

Much later, about 1970, it was sanctioned under the name of *the principle of precaution* and reiterated in all the strategies of the national policies of states if referring to its being regulated, legislated and used in scientific researches. The principle started to be taken into account in the non-compulsory documents of the 1980s, where its first wordings could be found in the acts concerning the protection of the marine environment against pollution and the preservation of the ozone layer (Duțu, 2004).

## MULTILATERAL AGREEMENTS AND THE PRINCIPLE OF PRECAUTION

As a consequence of the draft-convention on the protection of the ozone layer, adopted in Wien/Vienna in March 22, 1985, the additional protocol in Montreal (concluded in September 16, 1987) states that the parties: *are decided to protect the ozone layer by taking precaution measures meant to impartially regulate the world volume of total emission of substances that endanger and diminish it, with the final aim to eliminating this emission, depending on the evolution of science, alongside with the technical and economic reasons*. By the provisions of Law 84 of December 3, 1993, Romania adhered to the **Convention on the Protection of the Ozone Layer** concluded in Vienna, March

22, 1985 and to **the Protocol on Substances that Exhaust the Ozone Layer** concluded in Montreal in September 16, 1987 and was for the admission of the amendment to the Montreal Protocol regarding the substances that exhaust the ozone layer, concluded at the second London reunion of the parties, in June 27-29 1990

At both European and national level one cannot speak about compatibility with respect to an exact definition applied to the principle - as such - as there appear significant discrepancies from one country to another.

At the level of the European Union huge efforts have been made with a view to define and explain the term, as to be used in a variety of preventive activities.

The joint objective of the member-states of the European Union is to harmonize - in as much as it can be afforded - the possible interpretations of the legislative, administrative and executive texts referring to a uniform application of this principle, aiming to assure an efficient protection of the surrounding environment as well as of the human health then, when the ecologic risk cannot be avoided.

A fact is certain: by establishing *the principle of precaution*, one can definitely understand the necessity of an anticipatory and cautious approach of the decision-making process in favour of a durable development.

In case of an ecological risk, the competent national authorities should apply clear, firm and efficient measures. If an emission of chemical substances is reported over the surrounding environment, an immediate measure shall be taken as to avoid the possible risks that might appear and, if any, whether these risks are admissible or not.

This decision can sometimes be grounded on information or on sufficient scientific data meant to enable the estimation of the risks; yet, more often than not, there is an element of confusion and uncertainty that makes it necessary for the principle of precaution to come into force.

The use of this principle, in the context of the environmental protection and legislation, is rooted in the idea that the undertaken scientific researchers can foresee the effects of the human activity over the environment. Although there has been issued a large number of norms concerning this problem, a full possibility to foresee a probable prejudice able to pollute both the surrounding environment and the ecosystems could not be attained.

It is this scientific uncertainty that stays at the basis of the protective measures adopted in conformity with the principle of precaution.

*The principle of precaution* guides those activities that affect the public health or the protection of the environment; most of the actions belonging to the economic domain are considered to create such possible risks and, the supporters of the economic activities are involved in safeguarding the protection of the above mentioned categories.

Instead of passively accepting the decisions of the technologic companies or of other companies, the public society should take into account various alternatives for the mentioned activities and opt for the most trustworthy of them, even the non-action then, when the action seems to be too dangerous or non-admissible from the cost-benefit point of view.

Just because the principle involves an element or an intentional factor - that is the fact that society shall actively analyse their options and conscientiously adopt decisions connected with the products and the conditions to be used, and how the respective products shall be manufactured, as well as many others economic and technological aspects - the principle of precaution emphasizes the importance of settling certain

democratic decision-making processes alongside with the participation of the citizens in such decisions which, for the time being, are left to the mercy of the economic sector.

## EUROPEAN MILESTONES

At the level of the European Communion, efforts have been made in order to explain the principle and to implement it in various contexts. The aim of these efforts was to create a harmony among the various interpretations given to certain legislative and executive measures or to certain international agreements.

Nevertheless, the uncertainty regarding the real significance and the applicable standards continues with both the European Union and with the member states. The European states have not diminished their efforts with regard to the principle of precaution to be included in the national legislation; on the contrary, they claimed that it should be introduced in treaties and in international agreements.

In 1982, the **Stockholm Conference on Environment** recommended the principle of precaution as an acceptable approach for the scientific innovation yet, it did not venture to offer a comprehensible definition to the principle. Later, the principle has been considered by other international agreements as a problem connected with the international law.

Still, all these premature interpretations needed scientific and clear evidence and were limited to high risks problems, only (Dragoş and Veliş, 2004). One of the first pan-European resolutions, to agree with the ideals of the principle of precaution, appeared after the **Bergen European Conference** (1990), which decided that “*as for a durable development to be attained, all policies shall be based on the principle of precaution.*” The measures regarding the environment shall anticipate, prevent and administrate the causes leading to the degradation of the environment.

There where real threats regarding serious and irreversible damages appear, the lack of a full scientific assurance shall not be a reason for the delay of the measures taken for preventing the degradation of the environment (Dragoş and Veliş, 2004).

The principle was internationally consecrated by the rio declaration (1992) where multiple draft conventions supporting the precaution approach were taken. The declaration stipulates that mankind is mainly interested in a sustained and continuous development and that the state has to be responsible for the achievement of the needs the present and future generations require in as far as the environment is concerned. This initiative claims that all states shall cooperate – in a global partnership – as to support the developing countries which are mostly vulnerable from the ecological point of view. The dispositions of the Declaration are also underlining the necessity of an efficient environmental legislation meant to debate problems connected with the environmental degradation, foccusing especially not only on species and habitats, but on ecosystems as well, and that the states shall respect the international legislation regarging the protecting the envitonment in the periods of armed conflicts.

In conformity with this agreement, the principle of precaution mentions that *there where there are real threats regarding serious or irreversible damages, the lack of a full scientific assurance shall not be a reason for the delay of the efficient costs measures for preventing the degradation of the environment.*

At the same time, the Maastricht treaty provisions include dispositions meant to regulate the applicability of the principle of precaution at the level of the European Union treaties: *The policy of the European Community with regard to the principle of precaution shall aim to attain a high level of protection, taking into account the*

*diversity of situations offered by various EU regions; this policy shall be based on the principle of precaution and on the principles according to which preventive actions are to be taken.*

The European Union is the world leader in including the principle of precaution among its policies; the principle is recommended to all level of decision-making authorities as an important guide meant to regulate and make the scientific research useful.

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# Consumers' perceptions on tap water quality and relationship to sustainable behavior

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## **ABSTRACT**

The perceptions on the tap water quality are studied in order to use them for stimulating a sustainable behavior related to water. The water characteristics tested were taste and safety. The dominant evaluations were positive and average. The propensity to change the tap water quality was tested and it was low. Consumers concerned about water quality, aware of the relationship water quality – human health – natural environment are more likely to develop or enhance a sustainable behavior.

***Keywords:** tap water, taste, safety, consumers, perceptions*

## **INTRODUCTION: WATER TODAY: TOWARDS SUSTAINABLE WATER BEHAVIOR**

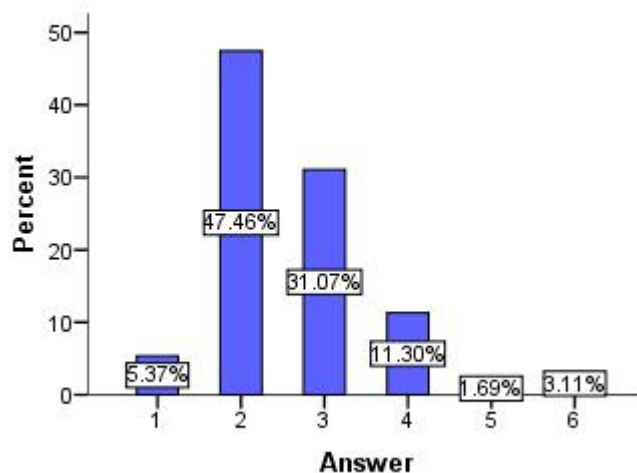
All the systems in our world depend on the quantity and quality of water they use: human direct consumption (drink and food), agriculture, industry etc. The health of our water must be monitored to understand the changes taking place and measures for protection must be continuously improved and implemented to preserve this precious resource for future generation, too. One of the most important legal acts at EU level focused on water protection is the Water Framework Directive (WFD 2000), which integrates, for the first time, all issues related to an improved protection and management of all of Europe's water resources and aquatic environments (Petrescu-Mag, Petrescu, 2010; Popa, Cosier, 2009; Popa, Bud, 2010, 2011), including transboundary aspects, which are some of the most challenging water management issues (Petrescu-Mag, Petrescu-Mag, 2010). At the same time, consumers' perceptions on the water quality are important as they influence the consumption behavior, which, at its turn, has a high impact on water and environment quality. In Romania, drinking water is obtained from surface water sources – 63.2% – and from groundwater sources – 36.8%. The available amount of water is: from rivers – 13.95 billion m<sup>3</sup> / year, from Danube – 20 billion m<sup>3</sup> / year, from groundwater sources – 5.41 billion m<sup>3</sup> / year (Hârceag, A., Cârlan, A., 2012). Water domestic demand was of 21.7 million inhabitants (according to the census of 2002); from these, 14.7 million people (68%), benefits from drinking water from the public network: 11.3 million in the in the urban

area (which represents 77% of the population supplied with water and 98% of urban population) and 3.4 million in rural areas (which has 23% of population supplied with water and 33% of rural population) (Hârceag, A., Cârlan, A., 2012). Romania is a country with scarce water resources compared to other EU countries – occupies the nine place out of twenty five. Consequently, it is very important water to be used wisely in all activities, including in domestic consumption.

A survey carried out in Cluj-Napoca, the second biggest city in Romania, aimed to identify consumers’ opinion on drink water (within the ISPA measure ISPA 2000/RO/16/P/PE/008 Rehabilitation and Modernization of the Water and Sewerage Infrastructure for the Area of Cluj); the subjects were customers of a regional water company – SC Compania de Apa Someș SA – CASSA. A simple random survey was implemented and home interviews were carried on. The margin of error of the survey was 5% and confidence level was 95%. The total number of valid questionnaires completed was 384. From a geographical point of view, the research included the municipal area of Cluj-Napoca (NW of Romania). From the survey perspective, the univers population is composed of the adult domestic customers of CASSA in Cluj-Napoca city (more precisely, domestic users of CASSA services). All the inhabitants of Cluj-Napoca are customers of the water company, so we can understand the results of the research as being valid for the entire population of the city

### CONSUMERS’ PERCEPTIONS ON TAP WATER

The perceptions on the water quality were studied by asking the customers to evaluate several characteristics of the drink water (tap water). Taste and safety were among the most relevant ones: “How do you appreciate the taste of the tap water?” (Figure 1), “How do you appreciate the safety of the tap water?” (Figure 2).



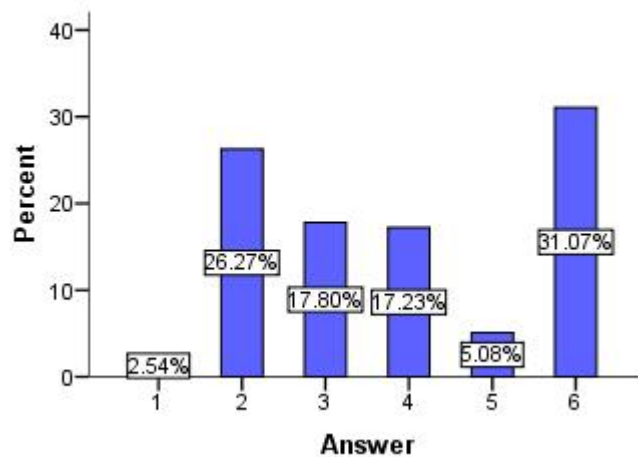
Legend: 1 – very good, 2 – good, 3 – average, 4 – bad, 5 – very bad, 6 – I don’t know

Source: \*\*\*, 2010, *Report of the Research Project Survey*

Figure 1. Evaluation of tap water taste

Over half of the consumers (53%) perceive the tap water taste as good and very good, one third as average and 13% as bad and very bad. 3% have no opinion or are not able to give an evaluation. The situation is good; however, improvements are possible

by modifying the “average” and “bad” perceptions towards “good” evaluations. In order to do so, the reasons that led customers to lower evaluations must be discovered. If they are subjective, emotional and wrong, corrections are possible. If they are rationale and correct, other measures must be implemented, like the improvement of water pipe network, which can alter the water taste. A customer that demands a high quality tap water – and taste is a strong quality indicator – is more likely to acquire a sustainable behavior in relation to water: to save water, to protect water sources etc. than one that is indifferent to water taste. From environment protection point of view, survey results indicate is a situation favorable to build or strengthen consumers’ sustainable behavior.



Legend: 1 – very high, 2 – high, 3 – average, 4 – low, 5 – very low, 6 – I don’t know

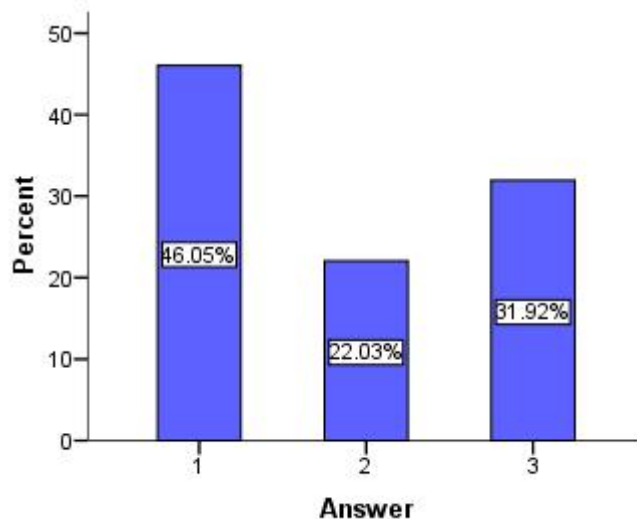
Source: \*\*\*, 2010, *Report of the Research Project Survey*

*Figure 2. Evaluation of tap water safety*

Around one third of the customers perceive tap water as safe and very safe, around 18% as average, 22% of them as unsafe and one third have no opinion or cannot give an evaluation regarding the safety of water for their health. This situation can be seen as medium to bad for two reasons: average and bad evaluation overcome the positive ones and the percentage of people with no opinion is too high, indicating a lack of concern for the issue and consequently of involvement in water and health protection actions. The perceptions should be improved through better communication, focused on water quality and its safety. Concern for safety can be linked to concern for water protection and environment protection, in general, through appropriate communication and education actions and, thus, can stimulate or enhance consumers’ sustainable behavior.

## **PROPENSITY TO CHANGE VS OPINIONS**

The propensity to change the tap water quality for a higher price can be an indicator of the real dissatisfaction. The subjects were asked: “If two offers would be available on the market, which one would you prefer: a) the present drink water, at the same price, b) better drink water, at a higher price?”



Legend: 1 – the present drink water, at the same price, 2 – better drink water, at a higher price, 3 – I don't know

Source: \*\*\*, 2010, *Report of the Research Project Survey...*

*Figure 3. Propensity to change the tap water supplier*

The present quality of water at the same price is preferred to a better one at a higher price by almost half of the customers. This is another good indicator that consumers are, generally, satisfied with the water quality. From the perspective of consumers' concern for environment and their health, they can be in one of the following situations: they have high awareness and expectations on the water quality and they value highly the tap water they pay for or they, which is favorable both for consumers and for the company; they are not very well informed on the characteristics water should have, on its impact on their health, they have relatively low expectations, which are fulfilled by the water quality – situation dangerous for the consumers and for the company and should be corrected. However, 22% of the subjects are ready to pay a higher price to have improved water quality; this indicates either they are currently unhappy with the tap water quality or they are satisfied now, but a better offer would be appealing for them and are ready to pay more to obtain it. The 32% who don't know what they would do can belong to one of these categories: they may be pleased or almost with their tap water quality and their doubt may be related rather to price than to tap water quality; or they have difficulties in evaluating the ratio quality/price for this hypothetical situation.

## CONCLUSIONS

The evaluations of the water characteristics are favorable as around half of the subjects perceives them as very good and good and as the negative evaluations are significantly lower than the positive ones. However, improvements should be made by solving, when is possible, the problems of the 10-22% who evaluated as bad and very bad. At the same time, efficient communication can decrease the percentage of average in favor of good and very good. Around half of the customers seem to be satisfied with their tap water and are not willing to change it for an additional more expensive offer. Customers concerned with tap water quality, its impact on their health, aware on the connection tap water quality – human health – natural environment are more likely to develop or



improve their behavior in order to be more sustainable in relation to water, in particular, or to environment, in general.

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# New Ways to Value Tourism Resources From Rural Environment

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## **ABSTRACT**

Rural tourism is a recent phenomenon, which in European countries is practiced for decades spontaneous or organized. What is new, however, refers to the size of the phenomenon in rural areas. This expansion is caused by the existence of two motivations for rural tourism, on the one hand it is revival and development of rural areas, and on the other hand of a form of alternative tourism to traditional mass tourism. Rural tourism involves the tourist capitalization of: rustic areas, natural resources, cultural heritage, cultural buildings and village traditions of agricultural products through branded products (consecrated) illustrative for regional identity, covering consumer needs in terms of accommodation, food, recreation, entertainment and various services for local development, sustainable and an adequate response to the needs of modern society recreation. The development of tourism should be done gradually, without causing any impact. It's should be based on sustainable use of resources on revitalizing local economies, the integration of the local population and on a planned and controlled growth that does not lead to the appearance of a mass phenomenon that have a low impact and be sustainable. The aim of the research is to identify the main ways to exploit rural tourism resources and the implications of exploiting these resources.

**Keywords:** *ecotourism, environment, tourism resources, rural tourism, slow travel, valuation*

## **INTRODUCTION**

Tourism resources – elements of the natural and cultural history – were used in tourism since ancient times. Today aims to achieve a comprehensive and effective recovery in a context of intensive tourism as a conservation protection and tourism values, many of them in a finite amount of a reduced time. Practice has shown that Romanian tourism has known up until the present time an extensive development and especially opportunistic without a unitary covering of all types of tourist resources. This approach has

led, on the one hand, to the division of investment at the local level, while realizing "tourism products" (mountain, spa tourism, culture) incomplete and especially uncompetitive on foreign markets, and on the other hand, have been outside tourism tourist objectives and areas with representative tourist potential value or unique value. Decisive element in the scientific and decision-making program is to define a strong and realistic concept, regarding the heritage and sustainable tourism development objectives in a closer manner. In this respect, the Romanian tourism development objectives could be:

- Increasing the tourism competitiveness offer through modernization and development of technical-material base.
- Development of organizational and legal framework for the development of a competitive tourism
- A quality diversification of touristic services
- Romanian tourism marketing in the European market and beyond
- Ensuring the conditions for practicing tourism by various categories of people
- Development of youth tourism
- Improving the training of the workforce in tourism.

Way of ordering the main objectives and ways of achieving them has a number of interesting issues for conceptualizing the system of capitalization of our tourism and our heritage. An example of this practice is to encourage tourism forms that take place in Romanian rural environment such as: ecotourism, nature based tourism, rural tourism, agro-tourism, slow travel etc., intended to contribute, on the one hand, to lower negative impact that tourism movement has on the environment (landscape degradation, local culture and traditions, diminishing the visitor experience and so on) but also to significant benefits for the local population, on the other hand.

## NEW WAYS TO VALUE TOURISM RESOURCES

Harnessing the natural environment is one of the fundamental requirements of resource recovery process. From this side it interferes with other forms of travel based on nature, the nature based tourism.

### Nature-based tourism

Tourism that features 'nature' is generally termed environmental or '**nature based tourism**'; a broad term that includes a range of tourism experiences including adventure tourism, ecotourism, and aspects of cultural and rural tourism, eg. farmstay. Aboriginal culture is included as part of nature based tourism because of its inextricable link with the natural environment (<http://www.tourism.wa.gov.au>).

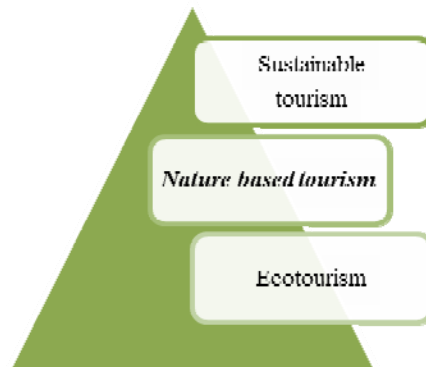
Nature-based tourism embracing a large spectrum of activities, such as: bird watching, stargazing, biking, scuba diving, fishing, camping, hiking. The lack of generally accepted definitions has hindered our abilities to identify and analyze nature tourism and its many variations, such as results in table no.1

*Table 1. The Rainbow of Nature-Based Tourism*

<b>Incidental travel</b>	Any travel during which the traveller views or appreciates the green environment.
<b>Nature-Centred Support</b>	Travel in which nature is the central element rather than an after-thought.
<b>Involvement</b>	Travel organized to provide appreciable financial support for the protection of the green environment visited or enjoyed.
<b>Ecological</b>	Travel in which the traveller personally engages in activities that support conservation or restoration.
	Travel in which all activities are ecologically benign.

Source: adapted from <http://www.planeta.com>, access at 5 October, 2012

Green tourism development involves improving the quality of tourism services so as not to disturb the ecosystem (adapted from The World Conservation Union - United Nations Environment Programme and the World Wildlife Fund, 1991), but rather to serve mainly the ecosystem and human as part of ecosystem (adapted from Green Tourism Romanian Association). In all these areas, nature based tourism occupies the next place between the following forms of tourism:



Source adapted by authors

*Figure 1. Place of nature based tourism*

Currently it is estimated that nature based tourism (green tourism) is hosted in rural communities who are in the area or near national parks, nature parks, biosphere reserves, nature reserves (Nistoreanu, 2010). Green tourism lovers are those who appreciate particularly ecotourism products (Nistoreanu, 2010) and travel to: experience natural phenomena, learn about nature, be physically active, meet people with similar interest.

## Ecotourism

An alternative for "green tourism", marked by practicing its unspoiled areas of anthropogenic intervention is **ecotourism**, which takes today capacities of a "bellicose tourism", as it involves a constant struggle to maintain the integrity of the natural environment and, in particular, protecting tourism resources (Cocean, 2002). The term of ecotourism may be used to define tourism, which, besides being interested in nature, meet the needs of culturally and has minimal impact on the environment, requires less infrastructure development than traditional forms of tourism and undertake the benefit of the local population. Summarizing all the above we can define three principles of ecotourism, outlined in the figure below:

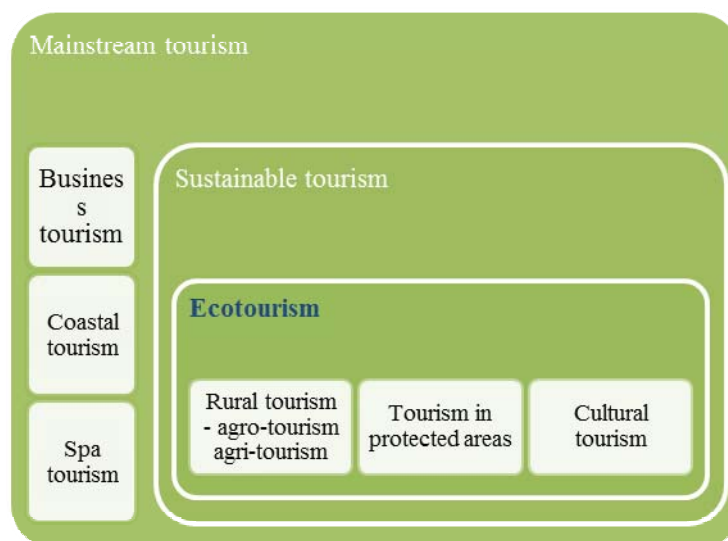


Made by the authors based on documentation made during research by processing information from Ron Mader/  
[http://crappygraphs.com/user\\_graphs/?id=1373](http://crappygraphs.com/user_graphs/?id=1373), access at 6 October, 2012

*Figure 2. Principles of ecotourism*

Practicing ecotourism ensures adequate capitalization of tourism resources, while preserving their ecological integrity. Ecotourism involves a number of opportunities for

both the local community and for the revitalization of resources, such as use of profits for conservation and preservation of areas, use of materials and labour to keep money in the local economy, equitable distribution of economic benefits, safeguarding and protection property, creating jobs for people. As it can be seen in figure no. 3 ecotourism is a process of development of some forms of tourism to sustainable tourism.



Realized by authors

Figure 3. The transition from traditional tourism to ecotourism

## Geotourism

**Geotourism** - Jonathan B. Tourtellot, in 1997, while a Senior Editor at *National Geographic*, developed the idea of geotourism and the associated idea of sustainable tourism that focuses on an area's human culture and history (<http://www.phineasswann.com/geotourism.php>). It is predicated on the idea that the traveler support local businesses that themselves emphasize the special character of their surroundings—promoting and using local products and services. And, all the while doing this with an awareness of how everything in their area fits together in a symbiotic relationship benefitting the uniqueness of the area as a whole—its geography, wildlife, human history, by promoting "best practices" based on First do no harm.

This approach leads to local residents appreciating what they have in their backyards and to the education of travelers in an area's special value in human history.

Geotourism adds to sustainability principles by building on a destination's geographical character, its "sense of place," to emphasize the distinctiveness of its locale and benefit visitor and resident alike. Geotourism is defined as tourism that sustains or enhances the geographical character of a place – its environment, culture, aesthetics, heritage, and the well-being of its residents (National Geographic, Mission Programs – Center for Sustainable Destinations).

Some characteristic of this type of tourism are presented here: (<http://travel.nationalgeographic.com>):

- *Geotourism is synergistic*: All the elements of geographical character work together to create a tourist experience that is richer than the sum of its parts, appealing to visitors with diverse interests.
- *It involves the community*. Local businesses and civic groups join to provide a distinctive, authentic visitor experience.

- *It informs both visitors and hosts.* Residents discover their own heritage by learning that things they take for granted may be interesting to outsiders. As local people develop pride and skill in showing off their locale, tourists get more out of their visit.
- *It benefits residents economically.* Travel businesses hire local workers, and use local services, products, and supplies. When community members understand the benefits of geotourism, they take responsibility for destination stewardship.
- *It supports integrity of place.* Destination-savvy travelers seek out businesses that emphasize the character of the locale. In return, local stakeholders who receive economic benefits appreciate and protect the value of those assets.
- *It means great trips.* Enthusiastic visitors bring home new knowledge. Their stories encourage friends and relatives to experience the same thing, which brings continuing business for the destination.

## Cultural tourism

**Cultural tourism**, another form of exploitation of resources, especially human, focuses on traditional communities who have different customs and traditions, unique forms of art and distinct social traditions. Cultural tourism can be considered a form of exploitation of resources because it has a positive social impact, it helps to preserve cultural heritage, its proper interpretation, using culture as a tool that facilitates harmony and understanding among peoples, supports culture and helps renew tourism. Cultural tourism based on cultural resources in the territory (resources artistic, historical, customs), directing them towards the preservation and conservation (Henche, 2004). Cultural tourism demonstrates that is extremely beneficial. Whether its visiting museums, art festivals, cultural, artistic performances, objects and historic heritage, authentic cultural attractions educate, raise the intellectual level and create good mood tourists worldwide. C. Origet Cluzeau summarizes, in his work „Le tourisme culturel” main themes of cultural tourism and a tourism form of expression that generates such as is shows in table 2.

Table 2. Tourist formula

THEME	
Religious	Pilgrimage, charismatic meetings
Towns, regions, countries	Circuit, accommodation, trips
Historical	Circuit, visiting museums
Remembering	Circuit and trips
Ethnic	Circuit, accommodation
Artistic	Circuit, probation
Handicraft / Industry	Thematically circuit, visiting industrial places
Gardens	Circuit, accommodation, trips
Festivals, cultural events	Accommodation
Gastronomical	Accommodation, circuit, cooking probation
Shopping	Going to town
Linguistic	Staying in schools, families
Pedagogy of culture	Lessons outside schools

Source: Origet de Cluzeau, C. (2007) *Le tourisme culturel*, PUF, Que sais-je, France

## Rural tourism

A form of exploitation of rural environment is **rural tourism** through tourism activities. Rural tourism is tourism where rural culture is a key component of recreational tourist product, as is stated by the World Tourism Organization. The distinctive feature of rural tourism products is the fact that tourists are offered personalized contact, enjoy physical and human environment of the countryside and participate, whenever possible, to activities, traditions and lifestyle of local people (Tourism 2020 Vision, Global Forecast and Profiles of Market Segments, Volume 7, published by World Tourism Organisation,

Madrid, Spain, 2001, <http://www.unwto.org/facts/eng/vision.htm>, access on 06.10.2012).

Specific features, such as tracking minimizing negative impacts on the natural and cultural tourist satisfaction optimization and maximizing long-term growth of the region, local tourism resources exploitation and raising living standards of the people, argues for inclusion in the resource recovery through tourism activities. Also, rural tourism is the most robust and most interesting cultural nature protection and therefore rural tourism is a viable concept of resource recovery. Activities like geotourism, walking tourism, agritourism, slow travel are just some activities that take place in rural environment (figure no.4).

Exploitation of resources by rural tourism activities takes place through: utilization of specific resources (vine fruit, crafts, food, ethnographic and folk etc.), crafts art specific rural revitalization, preservation of traditions and customs specific to rural areas, early recovery of agricultural and water resources for fisheries, for example.



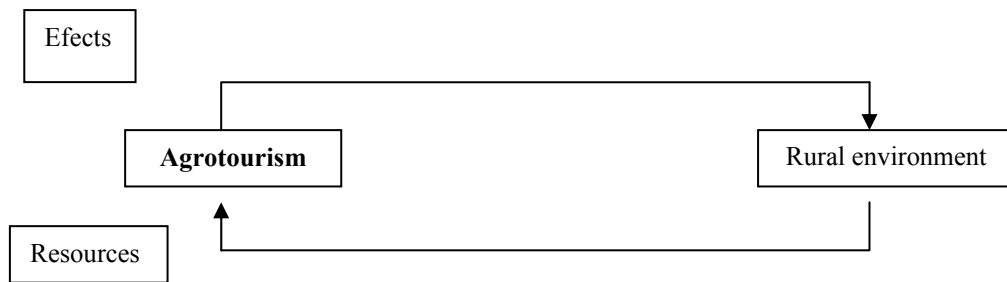
Source: <http://ruraltourismmarketing.com>, access on 6 October 2012

Figure 4. Activities of rural environment

### Agrotourism

**Agrotourism** play undoubtedly an important role in harnessing the resources belonging to rural areas, especially in villages and small towns with a high degree of rurality and tourist potential. Most often the concept of agrotourism is related to tourism products in direct relationship with the farming, agricultural production and rural residence. Agrotourism is defined as the movement of people in an unpolluted rural, situated in a picturesque area, complete with a accommodation at least 24 hours and consumption of food and non-food, filled with coexistence and integration in rural society seen in all its complexity (Cocean, 2002). This form of rural tourism is practiced by smallholder from rural areas, usually as a secondary activity, activity in the household / farm remains the main occupation and source of income (Nistoreanu, 2010).

Practicing this adjacent activity, agrotourism, by peasants conducts to result in a superior development of rural areas through the contribution of the proceeds from the accommodation, but especially by taking advantage of some other local agricultural products by including them in tourist consumption. It is good to note that some of the income from tourism activities are used for investment and modernization, thus directly contributing to the development of tourism activity and support themselves peasant farming and the area (Nistoreanu, 2010).



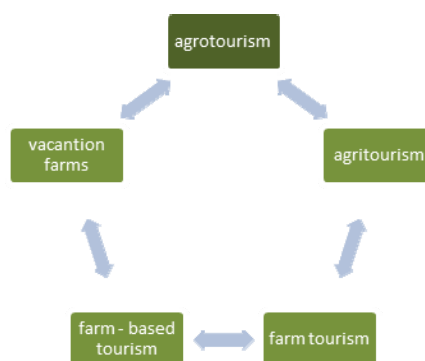
Source Source: Nistoreanu, P., Ghereș, M., Rural tourism 2010:120

Figure 5. Agrotourism – rural environment relationship

Agrotourism is akin to farm tourism that usually means the use of peasant houses as places for tourists. Farm tourism is not agrotourism in the strict sense of the term, as these farmhouses lose their agricultural function or not too long occupied by active farmers. Despite losing direct connection with the actual farming, farm tourism is an important form of rural tourism, an important contribution to the local economy where it is practiced (Glăvan, 2003).

Agritourism activity is closely linked to agriculture and often with economic viability household (Phillip, 2010).

In figure no. 6 we can see the main activities from this form of tourism that is agrotourism:



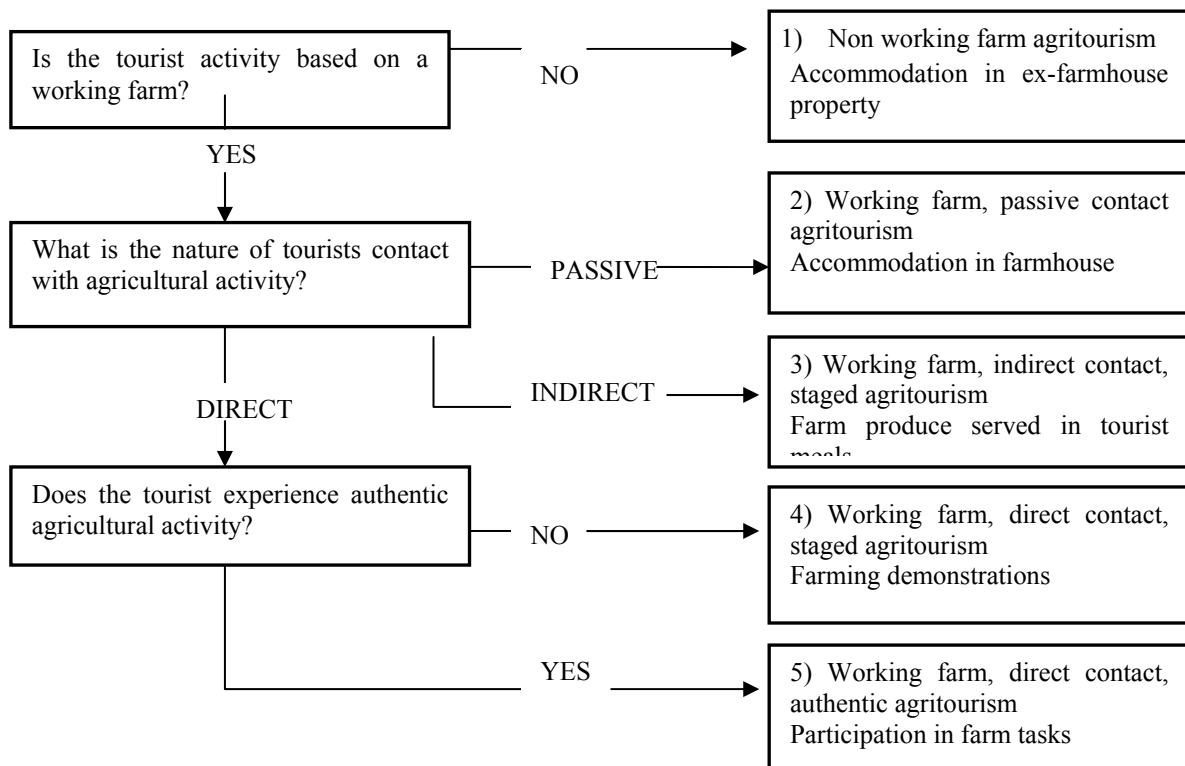
Adapted by authors based on documentation made during research by processing information from Sharon Phillip, Colin Hunter, Kirsty Blackstock - *A typology for defining agritourism*, Tourism Management 31 (2010), pp. 755.

Figure 6. Activities of agrotourism

Agritourism, form of rural tourism, has been studied in various ways and contexts. It can be argued, however, that studies have yet to provide a clear and basic understanding of the characteristics that underpin and define agritourism (Phillip, 2010).



In next figure is shown a typology of this type of rural tourism, as Sharon Phillip says in her paper „A typology for defining agritourism”.



Source: Phillip Sharon et al - "A typology for defining agritourism", Tourism Management, vol. 31, Elsevier Ltd, 2010, p. 756

Figure 7. A typology for defining agritourism

These features of agritourism are useful because they help to establish a boundary between those activities which are traditionally based firm, but not agricultural (eg, riding, food processing), to those that are purely agricultural (for example, harvesting crops). To develop rural tourism must find a balance between market opportunities and its own skills and resources. Must align resources, skills and objectives with existing environmental conditions, protecting the culture and character of host communities, protection of landscapes and habitats, supporting rural economies, supporting long-term sustainable tourism, a partnership between stakeholders in tourism authorities local host population.

### Slow travel

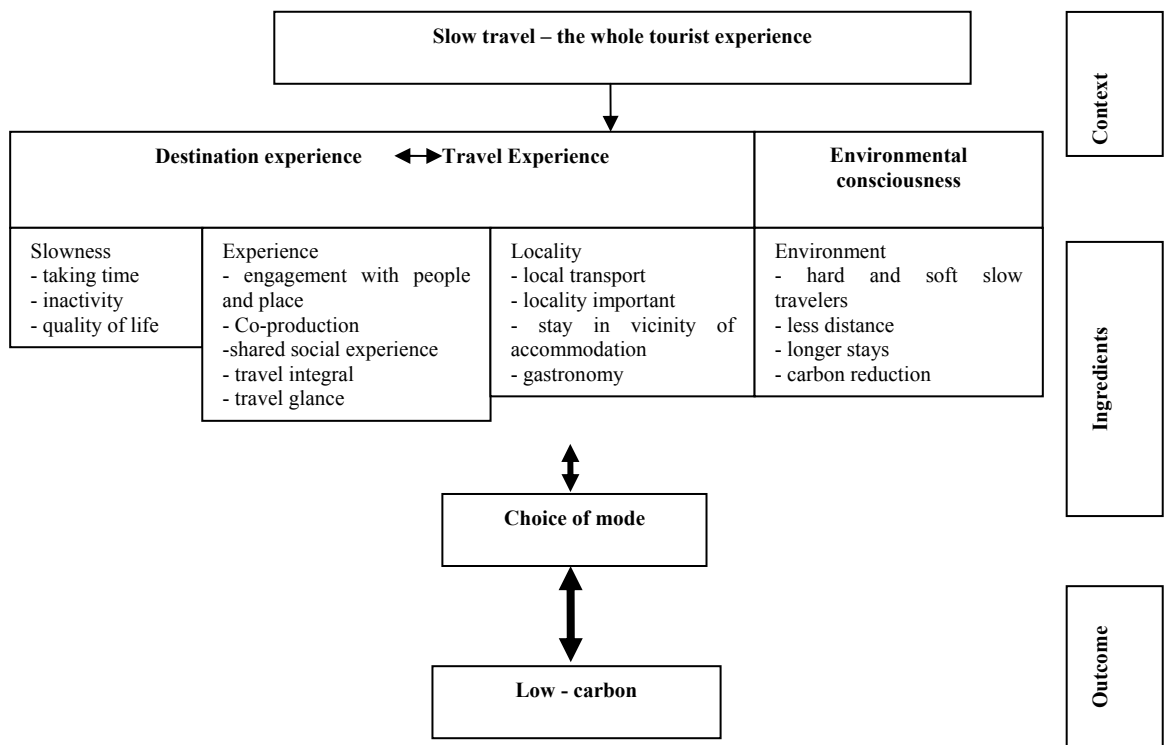
Another form of tourism that is practice on rural area is slow travel. This form of tourism has his origins in Slow Food movement. Slow travel is about making conscious choices. It is about deceleration rather than speed. The journey becomes a moment to relax, rather than a stressful interlude imposed between home and destination. Slow travel re-engineers time, transforming it into a commodity of abundance rather than scarcity. And slow travel also reshapes our relationship with places, encouraging and allowing us to engage more intimately with the communities through which we travel (Nicky Gardnera manifesto for slow travel, 2009- [www.hiddeneurope.co.uk](http://www.hiddeneurope.co.uk) ).

There are some fundamentals differences between Classical Tourism and Slow Travel as they are shown in the next table (Dickinson & Lumsdon, 2010):

Table 3. Differences between Classical Tourism and Slow Travel

Contemporary Tourism	Slow travel
Speedy transit	Slow travel times
Prevailing modes of the car and airline dominate	Wider range of modes including bus and train
Immediacy	Slowness
Resource intensive	Resource reduction
Journey is a „corridor“	Journey is the thing
Consumption of many attractions	Localness
Maximizing visits	Staying awhile
High - carbon	Low - carbon
„Fast food“	„Slow food“
Standardized hospitality dominates	Slow food beverages

Slow Travel refers to the whole tourist experience:



Source: Dickinson, J et al – “Slow travel: issues for tourism and climate change, Journal of Sustainable Tourism, Vol. 19, Issue 3, pp. 281

Figure 7. A typology for defining agritourism

One of the pleasures of slow travel is the slow and thorough exploration of the local area – it is like an immersion process. This slow exploration is in direct contrast to conventional travel that seeks to ‘hit’ the major tourist features in a 20 km radius. Slow travelers are freed from these tedious pressures of standard tourism. By exploring on foot and by bike there are opportunities to talk to people and find out the points of interest from their perspective.

## CONCLUSION

Tourist resources have been used since ancient to attract tourists from other regions. Utilisation of resources in rural Romania began especially after the revolution when people from rural area realized that they have a „treasure in their own court”, respectively the traditions, the natural environment and their way of being. This capitalization is done by various ways, namely through tourism based on the nature, through geotourism, through cultural tourism, agrotourism and recently by slow travel. All of these forms of tourism can be practiced successfully in Romania.

Problems arise when we talk about the promotion of these forms of tourism, government policies and when we talk about local policies and when we talk about the lack of involvement from local communities. However, there are local communities who are able to develop them thru capitalization of their resources such as Albac - Alba County where they try to promote rural tourism by organizing a National Rural Tourism Fair - fair reached at the eight edition.

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# Agriculture's contributions to the effort of climate change mitigation

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## ABSTRACT

In 1992 it was decided to establish a framework of intragovernmental actions undertaken in order to meet the challenge of climate change. This has allowed the adoption of the United Nations Framework Convention on Climate Change (UNFCCC). The main objective of this Convention is to stabilize concentrations of greenhouse gases in the atmosphere so as to prevent dangerous anthropic perturbation for the climate system. This level should be set at a time sufficient to allow ecosystems to adapt naturally to climate change, so that food production is not threatened and to realize economic development in a sustainable way.

*Keywords: agriculture, climate change, reduction, methods, organic agriculture*

## INTRODUCTION

After the adoption of the United Nations Framework Convention on Climate Change, it was created Conference of the Parties, as supreme organ of this Convention to oversee the application of the Convention and any related legal instruments that it may adopt (UNFCCC). A new step forward in addressing the issue of climate change was made at the third Conference of the Parties in December 1997 in Kyoto, Japan. Requested Parties to the Convention to take a commitment binding of emissions limitation or reduction of greenhouse gas emissions by a certain rate that would be negotiated in the first commitment period, 2008-2012. Romania was the first country to sign the Kyoto Protocol in 1999 and ratified in 2001 by Law 3/2001, being the first country in Annex 1 of the UNFCCC that has done this. The value commitments to reduce emissions of greenhouse gases adopted by Romania is an 8% reduction from base year 1989.

## MODALITIES TO REDUCE THE EFFECTS OF CLIMATE CHANGE USING THE AGRICULTURE

The main sources of air pollution and emissions of greenhouse gases are now energy industry, transport and to a lesser extent, agriculture. The low level of mechanization in agriculture of Romania compared to EU average, plus smaller areas covered by greenhouses, determines a contribution to climate change. However, the stock of tractors and agricultural equipment is outdated and needs to be upgraded in order to maintain a low level of emissions.

Both Romanian agriculture and forestry fund can play an important role in combating climate change strongly felt in recent years mainly by floods and high temperatures and

droughts. These phenomena affect both agricultural and forest productivity and valuable habitats and ecosystems.

It is expected that agriculture and forestry continue to make an important contribution to combating the effects of climate change by:

- ***Making afforestation for the absorption and retention of greenhouse gases.***

The role of forests in reducing CO<sub>2</sub> and air purification is well known. Changes in land use (including afforestation of agricultural land or non-agricultural) directly affects the carbon balance - especially by young forest setting, with faster growth, which absorb large quantities of CO<sub>2</sub> when compared with aged forests. Forests play an important role in regulating water flows, water quality and ensuring the protection of water sources for local communities without providing alternative sources of water. This is the case of the forests situated in the protective perimeters of groundwater resources or surface and forests located on the flanks of natural lakes and reservoirs. Forests play an important role in maintaining soil stability, including control of erosion, landslides or avalanches. Afforestation with indigenous species will also cover land erosion problems and danger of slipping.

- **Converting animal waste into biogas** - Anaerobic digestion of plants for biogas production from animal manure is one of the most promising measures to reduce methane, despite high investment costs involved. This is particularly effective for those regions with high animal densities and volumes of manure (UE grant funds for rural development to support these investments).

- **Practice organic agriculture** - Ecological agriculture emits fewer GHGs, because not using fertilizers. Organic farming also uses less energy (both per hectare and per unit of output than conventional agriculture). European Action Plan for Organic Food and Farming in June 2004 underlines the social role of organic production, meeting the demand for public benefits. The plan aims to support the development of organic agriculture.

- ***Strengthening the carbon sink function of agricultural soils*** - Storage of organic carbon in agricultural soils (carbon sink) offers considerable potential to remove CO<sub>2</sub> from the atmosphere. You can remove significant amounts of CO<sub>2</sub> from the atmosphere and stored in soils through a series of agricultural practices including: organic farming; Systems zero or reduced soil cultivation which prevents soil disturbance; growing protein crops, planting bushes, maintenance of permanent pasture and conversion of arable land to grassland. You can also retain significant amounts of carbon through afforestation, forest because different species retain more carbon than agricultural crops.

- ***Providing renewable resources for bioenergy and bio-products*** - bioenergy produced from agricultural biomass can replace other energy sources with strong emission, and fossil fuels. Farmers are increasingly involved in energy crops for biofuels, small or large power stations or thermal stations with combined production on farms. There is also a growing trend for greater use of renewable agricultural resources industry, agricultural materials, plastic green or biochemical products

- ***Providing environmental services*** - Given the severe effects of climate change on habitats and biodiversity, the role of agriculture as a provider of environmental services will increase in importance. Agricultural management has an important role to play in terms of water use efficiency in dry areas, protection of water courses, flood management and the maintenance and restoration of multifunctional agricultural land.

## CONCLUSIONS

As a form of adaptation to climate change, agriculture must have regard to new plant varieties resistant to climatic parameters, the parameters to be well correlated timing agricultural activities. Also farming can be better protected by focusing afforestation activities in the lowlands (more likely phenomena associated with climate change), the rehabilitation of flood protection dykes and irrigation systems rehabilitation.

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# Economic effects of the main innovations in the Italian citriculture\*

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## ABSTRACT

The innovation process, product and organizational developed in the Italian citriculture have been - in the last two decades (1990-2010) - many and varied, even in response to changes in the system of prices of products and factors, to become incessant technological progress, changes in eating habits of the consumer, to changes arisen in public actions for the citrus, with reference to policies and market price support, structural policies and the commercial ones. The purpose of this paper is to summarize the results of research aimed to identifying the main innovations permanently in citriculture, in the last twenty years, and to evaluate the corresponding economic effects, however, narrowing the scope of the analysis to only the production phase.

**Keywords:** *citriculture, innovation, economic effects, production*

## INTRODUCTION

The Italian citriculture, while representing less than 3% of national agricultural production, still plays a significant role in the economies of the regions of the South, even assuming a role as “strategic” for the socio-economic systems of Sicily and Calabria, and everything in terms of income and employees.

Limiting the analysis to the productions, the weight of the entire segment citrus agriculture in Sicily and Calabria is around 20-22% of the regional agricultural production in the first and 18-20% in the second. But that statement does not take into account the growing relationship that citrus producers entertain - upstream, downstream and plan the production process - with the companies providing the means of production and services, on the one hand, and the acquiring of direct products soil (fresh citrus), such as processing and/or distribution, on the other hand, what would be required to

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\* The work is the result of a full cooperation of the authors.

extend the analysis along the entire production chain to capture the movement of income and employees directly or indirectly linked to citriculture, with rates that in the major provinces involved in these crops (such as Catania, Siracusa, Palermo, Reggio Calabria, Cosenza) can reach substantial values (of the order of 10-15% or more) of the income of employees and their respective provincial economies (Bellia, 1981, 1999; Sturiale, 1999).

We do not be surprised, therefore, if the innovation process, product and organizational developed in the production chain of the sector have been - in the last two decades (1990-2010) - many and varied, even in response to changes in the system of prices of products and factors, to become incessant technological progress, changes in eating habits of the consumer, to changes arisen in public actions for the citrus, with reference to policies and market price support, structural policies and the commercial ones (Bellia, 1999; Farina, 1997).

The purpose of this paper is to summarize the results of research aimed to identifying the main innovations permanently in citrus, in the last twenty years, and to evaluate the corresponding economic effects, however, narrowing the scope of the analysis to only the production phase.

## **THE ITALIAN CITRICULTURE**

The Italian citriculture in 2010 contributes to the wealth of the country with a value of its productions, at basic prices, which is around € 1.4 billion, accounting for less than 1/3 of the total value of fruit (fresh and dry).

On the whole, the citrus sector contributes slightly less than 3% of the value of domestic reaching levels substantially similar to those found in the late 90 of last century.

The citrus in its connotations, both historical and current is characterized by a marked polarization in the southern regions of the peninsula and on the islands, while not lacking cultivation area of significant interest, outside of these regions (Liguria, Lombardy, etc..).

The sub-national citrus cultivation in the last twenty years, has been affected by major changes involving both supply and demand. These changes, no different from those recorded in other industries, have affected the increase in real prices of labor and those of the inputs used, the tightening of fiscal and social security, a marked reduction in producer prices and the concomitant dismantling of community policies (in terms of protection and support). The difficulties of the sector are going growing during the last 5-10 years, trespassing in situations of heavy imbalance between costs and revenues, especially in the production phase (especially lemons and mandarins), with the result in gradual deactivation of the production processes Citrus entire national and, in some marginal areas, even the abandonment of cultivation, with adverse effects on production, income and employment of the entire national citrus. Nevertheless, even at an early stage is certainly not favorable, the operators of the sector, however, have reacted by introducing a wide range of process innovations, product and organizational, targeted to reduce costs of production and the adjustments generated evolution of demand, increasingly characterized by differentiated products (both for the “cool” than for processed).

In Italy citrus groves surfaces in 2011 amounted to around 170 000 hectares, with a clear predominance of those of citrus (60.1%), followed at a considerable distance from



the “small fruits”, clementines and mandarins (22.2%) from lemons (16.2%) and “other” (bergamot, grapefruit, etc..) (1.1%).

The productions in the period of time 2008-2011 amounted to around 3.9 million tonnes, distributing substantially the same order of magnitude as the previous, with the primacy of the oranges (63.3%), followed by the group of “small fruits” (21.9), from lemons (13.9%) and “other” citrus fruits (0.9%).

With regard to the geographical distribution of investments, Sicily firmly assume the role of a national leader (55.8%), with almost 95 000 hectares, followed at a considerable distance from Calabria (25.6%), with just over 43 000 hectares invested. Less developed citrus cultivation in Apulia (6.6%), with just over 11 000 hectares, Sardinia (4.8%) and Basilicata (4.7), which grow just over 8 000 hectares. Campania (2%) is placed in 6th place with over 3 000 hectares. Residual citrus cultivation in the other regions of Italy (0.6%), with less than a thousand hectares of cultivation.

With regard to production, it is noted that the results of the last four years (2008-2011) reveal that Sicily confirms its leading position with more than 1.8 million tons of citrus fruits produced (47.4%), followed by Calabria with about 1.4 million tonnes (37.1%). Also in this case follows far behind, Apulia with 280 thousand tons (7.2%) and, further, Basilicata with almost 160 000 tonnes (4%), Sardinia with 86 000 tonnes (2.2%), Campania with less than 70 000 tons and the other regions which produce no more than 9 000 tons of citrus fruit (0.2%).

Tab. 1 - Area and production in Italy for citrus species (\*)

Species	2011		2008-2011	
	ha	%	000 t	%
Orange	102.191	60,1	2.460,5	63,3
Lemons	27.561	16,2	541,1	13,9
Mandarins	9.331	5,5	147,3	3,8
Clementines	29.183	17,2	701,5	18,1
Others	1.836	1,1	34,2	0,9
<b>TOTALE</b>	<b>170.102</b>	<b>100,0</b>	<b>3.884,7</b>	<b>100,0</b>

(\*) Source: Our elaboration on data from ISTAT.

## DYNAMIC OF THE DEVELOPMENT OF INNOVATIONS

The technical progress in agriculture, from the beginning, focused on the “manipulation” of the ecosystems of departure in order to increase the productivity of the sector and the units concerned. This context has strongly evolved over the past fifty

years, so much that a function essentially “productive” agriculture, it’s passed to a primarily function to protect and safeguard (income, employment, environment, etc.).

The theoretical framework on which was based the “traditional” agriculture, trying to represent and formalize the adoption and evolution of technologies, ended then, to undergo a major revision process, far from being exhausted to today.

Traditional agriculture, that can be placed on the first stage of economic development and, therefore, the first level of the combination of “technology-institution” has been characterized for a long period, unlike the industrial sector, by technical traditional type of “acquisitive”, focusing on business organizations and socio-institutional and related to land ownership.

According to neoclassical economic thought of the company, innovation comes from the market. When changing factor prices (input) and products (output), it changes the conditions of the economic system of reference and, consequently, change the behavior of producers and consumers, these facts that push companies to make adaptations that allow them to “take advantage” of its competitors. In particular, such an approach considers “productive” only those activities that result in the production of material goods (not counting those that lead to the production of services) and technology is modeled on the manufacturing process. The division of labor allows the emergence of economies of scale and the Fordist model and the “invisible hand”. Adam Smith’s vision of the economy, finished to ensure well-being and efficiency of the entire economic system.

In this theoretical context, the neoclassical production function, fully assumes the role of “technological frontier”, the variables (factors and products) are characterized by the connotations of a-spatial and a-temporal. However, the neoclassical paradigm, especially in the economic and agricultural research, to identify appropriate interpretative models on development paths that are ranked outside of industrial enterprises, located in the one proposed by (Rogers 1958) a model can explain, at least in part, the time gap between the final adoption of innovation and the moment in which this becomes “Mature” (Jones, 1992). This analysis, however, leads to a unique path of development and one scenario for the future of agriculture.

In reality, however, we know that modern agriculture (*sensu lato*), although primarily focused on, even today, on models of development of type “quantitative”, linked to mass production and undifferentiated, it is becoming more interested in models of type alternative than the previous, characterized by quality products (local, organic, nutraceuticals etc..) and services (rural tourism, parks and nature reserves, etc..), more or less highly differentiated increasingly appreciated by consumers and can contribute in the long term to the economic development of the agricultural areas, especially those lagging behind (Sturiale, 2006; Tarabella, Burchi, 2011; Cicia *et al.*, 2011; D’Amico, Scuderi, , 2007, 2009, Pecorino *et al.* 2012, D’Amico *et al.*, 2011, Bellia and Pilato, 2011).

At this functional polymorphism attributed (recognized) today agriculture (multifunctionality of agriculture), neoclassical theory, responded with adaptations theorists can explain very different development paths. In particular, just think of the model “yield increasing”, which considers the introduction into the production of innovations “savers” of land (Japanese agriculture) (Martínez-Alcántara *et al.*, 2012; Tanny *et al.*, 2012) and the model “labor-saving” in the adoption of innovations is focused of the “savers” work (USA, Canada, EU, etc..) (McKinion, 2004; Raper, Bergtold, 2007; Lawson *et al.*, 2011; Piesse *et al.*, 2011).

These models of neoclassical inspiration, which explains the birth, production and transfer of innovations, referring to the existence of learning mechanisms, in turn linked to the socio-institutional and organizational aspects of the company, identifying the technological dynamics with that organization. The innovation is, therefore, seen as the “product” of the organization, and vice versa.

However, this vision of the problem, based on the mechanisms of “sliding” along the isoquant production (I. Process) and on the “translation” (right shift) of the same (I. of product), as an index of technological frontier has stimulated, in the course of the twentieth century, criticism of many scholars.

The introduction of the variable time in the analysis of production processes has come to challenge even the postulates of neoclassical theory, first of all on perfect knowledge.

Through the behaviorist approach, allows the assumption that the company is operating in conditions of “bounded rationality” and that the purpose of the same is no longer necessarily the most profit. For the behaviorist theory the entrepreneur does not act on the basis of a substantive rationality, such as to “secure” their “excellent” cheap, but tends to look for the best solutions in a context in which there are many intra-and inter-stickiness. This means that the company does not abide always and necessarily “excellent” technological frontier but tends to “build” their own border (very relative), combining endogenous elements (technical back-ground-economic and/or technical and organizational ) and exogenous (technological frontier) company.

The relations company-organization take a characterization of great importance when related to the analysis of organizational space and the importance this plays in explanation and interpretation of the mechanisms of technological change. In particular, the emerging concept of “business district”. This latter, is related to the relationship (direct) and the interactions (indirect) that the local system is of technological choices of individual firms operating in a given geographical context and institutional. In this context, the analysis of the organizational space of the company of district allows then to examine what relationships are established between entrepreneurship and managerial collective (local system) and individual entrepreneurship and managerial skills (of a single enterprise), for the purposes of technological change, organizational and socio-economic and the local system of reference and businesses operating in it (Moga, Constantin, 2012).

In this theoretical context, in relation to agriculture, studies on the company show that the organization of the district has been replaced largely by the almost-distributed organization at the local level. In this regard, just think of the increasing role that the local system takes as a driver of the “operative” of the agricultural district as part of a network of businesses that generate also growing opportunities in those “gaps” that are created between the direct activities and those of support (Bellia, 1992, 1996). A central role in the development of district systems is also reserved for the quality of human capital that is formed through the process of “internalization” of explicit knowledge.

Among these are the typical forms of learning at the operational level defined as: “learning by doing” and “learning by using”. It follows, therefore, a “new” concept of technological development that could be better defined integrated set of technological development, in which multiple factors (endogenous and exogenous) participate in the growth of the local system, however, each with its own specific, often enhanced by the local and not only by the market.

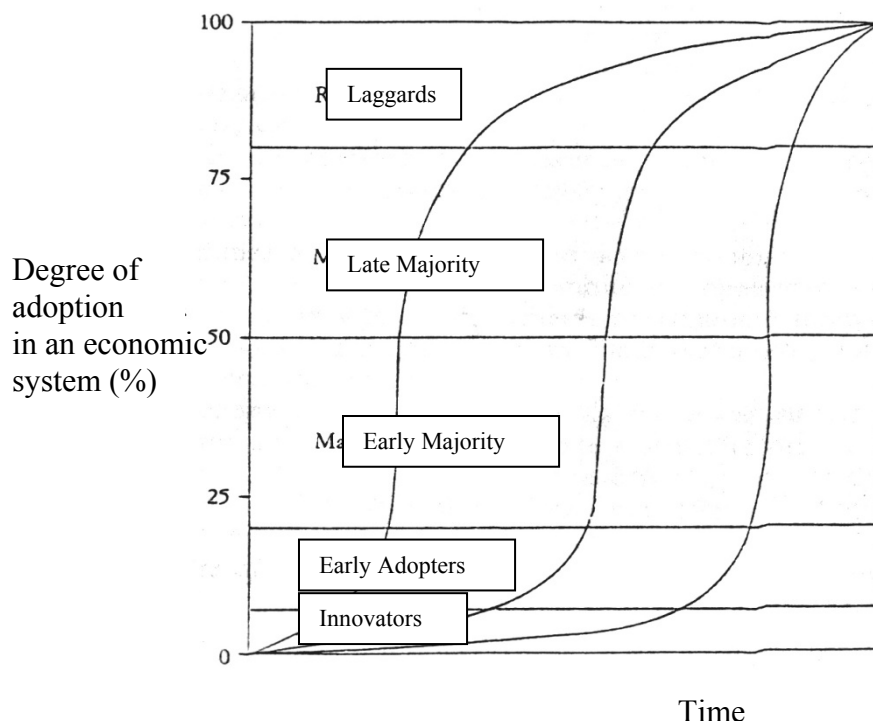
It should be noted that the propagation and dissemination of a new innovative idea, of any information, product or practice involves inserting the same in an economic system or in a geographically recognized.

With an approach of space type - time is observed, in numerous empirical research, as the diffusion of innovation in the initial phase is slow while tends to increase more than proportionally in the later stages, to decrease until the last stage, as illustrated in Fig 1.

The diffusion curve, traced by Rogers, placing the coordinates percentage values took over in an S, with a slow start, a rapid expansion and a subsequent rapid decline.

According to the model of Rogers would be five types of people who, in various ways, accept innovations. The user groups are obtained by statistical analysis based on standard deviations around the midpoint with respect to time of diffusion of the same (Jones, 1992).

The first group, the “innovators” are usually young dynamic farmers, younger than the average, high professionalism, with a considerable degree of computerization. With regard to the “early majority and belated” these are made up of entrepreneurs well integrated into the economic fabric, with level of education and age very close to the average, while the “laggards” are entrepreneurs “conservatives”, the elderly, poorly integrated.

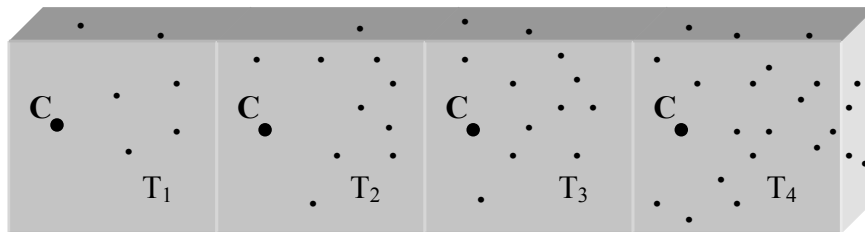


(\*) – Rogers E.M.(1958): *Diffusion of innovation*, The free press, NY.

Fig. 1– Graphic representation of the curves of diffusion of innovations (\*)

The transition from one phase to another definitely depends on the characteristics of innovation proposal, but also by other factors such as the price, the degree of novelty, structure and guidelines of the economic system in which it is proposed, the degree of information that is widespread in the area.

Another approach to the diffusion of innovations is an economic-geographical, proposed by Hångerstrand, (1953), which takes into account the distance that exists between the origin of the dissemination of innovation, and therefore the first adoption and potential users (Jones, 1992), as shown in fig 2.



(\*) – Hagerstrand T.( 1953): *Innovationsforloppet ur Korologisk*, Bulletin n.25,

Fig. 2 – Graphic representation of the diffusion of innovations from the origin (\*)

It is also right to say that this type of analysis is affected by spatial, physical, organizational obstacles present in rural areas where it develops innovation, given the fact that innovations are almost always exogenous to the coverage area and then use as could be generated by specific agencies, from. centers, public and/or private research or sold to farmers from other areas of production.

Starting from these limits other academics have defined the diffusion process as the integration of several variables, mainly: a) the presence of a winning idea a) practice or behavior), b) the period of time, c) the degree of acceptance of innovation d) the consent of innovation by individual users or groups, e) the degree of dissemination of information, through appropriate communication strategies in the territory (agencies marketing, consulting engineers, etc.). f) the existence of relationships between companies and organizations rooted in the territory.

In particular, the emerging concept of “business district”. This latter, is related to the relationship (direct) and the interactions (indirect) that the local system is of technological choices of individual firms operating in a given geographical context and institutional. In this context, the analysis of the organizational space of the firm of district allows then to examine what relationships are established between entrepreneurship and managerial collective (local system) and individual entrepreneurship and managerial skills (of a single enterprise), for the purposes of technological change, organizational and socio-economic and the local system of reference and businesses operating in it (Bellia and D’Amico, 2003 Pappalardo *et al.*, 2012).

The increasing difficulty of relationships that companies, at different levels in the supply chain and citrus, entertain with both suppliers of goods and services (tangible and intangible) and with the users of products (fresh or processed), tends to determine interdependence of technical and technological, economic and financial, managerial and organizational. And it is necessary for the entrepreneur to acquire information about different stages of development of the sector, at different stages of the supply chain and the degree of adoption of innovations that are able to positively affect company performance.

## **INNOVATIONS TYPOLOGIES IN CITRICULTURE**

In the last two decades important changes concerned the variety framework of citrus crops through the introduction of new species and/or varieties (Sturiale 1999; Starrantino, 1992; Tribulato and Continella, 1999, La Malfa *et al.*, 2011). The objectives and the problems related to these changes, however, are different in reference to the different citrus species, environment, soil and climate, the destination of the product (fresh or processed), etc.

For the orange, the most cultivated species of citrus in Italy, there has been a good statement of the cultivars with fruit pulp pigmented, now at about 30% of national production, among them the “Tarocco” is surely the most prized and cultivated, while less importance is now the “Moro” and “Sanguinello”. As for the cultivars orange blondes, the “Washington Navel” has been gaining more and more widespread in the country, followed by the “Navelina” and “Valencia”. More recently have spread other varieties such as the “New Hall”, “Powell” and “Chislett”.

As regards the group mandarins-clementines, in the reference period, there has been a loss of relative importance of mandarins and its traditional cultivars (“Havana”, “Havana apireno” and “Ciaculli”) and vice versa in a growing expansion clementines (“Common” cultivar) and some hybrids (“Nova”, “Cami”, “Tacle”, “Mandared”, “Alcantara”, “Mandalate”, etc.). Also during the period examined in the range of varieties of the group there is a certain spread of tangelo “Mapo” and satsumas “Miyagawa” and other varieties, which today are of commercial interest to the precocity of their production.

Much less dynamic is the situation in the case of lemon, for which, however, the adaptations of the variety “Femminello” (Syracuse Orange Blossom and White), the “Monachello” and “Interdonato” aim to achieve a better balance between quality and yields of the production, on the one hand, and resistance to “bad dry”, on the other.

Another type of innovations, involved and concerns the change in the structure of the plantations, in relation to the spatial arrangement of plants (planting density) and the selection and certification of propagation material (rootstocks and cultivars). This is also the result of influences, in a more or less recent past, interventions by public initiative, regional, national and/or Community (Special Project CIPE, Citrus EEC Plans I and II, etc.).

A third type of innovation refers to the production techniques, the most stressed to change over the period examined.

First, it is necessary to refer to the mechanization of farming operations, in relation to machines introduced, their power and the organizational arrangements (Bellia *et al.*, 1991). And all due to work the soil, dominated by intermediate combinations between intensive machining and the method “no tillage”, both for pest (with the introduction of sprayers hydropneumatic, etc.) and for the weeding, is still for operations, such as fertilization (fertilizer spreader, etc.), pruning (mechanized facilitated, through pneumatic shears, and mechanical) and the elimination of the resulting residue, and finally for the collection facilitated, for which - rather than true mechanization - it is a competition more or less wide of the machine to the execution of the transaction.

With regard to defense against major pests and major diseases, it should be noted that the last two decades, there has been increased awareness of consumers, environmental issues and health, which - together with the reorganization of the regulatory framework - has come to be increasingly directed towards technical

producers defense that attempt to limit or revoke the use of pesticides, the action of which eventually drain the entire agro-ecosystem. It has emerged as new techniques for active defense against pests and/or vegetable, related to defense methods of type guided, organic or integrated.

In the field of defense production, some relief has also taken the innovative active defense by ventilators, widespread especially in Sicily (Bellia, 1992, Pulvirenti, 1995).

Even irrigation, the last two decades, has recorded a remarkable dynamism in particular with regard to the introduction of technological innovations relating to the methods and irrigation equipment used, a high rate of innovation diffusion and addressed to achieve a better efficiency of the operation, based of minor uses of work, savings in water consumption and a higher degree of automation (Capra, 1995; Matarazzo and Sardo, 1995, Barbagallo *et al.*, 2004).

Among the main innovations in citrus, a prominent place has assumed in this period of time, the introduction of new production methods (integrated, biological, etc.). Alternative to conventional, innovations, these very complex, but, under the thrust of public policy of the European Union (EEC 2078/92 and subsequent RDP) would extend, as a whole in Italy, on surfaces of a certain size (about 20,000 hectares), with good prospects for growth (especially for the “organic”) in the future years (La Via, 1997; Scuderi *et al.*, 1999; Bellia, 1999; Sturiale, 1999).

## **ECONOMIC EFFECTS OF THE MAIN INNOVATIONS**

The study of the economic effects associated with the introduction of innovations that were strengthened in the primary stage of the citrus industry, is of great importance both for the purposes of determining the company’s operating results, both for the optimization of these results, it is still useful as an element to improve “competitiveness” of citrus production in relation to the increasing challenges of international trade and globalization.

The review of the economic effects of the innovations considered here will be treated on a case by case basis, based on the results of studies and analyzes carried out, some of which, however, are still in progress. Results subject of scientific publications, in which the method of study assumption is generally directed to isolate the effects of specific innovations in the organization and management of citrus producers, other things being equal circumstances (*coeteris paribus*).

With reference to the “change of species and/or varieties” assessment of the economic effects of the adoption of certain innovations that fall within this group is not easy, but not uniquely determined. If in fact the introduction of varieties tolerant to particular diseases or pests and clones and/or organoleptic characteristics of hybrids with specially selected fruits is certainly linked to the hope of rising unit revenues, thanks to the increase in crop yield and/or improving the quality of the product and therefore the unit prices (Sturiale, 1999), the elongation of the calendars of collection instead of considerable interest in the problems connected to the containment of average unit costs of the company, due to the reduction of diseconomies of scale related to the reduced use of fixed assets during the year (Bellia, 1999; Sturiale, 1999).

As regards the adjustments in the “structural characteristics of plantations”, typical innovations composite (process, product and organizational), the effects are substantiated especially in the containment of production costs, most of them acting (planting of the plants and farming systems and sixth, distances and density planting) in close connection to the greater or lesser ability of the machines are used in various

farming operations, but, in the case of complex innovation company that operates the citrus plant, a change in the characteristics structural plantations also acts on revenues obtainable (Bellia *et al*, 1991; Sturiale, 1999), also in relation to the duration of the citrus grove cycle , which tends to contract due to the adaptations intervened.

With reference to the “mechanization of cultivation and transport”, we must remember that the development of mechanization in farming practice has been promoted, in particular, by the progressive change, over time, the *ratio* of the real prices of labor and machinery used in citriculture (Schillaci, Caruso, 2002; Schillaci *et al.*, 2005). As for the strictly economic effects associated with the use of the machines in different farming operations, it is necessary to emphasize that they are not always easily and uniquely identifiable, mainly because of large variations in capacity for working, different types of machines (power, space longitudinal and transverse set of equipment, etc.), related to the diversity of not only business (whether or not to create economies of scale), but also of individual fields (length, position, nature of the soil, planting density, etc. ). However, we can say that since the early 90’s the levels of activity were more than halved, bringing in citrus companies levels of 20-25 days/ha, in the mandarins-clementines at levels of 30 -35 days and in those lemons of levels of 45-60 days (collection included) (Bellia *et al*, 1991; Bellia, 1993; Scuderi *et al*, 1999; Sturiale, 1999).

Among the mechanized operations is to be noted that, apart from those received at a stage satisfactory spread in citrus producers, the best prospects seem to have polarized the mechanized facilitated pruning and, where possible, on the mechanics. In this regard, it is noted that experimental tests carried out on facilitated pruning citrus trees of different species, cultivar, age and planting density, showed that the use of self-propelled equipment operated hydro-pneumatic (Schillaci, 1989), involving substantial reductions in the applications (30-40% lower than existing ones). As for mechanical pruning, the signs in our possession hypothesis would show much greater reductions in loans (50% or more), even if it may arise some problems related to damaged fruit and/or plants (Bellia *et al*, 1993; Bellia, 1993).

As for the adjustments in the field of “plant protection and production”, they were directed to the “defense” of income through the development of “new” techniques of active defense (organic, integrated and antifreeze) at company through the establishment of monitoring networks and “zonal” plans intervention. The refinement of these techniques is also linked to both the qualitative and quantitative protection of the productions that the defense of the plantations, for the purposes of the economic business results later. Studies show that the cost associated with conventional methods of defense (calendar, guided, etc..) Are on the whole more expensive (in an average 20-25% more) of the costs required by the biological control methods and integrated, in other conditions being equal.

About the “antifreeze defense”, the advent of innovative systems (automated plants by fans) was made possible by the high level of government grants during plant equipment and in the development of a network of *ad hoc* services. The economic effects are detectable only through observations extended over time (at least four) and in space, on the basis of research results (Bellia, 1992, Pulvirenti, 1995) the effects are substantiated in the difference between average increases of revenues per years (increased production and/or higher prices) and the costs incurred for the transaction, differences more or less positive, but closely related to public support during planting , associated equipment, and management.



The economic effects related to adaptations occurring in the “distribution of water irrigation” and in particular in the choice of irrigation systems and management policies tend to “optimize” the available resources, investing in a direct manner the “structure” of the business costs (Capra, 1995; Sardo and Matarazzo, 1995; Sturiale, 1999). In particular, the reduction affects both the operating costs of the system, relating to the greater or lesser degree of automation, and consequently to the reductions of the uses of work compared to the techniques of traditional distribution (in which it is necessary to consider also the uses related to preparation soil), both the costs of the factor water irrigation, in relation to the quantity “save”, which may be added the improved timeliness of the transaction, which makes possible and advantageous to increase the number of irrigation (Matarazzo and Sardo, 1995).

Based on the results of studies and surveys carried out for each type of innovation introduced in citrus producers, the economic effects observed result in each case in increments of crop, but take very different meaning in each case. When in fact the increases in question are only linked to higher revenues (“changes in species and/or varieties”) at a lower cost (“mechanization of farming operations” and “mechanized production facilitated”), its judgments of convenience can be drawn using partial budgets, configuring the use of innovation as a “partial economic adjustment” of the company. Not so, however, when increases in income can be attributed to changes in both revenues and costs in the citrus producers (“changes in the structural characteristics of plantations”, “plant protection and production”, “distribution of irrigation water”, etc.), in this case, in fact, the evaluations of convenience are based on global budgets, configuring the introduction of innovations such as a “total economic adjustment” of the company.

A typology of innovation deserves to be treated as part consists of “friendly production methods” that add up the characteristics of product innovations, process and organizational changes, the adoption of which took place in Italian citriculture last decade. Therefore, the effects of an innovation complex, such as that just indicated, must be analyzed with reference to the costs, and revenues, is still to income from citrus producers concerned (La Via, 1997; Scuderi *et al*, 1999; Sturiale, 1999 ) and the related judgments of convenience can be drawn due to global budgets, shaping itself strictly necessary for the adoption of the “friendly production methods” as a typical “total economic adjustment” of the company .

Based on the initial results of research carried out on samples of citrus producers “organic” and “conventional”, there are some indications that may condense in the following points (Scuderi *et al*, 1999): a) the degree of activity (hours/ha ) of organic farms are relatively higher (10-15%) compared to conventional b) the average production unit (t/ha) are, however, higher in conventional farms (10-20%) than biological c ) the unit sales prices of fresh produce (€/t), regardless of the rules adopted are higher for organic production (20-25%) than conventional d) the values of gsp business (€/ha) average higher for organic farms (5-10%) than conventional, since the differentials of unit prices are higher than the corresponding decreases in production. It should be noted that for a proper assessment of the economic effects associated with the adoption of innovative manufacturing methods, we must also consider the “premiums” provided in the case of accession to the multiannual programs provided by the regional RDP (Reg. 1257/99 and amended), that contribute to the convenience of organic farming compared to conventional ones.

Table 1. Synoptic framework of main citriculture innovations-economic effects\*

Innovations examined	Elementary typologies	Economic effects
<i>Changes in species and/or varieties</i>	I. of product	Higher revenues
<i>Changes in the structural characteristics of the plantations</i>	I. of process I. of product I. organizational	Lower costs Higher revenues
<i>Mechanization of crop cultivation and transport</i>	I. of process	Lower costs
<i>Mechanized-facilitated pruning</i>	I. of process	Lower costs
<i>Defense of plants and productions (new techniques)</i>	I. of process I. of product	Lower costs Higher revenues
<i>Antifreeze defense (new techniques)</i>	I. of process	Higher costs Higher revenues
<i>Distribution of irrigation water (new techniques)</i>	I. of process I. of product	Lower costs Higher revenues
<i>Production method environmentally friendly</i>	I. of process I. of product I. organizational	Higher costs Higher revenues

\* Our elaboration.

For an overview of the main innovations introduced in the Italian citriculture in the twenty years 1990-2010 are summarized in the table below, in which each of them have been identified basic types of reference (product innovation, process and organizational) and describes the prevailing economic effects.

In order to have so far analyzed the innovations in citriculture, arisen during the reporting period, in each case, does not exclude, of course, that in operative reality two or more innovations can occur simultaneously in the same unit of production, generating economic effects composite it is not easy to isolate from each other, and that therefore require specific surveys, extending the series of concrete situations in terms of innovation and economic effects in the production sector in question.

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# Biodiversity preservation in natural grasslands. Serbia's achievements toward sustainable development\*

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## **ABSTRACT**

Republic Serbia represents one of the most important centers of geological and biological diversity of the Europe. Owing to big affluence of types of habitats on territory of the Serbia lives numerous plants and animals with different biology, origin, domestication period, spreading and lifestyles. Natural and seminatural grasslands (meadows and pastures) represent the centers of floristic diversity. Natural grasslands represent important resource for intensification os sustainable and rural development and there is a need to work on their quality management, maintenance and utilization. The continuous use of lawns, as well as abandonment of traditional production systems leads to a reduction and even disappearance of certain species from the spontaneous phytocenosis, which conditioned the survival of species. This caused depletion of the overall biodiversity, with special reference on agroecosystem. Sustainable use of the spacious meadow-pasture fields creates the basis for development of low-intensive animal husbandry pasture, with impact on the development of entrepreneurship, tourism and preservation of rural population.

**Keywords:** *center of biodiversity and geodiversity, meadows and pastures, agroecosystem*

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\* This paper work is a part of the project III 46006 under title: "Sustainable agriculture and rural development in the function of accomplishing strategic objectives of the Republic Serbia in the Danube region", and a part of the project 179028 under title: "Rural labor market and rural economy of Serbia - the diversification the income and reducing the rural poverty", and a part of the project TR 31016 under title: "Improving the technology of production and cultivation forage crops on the fields and grasslands" financed by the Ministry of Education and Science of the Republic of Serbia. Project period 2011-2014.

## INTRODUCTION

Biodiversity represents the total diversity of the living world, which includes all forms of diversity and variability, appearances and processes of all organisms and biosphere as a whole. Biodiversity includes:

- genetic diversity (gene variation) - genetic variability within individuals of any kind;
- species diversity - difference and specificity of individual organic species;
- ecosystem diversity (variability of natural ecosystems).

In the special branch of biodiversity are agrophytocenosis which form agrocenosis, that involves the totality of plants and animal species which human use for cultivation and later exploitation for their own needs or for animal feeding or for processing production.

Protection of biodiversity represents the need of mankind, consider it is the irreplaceable resource that provides the quality of human life. As a consequence of human activity, there is an excessive and uncontrolled exploitation of natural resources, threats and destruction of many plant and animal species and ecosystems, which results in the impoverishment of the biosphere and natural disturbance process that ensure normal and quality life. Intensive growth of the population leads to a sharp reduction of natural resources, the accumulation of pollutants that harm the nature. In center of happening are human activity, influence on environment which is causes disappearance about 27.000 species per year or more precisely 74 species per day.

Republic of Serbia represents one of the six centers of biodiversity in Europe. It is characterized by a high degree of genetic, species and ecosystem diversity. Under the protected areas is 522.120 ha, or 5.91% of territory of Serbia. It is planned that by 2015, 10% of the territory is put under protection. Under the protection are 463 natural assets: 5 National parks (158.986 ha), 16 parks of nature (213.302 ha), 16 areas of outstanding features (45.656 ha), 67 nature reserves (97.972 ha), 42 protected areas of cultural - historical values (2.507 ha), 317 natural monuments (7.681 ha). In Serbia there are the following biomes: zonobiom of steppes, zonobiom of deciduous forests, coniferous forests zonobiom and zonobiom of alpine tundra. Genetic resources of plants and animals are very diverse and include many varieties of autochthonous plant species and breeds of domestic animals. It is described 1.200 plant associations, but it is considered that there are 900 associations. Balkan endemits make up 14,94% of the flora of Serbia and local endemic species about 1,5% (59 species). The conclusion is, according to the present data, that there are about 44.200 registered taxa (species and subspecies).

Regardless the fact that Serbia is extremely rich in natural ecosystems and high genetic variability, in the last decades there is a reduction of the number of species and some of the species are extinct. In the Red Book of Flora of Serbia from 1991, it was pointed that about 5% of the total flora of Serbia (171 plant taxa) is completely disappeared or is highly vulnerable.

Diversity and specificity of the ecosystems of Serbia can be observed through overview of basic types of vegetation:

1. forest and bushy vegetation,
2. herbaceous vegetation.

In the area of Balkan Peninsula (according to FAO) are a special group of taxa - grasslands (lawns), which cover about 6.5 million ha, of which 1.65 million ha cover the areas in the Republic of Serbia. The number of species in grasslands fitocenosis (meadows and pastures) are not precisely studied, but it is assumed that the number of

widespread species in the 273 plant communities is more than 1.000 species. Insufficient using of meadows and pastures is caused by abandonment of traditional livestock production on pastures, which quickly leads to pasture degradation - growth of useless herbaceous vegetation, shrubs and bushes, which affects the habitats of valuable grasslands species, small mammals, birds and insects (Popovic and authors, page 313., 2011). Honey plant species are part of meadows and forests ecosystems, and their number in Republic of Serbia is estimated at about 1.800 plants. They have big importance for development of beekeeping and honey making quality.

As a part of very rich agrocenosis, natural meadows and pastures represent the basis of development in rural areas, especially in mountainous areas, where most people have their livelihoods based on livestock grazing and selling of final products. Sustainable development of rural areas in the Republic of Serbia depends on biological diversity of plant species and degree of their conservation in the system of changing climate. The extensive utilization may greatly weaken the floristic composition, which affects the reduction of livestock, and hence reduce the presents of products with geographical mark.

## **MATERIAL AND METHODS**

Conservation of biodiversity is providing the main source of food for humans and animals, provide new varieties of plants, which is good in terms of pollination. Proper use of the soil quality is maintained, the health of all direct and indirect factors are improving. The treatment process can provide a significant amount of bio-fuels for different purposes.

Agro-biodiversity of Republic Serbia include species and habitats of cultivated and endemic plants, and products of agri-biodiversity can be used as building material, ten as a species and ecosystems important for producing human and animal food (species in agro-ecosystems, pastures and meadows, forests and aquatic ecosystems). Traditional knowledge and cultural heritage are also very important component agro-biodiversity of Republic Serbia. The role of agro-biodiversity is directed to increase the productivity and security of food, reducing the pressure on different ecosystems, involves vulnerable ecosystems, forests and endangered species. It also contributes to sustainability of agro-ecosystems, the diversification of organisms in nature, conservation of soil fertility, conservation others ecosystems, etc. In total agro-biodiversity significant contribution gives to the wild plants species, which are very important for food production and agriculture, but which can be observed in production as weed crops, but whose genetic variability (observed independently from the cultivated plants) has been invaluable to the overall flora.

In Republic Serbia has registreted more than 700.000 farms, and about 44% of total population lives in rural areas, of which 33% work in agriculture. Plants and animal genetic resources are essentials for the sustainable development of many rural areas in Republic Serbia. At the same time the preservation these resources is conditioned, because an active role of rural population in fostering, sustainable using and economic evaluation of agro-biodiversity if under the levels of countries in EU.

According to data from 2011 year in 67% (5.092.000 ha) of land in Serbia is agricultural land. 4.218 million hectares is used in agricultural purposes. In structure of arable land 19,58% takes up pastures, and 14,08% takes meadows. It is characterized by the presents of characteristic plant species, no matter whether in terms of primary grass (first plant association built on observed field) or secondary grass (created as a results of deforestation, drainage field or seeding the grassland by human) and is of great



importance in the genetic sense, and in the order to create the regional sustainable development of mountain regions in Serbia.

Grazing animals in the (semi)natural ecosystems is of great importance (stimulates growth and tillering and other grass species- in firs roud legumes), but leads to quantitative and qualitative change in composition of autochthonous species in the grasslands, and in the bushy, steppe and salty habitats. Grazing has resulted to reduce storey existing between shrubs and herbaceous plants, allowing the formation of dense, highly flamed forests. The negative consequences of grazing cultivated animals can cause damage in areas around stream, coasts and morass, which can cause altered flow regime of water flow regime of water, and the increased amount of nutrient, which accumulates in the depts of the rivers. Those ecosystems which have historically been affected by improper nutrition, may never recover, and this inevitably reduces the genetic resources at national and global level. However, in recent years those changes are not so evident because the livestock are generally enclosed in buildings and their total number is significantly reduced.

Traditional production systems of low investment in the mountain areas are slowly disappearing, which causes the degradation of native habitats. Diverse mosaic of land and semi-natural grasslands depend on the maintenance by human and domestic animals. Leaving a field that is used for crop production or grazing resulted in the disappearance of many natural grassland due to natural process of reduction - the transition from the bushy grass or forest vegetation dominated by woody culture. As a result, intensive farming of high investment (low degree of diversification and over-grazing, monoculture, pollution due to excessive use of mineral fertilizers and pesticides) and the reduction of traditional agriculture to low investment (significantly reducing the number of domestic animals in the mountainous and highland grasslands, cessation of maintenance and use of large areas and the mosaic of agricultural land) cause a lot of pressure on the overall biodiversity, and thus the agro-biodiversity.

Preservation of agro-biodiversity requires significant investments, and the support of competent authorities and institutions in all sectors. Using the results of the Convention on Biological Diversity, the Bern Convention, the Convention of Berlin and the like. made the opening of new fields made to open new fields to be actively involved with the direct stakeholders-the people in the theme and the importance of preserving biodiversity and the environment for future generations. It is particularly important process in which we want to improve the current situation on the ground, because it is desirable to restore the natural grassland ecosystem. As the largest area of natural grassland located in mountainous areas of Serbia, they represent a safe source of biomass for livestock in order to live, voluminous mode in the form of processed-silage, haylage and hay.

Since the mountain areas of Serbia defined as the area above 800 m altitude and inclination over 18°, it is not unusual by the fact that with increasing elevation for every 100 m lowers the temperature by 0.5 °C. Also, the vegetation is delayed 11 days from 100 m rise in sea level, it affects the reduction of soil fertility and the inability to use the machinery, as is the case in lowland areas. As a result it can be concluded that the composition phytocoenological natural and semi-mountainous grasslands poorer with increasing altitude. This is an alarming fact, which should pay attention to the condition of grasslands in mountainous areas, as on biodiversity, and the production capacity that exists.

## RESULTS AND MATERIAL

In the Republic of Serbia mountain region accounts for 17% of the total. It is characterized by great natural wealth of plant species and animal breeds, using natural and sown grasslands as a source of quality fresh aboveground biomass. Due to the transition from traditional ways of exploiting the lawn and move on to more intense conditions the disappearance of some indigenous plant species and endangering flora characteristic of grassland ecosystems.

Land under meadows and pastures are reduced based on the five-year average, but in our country, spread over an area of 1.65 million hectares and their floristic composition of plant communities composed of 273 to 1000 species. Grasslands are in poor condition, as those who are in zones of protected areas, and those who are less disadvantaged areas. Plant species are disappearing (especially association Festuco-Brometea), which would later cause the complete disappearance of certain breed of livestock, primarily cattle.

Taking advantage of the benefits that two-thirds of the Serbian municipality belongs to rural areas, reorientation of the organic production of plants and animals, reducing pollution from agricultural pollutants could ensure steady progress towards sustainable development of all regions, especially the mountain. Condition of natural grasslands and its phytocenoses is satisfactory, but notes that reducing the number of cattle are driven to pasture, mowing and constant application of measures to improve production, grassy vegetation slowly becomes bushy and forest vegetation, woody-dominated culture.

The need to improve forage production in Serbia systems from extensive to utilization, which can degrade the natural grasslands, reducing the proportion of useful grasses and legumes. For that reason it is necessary to carry out appropriate measures that may significantly affect the increase in forage yield and its quality of fodder, as well its quality.

- Recommendations that can be used can be divide into two groups: technical measures (drainage, irrigation, process planning leveling, clearing and removal of tree stumps, etc.)
- Cultural practices (fertilization, cultivation of grasslands, undersowing, weed removal, biological amelioration of natural grasslands).

The correct performing all the operations, with by favoring all the measures that may reduce pollution from agriculture, we can preserve agro-genetic variation thus improving global biodiversity.

## CONCLUSIONS

Inadequate use of meadows and pastures can significantly affect the botanical composition of grass communities, in particular lead to favoring plants of poor quality, which can adversely affect the quality of livestock products and livestock health. It can lose a significant part of the genetic variability of plant species, which our country classified as one of six geological centers in Europe. Any loss of spontaneous flora, can cause direct reduction of livestock units, and this will lead to reduced production of milk and dairy products, as holders of the economic development of mountain regions.

To avoid this and to ensure better and healthier forage in the hills and mountain meadows, where they play an important role in meeting the needs livestock for food most of the year, to apply certain measures of repair, such as the timely performance of cattle grazing, mowing the timely, proper and adequate use of fertilizers, lawn maintenance in terms of aeration, sowing of pasture outside the period.

Tests should continue to determine the composition of the community throughout the year and for a longer period of time and dynamics of harmful species, for their better understanding and easier to eliminate of lawn. Should expect more investment funds by the authorities, who can provide funds for the protection and improvement of the environment through conservation of species threatened with disappearance in the case of intensive agricultural production and exploitation of natural grasslands.

Investment in the process of conservation of natural grasslands, as a large source of diversification bioecosystems as a whole, represents an important investment that will retain the natural beauty and diversity of terrain and that will cause economic growth through the development of production and creating opportunities for sustainable development of rural mountain areas.

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# Green economy versus grey economy

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## **ABSTRACT**

Improving the relation of humankind with its natural environment is a major goal since several decades. Along time many concepts and strategies were proposed and at some extent imposed in action by environmental policies. Currently a novel attempt is deployed by the proposition of the green economy concept as a vector for the transformations needed toward sustainable development. Our paper establishes the position of this new concept and then analyses its content. Finally we propose for Romania, as means of delivering green economy, the rethinking of the intensification concept in agriculture by considering information as key resource.

***Keywords:** green economy, sustainable development, richness, intensification of agriculture*

## **CHARACTERISTICS OF GREEN ECONOMY**

As any open system, economy is based on inputs that are variable in amount, structure, and quality in time and space and by the combination of which results outputs as goods and services for the final consumption, but also waste, residues that could affect nature.

The concept of green economy is accepted by its promoters (PNUE, 2011) from the perspective of this model, the following characteristics being considered for it:

- Rational use of resources;
- Low level of carbon emission, and less pressure on biodiversity (natural capital);
- Creation of jobs with decent wages (as a component of social inclusion).

Such content brings in front the pragmatic feature of the „green economy” concept. This is making the difference against the concepts of “ecological economy” and “sustainable development” that are wider in their scope.

Thus, the rational use of resources envisages the reduction of specific consumptions of raw materials, as expression of the economy’s dematerialization process (Vadineanu, 2004; Atkinson and Dubourg, 1999; Faucheux and Noel, 1995). This means avoiding direct connection between the volume of resource uptake and degree of satisfied needs, by reflecting care for providing conditions that allow the expression of all functions of natural capital (not only the production function).

It is almost obvious that the option for “green economy” imposed itself on the background of operationalization difficulties encountered for the other two concepts and, implicitly, and because of the deepening and expansion of eco-crisis at global scale. We could consider meanwhile that green economy represents an intermediary stage needed on the road toward ecological economy and sustainable development.

The project of transition toward green economy should reflect the ration between economy and policy and this leads as to the issue of doctrinaire assumption of this economy type, respectively the neoliberal, social democrat and ecologist doctrines.

The difficulties of assumption could be identified, in our opinion, taking in account the matrix of the socio-economic development alternatives (figure 1).

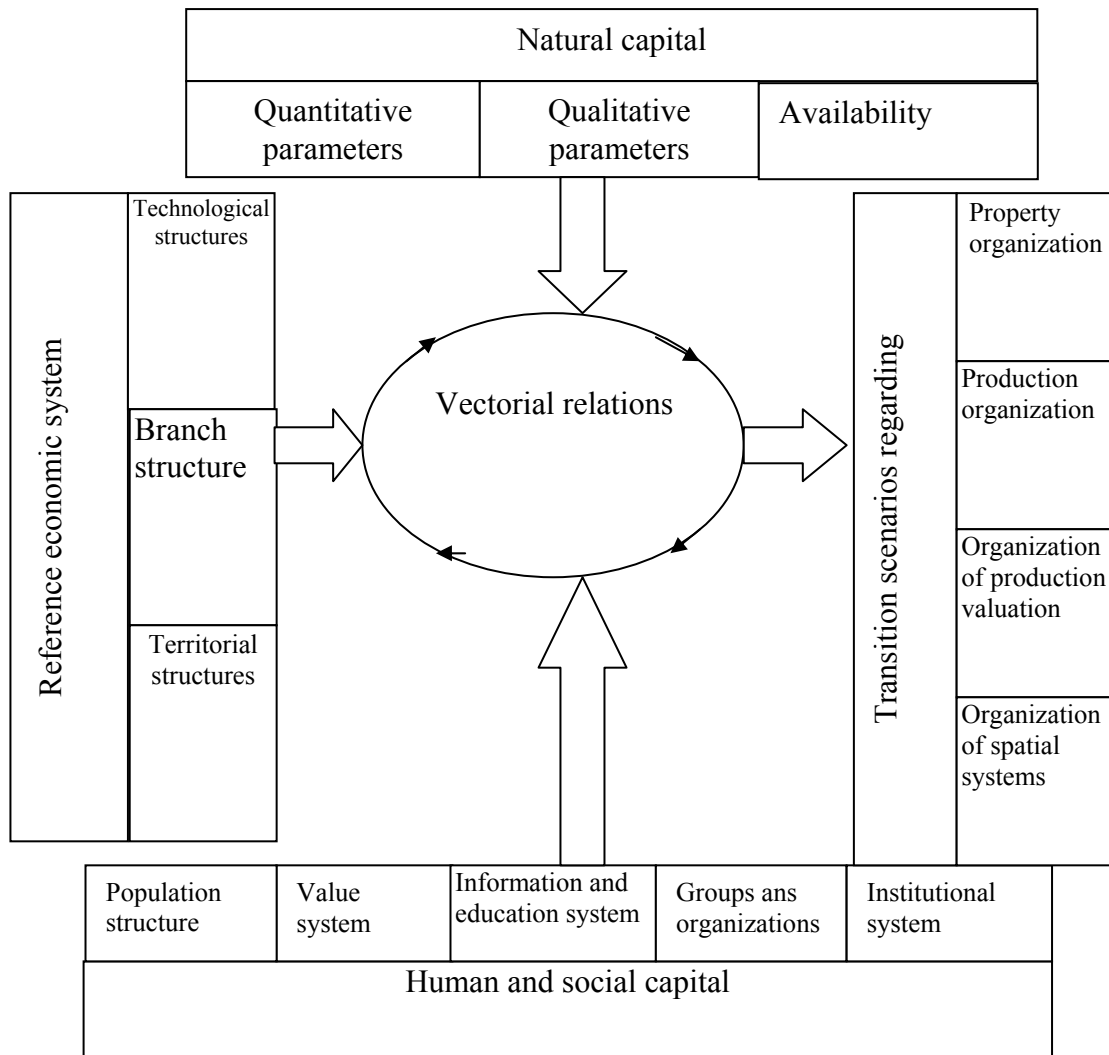


Figure 1. The development alternatives of the socio-economic system

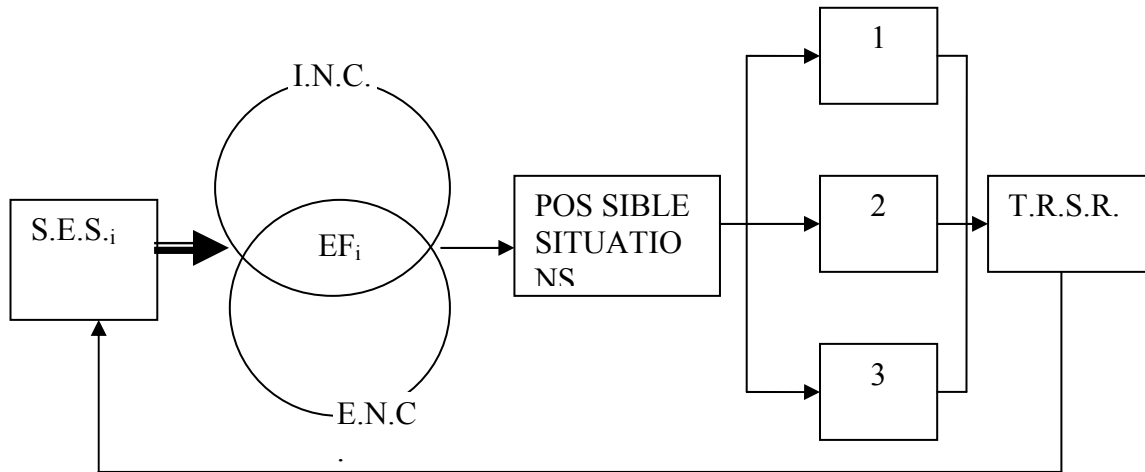


Figure 2. The ecological foundation and the sustainability of the socio-economic system

SES – socio-economic system

TRSR – trends in relation with sustainability requirements

INC – internal natural capital

ENC – external natural capital

EF – ecological foundation

Any socio-economic system, defined in time and space, represents a construction that has as its foundation the natural capital; this provides raw materials, energy, and key services for local, national, regional, and global economy.

Therefore, the ecological foundation of the socio-economic system will be seized and analysed taking in account the internal natural capital and the external natural capital, in such a way that it could be recorded the situations and trends presented in figure 2.

In case 1, the ecological foundation is secured in a significant proportion by the internal natural capital within the net productivity of it and the trend is toward sustainability.

In case 2, the ecological foundation is secured in a significant proportion by the internal natural capital, but its net productivity is overwrought the trend being toward non-sustainability.

In case 3, the ecological foundation is provided in significant proportion by the external natural capital, the trend being toward non-sustainability.

## GREEN ECONOMY AND THE NEW DISCOURSE

The syntax of the new discourse comprises the following messages:

- Group A:
  - o Generation of important social and environmental negative *externalities* that are ignored;
  - o *Reduction of the ecological footprint*;
  - o *Decoupling waste generation* from GDP growth;
  - o *Decoupling economic growth* from the intensive consumption of raw materials and energy.
- Group B:
  - o Decision makers worldwide should *act urgently*;
  - o The transition to green economy should occur on *short term*.

- Group C:
  - o Capital *allocation is wrong*;
  - o States should invest in *public richness*;
  - o Economy should be reconnected with the *true richness*, to investments in the *natural capital*;
  - o Free markets *have no vocation* to solve social issues;
  - o Accomplishing *important changes* in the philosophy, culture, strategy, and approach of *banking, investment and insurance*;
  - o Transition toward green economy implies *a basic review of how economy is approached*;
  - o *Green investment* in 10 key sectors;
  - o *Elimination* of situations with oppositions: “development-environment”, “state-market”, “North-South”;
  - o Encouraging *long term investments*.
- Group D:
  - o Public power should *overcome distortions* generated by *damaging subsidies* and *negative externalities*;
  - o Creation of an *international market* and of a *legal infrastructure* for a green economy;
  - o *World institutions*, civil society, main technical and productive organizations should *rethink*, redefine the *traditional evaluation of richness, prosperity, welfare*;
  - o Strengthening of *international governance, world mechanisms*

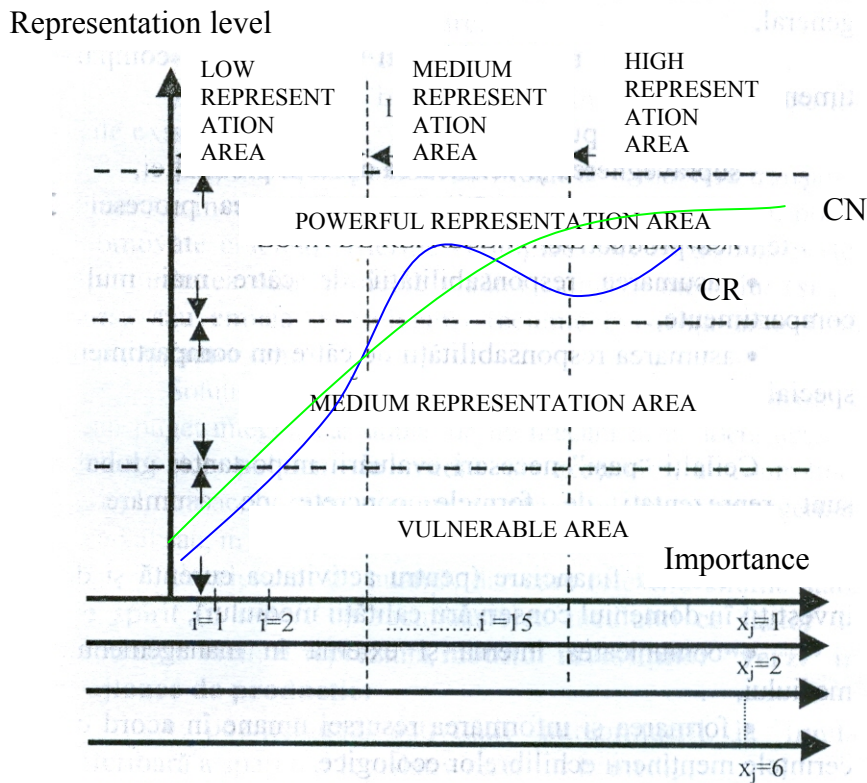
The epilogue of the new discourse concludes that:

- A: there is a tragedy of the common goods;
- B: there is a need for urgent action;
- C: free market based models are lacking performance;
- D: new global institutional framework

## **ROMANIA IN ITS WAY TOWARD GREEN ECONOMY**

### **Reducing the risk of transferring technologies with low ecological performance in less developed countries**

As means of reaching the goal it could be enforced the Green Chart of organizations to explicitly reflect the evolution of the ecological parameters for the used assets and the gaps against the normal and real curve of environmental issues representation in development strategy (figure 3).



Source: Negrei, C. (1999). *Instrumente si metode in managementul mediului*. Bucharest: Economica Publishing, 87.

Figure 3. Areas of environmental policy's representation in the development strategy  
*i* – elements of the strategy

*j* – the strategy

1. – general strategy
2. – communication and marketing strategy
3. – production strategy
4. – human resource strategy
5. – legal and financial strategy
6. – research-development strategy

CN – the normal curve of reflecting environmental policy in the development strategy

CR – the real curve of reflecting environmental policy in the development strategy

### **Strengthening the role of covering and using agricultural land by the repositioning of small and medium sized holdings from the perspective of total efficiency**

By applying a measure like this it would be improved the management of the relation between biodiversity and resources, because the configuration of the natural capital will respond to the relation between individual time and social time (reflection of the intra- and inter- generation equity).

Small and medium sized holdings have a low level of production intensification (in the classical sense of the intensification concept), preserving biodiversity as an expression of assuming the social time.



Large holdings have a high level of production intensification, and consequently they generate large biodiversity degradation risks, but in real time they have an important contribution to food security, as an expression of the individual time.

### **Assuming a new content for the concept of agricultural production intensification**

*Intensification is a process of saturation of one resource with another by a rational mobilization of its quantitative and qualitative potential in order to increase production within the conditions of total efficiency* (Negrei, 1994).

An important means to operationalize the concept of intensification, considering its new content, is to increase the amount of information used per unit of agricultural surface; we stress that it is about information as resource and not as element embodied in production means.

For this it is necessary to logistically and financially support programs for the development and increased efficiency of databases and information at local, national, regional and global scale.

### **Improving the financing profile of biodiversity conservation activities (natural capital) by the diversification of financing sources and mechanisms**

Possibilities in this area are the following: bioconversion of remaining debts to the Environmental Fund; bio recovering of environmental warranty; and equitable repartition of resource royalties.

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# **Analysis of situation and opportunities for the development of hunting and fishing in Serbia**

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## **ABSTRACT**

Hunting and fishing in Serbia represents industries with a natural predisposition for development. The aim of this study is to evaluate the current situation in those areas and to point out possible directions for further development in the context of multifunctional agriculture and sustainable development as a developing platform. In terms of methodology, on-desk method with statistical and comparative analyzes was applied presenting the data and indicators of these industries for specific time periods and annual data taken from statistical data bases that were available. Data used come from the statistical database on the state level and also from used literature pertaining to these areas. Conclusion emphasized underutilized opportunities and potentials for the development of hunting and fishing in Serbia.

**Keywords:** *hunting, fishing, wildlife management, Serbia*

## **INTRODUCTION**

Hunting and fishing are activities that in Serbia have their own tradition, but according to the existing resources and the natural qualities, these activities can be better developed. Using natural predisposition of Serbia, these areas has its justification in terms of sustainable economic development and diversification of agricultural activities in the multifunctional rural development. Aspects of environmental protection and the improvement of living communities, which are the subject of the use of these activities, are taken into account together with implemented measures to prevent violation of certain sensitive ecosystems such as forests and aquatic ecosystems. National parks and nature reserves are protected with the separate documents carrying out the planned activities in order to preserve natural resources as well as at the state level, and in some cases as the world's rare and precious things. (<http://www.gdeinvestirati.com>).

Hunting, as one of the activities of man, has its commercial and economic importance. In Serbia, this activity has its own traditions and it is related to the natural qualities, regulated at the state level with many documents and regulations. Given the preservation of the ecosystem and the existing hunting calendar of many nature reserves and national parks and hunting ethics follow natural seasonal and life cycles of certain types of hunting. Hunters in Serbia, about 85,000 of them were in hunting associations organized at the level of municipalities and local communities. These associations have their own action plans and programs, as well as acts that are made in accordance with the applicable national and international legislations that apply to this area.

Hunting in Serbia as activity takes place mainly on the principle of personal preferences, and usually is a combination of realistic opportunities for the development and cultivation of hunting wild game and those moments are often traditional nature, it this type of activity is grown as a family tradition and heritage. Generally speaking, and in terms of the current economic crisis on local communities, hunting is mainly weakening or maintained at some level without changing the line with hunting associations and regeneration by increasing the number of members. Potentials which Serbia has in the development of hunting are not used. Tourist aspects of hunting and also hunting trophy activities are very potent and can certainly be promising. At the community level the efforts of individuals and their persistence in the development of wildlife management with support at the state level can represent an engine for growth of this business. Besides the common goals dealing with hunting societies and associations, environmental funding and coordination and cooperation at the level of these associations can certainly contribute to the development of both general interest and especially local communities. Hunting in Serbia is represented as a big and small hunting game, covered mostly with birds and mammals as a hunted species.

Fishing regarding to the available water resources, is the industry in which Serbia has multiple options as fish farming or as a tourist and recreational activity in terms of fishing. Serbia has a lot of river flows and reservoirs and numerous ponds. Fishing waters are divided into 25 fishing areas, including its altitude cold water on Zlatibor, lowland water like Ečka or those in Timok region. Water source of Danube with its particularities and various aquatic ecosystems, and their own fish stocks is certainly one of the most important fishing areas.

The legislation provides that the development of fisheries in Serbia takes place in natural ecosystems running water and artificial aquatic ecosystems. For further development is necessary to improve the quality of water where they are more or less polluted and keep the ones of high quality. Complex protection of water must be carried out because there are a number of pollutants which wastewater directly discharged into waterways. State must insist to invest in wastewater treatment consistent with the protection of the environment.

According to the provisions of the Law on Spatial Planning of the Republic of Serbia 2010-2020. renovation of existing ponds (about 14,600 ha) and the new plan in the framework of integrated river systems in depressions and along major waterways especially in underdeveloped border municipalities and the uncultivated farmland is planned. Trout ponds are only allowed on the rivers which do not compromise on the spring. Accumulation of water cannot be used for caged aquaculture, and in other reservoirs it might only be used with the approval of the Ministry of Water Resources and in accordance with regulation of urban planning and local government act.

## HUNTING

Important species of wildlife from an economic point of view in Serbia are: rabbit, pheasant, deer and wild boar. According to the "Law on Hunting" (2010) hunting in Serbia is represented at 8.828 million hectares. This hunting mostly managed to almost 90% of the Hunting Association of Serbia through their associations. Hunting associations have their membership and organized activities and long-term and short-term plans that are consistent with legislation at the state level. At the level of hunting societies it is respected, along with the already mentioned Law on hunting (2010) the following state regulations:

- Law on Associations (Official Gazette of RS, No. 51/2009);
- Veterinary Act (Official Gazette of RS, No. 91/2005);
- Law on Firearms and Ammunition (Official Gazette of RS, No. 9/1992 and 44/1998);
- Law on Environmental Protection (Official Gazette of RS, No. 135/2004 and the Law on Amendments and Supplements to the Law on Environmental Protection (Official Gazette of RS, No. 36/2009);
- The Animal Welfare Act (Official Gazette of RS, No. 41/2009);
- Law on Tourism (Official Gazette of RS, No. 44/2005).

There are also laws in this area, which the ministry announces. Any hunting club respects the foregoing statutory provisions and in addition brings statutes, regulations and rules that regulate their activities.

In accordance with the adopted rules of hunting, a number of hunting venison is controlled and actions according to the sense that the optimal number is respected and preserved and the natural balance in the ecosystem is not disturbed are taken. Thus the game is presented as an important factor in biodiversity of benthic communities.

*Table 1. Hunting grounds area, hunters and hunting facilities in Serbia (2005, 2007 and 2009)*

	Area hunting grounds		Hunters	Feeding places for game (number)	
	Total	Under forests		Feather game	Hairy game
	thousand ha				
2005	7026	1726	84.834	23.433	8.025
2007	7057	1781	82.343	23.305	8.411
2009	7037	1724	83.525	23.701	9.232

Source: Statistical yearbook, 2011, Statistical office of the Republic of Serbia

Table 1 shows the total hunting area for the years that has not changed significantly as did not hunting area under forest (about 25%). Number of hunters was increased, followed by the number of feeding stations for birds and deer fur.

*Table 2. Game and game shot in Serbia (2005, 2007 i 2009.)*

	Deer	Common roe (thousand)	Chamois	Bear	Common hare (thousand)	Wild boar	Common pheasant (thousand)
Game number							
2005	4.869	106	110	56	609	17.215	409
2007	4.589	112	118	330	611	17.436	406
2009	6.216	111	832	249	606	17.475	403
Game shot							
2005	844	5	20	-	104	3.918	165
2007	615	7	-	-	113	5.276	160
2009	757	8	35	-	103	5.811	173

Source: Statistical yearbook, 2011, Statistical office of the Republic of Serbia

The spatial distribution and the presence of wildlife in hunting primarily are affected by natural factors like climate, disease, predators, but other than that, and anthropogenic (agricultural activities, transportation, hunting, etc.). (Popover et al. 1996) Number of game changing for some wildlife species and within individual regions varies Serbia. In terms of big game particularly of deer and wild boar increase of the number can be noticed especially in Central Serbia, and less in Vojvodina. (Table 2). In terms of abundance of small game the number is increased particularly for hares and pheasants. According to an analysis of number of measures proposed to increase the number of pheasant game and refer to the feeding of pheasants in the winter and breeding pheasants cubs to a certain age and then settling them in hunting places. In terms of preserving and increasing rabbit population abundance in Serbia solution can be seen in the following: the establishment of "green corridors" between large areas of monocultures, which would provide food and protection, especially after the harvest of winter cereals, control of the predator number, monitoring of growth and on that basis shoot planning; plans are also controlled with adequate investments in the production of rabbit rearing. (Djordjevic et al., 2011)

## **FISHING**

In Serbia, the fishing industry is represented in natural and artificial streams, in lakes, artificial structures (canals, reservoirs) and in particular carp or trout ponds. Carp ponds cover the surface of 10,800 ha. There are 27 carp ponds, distributed mainly in depressions near major rivers, mostly in the Bačka, Banat and Srem. This is the best way to use these depressions (which cannot otherwise be used, and can be dangerous in the case of the population of mosquito's reproduction). Extending this type of land use and coastal waters in the lowest of major rivers, especially the Danube, is the basis of the expanding fisheries within integrated farming systems strategy.

Cold water fish (trout) fisheries at about 10 ha, are located on the waterways of the highest quality, most commonly in the areas of water sources, and cannot be significantly expanded. Ponds can be constructed only in the framework of integrated system where they do not threaten water sources. In coldwater ponds restrictions on available water are predicted (Law on Spatial Plan of Serbia 2010. to 2020.) to increase for only 25%. Reservoirs that are anticipated for the supply of water can be used for fish farming due to eutrophication resulting from nutrient intake of fish.

It is estimated that Serbia produce only dozens of what it represents in terms of production potential in fish. The Serbian farms produce approximately 10,000 tons of

fish and it is possible to produce 100,000 tons. Serbia is importing 30,000 tons of fish allocating 60 million euro per year, while exports does not exist. Fishing is not at the state level and are not adequately supported in terms of absence of investment. Better use of existing channels such as the Danube-Tisa-Danube Canal and use of land not suitable for crop production, could gain of several million euro. Potentials of Serbia in fisheries, especially in the Province, are currently using less than 10% of the available.

*Table 3. Production of consumer and younger fish in fish ponds in 2008, 2009 and 2010.*

	Unit of measure	2008	2009	2010
Carp fish ponds				
Utilized area	ha	8021	8524	8940
Production of younger	t	3858	4966	4463
Production of consumer fish (total)	t	7374	7549	8331
Production of consumer fish (caught)	t	6605	6560	7322
Of which				
Carp total	t	5760	6366	7016
Carp (caught)	t	5165	5428	6156
Trout fish ponds				
Utilized area	m <sup>2</sup>	74.180	35.792	36.791
Production of younger fish (total)	t	167	155	155
Production of consumer fish (total)	t	1095	1068	1066
Production of consumer fish (caught)	t	929	880	873

Source: Statistical yearbook, 2011, Statistical office of the Republic of Serbia

Based on table 3 it can be seen that the surface of carp ponds and increased in total production of carp and carp haunted. The observed data for the year related to the total area under ponds tend toward significant decline.

**Table 4. Fish catch in rivers, ponds and channels**

	Unit of measure	2008	2009	2010
Professional fishing	t	1683	2130	2002
Sport and recreational fishing	t	1468	1732	2802
Fish catch (total)	t	3151	3863	4807

Source : Statistical yearbook, 2011, Statistical office of the Republic of Serbia

Table 4 represents quantity of fish caught by recreational and professional fishing and the total for those years. The trend of increasing fish can be seen, but given the potential that Serbia has this trend should accelerate. According to the strategic orientation, Serbia could by 2015. become an exporter of fish and fish products, and until 2020. it might have an significant export revenue of 100 million euro to reach.

Fisheries should pay attention in terms of investment at the state level because the fish breeding of domestic raw materials account for more than 90%. In relation to the fish chosen for growth the production costs are going to be realized. Evaluation for investment in trout production ranges from 350,000 to 500,000 euro, depending on location and infrastructure. For the production of 100 tones of carp 400,000 to 700,000 euro is needed annually; return on investment in the ordinary course of business in the forefront is 7-10 years. Globally, the fish farms produce about 60 million tones with a total value of over \$ 100 billion. Serbia produce approximately 10,000 tons representing 0.017% of world production. Fish consumption in the world is growing annually at a rate of about 9%; in Serbia, the low level of awareness for fish consumption need is represented and educational activities to raise saints in this regard has to be implemented. Data show that in Serbia 5-7 kg of fish per capita per year is consumed, usually in the period of fast, which is 3-4 times less than the average value obtained for the inhabitants of Europe.

## CONCLUSIONS

Based on the data presented it can be concluded that the hunting and fishing in Serbia underdeveloped industry. The potential for further development as documented commitment present to the state-level. With appropriate investments in this field potentials can be used and can realize significant gains at the state level. Besides the development of hunting and fishing contributes to the development of environmental awareness among the people and the need to protect and preserve natural resources.

## Acknowledgements

The work is part of the research project, funded by the Ministry of Education, Science and Technological Development Republic of Serbia: „Sustainable agriculture and rural development in the function of accomplishing strategic objectives of the Republic of Serbia in the Danube region“ -Integrated and interdisciplinary research (period 2011-2014), no. 46006.

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# A possible recovery of the Romanian vegetable growing by using protected spaces

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## **ABSTRACT**

Romania has made important steps in the last years in upgrading the vegetables growing system, having as main object the enlargement of the surfaces destined for their growing in protected spaces. The protected cultures are able to ensure some large and good quality productions during the entire year. By increasing the surfaces destined to vegetables and by using protected systems, we can place again the imports on a minimum necessary level, to achieve also a plus of export, by helping Romania become again a new large producer of vegetables.

**Keywords:** *protected spaces, modern technologies, profitable cultures, ecologic cultures*

The agriculture has a decisive role in the fast progress of the entire national economy. The development and upgrading of the industry, as well as the increase of the populations living standards are conditioned by the development of the agriculture. The fight against hunger cannot be won unless we have productive food sector and a sustainable and high-performance agriculture.

The association and organization of specialized farms, where high performance technologies should be applied, is the optimal solution in the process of recovery of the horticultures on the country's territory. By maintaining tradition and using the new technologies of cultivation of the horticultural plants, Romania may become again a big producer of vegetables and fruits.

According to some specialists, the Romanian agricultural potential could feed a population of more than 80 million inhabitants, but it is left unvalorized to its largest part. If we have a plentiful earth, it should be reasonably valorized, in the benefit of the people that owns it.

Fortunately Romania has all relief forms, fertile lands, many hydrographic basins that could solve the matter of fluctuation of the production levels with beneficial consequences over the national security.

In 2008, Romania imported 80% of the necessary quantity of fruits and vegetables. From exporting country until 1989, it has presently become a large importer. The Romanian markets were invaded by vegetables, fruits and flowers imported from Turkey, Spain, Poland, The Netherlands and even from Hungary. In these countries, due to the agrarian policies implemented for many years, the agricultural solarium system has developed strongly.



In order to prevent that from happening further on, it is required more responsibility to approach the matter of recovering the Romanian horticulture and upgrade it according to the scientific criteria. Following the Romanian national strategy, important steps have been made in this field, making possible the inclusion of purchase of solarium on the list of the eligible expenses at the measure 121.

As the climatic changes from the last years have become more and more problematic for the farmers, the development of a high performance sector of production of the vegetables in protected system has become a necessity. For that purpose, the protected cultures are considered as the best and the cheapest insurance against the climatic prejudices, and the main objective for the next years it to enlarge the surfaces destined for the production of vegetables in protected spaces.

Presently, the surface occupied with vegetables in our country is about 100.000 ha, with a total production of 2.7 millions tons. From this total, the protected cultures represent about 7.870 ha, which is quite a little for the requirements of the vegetable market.

Taking into account that the surfaces with vegetables from the field have been continuously reduced because of the unfavorable evolution of the climatic factors, the solution for the recovery of the Romanian vegetable growing would be the enlargement of the surfaces occupied with protected spaces until 2020 to 20.000 ha, accomplishing in this way an annual increase rhythm of 1.500-1.700 ha, ensuring at the same time also an increase of the annual consumption of vegetables from about 150 kg to 190 kg per capita.

That can be accomplished by taking measures, in respect of:

- the elaboration of a national strategy on the sustainable development of the protected cultures;
- adoption of some new constructive types;
- extension of the fertigation and ventilation systems, upgrading of the culture technologies;
- ensuring and supporting an efficient system of information;
- system of stimulating the producers of protected vegetables;
- restructuring of the consulting services regarding the accessing of the European funds;
- organization of a market of sale of the real vegetables;
- a more efficient and more drastic control of imports;
- allotment of funds for the development of a modern base of research in the field of genetics and improvement of the physiology of water supply and mineral nutrition, biochemistry of the integrated quality and protection.

What advantages offers to a farmer obtaining vegetables in protected spaces or solariums?

All farmers want to sell products with a higher price. That is possible if they go out on the market and establish the price until those cultivating on fields come out with the first products. By being the first on the market, they will already have a profit compared to the others.

The vegetables in protected cultures are obtained in the spring or early summer, by shortening the period of vegetation of the cultures by using seedlings, so that the cropping will take place at least 10-15 days earlier, compared to the field cultures, or unprotected cultures.

By using Haygrove solariums from Great Britain, it may be ensured an earliness of the vegetables up to 21 days. Using these solariums presents the following advantages:

- Extension of the culture season;
- Guaranteed program for treatments;
- Guaranteed program for cropping;
- Ensures a better ventilation by lifting the foils on sides, until the total uncovering of the solarium ;
- They may be moved from a parcel to another, being easy to dismantle;
- They do not require the land leveling;
- They are easily and fast to built, without requiring specialists;
- They are cheaper than greenhouses, so that the amortization of the investment can be done in 2 or 3 production seasons depending on the used culture.

This type of solariums may be adapted with a minimum investment in respect of consolidating the top of the solarium and the use of the polyethylene foil, requiring simple solutions for the transportation of materials inside the solarium, of the irrigation system through aspersion, or of the treatment applying system.

Another important aspect of Haygrove solariums is that they may be endowed on request of the farmer with chutes for the water collection. That fact does not raise the price very much on the meter of solarium, in exchange it offers the opportunity to make savings at the irrigation-related expenses and savings in the water reserves in the soil.



*Fig.1. Types of Haygrove solariums:*

It has been more and more emphasized lately the idea of vegetables obtained in ecological system. The vegetables obtained in ecological system represent an alternative that is more and more looked for compared to the conventional products, not only for their quality and taste, but especially for the fact that they are healthier, still being obtained with bigger expenses. The growing method based on natural factors encourages the development and preservation of the vitamins existing in the bio vegetables, determining their use not from a feeding point of view only, but also as a natural remedy for different diseases.

In order to better explain the possibility of obtaining vegetables in solariums, I took as example a certain type of solarium and a certain technology that may be emphasized through the following:

Total width of the solarium: 8 m, length: 49 m, height at the culture supporting bar: 2.5 m, height at the top: 4 m, total covered surface: 392 mp. The metallic structure is fabricated fully of galvanized steel. The solarium door will be sliding, made of galvanized steel, with the dimensions of 2.3 m x 2,3 m. Every unit will be provided for with two doors.

A module will be mandatory provided for with manual ventilation by rolling on both parts.

The solarium will be covered with the best quality foil, with the thickness of 125 microns, 2 years guarantee, 4 years lifetime, thermal effect (ensures additional 2-3 degrees inside the solarium) and has a cooling effect during summertime. The estimate price of this solarium is 8 m x 49 m: Lei 30.200 VAT included. The price of the system of irrigation by drops: Lei 1.700 lei VAT included.

Agricultural and technical requirements:

In order to reduce the danger of the attacks of diseases and of the pests, it is recommended to use a cropping system ensuring that every year species of greens are cultivated belonging to other botanic families. For example:

- in the first year, one can cultivate solanaceae in solarium (tomatoes, pepper or egg apples);
- in the second year - broccoli, cauliflower or early cabbage + autumn cucumber;
- in the third year – climbing bean.

For the rational and efficient exploitation of solariums, it is practiced the intensive cropping system, which is that besides the basic culture, one or two successive and associated cultures are cultivated (salad, spinach, green onion, moon radishes).

Cropping technology:

In order to achieve good productions, the solarium will be fertilized with well decomposed rother soil in a quantity of 3.5-4 kg/m<sup>2</sup>, put on soil in the autumn.

Attendance works appropriate for the solarium cultures will be applied after cropping, with the specification that it is totally forbidden the use of chemical synthesis products both for fighting against weeds and for fertilization or phyto-sanitary treatments.

Fighting against weeds will be carried with mechanic or manual means or mulching with polyethylene foil will have with very good results.

Products recommended for the ecologic agriculture may be used for fertilization (Bio-Mix Fyt, manure with microelements in the form of chelates, Bio-Calko, calcium and boron fertilizers, Biofert, Super Lipan, Fyt etc.).

The phyto-sanitary treatments will be made by using bordelaise juice for treatments against blights and soaking sulphur for mildew, and organic, microbiological prepared products or phyto-pharmaceutics extracted from plants are used for pests.

Recommended species and hybrids:

Tomatoes crops:

Recommended assortment: Katerina F1, Birdie F1, Cristal F1;

Density: 4 plants/m<sup>2</sup>, productions: 18-20 kg/mp, price/kg = 5 lei.

Egg fruit crop:

Recommended assortment: Andra, Daniela, Felicia, density:

3 plants/m<sup>2</sup>, productions: 5-6 kg/m<sup>2</sup>, price/kg = 6 lei.

Pepper crop:

Assortment: Bianca F1, Gigant F1, density: 6 plants/m<sup>2</sup>, production 4-5 kg, price/kg = 6 RON.

Cornichon cucumbers:

Assortment: Flamingo, Pasamonte, Zeina, density: 3 plants/m<sup>2</sup>, production: 4-6 kg/m<sup>2</sup>, price/kg = 6 lei.

Other cultures that might have good results in solariums: cabbage  
(6-7 kg/m<sup>2</sup>) – 3-4 lei/kg broccoli

(2 kg/m<sup>2</sup>) – 8-9 lei/kg climbing bean (2-2.5 kg/m<sup>2</sup>) 6-7 lei/kg.

In such solariums, we can have a 15% production increase to which a 25% benefit is added for the production which we gather in the first 2 weeks and which we sell with an almost double price compared to the main season.

## CONCLUSIONS

The use of the protected spaces might be a real opportunity for farmers in order to upgrade their greens culture, and as concerns the Romanian state, in order to equalize the trade balance by eliminating imports in this sector.

Romania would have also the opportunity to export vegetables again also on the international market, by using these protected spaces on larger and larger surfaces.

The protected culture is the sector that generate larger and safer income and it is precisely that why it should not be absent from any agricultural exploitation, irrespective of its size.

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# Who needs to take responsibility for population's and environment's health?

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## **ABSTRACT**

This paper aims to find an answer to the following question: Are we what we eat or what we are offered to eat? Who should be responsible for our decisions? The human health depends on decisions that consumers make when choosing and consuming certain products and also the fact that the producers are offering products less environmental, produced using growth hormones, ingredients that are derived from genetically modified organisms, so the nutrients are contaminated. To get an answer to this question we will discuss some research done both for consumers and producers to understand that freedom makes you more responsible and that the decisions we make today can influence our life in a positive or negative way.

**Keywords:** *human health, environment, social responsibility, polluted environment, risks upon*

## **INTRODUCTION**

An old Indian saying says that "you are what you eat", the famous French gastronome Jean Anthelme Brillat-Savarin launching the dictum "tell me what you eat so I can tell you what you are", today we ask ourselves the question "are we what we eat or what we're given to eat". In this work we take it upon ourselves to see who is responsible for our and the environment's state of health.

Today's society is sick because instead of finding the source of the disease, we try to fix its effects, which in turn only ease or cover-up an issue. One of our contemporary society's diseases is the lack of responsibility, and to be more precise, running away from responsibility and lacking the courage to take some risks upon ourselves. Responsibility for the health of the populace and of the environment does not belong to one single person, or one single institution, and as such we speak of a multicriterial responsibility: responsibility of the individual, the group (family), collective, organizational, state, manufacturer and importer of goods and services.

Physical and mental health depends much upon our way of living, on the quality of what we eat, on our way of thinking, our attitudes and on the actions we take in our daily lives. The Latin dictum "mens sana in corpore sano" links together physical and mental health, meaning that if we take proper care of our physical health by eating those certain valuable and necessary nutritional elements, important to a proper functioning of our bodies, then our mental capacity increases and becomes more stable from an emotional point of view when we choose a certain type of food. Culinary traditions

leave their mark upon the health of our bodies and we cannot easily tear away from these traditions and the associated unhealthy food, this only because they're tasty or because that's how our mothers or grandmothers made them. Quite often, we tie a certain smell with a certain event in our lives, and we want to relive it. That what we do with food and our way of eating.

Another important aspect is the our feeding methods and schedule. There are people who skip breakfast, eat chaotically, with no regard to the primary meals of each day, and some even skip over all meals and only eat during the evenings, in great amounts. We swallow without chewing because we're in a hurry, we eat standing and we eat fast food because it's faster and perhaps for some, tastier. We eat pastry and confectionery products which give up a poor intake of nutrients healthy to the human body.

The way we cook our foods is very important, because if we cook at very high temperatures, it destroys the enzymes and nutritive qualities of the foods, and as such they lose their initial qualities. It is best that we consume foods in their natural state, or altered only to a point, by boiling or steam-cooking. We must use as little as possible salt, fats, pasta, artificial aromas and colorants. All these throw off the energy fields of our bodies and block a series of absolutely necessary biochemical reactions. We consume too many foods of animal and derivate origin and too little vegetables and fruit in their natural state. If we consumed protein of animal origin taken from healthy animals, then the effects of it would be beneficial, but if the animals are sick, then their protein will cause diseases and digestive infections, and in extreme cases, even death. Consumers of products of animal origin must keep in mind these : the amount of food their intake, how fast their metabolism works, the way liver and kidney products were processed, how waste coming from them had been disposed of and the level of hormones existing in their bodies at a certain moment of their lives (Thomas, 2012).

Toxic substances within food have preoccupied specialists since forever, but in the past few years, this issue has grows more stringent due to excessive environmental pollution, agricultural chemicalization, industrialization of nutrition and the adding of harmful substances, all harming the human body and state of health. These harmful substances can penetrate any living organism, in many ways and cause disorders of the body and sometimes death. At this time, the modern man comes in contact with 40 thousand varied harmful substances (heavy metals, pesticide residue, antibiotics, growth hormone, genetically modified organisms, plastics, vehicle exhaust fumes, food additives, artificial aromas, artificial fats, cosmetic product compounds, waste from chemical-industrial activities, electromagnetic fields and so on) (Ciurea and Edu, 2011)

Lately, the words "biological, ecological or organic foods" are being abused although quite often the product does not cater to the practices specific to ecological agriculture : farmers must use systems as close as possible to current standards in a natural way, must maintain the soil fertile by natural means (using manure as animal provided fertilizer), must maintain water quality, must monitor nutrient levels for optimal animal growth, must make use of unpolluted pastures, without making use of any substances in preparing fodder, without chemical products in cleaning and disinfecting animal and fodder shelters, growing animals in open air and on land, without using biostimulators to increase their body mass, the ban on using genetically modified, crop rotation to increase yield and farm resources and so on.

If we analyze practices belonging to ecological agriculture, then we certainly will not meet very many farmers to employ them because it requires a constant battle between

their own conscience and their profit. Those who use ecological practices only manage to survive to practice a very expensive ecological agriculture, with results lower than the effort put into it. Furthermore, ecological products are far more expensive and degrade faster because they do not contain preservatives and must be consumed in a limited time frame, as opposed to products which benefit from a greater shelf life thanks to preservatives and food additives.

There are many farmers who realize that they are feeding growth hormones to their animals, with residue from fertilizers, with ingredients come from genetically modified organisms and so on and do nothing about it, such as not using contaminated nutrients because they know that their business will go bankrupt if they use ecological methods. In turn, when it comes to their own family, things are different. Their families do not consume products from the same batches intended for consumers, animals to provide for them are raised on ecological principles, with respect to all ecological economy rules.

Each man is responsible for his options and choices, but very often we have no choice. If our ancestors had limited access to food because they had to find it and then forage it, and we're talking about vegetables and fruit, and then also animal food which had to be hunted, this being neither easy nor fast. Modern man finds food on supermarket shelves and even as partially ready products which only require heating, with no effort involved in procuring and preparing them. But what we do not realize is that the current way foods are processed has changed their properties, replacing them with calorie laden substances, with many Es, colorants, sweeteners, artificial aromas and other substances which require that our bodies adapt to the new way of feeding, and these adaptations cannot occur overnight, but require thousands of years to do. Energy consumption is low because physical exercise is low: we travel by car, plane and other means of transport, we do not practice sports, we spend many hours on a chair in front of a computer, we do not train in energy and calorie consuming activities and then the surplus calories turn into fatty tissue or in fats causing obesity which starts becoming a normal consequence of being civilized (Caramoci, 2012).

Small entrepreneurs today no longer market their own goods because personnel costs and goods distribution and logistics costs are high and as such national manufacturers sell their products to retailers which only buy from national producers and from authorized importers to Romania, due to reasons of first price and continued delivery. In June 2012, the WWF (World Wildlife Fund) (Magor, 2012) has launched a study on the environmental performance of FMCG (Fast Mover Consumer Goods) retailers in Romania. FMCG takes in areas of production, distribution and sales of varied categories of products: detergents, cleaning products, cosmetic products, dairy products, sausages, sweets, carbonated and alcoholic drinks, vegetables, fruit and so on.

The WWF-Romania report answers to two questions: how responsible are Romanian retailers and how high is their level of preoccupation towards the society which provides them with their profit? How generous is the offer of ecological products, or products come from the local economy? It traced the performance of 10 retailers functioning in 6 key sectors (fishery, dairy products, vegetables and fruit, paper products, detergents and environmental policies), and their instruments of research were an observation sheet and questionnaires addressed to the companies, the final score being equal to the sum of scores reached through each method. The results of the study are : none of the 10 retailers achieved 50% of the maximum score (the greenest product category being the egg production); the highest percentage on the total score was

attained by Mega Image (42,92%), followed by Billa (39,11%), Lidl (33,63%), Kaufland (28,18%), Auchan (17,26%), Carrefour (17,17%), Cora (15,38%), Real (13,89%), Profi (10,54%) and Penny Market (8,57%); in terms of transparency, only 4 companies of the 10 answered the questionnaire; great inconsistencies manifest between retailers when you overlap data from the questionnaires with those from the WWF observation sheet; only 3 retailers sell frozen fish or cans of fish certified by the MSC and only 2 retailers have ecologically certified detergents on their shelves.

From this study we draw these conclusions: retailers are not interested in buying Romanian products (30% of vegetables and fruit found in the biggest stores do not come from within the country, and in terms of dairy products, we barely come up to 50%), and the trend is not favorable to Romanian producers; a preoccupation for the environment cannot be found within practices inside our market; they ignore buyers, authorities and authorizations, are not transparent and credible. Though we believe that assuming a certain social responsibility would be vital for our society to be healthy on a medium and long term.

The general health of the populace depends upon the decisions consumers take in choosing and consuming certain products, on their way of life, on their way of processing their foods, on how informed they are when they choose to buy a certain product, how foods are made and by whom and so on. To this end we have done a quantitative analysis by making use of a 15 question questionnaire, on a sample of 400 people aged 18 to 25 and have chosen the urban environment as reference area. The aim of the study was to see what lifestyle young people have, if they believe in the saying "you are what you eat", where they get their food from and how they process it and if they give any special importance to eating as an important factor in determining the general state of health and vitality of the bodies.

The results of the study to the question "how preoccupied are you with maintaining a correct and healthy intake?" : 25% are preoccupied with the issue, 10% show little interest while 65% show no interest at all; 86% would prefer ready-made food, but often choose to eat sandwiches and partially made foods and only 16% take a hot meal; of those who eat at fast foods 46% reply that they don't have time for anything else, 20% that food is cheaper, 10% that it tastes better, 10% are taken by the weekly offers and bonuses; 25% exercise regularly (at least three times a week), 15% exercise few times a month, 25% exercise very rarely and 35% cannot remember when they last entered a gym; the vast majority shop in supermarkets, especially in weekends; the most visited companies are : Carrefour (37%), Cora (28%), Real (19%), Mega Image (16%); of all purchases, the highest percentage is held by flour products, pastas and biscuits (32%), followed by sweets and carbonated drinks (28%), vegetables (15%), fruit (10%) and 15% to other products; 56% only check the shelf life of the item, 23% check the looks of it, its color and quality, 10% read the ingredients list and only 11% the level of calories contained by the product; 10% visit the medic at the first symptom, 34% few days later and the rest ignore the symptoms by taking medicine by hearsay and 15% try alternative medicine too; 56% blame the producers and those who encourage consumption of unhealthy foods, 34% blame traditions formed within the family and only 10% blame themselves.

By analyzing and presenting the results of the study, we draw the following conclusions : young adults pay little attention to food intake, to healthy products and ways of living; have a disorganized eating program, do not follow the three meals a day schedule, eat what they can get, standing and in a hurry; do not check on their own



internal and external state of health, do not exercise, do not rest enough (75% sleep less than 6-7 hours a night) and so on. Young adults are not interested or care too little for having a correct and healthy intake, perhaps also because they're young and don't give much thought to a certain way of living, yet we mustn't forget that health must be treasured for all the duration of our lives, because the consequences of an unhealthy lifestyle show themselves later on. The most dire issue is that in the last decade, mortality rates have risen among young people, and also high percentages of serious disease : diabetes, heart diseases, obesity etc.

We can be healthy or sick and this depends upon ourselves and nobody else, because we are what we eat and what we drink, and from this point of view we must be brave and unafraid of giving up on the dogmas of consumerism, on unhealthy products which the food industry offers to us at this time, without assuming any social responsibility for it. The people must inform themselves and learn far more about their own state of internal and external wellbeing and to give alternative medicine a vote of confidence, as it approaches an illness with more flexibility and reliability in time than classic medicine, which practices rigid principles of healing which are not suitable every time because we are different and our human systems react differently to the series of external stimuli they receive.

Classic medicine tries to offer stronger and stronger medicine through aggressive methods, which poison the human body because these pills only uncton in the physical-chemical world, ignoring the energetic universe and the spiritual one, which is a healing system aimed at health and not at disease. When an imbalance or disorder manifests, our attitude is very important because we can direct energy forces towards understanding, realizing and applying the proper methods of healing and balancing of our human body. To succeed, we must think positively and picture the final result for which we are preparing and we must overhaul what we chose to do at certain points in our lives and to become ready to change our ways.

Ignorance is often paid in more because each time we delay finding ourselves because we are afraid of what we might find and sometimes it is hard to push aside old habits. Due to economic and social pressure, we work 10-12 hours a day and we no longer have the time to procure healthy foods for ourselves and instead go to supermarkets and buy ready-made products which only need be warned, but fail to realize that behind those products lay tens of colorants, aromas, sweeteners one hundred times more potent than sugar, causing mental retardation and even death. Excessive consumerism is the main enemy of our state of health, buying without discerning just to be in trend or out of curiosity because of aggressive marketing, without pausing to think of our bodily health. By consuming certain products, our body becomes dependent and loses control, and disease and health are additive states, yet sickness takes our happiness and desire to live our lives, and seemingly, nothing matters anymore.

When the first symptoms of disease appear, we go to the medic and he prescribes lists of medicine and pills of chemical synthesis, which can cause some change in the functioning of our bodies. Classic medicine only eases the symptoms for which we went to the medic, but does not change the motives behind them because nobody asks "Why did these symptoms appear?". Alternative and natural medicine try to find answers to the question of "Why?" and to give us a manual through which we are asked to review our way of live and to seek the healing of nature, as did our ancestors when they fell sick. They used natural remedies taken from the natural environment and not bought from the pharmaceutical industry. Some people stop searching and hope that things

could be different and that we should stop believing that some phenomena occur due to genetics (balding, diabetes, heart diseases, obesity etc.) because these are symptomatic and never causative. The causes are our options and choices when we consume certain unhealthy foods, when we do not take proper care of our physical and mental state by our way of thinking, acting and experimenting normal day to day activities.

## CONCLUSIONS

To increase responsibility from an individual to a state level, education holds a major role in remodeling our culture to increase our quality of life and make us more responsible the health of the populace and of the environment. Education on all levels, population, producers, importers and institutions responsible for ensuring a less polluted environment. Producers are to use systems as close to the existing ones, in a natural way. They must maintain the quality of water, must monitor the levels of nutrients for an optimal growing of animals, without growth hormones, on unpolluted pastures, without making use of additives in making forage, by banning the use of genetically modified organisms, by growing animals out in the open and on land, by rotating crops so as to increase productivity and the resources of the farm etc. It is important that we create an harmonization between our human needs and the needs of the environment, without endangering the environment and future generations.

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# Usability of LPIS database for introduction of extra urban general cadaster

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## **ABSTRACT**

This article aims to draw attention to certain institutions in Romania, namely the Agency for Payments and Intervention in Agriculture and the National Agency for Cadastre and Real Estate Publicity upon issues concerning the implementation of general cadastre for the lands outside the Romanian cities. The extraurban area of Chiselet Village, Calarasi County, was chosen for this study. It can be said that in Romania there are major problems regarding the implementation of general cadastre, as the current fast database system *eTerra* does not contain identifiers that allow the efficient management of the owner's location information. The delay in the introduction of general cadastre results from problems that are not necessarily related to the current database, but rather to the lack of a structured project to introduce and manage general cadastre efficiently. The databases used by the Agency for Payments and Intervention in Agriculture could easily perform the general cadastre activity by updating some information included in these databases; the data could be used effectively to help identify the owners / users of agricultural land. The database of the Agency for Payments and Intervention in Agriculture, connected with the database of the National Agency for Cadastre and Real Estate Publicity, could greatly reduce the costs of introducing general survey for the suburbs. Both GIS and earth observation technologies were used in order to achieve application.

**Keywords:** *agriculture, cadastre, database, extra urban, remote sensing*

## **INTRODUCTION**

The land inventory existent in Romania since the period of agricultural co-operativization, and especially afterwards, widely used cadastral plans drawn almost exclusively by photogrammetric methods based on aerial photography. Thus, since

1958, plans of land records have been drawn up at a scale of 1:10,000 and subsequently cadastral plans at scales 1:5,000 and 1:2,000 drawn for industrial use and owners.

Black and white images obtained from Landsat satellites 1 and 2, increased to 1:200,000 scale, were used with aerial photography for inventorying and monitoring of soil resources. Based on recorded images, 1:200,000 scale maps may be issued periodically, and beyond this scale, Spectral bands 5 and 6, representing areas degraded by erosion and landslides. The degree of erosion research information obtained from satellite images are supplemented with information from large and medium aerial photogrammetric scale (1:10,000-1:25,000). The regular production of such maps could reveal the dynamic phenomena mentioned, as well as the improvement measures to be taken. Also, saturated alluvial soils are identified on Landsat satellite images recorded at the bands 5 and 6, and can identify areas prone to degradation. Areas with excess moisture or marsh trend can be well identified in the Landsat images acquired in infrared (band 7). The limits of separation between water and soil can be identified with high precision, as well as small areas of water up to 0.5 ha (Badea Alexandru,2011).

Thermal infrared entries, performed using scanning sensors installed on aircraft or satellites, provide information on soil moisture at different depths between 15 and 150 cm; on this basis, they can act as warning when applying splashing, if irrigated. Also, the common aerial photographs provide clues about the quality of the irrigation watering systems and amendments applied on agricultural land quality.

Satellite launch technology, equipped with sensors to detect the information on the Earth's surface and its real-time reception by the ground stations, broadens their use to various fields such as for preparing thematic maps of land use inventory; this can make effective use of the data on changes occurring in land structure. In order to use the information contained in satellite imagery for land inventory and highlight the natural phenomena or human activity, identification criteria have been established for the categories based on their spectral characteristics and other factors, such as the principle of photo interpretation. When using data on land use, there is a problem of identifying the main use of their sub-branches and registering the lands known as: arable land, pastures, meadows, vineyards, orchards, forests, waters, ways of communication, built-up areas, unproductive lands and other lands that can be identified in satellite images (Nistor Constantin, 2011 ).

## **CASE STUDY. THE GEOGRAPHIC AREA DATA ACQUISITION AND**

The chosen area of study was located in southern Romania, Calarasi County, between the city and municipality of Oltenița, approximately 25 km far from the former and 40 km from the latter. The southern boundary was a natural border, the Danube River.

Chiselet village falls entirely within the landscape of plains which are part of the Romanian Plain, i.e. the Mostiștea Ciornulesei plain, about 5 kilometres far from the Danube. Lithological constitution is given by the Mostiștea sands; the loess deposits in this area are up to 15 meters in thickness.

There are no geographic variations in the landscape of the area, compared to other counties.

Area: 8,641 ha intraurban: 429 ha extraurban: 8,212 ha

Graphical acquisition was based on the existing topographic plans, performed using the ESRI ArcMap program. The study was performed by manual digitization in the specialized laboratories of the Faculty of Land Reclamation and Environmental

Engineering. Communications routes were digitized, related to the agricultural and forest area.

The data included the following:

- SPOT Image 2.5m pixel resolution 2007
- LANDSAT image 2007 pixel resolution 30m
- Referenced cadastral plan 1:25,000
- 1:25,000 topographic maps
- Data digitized LPIS
- Validated data ANCPI
- Manually digitized data

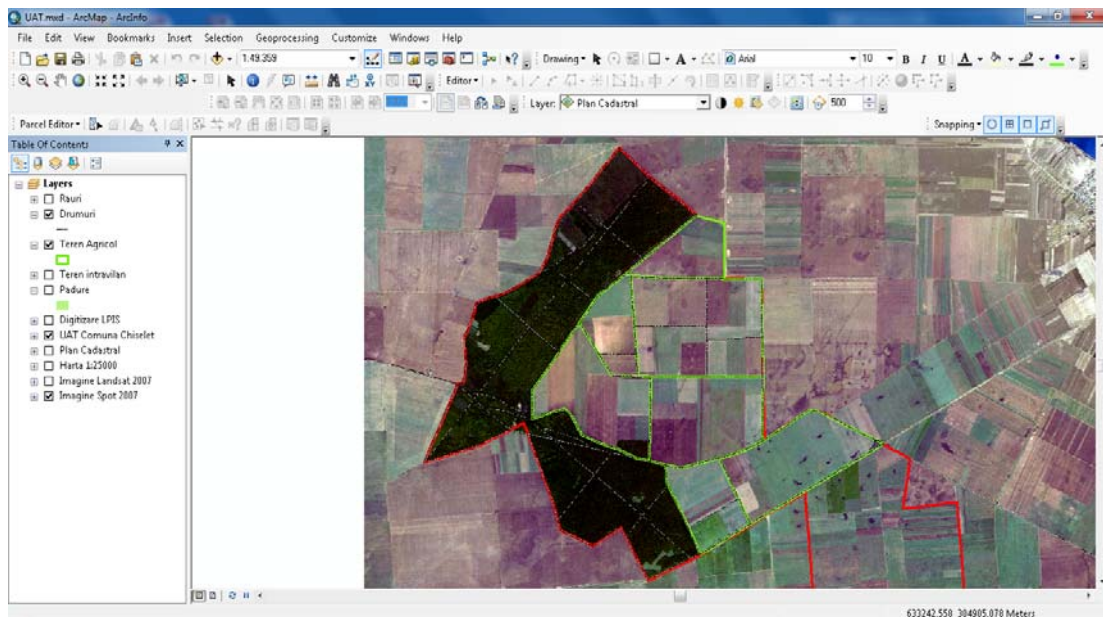


Figure 1 Digitization on satellite images from SPOT (2007)

## GEO-REFERENCING PLANS AND MAPS

Geo-referencing in the current study was conducted only on the cadastral plan received from Chiselet Village Hall. The use of the SPOT Image 2007 and ERDAS software was possible for geo-referencing.

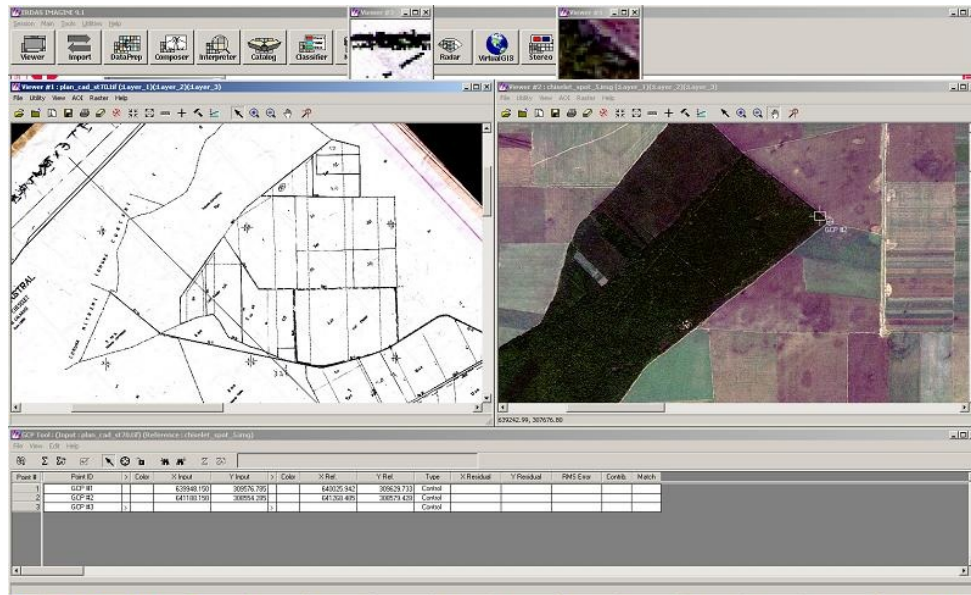


Figure 2 Geo-referencing cadastral plan

Points were chosen based on the SPOT image and cadastral plan.

### DIGITIZING LOTS

Digitization required several data sources, according to several types of images. These images had different spatial resolutions, hence the differences in digitization. As seen below, digitizing the SPOT image with 2.5m pixel resolution had high accuracy; this was not found on the LANDSAT image for digitizing the 30m pixel resolution.



Figure 3 SPOT image digitization (2007) and LANDSAT images (2007)

### DIGITIZING THE 2007 SPOT IMAGE

Digitizing the 2007 SPOT image was easy owing to the high spatial resolution; the 2.5 m pixels made the lot limits visible while other elements could not be seen on the LANDSAT image.

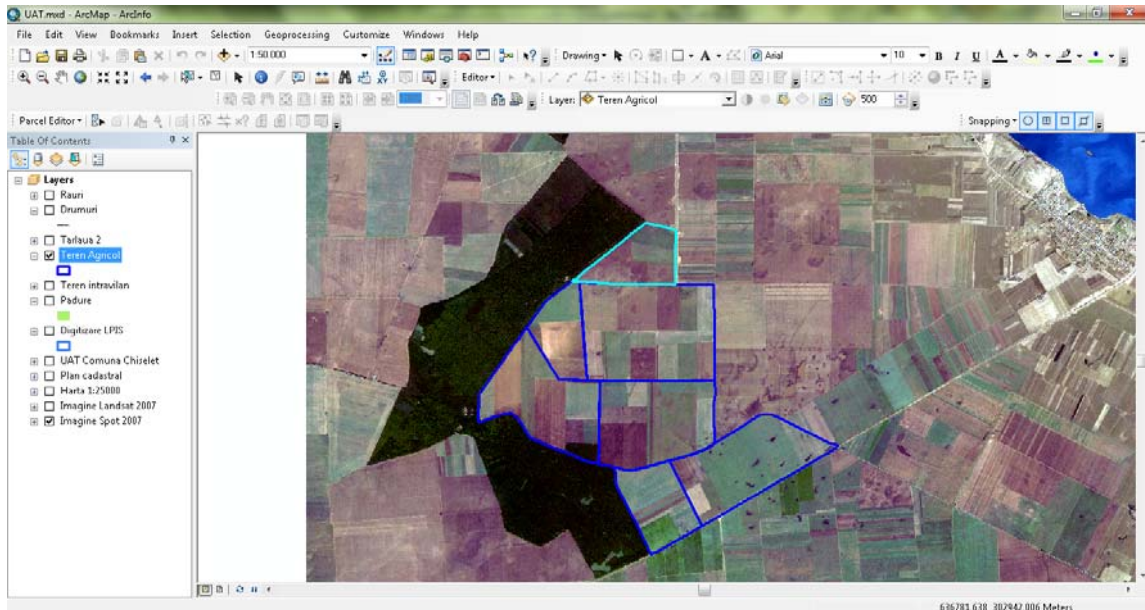


Figure 4 SPOT image digitization (2007)

## DIGITIZING THE ORTHOPHOTOS 2007

Digitizing the orthophotos was basically a check on the accuracy of image digitization SPOT 2007, resulting in high accuracy, as shown in Figure 5

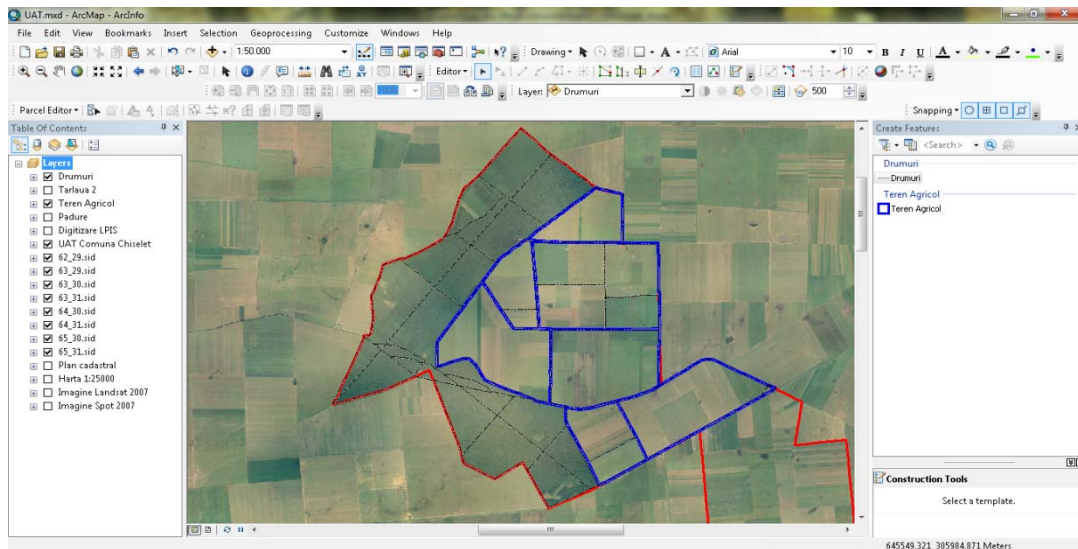


Figure 5 Orthophoto image digitization (2007)

## ANCPI DIGITIZING, PIAA DIGITIZING

Following detailed analysis, it was observed that the 3 digitisations were close in size; hence it can be concluded that the data from the Agency for Payments and Intervention in Agriculture can be easily used to assist the National Agency for Cadastre and Real Estate Publicity in identifying plot owners and updating plans more quickly.

By overlaying PIAA and ANCPI digitization, no major differences can be observed, as shown in Figure 6. The images were slightly different at the top of the image as the northern limit of the lot could not be identified accurately.

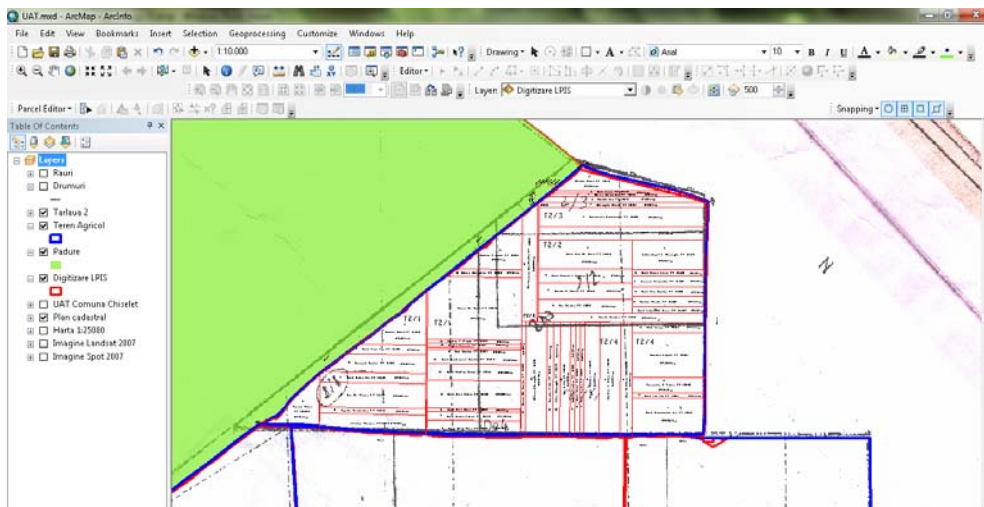


Figure 6 ANCPi digitization superimposed with APIA digitization

Comparing LANDSAT digitization with SPOT digitization, it results in differences arising from the low spatial resolution (only 30 m) of the LANDSAT image pixel versus 2.5 m for 6 SPOT.

### **ANALYSIS OF DIGITAL LAYERS AND IMAGES**

Overlapping the image digitization of our own cadastral plan with OCPI, it appears that the lot limits remained unchanged.

Overlapping our own digitizing with the cadastral plan, we noted that the former digitization shows the natural limits of the lots accurately.

Overlapping the LPIS digitization with the cadastral plan, we observed the same thing as in the case of the other digitization, i.e., digitizing fits the cadastral plan.

It follows that the LPIS area is close to the digitized cadastral area.

### **ANALYSIS OF DIGITIZED LAYERS (PERSONAL DIGITIZING, LPIS DIGITIZING, ANCPi LOTS)**

Basically, the study was limited to an analysis of the digitizations performed by the National Agency for Cadastre and Real Estate Publicity and the Agency for Payments and Intervention in Agriculture, respectively.

Following the overlapping of personal digitization and the digitization from ANCPi and APIA, it appears that there were very small differences between the three digitizations. Comparing cadastral plans and topographic maps, we noticed major differences.

For example, for Lot 2 (which is not incorporated into Chiselet village) it appears that the area digitized by the Office of Cadastre and Real Estate Publicity and the area digitized by the Agency for Payments and Intervention in Agriculture were almost identical, as seen in Figure 7.



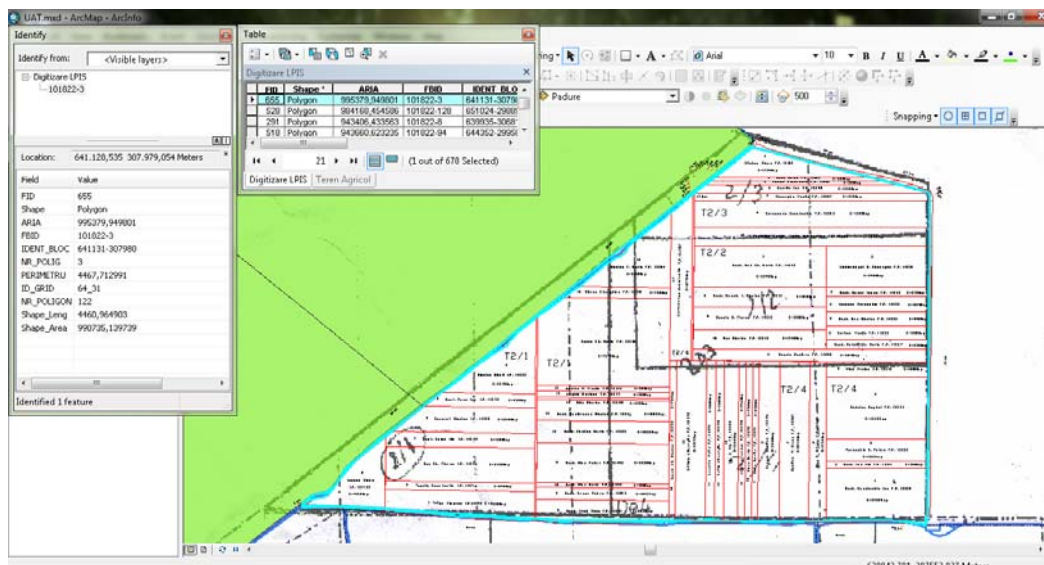


Figure 7. Digitizing PIAA overlay data from ANCPI, lot 2

PIAA physical block area: 995,379 m<sup>2</sup>  
 OCPI digitizing surface, lot 2: 1,001,674 m<sup>2</sup>  
 Personal digitization area: 995,372 m<sup>2</sup>



Figure 8. PIAA and OCPI logos

## CONCLUSION

After digitization, it is recommended that the data from the Agency for Payments and Intervention in Agriculture should be implemented in the database of the Office for Cadastre and Real Estate Publicity in order to easily identify the statements inside the farming lots and solve problems.

Since digitizations were very close, the databases from both institutions were included on the same platform; data implementation can be easily done, subsequent updates can be done in a much shorter time, lower costs can be achieved, general cadastre can be updated very easily.

After database adjustment, the information from the Agency for Payments and Intervention in Agriculture can be easily accessed, including details about farmers working their land.

As seen in the above study, it can be concluded that:

- Remote sensing images provided consistent, objective information that can be operated efficiently.

- Digitisation of the Cadastre and Land Registration Office was correct as it was validated in field; when the data were overlaid with plot plans, it was observed that digitization was done correctly.
- The digitization of the Agency for Payments and Intervention in Agriculture, based largely on orthophoto images, was also done with high accuracy.
- Comparing the two digitizations, it was found that the data from both institutions were almost identical, the physical blocks from APIA being named after those of OCPI.
- At the national level, it is necessary to introduce an inventory of the LPIS data usability.
- GIS work allows mixing of information shown to be a homogeneous uptake of three information types (ANCPI accurate measurements, proper demarcation and digitization of physical blocks from APIA).
- The in-depth analysis of lot 2 which is not incorporated into Chiselet village, and the physical block 101822-3, it appears that the two areas were approximately the same as the data below.

PIAA physical block area: 995,379 m<sup>2</sup>; OCPI digitizing surface, Lot 2: 1,001,674 m<sup>2</sup>; Personal digitization area: 995,372 m<sup>2</sup>

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# Environmental aspects associated with the energy sector

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## **ABSTRACT**

The following paper aims to identify the main environmental issues associated with the energy sector. In the context of the current economic crisis, issues as the combustion of the fossil fuels, the waste management of the energy sector or the accidents during the process of obtaining the energy represents the elements that require the attention of the decision makers.

**Key-words:** *climate change, GHG emissions, energy, policies*

## **INTRODUCTION**

Climate change represents one of the greatest social, economic and environmental global threats. This phenomenon could affect the basic elements of life throughout the planet: access to water resources, food production, health and the environment. As a result of the global warming, hundreds of millions of people will be threatened by the devastating effects of the flood, lack of food or water.

Climate change may have a very serious impact on the economic growth and development. Actions on climate change are necessary in all countries around the world, and should not hinder the economic growth of the rich or poor countries.

Some considerations on the energy sector are necessary in the context of greenhouse gases generation and also on climate change.

Through the combustion of fossil fuels, the energy sector has a major contribution on the generation of greenhouse gases emission, mainly carbon dioxide. Reduction of the resulted pollutant emissions represents an important measure for environmental protection and also for the improvement of the human health condition - major requirements in the strategy of sustainable development of the society – being well known the association of the greenhouse effect with climate change.

Because of the limited resources of fossil fuels, at global scale, the energy production from renewable or alternative sources is increasing. In order to reduce GHG emissions, short-term trend is to promote efficiency and rational utilization of energy, while the long-term trend is the replacement of the consumption of non-renewable resources with alternative technologies based on the use of renewable sources and with low-emission of pollutants.

## THE EXTRACTION, TRANSPORT AND STORAGE OF FOSSIL FUELS

The activities of extraction, transport and storage of fossil fuels can produce a number of effects on the environment: pollution with crude oil/oil products, volatile organic compounds, methane, sound pollution, waste generation.

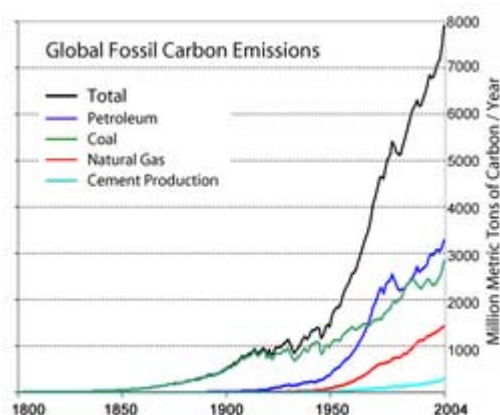
In the process of extraction of fossil fuel, are generated emissions of methane and carbon dioxide. Extraction and primary processing of solid fossil fuels, and also the processes of extraction and loading of liquid and gaseous fossil fuels, have a significant impact on the environment.

The transport of fossil fuels may constitute a significant source of environmental pollution, both as a result of emissions generated by burning fossil fuels, energy required for transport, in the case of oil and coal, and as a result of possible pollution episodes during this activity.

The storage of fossil fuels is another important element that can cause major damages to the environment. Both in the case of oil and natural gas is a danger of explosion in the event of an accident, but also coal has spontaneous combustion risk under certain conditions.

## COMBUSTION OF FOSSIL FUELS

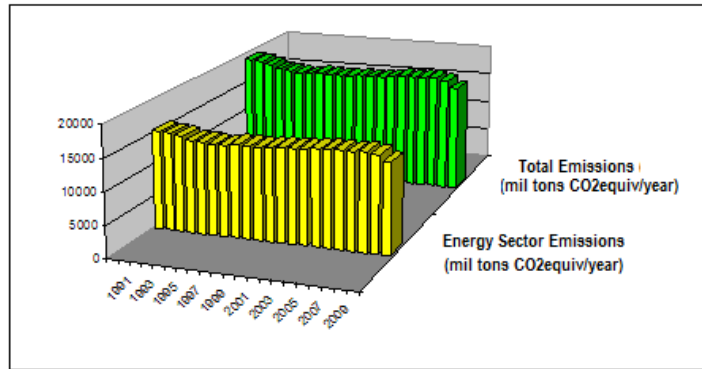
Combustion of fossil fuels is the most important source of emissions of carbon dioxide, the most common of the greenhouse gases. The concentration of CO<sub>2</sub> in the atmosphere is increasing, causing concern about the degree of solar radiation containment, which will result in increasing the average temperature of the Earth surface.



Source: The Energy Department of The United States

Fig.1 Global carbon dioxide emissions

Emissions of greenhouse gases generated by the energy sector accounts for the largest share of the total GHG emissions globally. For countries not listed in annex I to the United Nations Framework Convention on climate change, future GHG emissions from the energy sector were in the last two decades to about 75% of the total emissions generated by this group of 41 industrialized countries.



Source: UNFCC Database\_ Annex 1

Fig.2 Trends in total emissions of GHG emissions from Annex I countries

Through the combustion of fossil fuels, other greenhouse gases are also emitted into the atmosphere (nitrogen oxides, sulfur dioxide), which as a result of the reactions with water vapor in the atmosphere give rise to acid rain which have an impact on both the natural environment and also to the built environment.

### **ASPECTS CONCERNING THE MANAGEMENT OF WASTES GENERATED BY THE ENERGY SECTOR**

The main types of wastes arising from the activities in the energy sector are ashes, residues, oil waste, and transformers which have become waste.

Ash of thermal power station are produced through combustion, in suspension, by the fine grinded coal. Burning fuel has generated and continues to generate huge quantities of ash content, which are stored into dumps.

Electrical transformers are loaded with synthetic or mineral oils that enrich during operation in PCB, substances which belong to the category of persistent organic pollutants. These devices can cause accidental environmental pollution, also from oil leaks during the period of operation and in time by transforming into hazardous waste, which can endanger the human health and the environment, and also block the resources of the raw material necessary to the develop the new products.

Water pollution with petroleum residues is a particularly serious problem. Accidental discharges of petroleum products in water or soil can affect both the surface water, and the groundwater. The consequences of such pollution on the organoleptic properties of water, on aquatic fauna and flora are particularly harmful and sustainable.

### **ISSUES RELATED TO THE USE OF RENEWABLE ENERGY SOURCES**

#### **The use of wind energy**

The location of wind turbines on holdings situated in areas which could attract a large number of birds or bats, such as migration routes may have a negative impact on biodiversity. For this reason, for wind farm projects, as well as for any changes made to the existing central winds, studies of the impact assessment are realised.

#### **The use of water energy**

The use of hydro-power may lead to problems in terms of environmental impact. The construction of a hydroelectric station involves the construction of an accumulation dam that may affect flora and fauna area and sometimes can cause conflicts when it is

located in proximity to national parks or when the water level of the dam covers localities.

The hydro-power stations can change the landscape and can affect ecosystems, the variety and number of species and also the water quality by concentrating into salts. Also, in areas where there are hydroelectric power stations, the climatic disturbance may occur because of the excess of moisture.

#### **The use of geothermal energy**

The exploitation of geothermal water resources can result in a negative impact on the environment as a result of the unstable soil in the area, with the danger of low-intensity earthquakes. Also, "cooling" of the areas with geothermal activity, after several decades of intensive use, can limit the period of operation, although it is a renewable source.

#### **The use of solar energy**

The negative effects of the use of solar energy are related to the fact that most photovoltaic cells, contain nitrogen trifluore, a pollutant that can persist in the atmosphere around 550 years, considered among the first five greenhouse gases that will be included in a post-Kyoto agreement.

#### **The use of biomass**

The main negative effect on the environment associated with the use of biomass for power generation is related to the effect of cutting the trees, because they act like pools of absorption.

### **ASPECTS ON THE USE OF NUCLEAR ENERGY**

The operation of nuclear power stations is similar to that of thermo stations, except that the nuclear energy required to produce the steam is produced by fission nuclear reactions of isotopes.

Alongside the positive elements of the nuclear energy use, we should also highlight the negative aspects from the point of view of the environmental protection.

In addition to the serious safety problems in the usage and/or in the event of an accident, a major disadvantage associated with the use of nuclear energy is the generation of radioactive waste that can be extremely dangerous. These wastes may persist thousands of years and require proper storage in specially equipped spaces.

At the same time, the nuclear power plants may create environmental imbalances as a result of the use of large amounts of water needed for cooling systems, by radionuclide content of the emissions into the air and water, as well as through radioactive waste products.

The pollution is manifested in all stages of the energy cycle-production, and also a part of the radioactive material continues to be extremely dangerous for several years.

### **ACCIDENTS DURING THE PROCESS OF OBTAINING THE ENERGY**

The production, distribution and consumption of electricity can create an impact on the environment in the event of accidents, such as:

- accidental oil spills from the electric power equipment (power transformers, circuit breakers, high and low tension equipment coils) during operation or maintenance;
- accidental overflow of electrolyte caused by improper handling of the batteries from the stations;

- the appearance of eruptions, fires and accidental spills of oil and water in the cellars of the extraction of crude oil rigs and natural gas, with effects on the soil and ground and surface water;
- fire, accidental spills of oil, fissures of the tanks from the storage and treatment of crude oil stations
- possible accidents related to fire, fissure of the facility which leads to the discharge of water to the compression and drying stations

## CONCLUSION

In conclusion, the environmental issues associated with energy sector are among the most diverse, from emissions of carbon dioxide, to the issues related to accidents during the process of producing electricity.

To solve these issues, immediate measures must be taken. Among these measures are improving the energy efficiency, improving the waste management of the energy sector or measures to prevent the accidents.

## ACKNOWLEDGMENTS

This work was co-financed from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013. Project number POSDRU/107/1.5/S/77213 „Ph.D. for a career in interdisciplinary economic research at the European standards”.

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# Tourism and Conservation of Bio-Cultural Diversity Systems

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## ABSTRACT

Biodiversity conservation and the improvement of the social welfare of local communities can be achieved by the tourist valorization of natural resources, social and cultural of a territorial system. The touristic development can be considered an economic tool effective and efficient in achieving the conservation and sustainable use of biodiversity if is ensured the participation and effective involvement of "stakeholders" and local communities, not considering these causes of environmental degradation and overexploitation of natural resources and the environment but part of the solution. A prerequisite is to consider the biodiversity a value or set of values and assets environmental, social and cultural worthy to be protected and preserved for environmental reasons social and economic. Biodiversity is a "life insurance" from whose integrity depends the correct functioning of the ecosystem services that provide direct and indirect benefits to humans and promote the improvement of social welfare.

***Keywords:** biological and cultural diversity system, environmental assets, tourism market, externalities of tourism, "Tourism Commons"*

## INTRODUCTION

A comprehensive definition and operational able to clarify the meaning of biodiversity has not yet been identified, despite the efforts of international institutions. Indicators such as the number of animal and plant species in a given area may help to monitoring only some aspects of the so-called hotspots of biodiversity. Species richness in fact, is not adequate to understand the complex of values and functions that characterize the biodiversity, especially if we consider the economic activities that benefit from the ecosystem services that biodiversity contributes to maintaining stable, durable and resilient.



For the analysis of the relationship between biodiversity and tourism, biodiversity must be considered as a complex, dynamic and integrated system of environmental assets, social and cultural with a specific territorial origin, that must be interpreted at different levels - ecosystemic, of species, of genetic resources - and in different value chains among which points out tourism activities that in turn are composed of a set of local and international "supply value chains".

The system of environmental, social and cultural values that characterize the biodiversity is interpreted as a form of "life insurance" for the correct and productive functioning of essential ecosystem services that are beneficial aimed at increasing social welfare.

The studies regarding tourism field and in general the social sciences, does not consider or tend to underestimate the importance of the analysis the total value of this assets system – environmental, social and cultural – and of potential uses in areas particularly rich in biodiversity. It follows a reductionist interpretation of the values that characterize the biodiversity and delimitation within enclosed spaces – Parks and protected areas – with the effect of limiting the identification of innovative forms of tourism and truly "sustainable" not only in terms environmental but also economic, social and cultural.

In this paper we analyzed the relationships between environmental assets, cultural and social, that determine the creation of human capital, and the necessary protection of property rights of the "tourism commons", which are the basic resources in the development of tourism. Conversely, we explain how the negative externalities of the production and consumption in tourism, transaction costs and information asymmetries based on "global technology", which tend to limit the potentiality of development of the territories by introducing the concepts of modernization and globalization, in tourism can lead to failure of a tourist destination rich in biological and cultural diversity.

## **THE BIOLOGICAL AND CULTURAL DIVERSITY AS A SYSTEM OF INTEGRATED VALUES: THE "BIO-CULTURAL DIVERSITY SYSTEMS"**

The systems of biological and cultural diversity or "bio-cultural diversity systems" represent an integrated complex, dynamic and interdependent that developed through co-evolutionary and adaptive processes occurred between socio-cultural systems and biological. The biological and cultural diversity in a systemic approach consists of three main elements linked by inextricable relations of mutual interdependence - nature, culture and society - and presents three important characteristics: it is unique and irreplaceable; it is not delocalisable and is susceptible to a multiplicity of uses and functions.

The "Systems Theory" that originated in the 20s in biology and was later developed by von Bertalanffy in "General System Theory: Foundations, Development, Application" (1968) – has facilitated the development of analysis based on interdisciplinarity, complexity and inter-relationships that develop between elements and activities apparently different. It provided a reference framework to describe and analyze different groups of elements and activities that "work" together in order to

produce certain effects. It can be used to analyze a single organism or society as a whole (Bertalanffy's "Systems Theory", "should be an important regulative device in science"). In particular, complex adaptive systems, such as "systems of biodiversity," are such because they are characterized by multiple interconnected elements and adaptive those have the ability to change and learn from experience.

Thus, "Systems of biological and cultural diversity" are social-ecological systems multi-dimensional as they include ecological components, social and cultural "products" of dynamic interaction of people, places, biological organisms, ecosystems, production activities, practices and traditional knowledge.

They are the product of a cultural evolution and adaptation that favored the accumulation of knowledge, experience, different modes of social organization and management of natural resources, mainly representing the ways in which individuals and communities have satisfied over time their material and cultural needs through the use of local natural and environmental resources. They are also social-ecological systems characterized by the co-evolution of humans and nature that, on the one hand individuals have "modeled" the natural world to satisfy their own needs and on the other, with the complex of values, norms and social relations have adapted to the ecosystems where they live (Norgaard, 1981, Howard & Puri, 2006; Amend et al., 2008).

A socio-ecological system is therefore a system dominated by ecological components closely influenced by social and cultural relations. "We use the term Socio-ecological System to refer to the subset of social systems in which some of the interdependent relationships among humans are mediated through interactions with biophysical and non-human biological units" (Anderies et al., 2004).

The social-ecological systems can be more or less robust or rather can or cannot "maintain the desired characteristics in the face of fluctuations in the behavior of their parts, or their environment" (Carlson & Doyle, 2002). For this reason, the "systems of biological and cultural diversity" are vulnerable to change and subject to ecological disruption – caused by anthropogenic activity or natural – that tend to erode the resilience of the socio-ecological and reduce the spectrum of current and potential uses.

## **ENVIRONMENTAL, CULTURAL AND SOCIAL ASSETS**

The environmental assets, cultural and social, which are the "systems of biological and cultural diversity", can be identified as an integrated set and dynamic of different forms of capital: natural capital, social capital and cultural capital.

The wealth of a region or more general of a nation can refer in fact to the capital accumulated as a result of production i.e. a physical capital consisting of machinery, equipment, buildings, infrastructure, and together to the concept of physical capital produced by human activities, however, is possible to join to it, the natural capital consisting of the renewable resources such as the animal species, plants, microorganisms and exhaustible resources such as petroleum, coal and other minerals extractable (Musu, 2000).

Costanza and Daly (1992) have proposed a model of "sustainable development" characterized by three main forms of capital or rather natural capital, human capital and physical capital, the latter being considered by classical economics and the marginalist as a factor of production.

Natural capital is able to create value through three essential functions: provides resources that are raw materials for production, is able to assimilate the waste man-made and offers a wide range of environmental services for the maintenance and construction of life including environmental quality expressed through the values of enjoyment for recreational activities and of existence.

The natural capital contributes in carrying out its functions - directly and indirectly - to increase the well-being of individuals and society. In recent years has been identified another form of intermediate capital to natural capital and physical, able to include the values of natural capital but at the same time to include the relationships that are established between nature and human activities.

The Convention on Biological Diversity (CBD, 1992) explicitly considers the role of the "cultivated capital" in creating value ie of the variety of animal species and plant species that are the product of co-evolution of human societies and adaptive in meeting their needs of livelihood. Just think that the areas rich in agricultural biodiversity are often the result of complex agricultural systems which have been developed in response to the physical conditions of a certain environment such as altitude, soil, climate, latitude, but at the same time were strongly influenced by social and cultural factors (Altieri, 1999).

In the development of rural and community – in addition to natural capital and "cultivated" – assume relevant importance social capital and cultural capital. The World Bank distinguishes social capital, defined as the set of rules, norms and institutions, from human capital which is the set assignments relating to the status of individuals, health, education and knowledge ("Social Capital", at <http://web.worldbank.org>).

Social capital has been widely used in the social sciences to describe and analyze the role of networks, contacts, associations and various forms of social cohesion (Bourdieu, 1986, Coleman, 1990, Putnam et al., 1993; Dasgupta & Stiglitz, 2000) and is essentially a value that draws its sources from the social structure within which the various actors operate and from their relationships. Of the three dimensions of social structure-market relations, hierarchical relations, and social relations – the latter affect positively or negatively the creation of social capital and the productivity of social systems related to it. The nature of the relations that characterize the social structure – both the market relationships that hierarchical ones – may be indirectly a source of social capital as an inevitable consequence of repeated interactions over time (Adler & Kwon, 2002) and are susceptible to a variety of definitions and interpretations.

If the focus is placed on external relations, social capital is defined the same way as a resource dependent on the "social networks" that link the different actors: the actions of individuals and social groups can be strongly influenced and fostered by the direct links and indirect with other actors within the social networks to which they belong. In this context Bourdieu (1985) has defined social capital as "*the aggregate of the actual or*

*potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition [...] made up of social obligations (connections), which is convertible, in certain conditions into economic capital and may be institutionalized in the form of a title of nobility”.*

In contrast to this "bridge vision" between the positions of various social actors linked, however, by the same social network, social capital is defined in terms of internal relations that are internal characteristics of social groups. In this case would be the special links between individuals or groups within the same community - in particular those aspects that encourage cohesion – to produce social capital and facilitate the achievement of social objectives. Coleman (1990) has defined in this sense the social capital starting from its duties or “*it is not a single entity but a variety of different entities having two characteristics in common: they all consist of some aspect of social structure and they facilitate certain actions of individuals who are within the structure*”; Putnam (1996) highlights the “*features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit*”. In general, is emphasized the importance of social capital in increasing social productivity, the income opportunities or on the contrary on the constraints that might call at a given time, as a result of interactions within social groups or among groups social in contrast with the "theory of the prisoner's dilemma" which focuses on the interaction of two individual actors.

## **PROTECTION OF PROPERTY RIGHTS AND CREATION OF HUMAN CAPITAL**

An effect of social capital is the creation of human capital – **ie** the set of allocations which concern the education, health and knowledge that enhance individual productivity – for future generations. "Both the social capital in family and community play – through education and training – a role in the creation of human capital in future generations" (Coleman, 1988).

Social capital and human capital are likely to be a major cause of economic development in recent years and the key to the interpretation of technological progress, competitiveness and "good governance" of stable democracies (Putnam, 1996).

From the social and human capital, it is possible to distinguish another form of capital that represents the set of "rules of society" or the factors which provide the means necessary to ensure human societies to be able to adapt and co-evolve with the natural environment. There is talk in this case of cultural capital that is that form of capital which includes the main features of the socio-political institutions, values and needs, social preferences, the ethical values related to nature conservation and the so-called traditional knowledge of local communities. The "orthodox" economy based on "rational choice" and ethical postulates of individualism, ordinal measurability of utility, the interpersonal incomparability of the preferences – "value judgments" as the basis of the criterion of Pareto's efficiency and theorems of Economics of welfare – consider the social preferences as an expression of individual ones.

Social relations, the different motivations of social groups, customs, social structures do not exist independently from the individuals and their preferences governed by the maximization of personal utility. In order to analyze the complex interactions which intervene in the world of the "real" economic systems, of local communities, of biodiversity – involving aspects of economic, environmental, social and cultural – explanatory tools of orthodox economics show all their limitations. One of the main reasons why the social and cultural aspects have been neglected over time lies in the absence of appropriate analytical and theoretical approaches to assess the role, the economic potential and the implications in terms of economic policy.

In other words, the cultural capital represents the aptitude or inclination of a social group or community to behave in a certain way and may include forms of social and human capital (Cochrane, 2006).

The cultural capital – like other forms of capital – promotes the production of goods and services and the implementation of collective actions can generate value. Cultural capital – considered as the set of values and norms that characterize the cultural aspects of a certain community – would play an important role of mediation and control of the dynamic interactions that are established between natural capital and physical capital, influencing their reciprocal *co-evolutive* relationship. (Cochrane, 2006).

For the purposes of value creation and growth of social welfare, the different forms of capital – physical, social, cultural and natural – are all "inputs" essential to the production of material goods, assets and services, and for these reasons may also be protected. Just think that even the indirect enjoyment of the beauty of the natural scenery to produce value needs physical capital for its use and that it is generally not possible to separate the natural component from the cultural one that characterizes the traditions, knowledge and practices of a local community. "*The expansion of tourism is accompanied by a set of ideas that redefine the relationships among nature / environment and culture [...] Modernism, and more widely the culture of the modern age, have historically put an end to the traditional continuity between natural and cultural forms, between rural and urban [...] tourism is pushing for a new narrative on environment*" seeking "*new looks on alterity*" (Simonicca, 2004).

Particularly, as regards the cultural capital, Article 8 (j) of the Convention on Biological Diversity (CBD, 1992) emphasizes the "*respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyle relevant for the conservation and sustainable use of biological diversity*" and art. 10 (c) calls to "*protect and encourage customary use of biological resources in accordance with traditional cultural practices*". The cultural and traditional aspects that characterize the lifestyles of indigenous and local communities represent essential potential for the rural economy that can improve the welfare of local communities.

Cultural traditions affect the economics of a local production system for three main reasons: the set of values, beliefs, and cultural views can determine and motivate the economic goals of a community, can affect economic efficiency through the adaptive modification of the behavior, innovation, the dynamics of group in decision-making

processes can affect the criteria of equity in the distribution of intra- and inter-generational benefits to the local community level (Thorsby, 2001).

The "pervasive rationalizing " and the process of modernization that are involving all spheres of society – based on maximizing income and consumption – produced a write-down of traditional knowledge, a generalization of the values and societies based on the individual rather than the community. The tradition, in this context, has become a representative form of the past at the same way as a non-renewable resource increasingly scarce and often considered a hindrance to progress (Weber in Jenkins, 2000).

In contrast to the eulogy of modernity and to overcome tradition and of his knowledge, has emerged in recent years a movement called "postmodernist" oriented to the appreciation of cultural capital and its economic potential with a view to an endogenous development in marginal areas, culturally rich of diversity. *“The human values embodied in tradition are not only the ‘scars of the past’ but also the ‘portans of the future’. [...] The postmodern emphasis on subjective well-being, environmental protection and other quality of life concerns has led to a re-evaluation of tradition, reinforced by a tendency towards the removal of the artificial structures of nation-state in favour of more natural ethnic or spatial communities within pluralist framework”* Jenkins (2000). The postmodernist approach - oriented to the appreciation of tradition and local culture - try to overcome the idea that the traditions inhibit entrepreneurship and local economic development and that there is not a direct and measurable correlation between economic performance and the context cultural context in which they take place. Rather it is considered that the *“cultural matters remains pervasive in the underworld of development thought and practice”*, Ruttan (1988) in Jenkins (2000). While the orthodox economists see culture as an exogenous variable to the analysis of economic systems and so known, starting from the assumption of "cultural neutrality" of progress, research in the field of anthropology and social confirmed the important role that traditions play in the role of resources, technologies and institutions. While "the culture of modernity suffers from a lack of context, of sensitivity to its systemic environment of one-dimensionality of unidirectional and narrow-minded" (Jenkins, 2000), cultural diversity can motivate and mobilize collective energies, fostering social cohesion and generate social capital. The endogenous growth models consider the growth rate of long-term endogenous to the system, seeking to make explicit in the model, the relationships that determine growth. According to the model of Solow (1956), the rate of long-term growth of an economy depends on the endogenous variables in the system: the endogenous accumulation of human capital through education, training and learning, innovation, and the abandonment of the assumption of diminishing returns to capital. The modernization and homogenization of lifestyles tend to devalue traditional cultures by limiting the potential of the territories through the replacement of the systems of traditional knowledge and local techniques with systems based on "global technology".

The highlighting of cultural diversity of rural systems favors instead a process of endogenous growth based on "cultural markers" that is a set of products and traditional production methods that can promote the conservation, define and strengthen the local identity, to mobilize local resources underutilized, increase employment, create

innovation in terms of new ways to use and leverage internal resources to territorial systems (Jenkins, 2000).

UNCTAD has embarked since 2000 consultations on the commercial development of traditional knowledge and the adequacy of the TRIPs Agreement of the WTO. A solution for the protection and equitable distribution of benefits arising from the exploitation of traditional knowledge still seems far from being identified.

Locally and internationally have been developed a number of initiatives on the need to protect the traditional knowledge systems outside of the mechanisms of international trade protection - which seem quite ineffective - through the creation and recognition of "sui generis systems" based on "customary rights and laws" of local communities. In this sense are interesting project of the "Parque de la Papa" in Peru (Amend et al. 2008) proposed as a "sui generis system" to be protected, "Indigenous Biocultural Heritage Area" (IBCHA) and further investigations of intellectual property of the traditional knowledge (Swiderska 2006).

## **SOCIAL CAPITAL, HUMAN AND CULTURAL**

The existences of social capital, human and cultural favor the correct management of natural and environmental resources and would be a source of value and natural capital.

Numerous studies and analyzes have been developed in relation to systems of use of collective resources local to demonstrate that the "collective action" based on social and institutions relations of a community can ensure a correct and sustainable management of natural resources by increasing the local social benefits (Ostrom, 2006). Emphasis has been put on the links that are established between the cultural and social aspects and biological diversity, in particular on the relationship between the state of systems of traditional knowledge and the conservation of biological diversity, that is the establishment and maintenance of "biodiverse" territories through the practices of low impact resource supported by the systems of local knowledge, on the farmers contribution in the production of a large variety of plant and animal species, the traditional techniques of extraction and management of resources and the "customary norms and beliefs" of local communities that are effective appropriate "technologies".

The "systems of biological and cultural diversity" are characterized by identifiable assets as forms of natural capital, social and cultural interpreted at ecosystemic level, of species and genetic resources. The various assets that characterize such systems are expressed and realized through ecosystems, species and genetic resources, social relations, knowledge, behaviors and traditional practices of individuals and social groups, of local communities, creating an integrated and dynamic at high added value.

In this context, the "systems of biological and cultural diversity" can be considered as a "mosaic" including aspects of natural, social and cultural in dynamic relationship and subject to a variety of use options.

Are considered "territorial socio-economic systems" whose components environmental, social and cultural needs of different levels of biological organization are highly integrated and are used as factors of social production – dependent on traditional knowledge, formal and informal behaviours of institutional agents, by the rules and customary rights – in different value chains: agriculture, industry, "agro-forestry", tourism, medicinal plants, cosmetic and pharmaceutical industry. A system of local production can therefore be defined as a "complex adaptive system" consisting of a large number of actors, companies and institutions that interact in a nonlinear way and that adapt or learn through the process of "learning by doing" (Holland, 2002).

These systems are multi-dimensional, multi-level and multi-functional, an extended "spread laboratory" in the area, that cannot be delocalised, non-replaceable, that are source of product and process innovations and comparative advantages, based on the uniqueness and irreproducibility of diversity relative to other areas and socio-economic systems (Bozzi & Granata, 2009). *“Biodiversity conservation does not occur in a sociopolitical vacuum. Rather, designating land for conservation competes with social claims on land including human habitation, recreation, habitat transformation for agricultural or industrial development, biological and industrial extraction [...] within conservation area networks, the spatial organization of these networks is also critical to the persistence of biodiversity”* (Moffett & Sakar, 2006).

It is not in production specialization – or industry or agriculture or tourism – but in the exploitation of multi-functionality that resides process innovation and product resulting from the "laboratory" of biodiversity. The innovation process and product lies certainly in the adaptive character, evolving and dynamic of "systems of biological and cultural diversity", which – by the interaction between human and nature – continue to produce innovation. Process innovation is also dependent on the relationships networks that occur between the various institutional actors in the conservation and use of the various components of biodiversity.

The complex system, integrated, dynamic and multifunctional of the environmental assets, social and cultural of biodiversity, located in a certain area is the capital that is used in a variety of local and global value chains, including the value chain of tourism activities.

There are the different institutional actors to influence the combination of factors of production represented by the different assets of the system or to determine the "appropriate technology" of the "system of biological and cultural diversity" and to increase social welfare.

In the context of the objectives of the Convention on Biological Diversity (CBD, 1992) – conservation, sustainable use, access and distribution of benefits - the production activities that use the assets of the "territorial system of biological and cultural diversity" should consider and "internalize" the complex relations, propensities and formal and informal behaviors of the various institutional actors in order to limit the "market failures" and the loss of the potential of the "laboratory of biodiversity". If we don't identify and understand the social and cultural variables – including the institutional aspects – of a territorial system characterized by "biological and cultural diversity" we will not be able to correctly interpret the "market failures" and of "non-market" and to define strategies and ad hoc economic policy measures for the conservation and sustainable use of the "systems of biological and cultural diversity".



## **FAILURES OF THE TOURISM MARKET IN THE CONSERVATION AND VALORISATION OF “*BIO-CULTURAL DIVERSITY SYSTEMS*”**

Tourism represents an option of use the "systems of biological and cultural diversity" made up of a complex set and dynamic of assets environmental, social and cultural rights. Theoretically, the development of tourism in a specific area rich of biological and cultural diversity should function as an incentive for the conservation and sustainable use of resources that form the basis attractions of "tourist product" and contribute to the improvement of the welfare of the local community. In the functioning of "real" economic and social systems, tourist development - and in particular different actors that characterize the value chain of tourism activities locally and globally - generates a multiplicity of "externalities" not only at destination level and contributes only minimally to economic growth and local development.

In this perspective, tourism can be considered an effective instrument and efficient in achieving the objectives of conservation and sustainable use of a multifunction system, multi-dimensional and dynamic as the biological and cultural diversity. This is possible if we can "internalize" the total value of the "systems of biological and cultural diversity", ensuring the "equitable efficiency" in the distribution of benefits from tourism activities, promote a "just and equitable distribution of benefits" arising from tourist activities.

### **NEGATIVE EXTERNALITIES OF TOURISM PRODUCTION AND CONSUMPTION**

Tourism development – particularly after the first phase of the life cycle of tourism activities at the destination level – creates forms of "congestion" and conflicts in the use of scarce resources, which are specific adverse effects related to the phenomenon of "external diseconomies". Degradation, especially if irreversible, of the most fragile components of natural environment can block the development of tourism activities with significant economic and social consequences. The impoverishment of natural environment and cultural drives to a loss of interest and financial and human resources for the conservation and valorisation of natural and environmental resources that are a part of all attractions that compose the "tourist experience" and therefore object of use of "product experience" by tourists. The interaction between environmental degradation, loss of economic viability is the basis of "life cycle of tourism activities". The "congestion" resulting from the influx of a large number of tourists causes environmental degradation, escape to other places and loss of social welfare (Querini & Bizzarri, 2006; Butler, 1980).

The external costs and benefits characterize the "real" economic systems, that fail when the conditions of perfect competition and its theoretical assumptions: the market fails to provide an "optimal" social position in sense of Pareto's efficiency and equitable.

The microeconomic failures occur because markets are not complete ie there are no markets for all goods and services in place in a given time period. This is particularly true for environmental goods and services which they certainly have value, but are not always subject to negotiation and market exchange upon payment of a fee or a price. The

information that each agent receives from market prices system is therefore insufficient or is distorted. In the "real" economic systems, the markets are incomplete for the existence of externalities, public goods, due to asymmetric information and transaction costs.

The absence of a fee or compensation in respect of damage configures a negative externality due to two main reasons: a) lack of individual property rights or on the contrary the existence of common property that can induce an operator to use excessively those assets and services on which any or all have the right to property, taking on opportunistic behavior or parasitic b) the existence of activities of production or common consumption, giving rise to damage on certain operators during the course of the production or consumption by other operators.

Generally, studies in the field of tourism consider two main forms of negative externalities: diseconomies of industrial production on tourism activities and diseconomies of consumption of tourists on the resident community. In both cases, the information distorted or absent of market generate an overproduction of goods by the industrial firms or oversizing of the service by tourism enterprises as a whole. With regard to the relationship between tourist and resident community, the tourism company that organizes and offers a travel, not internalizing the damage in terms of disutility on the resident community, assumes a tourist dimension greater than what would be optimal in social terms for residents of tourism destination (Candela & Figini, 2003).

The phenomenon of tourism generates, in particular, pecuniary negative externalities in the form of an increase in average prices and economic environment in the form of crowding and congestion of the tourist destination and excessive exploitation of natural resources.

Those aspects tend to affect the quality of the tourist experience and can determine - on the demand side - quantitative reduction until the cancellation of incoming tourist flows or qualitative change in the typology of tourists. At the same time, may lead to quantitative changes in the size of the resident population and / or qualitative in terms of substitution between categories of residents or businesses managed by them in the local community and more generally in a loss of welfare and quality of life.

Each "touristic ecosystem" can be characterized by a specific "social optimum" which - if on one hand is dependent on physical variables and quantitative – on other shows close ties with variables related to socio-economic reasons, traditions, expectations and particular cultural context.

Negative externalities from tourism activities do not occur exclusively at destination level between tourist and resident community in the act of consumption with the effect of "congestion", and do not depend only on the production and consumption activities jointly.

In the field of tourism notes the absence of property rights over "attractions" natural, social and cultural that induces to "free riding" behaviors from the tourism industry and tourists. The behaviors and modes of consumption of the tourist are the expression - as well as personal attitudes and motivations – of "exogenous" process of planning and

development of the "tourist product" undertaken "from above" – by the "tour operators" travel agents and stockbrokers – and operators and local institutions.

The size and the effects in terms of welfare or social disquiet – caused by the existence of external costs – are also dependent on a number of factors that characterize the tourist destination: the needs of economic, social, political and infrastructure linked to the process of tourism development; the level, the size, the type and the opportunities of local tourism development; economic structures existing; socio-political factors, values, formal and informal institutions exist in the area; the environmental and cultural factors (Telfer & Sharpley, 2008).

It is the absence of property rights on the resources of biological and cultural diversity or the lack of appropriate "rules of the game" or the incorrect management of common properties to induce the tourism sector to oversize the supply, generating a multiplicity of "diseconomies external" and loss of social welfare for the local community at their destination. The first "external diseconomy" – due to the absence of property rights – is the appropriation of benefits arising from the use of a set of environmental assets, social and cultural by the tourism sector – "tour operators" international and national, airlines companies, travel agencies and intermediaries – who has no interest to internalize the external social costs. The lacks of sharing of the benefits at the local level - or incurrence of social costs to the community – imply the elimination of incentive for the conservation of biological and cultural diversity and the sustainable use of resources by the resident community. In other words, the existence of negative externalities is caused of allocative and equitable inefficiency and of environmental degradation, social and cultural.

This does not happen in the first phase of the life cycle of the tourist destination when tourism - spontaneous phenomenon and unplanned above – not "displace" other economic activities and the few tourists – generally interested and "explorers" – do not leaving a "trace" of themselves and enjoying the privilege of being an "elite", an "attraction" themselves before becoming "money, money, money", before the tourist satisfaction is reduced as well as the welfare of the local community.

### **PROPERTY RIGHTS, PUBLIC GOODS AND COLLECTIVE GOODS: THE "BIO-CULTURAL DIVERSITY SYSTEMS" AND "TOURISM COMMONS"**

The benefits that enhance the social welfare – generated by the use and enjoyment of the environmental assets, social and cultural of "systems of biological and cultural diversity" – depends in part from private goods from public goods and partly by common-pool resources available in a wide range of spatial and temporal scales and associated with – or impeded by – a variety of property rights and a number of other institutional aspects. The space in which are located environmental resources, social and cultural of "systems of biological and cultural diversity" may be "private property" or "public" or represent a "common property" or be subject to treaties and international agreements.

Who gains and who loses in all situations of environmental change or the introduction of a new economic activity – such as tourism – therefore varies, depending on the type and scale of the ecosystem services provided, the social actors involved, the socio-economic and cultural context. This complexity requires that the issues relating to the conservation and sustainable use of biological and cultural diversity are able to include not only the criteria of efficiency and effectiveness, but also the principles of justice and legitimacy simultaneously to other ethical considerations (Paavola & Adger, 2005).

One of reasons why the market does not perfectly competitive fails – generating inefficient and inequitable allocation of resources between different uses – resides in the incomplete definition and allocation of property rights existing between multiple resource users and "appropriators" of benefits arising from their use. Thus, the ownership of an asset can be private, public, common or none.

In orthodox economic theory, the property is interpreted as a basket of rights that guarantee ex ante full control over the defined use of an asset. The property is therefore complete and full. In the "real" world, the ownership of an asset can be interpreted as a basket of rights defined and undefined uses of existing and potential asset. The interdependence of human actions, the emergence of conflicts of resource use, the uncertainty on the allocation of rights over particular uses are not well defined, making property rights incomplete requesting to revise the definition of economic ownership, externalities and transaction costs (Nicita et al., 2005).

The assets can be private or public depending on whether they are "rivals" or "non-rival" and that they "excludable" or "non-excludable". The goods traded in the market show "rivalry" in the use, both for the consumer and the producer in the sense that the use of an asset by an operator reduces their availability for other operators. The "non-rival" assets then are those assets such that the increase in consumption by an operator does not reduce the availability for the consumption of another: these goods are defined public.

Among private goods and public goods, gather the so-called "common-pool resources" or "commons" which have the characteristic of "non-excludability" - because it is costly to exclude potential beneficiaries from access and the availability of such goods - and "rivalry" or the "subtractability" because the quantity used by an operator is subtracted from the amount available for another operator. A "common-pool resource" or "collective" - which it shares with the character of private goods "rivalry" and public goods that the "non-excludability" - may be incurred into different regimes of property, from public ownership when the State is the owner of the collective good and has the full right to determine who can or cannot use what is good and what conditions, to private property when an individual or an organization may decide how to use such well, the common property when a group of individuals sharing the rights of disposition and use of the property in question or when anyone finally free access without restriction and without any particular right of ownership may freely dispose of the asset.

The complex of environmental assets, social and cultural which constitute the "systems of biological and cultural diversity" are collective goods as well as all the attractions which form the "tourist product", being characterized by "non-excludability" and "rivalry" in use.

The set of such resources is subject to joint use by tourists, of the tourism sector, of other sectors of the economy that insist on the same territory as well as of local community residents. Generally it is difficult, socially unacceptable or physically impossible, to exclude a group of users from "consumption" of this set of resources while the use by a group limits the amount and the quality available for others. Sometimes the use of these resources is planned and managed and is sometimes spontaneous and informal.

For this reason, the assets environmental, social and cultural of "systems of biological and cultural diversity" – which constitute the set of natural and cultural attractions of a certain tourist destination – have the typical problems of public goods in terms of overexploitation and the absence of individual incentives to "internalize" the costs of their preservation and improvement. These resources together with the accommodation, infrastructure, complementary activities and the set of "facilities" constitute the "tourist product". It follows that the set of "touristic resources" – characterized by "non-excludability" and "rivalry" as well as being indivisible and from the boundaries not well defined - can be considered as a collective good.

The "tourism commons" are complex collective goods because they are subject to multiple uses by groups of different operators, are heterogeneous and variables, consisting of tangible elements (natural resources, facilities, infrastructure, etc.) and intangible (cultural aspects, traditions, services, social relations, etc.); include other collective goods and public goods necessary for the "production" of the tourist experience; have a spatial and temporal distribution highly variable of the demand; are subject to an demand of use volatile and seasonal; are subject to different property regimes, public, private, common or of free access; are subject to use by "users" external to the territorial system in which they are located with consequent interference on all the rules and formal and informal existing values; the use of these collective goods is mediated by different systems of socio-cultural values of local residents, tourists and local tourism businesses and international (Briassoulis, 2002).

The "tourism commons" are distributed in space – from the borders not always well defined – which includes coasts, mountains, national parks and protected areas, archaeological sites, landscapes, cultures, traditions that is the principal inputs of the production of the tourist experience. On these inputs of production – this can in turn be private goods, public, and collective or of free access – insist other economic activities such as agriculture, forestry, mining, manufacturing and the local community. Several operators in the pursuit "rational" of their maximum utility or their maximum profit "play" competitively on the use of common resources exploiting them excessively without the external costs of degradation and loss in the future. In this sense, it is always well to remember the model of Butler (1980) of life cycle of tourist activities that shows as the transition from the exploration phase to the development phase entails an inevitable degradation and overexploitation of resources with the loss of "appeal" and income for the tourist destination. The elasticity of demand compared to price measures the change of the economic viability of tourism businesses. Whether decreases the "environmental quality" and the level of services offered (mass tourism), the elasticity of demand for tourism services – compared to a downward price – shows values less than unity; it means that the quantity demanded of tourism goods, compared to the

decrease in prices, grows but to declining rates with a consequent reduction of the economic viability of tourism activities and total revenues tend to zero.

The extent of the problems related to the "tragedy of the tourism commons", to overexploitation and the consequent environmental degradation, social and cultural development is dependent on a variety of factors:

- *type, composition and size.* The extent of the "tragedy of the commons" is dependent on the geographical context and the level of development of the "life cycle" of the tourist destination as well as the "carrying capacity" physical, environmental and socio-cultural.
- *heterogeneity and variety of property regimes on resources.* The different property systems on the resources that compose the collective good varying over space and time and influence the manner of use of the different groups of players which insist on the same territory. The heterogeneity of collective tourist goods makes the problem of "appropriation" of the benefits from the complex common use, without forgetting that the system of property is subject to institutional changes that may lead to the exclusion of certain groups of users with less bargaining power generally indigenous peoples and local.
- *heterogeneity and variety in the use of resources.* The functional heterogeneity of the uses of collective goods depends on the various interests, expectations and the expected utilities linked to the exploitation of these resources. They note in particular, the cultural differences that exist between users and temporary residents. The different perception of the costs and benefits from the use of common resources among heterogeneous social groups and foreign investors, often uncoordinated, lead inevitably competition, over-exploitation and degradation of common resources scarce.
- *free-riding behavior.* When the use of common resources is not regulated and does not require incurring any production costs, beneficiaries have no incentive to invest in the improvement in the control and rationalization of resource use. Investors and tourism businesses are taking advantage of the absence of rules using the wide margin of maneuver and enjoyment of the benefits as well as with non-tourist and informal that arises as a result of the development of a tourist destination.
- *accumulation and simultaneous spatial and temporal of impacts.* The resource degradation that characterize the tourist collective good should be interpreted as a function also of the impacts generated by other economic and non-economic insisting on the same territory. The cumulative impacts are simultaneous and can vary over space and time.
- *volatility of tourism demand.* The foreign investors, international tourism businesses and lesser extent the local ones, use the common resources according to demand and its temporal and spatial variations. In contrast to the local community and non-tourism economic activities, are "elastic" to the quantity and quality changes of demand, because always it can decide to go to other destinations.

- *planning and territorial development.* The absence of spatial planning and "governance" of common resources from local authorities in the different institutional forms greatly influences the state of the local "commons" encouraging or less over-exploitation and wasteful use of resources.
- *economic context, political, technological, social and cultural.* The set of environmental factors, economic, socio-cultural, political and institutional on which is based local development influence the ways of resource use that characterize the "tourism commons". The reference context, in fact, directly affects the demand and supply of local resources in relation to tourism activities and other economic sectors. The strong bargaining power of external actors generates distortions on the use of common resources with the effect of reducing the quantity and quality of resources available to local operators. The forms of local government, the relations between center and periphery, the existence of subsidies, incentives and taxes affect the effective participation of local actors in the process of distribution of costs and benefits resulting from the use of collective goods. The members of the original community generally feel "threatened" by the external operators and may fail in strengthening capacity for self-control by competing in the use of common resources (Ostrom et al., 1999). The socio-cultural factors - that influence the existing formal and informal institutional structures and procedures for local management of common resources - are the basis of the "tragedy of the tourism commons" and consequently of the "life cycle of the tourism product," which tends gradually lose its vital components of economic viability.

## **TRANSACTION COSTS AND INFORMATIONAL ASYMMETRIES**

The achievement of the objectives of conservation and sustainable use of the resources of biological and cultural diversity, simultaneously, of local economic development - through tourism activities - is strongly influenced by the existence of public goods and collective goods that encourage - in "rational" pursuit maximization of individual utility and profit - over-exploitation of resources and the production of a variety of negative externalities. The market of the production and consumption of tourism tends consequently to fail determining distortion, inefficient and inequitable allocation of resources with a net loss in terms of social welfare.

In the process of appropriation of benefits by the tourism industry, tourists and the local community – resulting from the use of the resources of biological and cultural diversity that constitute the natural attractions of the base of the "tourist product" – play a key role the existence of high transaction costs and information asymmetries. "*The cost of information is an essential factor in transaction costs, which include the cost relating to measuring the characteristics evaluable of what is the exchange object, the costs for the protection of the rights and those for ensuring the applicability and compliance of contracts*"(North, 1990). The transaction costs regard then all the costs of information, organization, operation and protection of fair trading and tend to increase the uncertainty of economic trading and social relations. The transaction costs should be

added to the processing costs of the factors of production, that are land, labor and capital and go to make up the total cost of producing a good or service. The transaction costs are costs related to the measurement of the characteristics of a good or service subject to negotiation and exchange, the value of an exchange is, in fact, the value of the different features incorporated in the good or service. Generally, the acquisition of information concerning the characteristics and attributes of a good or service is too expensive to be an accurate and complete and is often characterized by asymmetric information. The latter refers to the different information available between the two parts of the negotiation, not only a part may be more informed of the other on certain characteristics of the good or service, but may be interested in taking advantage of the information on keeping hidden. The transaction costs are also consisting by sacrifices for the guarantee of contract enforcement and compliance with the terms agreed in the negotiation phase. In other words, transaction costs reflect the uncertainty inherent in the negotiations, the incompleteness of information, limited cognitive capabilities of the operators and an innate tendency and "rational" to don't cooperate for the collective advantage. The transaction costs and information asymmetries related to the process of development of tourism in a destination rich in biological and cultural diversity - characterized by a complex set of environmental assets, social and cultural rights by a variety of public goods and collective, by different systems of property on goods and services and a mix of international and local actors with different interests and value systems - are high and generate inefficient and incomplete trading.

Several operators that constitute the "tourism industry", unable - because of the different market failures and transaction costs and extremely high informational asymmetries - to come to efficient negotiations in term of allocation and equitable, are triggering a "game" of competitiveness in appropriation of the benefits of using the resources of biological and cultural diversity, particularly in the absence of economic institutions, social and political.

## **CONCLUSIONS**

We need to overcome the common perception that biodiversity is a stock subject to exhaustion and environmental degradation as a consequence of economic and social activities of the human, and therefore relegated to limited areas of national parks and protected areas which excludes local communities.

Biodiversity is an "extended laboratory" which includes the ecological dynamics, cultural, social and economic of human systems, ie more complex dynamic processes able to generate in turn biodiversity. It is no only "wilderness" but also "agricultural biodiversity", ie the set of practices and traditional knowledge of local communities in a process of adaptation and co-evolution of human with nature that continues to evolve and generate innovations natural.

It seems more appropriate, therefore, to consider biodiversity as a complex, dynamic and integrated system of environmental assets, social and cultural of a certain territorial origin



that must be interpreted at different levels and in different value chains including obviously the tourism activities consisting of a set of "supply value chains" local and international.

The "systems of biological and cultural diversity" – dynamic interaction of people, places, biological organisms, ecosystems, businesses, and traditional knowledge – are characterized by relations of mutual interdependence between man, nature and culture that are irreplaceable, inimitable, cannot be relocated and susceptible to a multiplicity of uses and functions. The value of the "systems of biological and cultural diversity" should not be confused with the value of use, non-use and of existence of their individual components. The indicators of the number of animal and plant species in a given ecosystem are devoid of a real operational meaning as they are not able to "reveal" the total value of natural capital, social and cultural that forms each system as a whole. The value of the "systems of biological and cultural diversity" refers not only to the existing but also the ability to generate benefits in space - global, regional and local - and over time.

The issue is of how to "appreciate" the value of non-use, option and existence to promote the conservation, functionality and productivity of these systems actually but especially for the future. The problem is the appreciation of the value of non-use, option and existence regard, therefore, the assessment of the benefits that cannot be measured through market transactions complicated by the fact that the "systems of biological and cultural diversity" have characteristics of "non-excludability" and "non-rivalry" and thus takes on the characteristics of public goods and "common-pool resources". The consequent "failures" of the market – including that touristic – in revealing the values of the services offered by the "systems of biological and cultural diversity" imply a substantial underestimate of the value of biodiversity and a competitive hoarding of resources of such systems by the various economic sectors and local communities that insist on the same territory. The "social dilemma" that is generated depends in particular on the fact that the benefits of the "systems of biological and cultural diversity" are perceived differently over space and time from different social groups. The "tragedy" of the "systems of biological and cultural diversity" refers to the lack of "internalization" of their total value in which the costs and benefits deriving from conservation are supported and enjoyed by different subjects. Who enjoys the benefits of biodiversity conservation is not the same that bear the costs; hence derive the "paradox of biodiversity conservation".

To overcome the impasse must "prove" that the "systems of biological and cultural diversity" generate economic benefits, environmental and social over the geographical area in which they occur, and over the present time, so as to motivate conservation. At the same time, it should be encouraged the appropriation of the value of these systems by local communities that determine its fate. In other words, must "prove" to the countries of the North of the world, that biodiversity, which they enjoy, generates benefits in the present and in the future and it is necessary to promote a system of direct or indirect payment for the enjoyment of those benefits, it must then convince local communities of the countries of South of the world – repositories of extremely rich systems of "biodiversity" – that direct and indirect payments are usable for the conservation and allocation of the value of biodiversity. Local communities cannot bear an opportunity cost too high, renouncing the immediate exploitation of resources to ensure the conservation of biodiversity, a "luxury" that they cannot afford.

The solution of this sensitive issue implies a redistribution of property rights and powers between the various actors involved, including those who claim conservation without having to bear the costs and who should bear the costs not without enjoy any benefit.

The biodiversity needs of the tourist valorisation simultaneously to other forms of sustainable use and tourism needs of biodiversity. "Systems of biological and cultural diversity" in fact tend to multiply tourist attractions over space and time: from the diversity of ecosystem scenarios, to the uniqueness and irreproducibility of the experience offered by the diversity of endemic species and the diversity of gene expression that are the source of rural landscapes, traditional food, health products derived from medicinal plants and local craft production.

The imperfect imitability and not substitutability arising from the environmental values social and cultural over time and of the dynamic interaction ecological and human, produces a multiplicative effect of natural and cultural attractions in the area, with resulting in segmentation of supply and demand and of call of certain niche markets and tourists.

It should be emphasized that the naturalistic tourism of "niches" – bird watching, fishing, hiking, geo-tourism – does not imply in itself biodiversity conservation if it is not capable of supporting the "capture" of value in use of biodiversity by communities local; tour operators international and local have no interest in sharing the profits from tourism activities with local communities except through activities at the margin of the local "supply value chains" when existing (food, local crafts, guiding activities, hire equipment and means of transport).

Biodiversity can then determine the tourism development because it extends the variety tourist supply at destination level, strongly characterizes the "places" as opposed to "non-places" and make them unique, irreproducible and source of natural innovation resulting in comparative advantages and competitive on the tourism market.

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# **Economic and Environmental Aspects in Energy Supply. A Socio-Economic Analysis of Bioenergy System**

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## **ABSTRACT**

Energy plays a crucial role in the development of economies and their people. To ensure energy to meet needs for economic growth and sustainable development more emphasis should be given to energy efficiency, renewable energy and technologies for both energy end-use and supply. Renewable energy generally depend on energy flows through the earth's ecosystem fed by solar radiation and the geothermal energy of the earth. A major advantage is that they can be extracted in a "renewable" mode, i.e. their rate of extraction is lower than the rate at which new energy is arriving or flowing into the reservoirs. Moreover, the transition towards a low a carbon economy has important implications for the sustainable use of resources beyond energy resources. Reducing emissions from fossil fuels tends to coincide with significant reductions in pollutants other than GHGs. This reduction in local air pollutants has significant co-benefits; not only impacting positively human health, but also reducing pressures on our ecosystems and additionally decreasing the costs of air pollution specific polices. This paper discusses, the perspective of renewable energy in the making of strategies for a sustainable energy supply. Such strategies involve a number of aspects: the demand and supply side, employment-creation, social and environmental issues and replacement of fossil fuels by renewable energy (i.e. biomass). Evidence is given to bioenergy as a tool able to guide the energy system through an energy sustainable system, to the links between international bioenergy trade and socio-economic development and how sustainable bioenergy production could be realized.

***Keywords:** Renewable energy, Socio-economics, Employment, Environment, Bioenergy*

## **INTRODUCTION**

Energy is an essential factor for social development and economic growth. Its role is decisive for any form of economic activity and advances in energy consuming technologies, coupled with increasing energy consumption, have characterised industrialisation and economic development processes over the past century. However, it can also be argued that the relative importance of energy consumption for economic growth has changed over time as "developed" economies have evolved, shifting their production structure away from energy intensive industries to less energy intensive service activities.

Nowadays, the worldwide demand for energy is increasing together with socio-economic development, even if in developing countries it increases a little bit more quickly than developed countries. In particular, energy consumption in developed countries grows at a rate of approximately 1% per year, and that of developing countries, 5% per year (Demirbas, A., 2009).

Furthermore, future energy demand is driven by assumptions on key variables such as the global population, economic growth, technology development and diffusion, global and regional economic integration, fuel prices, agriculture, land-use patterns, etc. For instance, human population growth is more rapid in developing countries: it is estimated to double by 2055, while the population of the industrial countries will increase by only 15% over the same period (IEA, 2006). Consequently, forecast estimates that world energy demand will increase by half again between now and 2030, with more than two-thirds of this increase coming from developing and emerging countries (Grübler, A., *et al.*, 1995). New conventional fuel explorations, energy wars and political manoeuvres will not prevent the production of nonconventional fuels and the continuing evolution of a truly global energy market.

For this end, the final-energy mix is changing considerably during the course of the 21st century, as the trend towards cleaner, more flexible and convenient energy carriers continues to grow rapidly.

## **ENERGY SYSTEM STRUCTURE AND GENERAL ASSUMPTIONS**

Nowadays, it is well known that almost all human activity is seriously dependent on energy produced from fossil fuels. As widely acknowledged, energy consumption is one of the most reliable indicators of the development and quality of life reached by a country and the necessity of satisfying a forecasted energy demand, over a certain time period, is the basis of energy planning. In particular, energy planning builds and verifies strategies in energy economy, which is, using the definition of World Energy Council, “*that part of economics applied to energy problems, taking into account the analysis of energy supply and demand, as well as implementation of the means for ensuring coverage of energy needs in a national or international context*” (World Energy Council, 1992).

Even as the economy scales new technological heights, the energy that powers it is condemning it to death. This is a reality arising from the operation of the laws of nature (Georgescu-Roegen, N., 1971).

We know that all economic activity relies on the physical and chemical conversion of materials from one form into another, and the conversion of fuels into the energy needed to distribute and consume the resultant products. In this vision, energy and raw materials represent the fundament of our economies.

Economists discuss the energy question only in terms of factors that affect the price level. The availability of energy and resources is taken as given, regardless of source. Where one raw material or energy source is used in place of another, this is regarded as an isolated operational decision that has no intrinsic relevance to the structure of the economy as a whole. Only if additional or reduced costs are involved are there thought to be wider implications. Finally, it is necessary to show that certain environmental costs of production are not reflected in the market cost of the energy, in this case we talk about “*externalities*” (Awerbuch, S., 2003). To the extent that the ultimate consumer of these products does not pay these costs, or does not compensate people for harm done to

them, they do not face the full cost of the services they purchase (i.e. energy use) and thus energy resources will not be allocated efficiently.

## **AN ECONOMIC-ENVIRONMENTAL APPROACH: EXTERNALITIES OF POWER GENERATION**

Looking at the foundations of externalities, the different definitions and interpretations are based upon the principles of welfare economics, which state that economic activities by any party or individual making use of scarce resources cannot be beneficial if they adversely affect the well-being of a third party or individual.

From this, a generic definition of externalities is *“benefits and costs which arise when the social or economic activities of one group of people have an impact on another, and when the first group fails to fully account for their impacts”*(Ayres, R.U., Kneese A.V., 1989).

Externalities are not included in the market pricing calculations and it can be concluded that private calculations of benefits or costs may differ substantially from society’s valuation if substantial external costs occur.

For the particular case of electricity production, the use of energy sources may *“cause damage to a wide range of receptors, including human health, natural ecosystems and the built environment, and they are referred to as external cost of energy”* (European Commission, 1998). An important aspect in any analysis of the environmental externalities of electricity production is defining the activities that can have an impact. In that sense, the impacts of power production are not exclusively generated during the operation of the power plant, but also in the entire chain of activities needed for electricity production and distribution, such as fuel extraction, processing and transformation, construction and installation of the equipment, as well as waste disposal. The impacts from any of the stages in the fuel cycle depend on the particular location of an activity. Impacts may vary greatly as a function of the sensitivity of the surrounding ecosystem, the population density, and economic and social aspects (Pearce, D., 2002). Environmental externalities of energy production/consumption (whether based upon fossil fuel combustion, nuclear power or renewable technologies) can be divided into two broad (net) cost categories that distinguish emissions of pollutants with local and/or regional impacts from those with global impacts:

- costs of the damage caused to health and the environment by emissions of pollutants other than those associated with climate change;
- costs resulting from the impact of climate change attributable to emissions of greenhouse gases.

The distinction is important, since the scale of damages arising from the former is highly dependent upon the geographic location of source and receptor points. The geographic source, on the contrary, is irrelevant for damages arising from emissions of greenhouse gases.

## **ENERGY AND SUSTAINABLE DEVELOPMENT**

As beyond showed, energy plays a decisive role in the development of economies. The energy system, considered as the whole of the energy supply sector, has developed

significantly over time. Two main transitions can be distinguished in the history of the energy system (Grübler, A., 1998).

The first was the transition from wood to coal in the industrialising countries, initiated by the steam engine in the late 18th century. The use of coal, which could more easily be transported and stored, allowed higher power densities and related services to be site independent. By the turn of the 20th century nearly all primary energy in industrialised countries was supplied by coal. The second transition was related to the proliferation of electricity, resulting in a diversification of both energy end-use technologies and energy supply sources. Electricity was the first energy carrier that could easily be converted to light, heat or work at the point of end use. Furthermore, the introduction of the internal combustion engine increased mobility and stimulated the use of oil for transportation.

However, the energy system has developed differently over the world. This disparity in the availability of energy services reflects the disparity in possibilities for economic development (Hamilton, J.D., 2003). For that reason energy played a crucial direct or indirect role in order to achieve sustainable development.

In particular, it is important to observe that: chances for economic development are inhibited for more than two billion people that do not have access to affordable energy services; social instability caused by a growing disparity in access to affordable energy and for (in many cases) an external energy dependence; human health, regional and local air pollution and ecosystems are endangered due to energy-related emissions like suspended fine particles and precursors of acid deposition; there is increasing evidence that the anthropogenic greenhouse gas (GHG) emissions have a severe impact on the climate system; as economies rely for a significant part on imported energy, they are also increasingly vulnerable to disruption in the supply.

Taking these considerations into account, achieving solution to sustainability problems requires long-term potential actions. In this regard, renewable energy resources appear to be the one of the most efficient and effective solutions.

Renewable energy resources are inexhaustible and offer many environmental benefits compared to conventional energy sources. Each type of renewable energy also has its own special advantages that make it uniquely suited to certain applications.

It is well known, at the moment, that a great part of the energy demand is satisfied by conventional sources, such as oil, natural gas and coal and the role of renewable energy and its current progress has to take more relevance in order to contribute to energy supply and support the energy conservation (or efficiency) strategy by establishing the energy systems (Beccali M, *et al.*, 2007).

Sustainable development does not make the world “complete” for the future generations, but it establishes a basis on which the future world can be realized. In these terms, a sustainable energy system may be regarded as a cost-efficient, reliable, and environmentally friendly energy system that efficiently utilizes “autochthonous” resources. It has to imagine not like a conventional energy system, but as a flexible system in terms of new techno-economic and political solutions, and in which the introduction of new solutions is dynamically promoted.



## THE ROLE OF RENEWABLE ENERGY RESOURCES IN THE GREEN ECONOMY

The choice of energy and resource-base has thus appeared to be a dilemma. Now, however, that people have begun to realize that our growing dependence on finite resources may have dangerous consequences for the planet as a whole, and that this dependence has led to social conflicts, and with increasing public awareness of the growing dominance of technology, there is a great need for a new concept of “green-economy”. The way of live cannot continue if we remain economically dependent on fossil fuels. It is therefore imperative that we make comprehensive use of renewable energy resources (RER), not just to support fossil fuels, but, above all, to search to replace them. Today’s global economy, while proclaiming the ideals of “open markets” and an “open society”, is however a “closed structure” from which several resources are excluded. In particular, the Earth is both an open and a closed system at the same time. It is open to the continual influx of energy from the cosmic radiations. It is closed as far as stocks of fossil resources are concerned and with respect to the total quantities of matter, water, land and air available. For as long as the global economy continues to operate on the basis of these limited energy and material supplies, its future prospects will be limited (Solow, R. M., 1974). There are two incontrovertible reasons for this. Firstly, that supplies of fossil and mineral resources are limited; and secondly, that the processes in which these resources are used inevitably also exceed your limit, damage and even destroy those limited planetary resources on which our lives depend. With respect to energy consumption, this second reason has long since become literally a very strong issue.

### RENEWABLE ENERGY POTENTIALS

Governments, societal groups and scientists have at various moments in time expressed their interest in renewable energy sources. Recently, this interest has been on the rise again. Several reasons are mentioned for this: the risk of energy supply insecurity and the corresponding need for resource diversification, the prospect of depletion and cost increases of conventional oil and gas occurrences and the adverse impacts of climate change and local air pollution as a result of fossil–fuel burning related emissions. The concerns show up in questions asked by policy makers, citizen groups and industrial firms: How fast can renewable energy sources expand? When will they be competitive with conventional energy options? Which role can they play in reducing greenhouse gas emissions and which are the best policy instruments to stimulate their introduction? To answer such questions adequately, it is necessary to have proper insight in the potential availability of renewable energy sources and also the evolution of the energy system in which these resources have to be implemented. About the definition of renewable energy potentials, we can distinguish the followings (Hoogwijk, M., 2004):

- In geographical terms, the *geographical potential* is the energy flux theoretically extractable in areas that are considered suitable and available for this production i.e. in areas which are not excluded by other incompatible land cover/use and/or by constraints set on local characteristics.
- In technical terms, the *technical potential* is the geographical potential after the losses of the conversion from the extractable primary energy flux to secondary energy carriers or forms (electricity, fuel).

- In economic terms, the *economic potential* is the technical potential up to an estimated production cost of the secondary energy form which is competitive with a specified, locally relevant alternative. A flexible way to represent the economic potential is in the form of the energy production potential as function of the production cost, the so called *long-run supply cost curve*.

While the potentials are often presented as “purpose”, most of them are strongly influenced by assumptions on average values and trends.

The geographical potential contains by its very definition a number of assumptions on land suitability and resource availability. Other assumptions are more of a socio-cultural or politic economic nature, such as land availability and the need for agricultural land to produce food.

The technical potential is derived from the geographical potential and assumptions on the development of conversion efficiencies.

Finally, for the economic potential it is necessary to estimate the average cost at which the secondary energy carrier (electricity, fuel) can be produced at a given locality. This depends on a variety of mostly techno-economic factors such as investment costs of available technology, labour wages and skills, and interest rates. Moreover, policies and preferences in society (subsidies, feed-in tariffs and other policy incentives), perceived urgency of issues such as climate change or import dependence and the like will all play a role in this respect. Within the international community there is considerable interest in the socio-economic implications of society towards the more widespread use of renewable energy resources. Such change is seen to be very necessary but is often poorly communicated to people and communities who need to accept such changes. Typically, socio-economic implications are measured in terms of economic indices, such as employment and monetary gains, but in effect the analysis relates to a number of aspects which include social, cultural, institutional, and environmental issues. The extremely complex nature of different renewable energies (e.g. bioenergy), many different technologies involved and a number of different associated aspects (socioeconomics, greenhouse gas mitigation potential, environment and so on) make this whole topic a complex subject.

## **BIOENERGY MARKETS AND TRENDS**

In the last decades, the modern use of biomass has increased rapidly in many parts of the world also stimulated by the Kyoto Protocol’s greenhouse gas reduction targets and in the light of recent increase of the oil price.

It is well known, that the modern use of biomass is distinguished from the traditional use of biomass energy by its conversion into high-quality energy carriers, like electricity and biomass liquid fuels for transportation.

Although, especially in developed countries, domestic biomass potentials are often used to a high degree, in some countries untapped potentials still remain. In the longer term, the pressure on available biomass resources will increase. Ambitions and expectations for biomass use for energy are high in many countries, for the EU and also on a global basis, given a variety of policy objectives and long term energy scenarios. A reliable supply and demand of bioenergy is vital to develop stable market activities. Given the expectations for a high bioenergy demand on a global scale, the pressure on available biomass resources will increase. Without the development of biomass resources (e.g., through energy crops and better use of agro-forestry residues) and a well-functioning biomass market to assure a reliable and lasting supply, those ambitions

may not be met. The development of truly international markets for bioenergy may become an essential driver to develop bioenergy potentials, which are currently underutilised in many regions of the world. This is true for both residues and for dedicated biomass production (through energy crops or multifunctional systems such as agro-forestry).

Biomass appears to be an attractive raw material for three main reasons. First, it is a renewable resource that could be sustainably developed in the future. Second, it appears to have large positive environmental properties resulting in no net releases of carbon dioxide and very low sulphur content. Third, it appears to have significant economic potential provided that fossil fuel prices increase in the future. Biomass energy potential is addressed to be the most promising among the renewable energy sources, due to its spread and its availability worldwide. Apart from that, biomass has the unique advantage among the rest of the RES, to be able to provide solid, liquid and gaseous fuels that can be stored, transported and utilized, far away from the point of origin. Due to the negligible amounts of sulphur and nitrogen biomass contains, the energy that is being utilized does not contribute to environmental pollution.

Bioenergy is generally considered as offering many priorities, including sustainability, reduction of greenhouse gas emissions, regional development, social structure and agriculture, security of supply (Reijnders L., 2006). In addition, the increased utilization of bioenergy for heat and power production has provided to increase political support in European countries. This has resulted in a large number of biofuels being processed for energy conversion necessities and suitability for choosing the most appropriate method of emphasizing the conversion products with depending on the variability of using raw materials as well as their composition. In addition, new standard analytical methods are necessary to develop in order to apply new technologies for biofuel production from biomass materials.

At the same time, many developing countries have a large technical potential for agricultural and forest residues and dedicated biomass production, e.g., ethanol from sugar cane or other crops. Given the lower costs for land and labour in many developing countries, biomass production costs are much lower, and thus offer an opportunity to export bioenergy. The possibilities of exporting biomass-derived commodities to the world's energy markets can provide a stable and reliable demand for rural communities in many (developing) countries, thus creating an important incentive and market access that is much needed in many areas of the world. For many rural communities in developing countries such a situation would offer good opportunities for socio-economic development.

For these reasons, biomass has the potential to become one of the major global primary energy sources during the next century, and modernized bioenergy systems are suggested to be important contributors to future sustainable energy systems and to sustainable development in developed countries as well as in developing countries (Lund, H, Munster, E., 2005).

## **BIOMASS ENERGY POTENTIAL TO THE FUTURE GLOBAL ENERGY SUPPLY**

Many studies have been undertaken to assess the possible contribution of biomass to the future global energy supply. The conclusions from these studies differ significantly. Indeed, most studies focused on either the supply side or the demand side, showing that the biomass energy potential depends on both competition between biomass resource

uses and competition between alternative energy technologies and primary energy sources. Nevertheless, the main conclusion of these studies is that crucial factors determining biomass energy potential (availability) are: a) the future demand for food, determined by the population growth, b) the type of food production systems that can be adopted world-wide; c) productivity of forest and energy crops; d) the (increased) use of bio-materials; e) availability of degraded land; f) competing land use types. In the sense of economics, the term potential corresponds to a supply curve (supply as a function of price), and actual supply (and demand) would then be the result of intersecting the supply curve with a demand curve (demand as a function of price) (Asafu-Adjaye J., 2000). In particular:

- demand side assessments, that analyze the competitiveness of biomass-based electricity and biofuels, or estimate the amount of biomass required to meet targets on climate-neutral energy supply,
- supply side or resource-focused assessments, that focused on the total bioenergy resource base and the competition between different uses of the resources.

On the demand side, bioenergy options are characterized in terms of performance of related energy technologies and biomass availability at specific costs. However, most demand-driven assessments include a feasibility evaluation of the possible future contribution of biomass for energy. Population growth and economic development are principal factors behind overall energy end-use. Assumptions about technology development, energy system transformation and changes in the energy intensity of economic activity influence the translation of energy end-use into the demand for different primary energy carriers. In addition to development of bioenergy technologies, also development of non-bioenergy technologies is crucial for the ultimate bioenergy demand (Berndes, G., *et al.*, 2003).

Resource-focused assessments have the form of inventories of potential bioenergy sources, with an evaluation of possibilities to utilize the sources for energy purposes. Food and material demand, and land-use efficiency in agriculture and forestry, determine land requirements for food and materials production and hence availability of land for other purposes, such as energy crop production. The food and material demand and technologies for harvesting and processing biomass into products also determine the availability of residues and by-products for use as feedstock in bioenergy production.

## **SOCIAL DIMENSION AND MACROECONOMIC ASPECTS IN IMPLEMENTING BIOENERGY**

Socio-economic impact studies are commonly used to evaluate the local, regional and/or national implications of implementing particular development decisions. In reality, local socio-economic impacts are diverse and will differ according to such factors as the nature of the technology, local economic structures, social profiles and production processes.

It is well known that sustainable biomass production can contribute to the sustainable management of natural resources and, at last, can contribute to sustainable development (Van den Broek R., 2000). Biomass energy is interesting from an energy security perspective. Resources are often locally available and conversion into secondary energy carriers is feasible without high capital investments. Moreover, biomass energy can have a positive effect on degraded land by adding organic matter to the soil.

Furthermore, biomass energy can play an important role in reducing greenhouse gas emissions, since when produced and utilised in a sustainable way, the use of biomass for energy offsets fossil fuel greenhouse gas emissions. Since energy plantations may also create new employment opportunities in rural areas in development countries, it also contributes to the social aspect of sustainability (Junginger, M., et al., 2001). Importing countries on the other hand may be able to cost-effectively meet their GHG emission reduction targets and diversify their fuel-mix. This creates important future opportunities for developing countries and regions, given the expected increased role of bioenergy within the world's energy supply. Such developments could give access to an open world energy market. Consequently, this poses the fundamental question of how these potential major producers and exporters of bioenergy can benefit from the growing global demand for bioenergy in a sustainable way, i.e., that bioenergy exports can contribute to rural development, benefit local communities and be an integral part of overall development schemes, including the existing agricultural and forestry sectors. These questions represent the basis of the relationship between international bioenergy trade and socio-economic development and how a sustainable bioenergy production could be realized. For this, it is interesting to discuss possible drivers, barriers and future potentials for international bioenergy markets as well as socio-economic implications for possible exporting countries. However this is not true for all countries at all time periods and there are certain conditions to be met and distinctions to be made prior to concluding that bioenergy may or may not be successful for a country. As mentioned above, about the renewable energy, many implications can be measured in terms of economic indices, but the analysis relates, also, to a number of aspects, which include social, cultural and environmental issues. These elements (Table 1) are not always tractable to quantitative analysis and, therefore, have been excluded from the majority of impact assessments in the past, even though at the local level they may be very significant also for an important multiplier effect.

Table 1.- Indicators of socio-economic sustainability within the context of modernised biomass energy

Class	Effects	Indicators
Basic needs	- Improved access to basic services	Number of families with access to energy services, quality, reliability, accessibility, cost.
<i>Multiplier effect</i>	- Income-generating opportunities - Creation or dislocation of jobs, living standard	Volume of industry and small-scale enterprise promoted, jobs/\$ invested, jobs/ha used, salaries, seasonality, accessibility for local labour force, local recycling of revenue (through wages, local expenditures, taxes), development of markets for local farm and non-farm products.
Gender	- Impacts on labour, power, access to resources	Relative access to outputs of bioenergy project, decision-making responsibility both within and outside of bioenergy project, changes to former division of labour, access to resources relating to bioenergy activities.

Class	Effects	Indicators
Land-use competition and land tenure	- Changing patterns of land ownership, altered access to common land resources, emerging local and macroeconomic competition with other land uses.	Recent ownership patterns and trends (e.g., consolidation or distribution of landholdings, privatisation, common enclosures, transfer of land rights/free rights), price effects on alternative products, simultaneous land uses (e.g., multipurpose crop production of other outputs such as traditional biofuel, fodder, food, animal products, etc.).

Source: adapted from (Kartha, S., Larson, E.D., 2000)

### Social Dimension of Bioenergy

The social implications arising from local bioenergy investment can be distinguished in two classes: those relating to an increased of “living standard” and those that contribute to increased social cohesion and stability. In economic terms the “living standard” refers to a household’s consumption level, or its level of monetary income. However, other factors contribute to a person’s living standard but which have no immediate economic value. These include such factors as employment opportunities, the surrounding environment and healthcare which should be taken in equal consideration. Moreover, the introduction of a net employment and income-generating source, such as bioenergy production, could help to remove adverse social and cohesion trends (e.g., high levels of unemployment, rural depopulation, etc.).

### Socio-Economic Impacts in Rural Regions

In order to evaluate socio-economic impacts linked to bioenergy sector in the rural regions development, it is necessary to note that, while many trade flows take place between neighbouring regions or countries, a large part of trade flows is increasingly spreading over long distances (for example wood pellets from Canada to Sweden and so on). This is happening in spite of the greater volume and lower calorific value of most biomass raw material. These trade flows may offer several benefits for both exporting and importing countries. For example, exporting countries may gain an interesting source of additional income and an increase in employment. Current driving forces and rationales behind the development of trade in bioenergy are diverse, though.

It is evident that rural areas in some countries are suffering from significant levels of outward migration, which mitigates against population stability. Consequently, given bioenergy’s propensity for rural locations, the deployment of bioenergy plants may have positive effects upon rural labour markets by, firstly, introducing direct employment and, secondly, by supporting related industries and the employment therein (e.g., the farming community and local/regional renewable energy technology providers, installers and service providers). Large-scale production of modern biofuels, partly for the export market, could provide a major opportunity for many rural regions to generate major economic activity, income and employment. Given the size of the global market for transport fuels, the benefits that can be achieved by reducing oil imports and possibly making net exports of bioenergy are vast. Nevertheless, it is not a given that those benefits end up with the rural population and farmers that need those benefits most. Also, the net impacts for a region as a whole, including possible changes and

improvements in agricultural production methods, should be kept in mind when developing biomass and biofuel production capacity (Domac, J., *et al.*, 2005).

Finally, it is often possible to achieve significant and sustained development of local initiatives given genuine local involvement of key stakeholders.

### **Overview of macroeconomic impacts**

As regards macroeconomic effects, the relevant question is whether energy consumption causes economic growth or whether it is simply a consequence of the level of economic activity? The first studies to address this question through empirical research were stimulated by the oil crises of the early 70s. More recently, interest in the causality question has gained new momentum with concerns about climatic change, proposal to limit CO<sub>2</sub> emission by restricting fuel consumption. Empirical research has not provided conclusive evidence to unambiguously determine the existence or the directionality of causal relationship between energy consumption and economic growth. A review of the literature describing empirical studies provides an example of the general lack of consensus. Kraft and Kraft (Kraft, J. Kraft A., 1978) and Abosedra and Bagnestani (Abosedra, S., Bagnestani, H., 1991) found evidence of unidirectional causality running from GNP to energy consumption. Stern found evidence of unidirectional causality running in the opposite direction, from energy consumption to GDP (Stern, D.,I., 2000). However, the majority of published studies have found little or no evidence of causality (Yu, E.,S.,H., Hwang, B.,1984 and Yu, E.,S.,H., Choi, J., 1987).

It is demonstrate that bioenergy contribute to all important elements of country or region development: economic growth through business expansion (earnings) and employment; import substitution (direct and indirect economic effects on GDP and trade balance); security of energy supply and diversification (Kraft, J., Kraft, A., 1978). For energy importing states, biomass use translates into important local economic and employment multipliers. In general terms, biomass is better for national and local economies because the fossil fuel and utility alternatives are very capital intensive, in comparison (Erol, U., Yu, E.,S.,H., 1987).

The increased use of bioenergy, which exhibits both a broad geographical distribution, and diversity of feedstock, could secure long-run access to energy supplies at relatively constant costs for the probable future. The security of energy supply, together with import/export balance is obviously one of the most important macroeconomic and strategic issue for any country.

Socio-economic impact studies are commonly used to evaluate the local, regional and/or national implications of implementing particular development decisions (Hoogwijk, M., 2004). The extremely complex nature of bioenergy, many different technologies involved and a number of different, associated aspects (socioeconomics, greenhouse gas mitigation potential, environment, etc.) make this whole topic a complex subject.

A complication lies in the fact that these latter elements are not always tractable to quantitative analysis and, therefore, have been excluded from the majority of impact assessments in the past, even though at the local level they may be very significant.

It is interesting, however, underline that the varied nature of biomass and the many possible routes for converting the biomass resource to useful energy make this topic a complex subject. When we talk about sources of biomass we need to consider forestry, agriculture, industrial residues, short rotation coppice plantations, communal waste,

urban biomass, etc. This involves a combination of different economic sectors and human activities and consequently is often not well understood.

As described above, bioenergy can contribute to many important elements of national or regional development, that can carry direct and indirect economic effects on GDP and trade balance and in the energy supply. A frequently mentioned obstacle to the expansion and acceptance of bioenergy into world energy markets is that the markets do not acknowledge the real costs and risks connected with the usage of fossil and nuclear fuels (Van den Broek, R., 2000). To provide a fair comparison of the price of fuels, all of the so-called “externalities” should be internalized into calculations, be they benefits or costs. In addition to its local benefits, biomass has macroeconomic advantages for countries which use it security of supply and an improved balance of trade for fuel-importing countries.

The growing dependence of the European Union on imported oil has influenced several legislative initiatives (directives) intended to facilitate the development of biofuel markets in Europe also to overcome increasing external dependence. The renewable energy industry is one of Europe’s fastest growing sectors as member states encourage the deployment of renewable as an alternative, indigenous energy source with low environmental impacts. In terms of employment, in Europe, policy-makers recognise that there are economic benefits from renewable (as bioenergy), especially in terms of employment and the development of a strong export industry.

### **Demand Side Effects**

Demand side effects constitute the focal point of the majority of socio-economic impact studies, and are concentrated upon for several reasons. Most notably, they are relatively easy to define and the scale of the investment’s impact can be quantified with reasonable accuracy. Moreover, it is the economic impact that is most important to regional developers and decision makers. Demand side effects are primarily quoted in terms of employment and regional income. They can be categorised accordingly into: Direct Effects; Indirect Effects; Induced Effects; Displacement Effects. The derivation of the above should form the basis of socio-economic analyses. However, the extent to which these effects can be totally captured at a local level will depend crucially on the quality of the information available.

Considerable effort should be made to determine the extent and direction of capital flows both within the region under analysis and, more importantly, out of the specified region. If this element is ignored, then it gives rise to misleading spurious predictions about future employment and income gains. Furthermore, consideration should be given to the duration of the impacts, and only then can a tentative evaluation of the wider effects pertaining to some, or all, of the other factors be attempted.

### **Supply Side Effects**

Supply side effects are, to a certain extent, subjective in regional impact studies, as they are commonly deemed to be those impacts, which are the result of improvements in the competitive position of the region, including its attractiveness to inward investment. These effects are likely to differ in kind and will depend upon the development, but generally such economies of speculation relate to changes and improvements in regional productivity, enhanced competitiveness, as well as any investment in resources to accommodate any inward migration that may result from the development.



Taken together, these effects may result in the establishment of complementary economic activity, where related industries flourish in response to increases in local demand. Accordingly, supply side effects have a much broader scope, and as such quantitative assessments are much more speculative. Furthermore, some bioenergy projects have been justified purely on the grounds that they may have significant long-term supply side effects, even if they are difficult to quantify with any confidence prior to the development.

### **Employment-Creation Function**

It is necessary to distinguish:

*Direct employment* results from operation, construction and production. In case of bioenergy systems, this refers to total labour necessary for crop production, construction, operation and maintenance of conversion plant and for transporting biomass.

*Indirect employment* is jobs generated within the economy as a result of expenditures related to said fuel cycles. Indirect employment results from all activities connected, but not directly related, like supporting industries, services and similar.

*Induced employment.* Referred to The higher purchasing power, due to increased earnings from direct and indirect jobs may also create opportunities for new secondary jobs, which may attract people to stay or even to move in.

However, the quantity and quality of employment is due to:

- stage or stages on the whole bioenergy system cycle (i.e. production, conversion, end use);
- conversion process and stage of conversion process (i.e. tree plantation for electricity production);
- which setting is being referred to (developing country/traditional/informal vs. Developed country/modernized/subsidized or formalized);
- is it labour-intensive or mechanized.

As regards this point among other renewable, bioenergy is the most labour-intensive technology and has the highest employment-creation potential. In any case, the level at which it can contribute depends on local demographic and economic conditions.

In particular, among *developing countries*, bioenergy is the most promising for the developing countries as its mobilization can provide large employment generation schemes, can be linked to ecosystem conservation, and even rehabilitation; furthermore, investments in biomass energy can be an effective tool to combat desertification, can have a significant impact on global climate change and can become a valuable tool in promoting gender equity within the associated natural resources management activities (Cleveland, Cutler J., 1991).

Among *developed countries*, particularly in the EU, bioenergy (together with the other renewable energy technologies) is being promoted due to its potential contribution to energy security and environmental appropriateness. Moreover, there is the realization that deployment of bioenergy has the potential for job creation, improved industrial competitiveness, regional development and the development of a strong export industry.

Table 2 - Social Dimension and Macroeconomic Aspects in Implementing Bioenergy

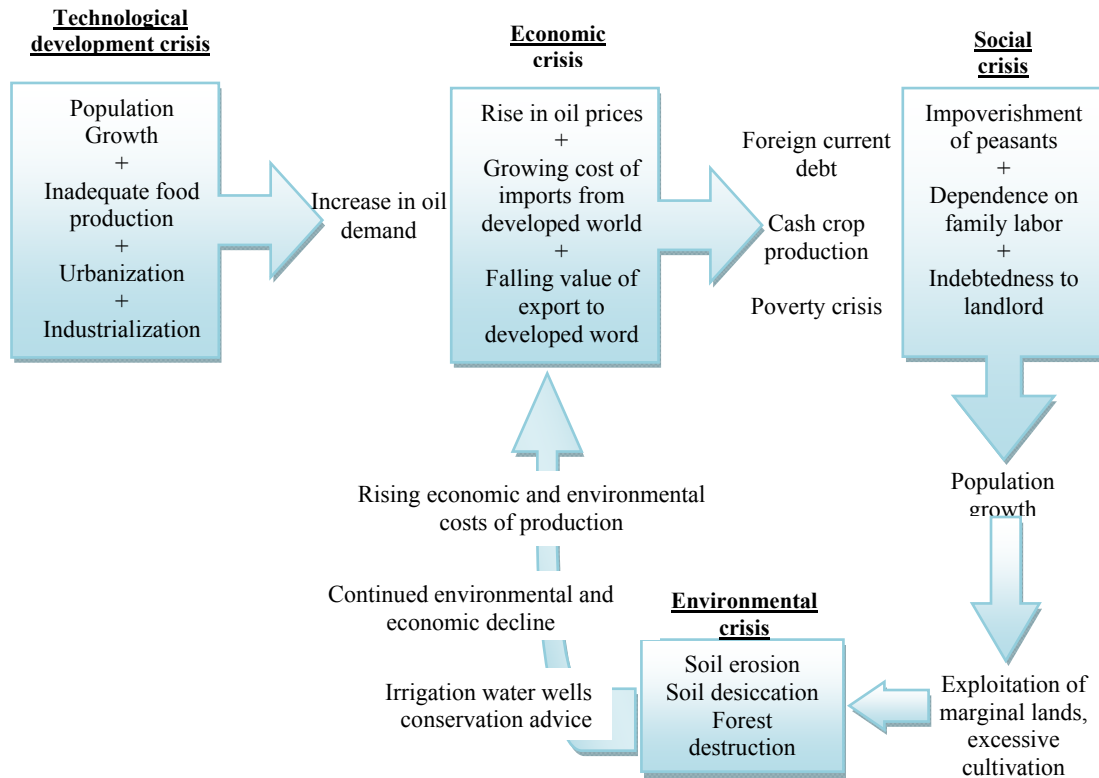
Social Dimension		Macroeconomic Aspects		
Benefits	<i>Increased of "Living Standard"</i>	<i>Social Cohesion and Stability</i>		
	<ul style="list-style-type: none"> <li>- Environment</li> <li>- Health</li> <li>- Education</li> </ul>	<ul style="list-style-type: none"> <li>-Migration effects (mitigating rural depopulation )</li> <li>-Regional development</li> <li>-Rural diversification</li> </ul>	<ul style="list-style-type: none"> <li>- Security of Supply / Risk Diversification</li> <li>- Regional Growth</li> <li>- Reduced Regional Trade Balance</li> <li>- Export Potential</li> </ul>	<ul style="list-style-type: none"> <li>- Increased Productivity</li> <li>- Enhanced Competitiveness</li> <li>- Labour and Population Mobility (induced effects)</li> <li>- Improved Infrastructure</li> </ul>
			<b>Demand Side</b>	
			<b>Supply Side</b>	<ul style="list-style-type: none"> <li>-Employment</li> <li>-Income and Wealth Creation</li> <li>-Induced Investment</li> <li>-Support of Related Industries</li> </ul>

## BIOENERGY MARKETS AND SUSTAINABLE DEVELOPMENT

In order to explain the sustainable development goals it is relevant to highlight the relations that exist between economic growth and population growth, subsequent increasing demands for energy, trade balances of developing countries, impacts on rural communities and subsequent environmental degradation. Bioenergy is positioned in the middle of these relations. Modern biomass and bioenergy are not a “magic wand” that can solve all these problems and could, when incorrectly managed, even aggravate some of the above-mentioned problems. However, it seems to be one of the few available strategies able to reverse many of the downward tendencies. The market size for bioenergy (virtually unlimited on an international scale), the fact that it can directly replace oil (through biofuels for transport), the possibilities for crop production with positive ecological impacts with respect to soil regeneration, biodiversity and emissions of agrochemicals, and the fact that biomass production and supply chains can be fully operated in rural economies (in contrast to many other alternative energy options), maximizing the value added for this part of the economy, make it a potential starting-point for the construction of sustainable development schemes. The inherent economic value of carbon-neutral, renewable fuel on the world market may provide the economic device for rural regions that often lack any export possibilities to finance development and modernization of agriculture together. In addition, the possibilities of exporting biomass-derived commodities for the world’s energy market can provide a stable and reliable demand for rural communities particularly in many developing countries, thus creating an important incentive and market access in many areas in the world. Figure 1

shows the relations that (currently) exist between economic growth and population growth, subsequent increasing demands for energy, trade balances of developing countries, impacts on rural communities and subsequent environmental degradation.

Figure 1. The relations connecting economic growth, population growth, increasing demand for energy and environmental degradation



## CONCLUSIONS

Sustainable energy development strategies typically involve three major technological changes: energy savings on the demand side, efficiency improvements in the energy production, and replacement of fossil fuels by various sources of renewable energy. Consequently, large-scale renewable energy implementation plans must include strategies of how to integrate the renewable sources in coherent energy systems influenced by energy savings and efficiency measures.

The study presented analyses the ranges of the global potential of biomass for energy on the long term. It is stressed that this study is explorative. The focus is not on the exact figure of the biomass energy potential, rather on the underlying factors influencing this potential and the consequences of its inclusion in the final-energy mix.

Summarizing, although international bioenergy trade and markets are developing very rapidly and the future looks bright, given market demand and potential supplies, many barriers also exist that can disturb or at least slow down a sound development of such markets.

In most countries, socio-economic benefits of bioenergy use can be identified as a very important driving force in increasing the share of bioenergy in the total energy supply. Regional employment created and economic gains are probably the two most important issues addressed when considering biomass use for energy production. In this

view, bioenergy has provided millions of households with incomes, livelihood activities and employment. The essence of sustainability of bioenergy projects from a social aspect is how they are perceived by society, and how different societies benefit from this activity in different ways. Other “big issues” such as mitigating carbon emissions, ensuring wider environmental protection and providing security of energy supply are an added bonus for local communities where the primary driving force is much more likely to be related to employment or job creation. Overall, these benefits will result in increased social cohesion and create greater social stability. However, for the public, policy-makers and decision-makers, energy and bioenergy are becoming increasingly interesting and important subjects as a result of rises in the prices and more insecure supplies of fossil fuels. Enhanced environmental concerns are encouraging the use of alternative and renewable sources of energy, particularly in developed countries. Socio-economic impact studies are commonly used to evaluate the local, regional and/or national implications of implementing particular development decisions. Typically, these implications are measured in terms of economic indices, such as employment and financial gains, but in effect the analysis relates to a number of aspects, which include also social, cultural and environmental issues. A complication lies in the fact that these elements are not always tractable to quantitative analysis and, therefore, have been excluded from the majority of impact assessments in the past, even though at the local level they may be very significant.

In addition, the varied nature of biomass and the many possible routes for converting the biomass resource to useful energy make this topic a complex subject. When we talk about sources of biomass we need to consider forestry, agriculture, industrial residues, communal waste, urban biomass, etc. This involves a combination of different economic sectors and human activities and consequently is often not well understood.

Diffusion of technologies in general, and the use of bioenergy in particular, does not depend on technological advances and favourable economic conditions alone. A good understanding and strong backing of bioenergy by the wider public are essential to encourage policies supporting the introduction and wider use of bioenergy but would also help to bring costs further down as a result of increased adoption rates and economies of scale. Similarly, a lack of awareness may result in resistance to bioenergy projects, even if they are economically viable and technologically robust.

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# Study on the environmental performance of agritourism SMEs in Romania\*

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## **ABSTRACT**

The paper presents some results of a survey conducted by the authors in some agrotourism small and medium enterprises in Romania during 2011-2012. The research based on the results of a questionnaire. The aim of this research was to identify both the environmental preoccupation and performance of the agritourism small and medium enterprises in Romania. Also, the article presents a short literature review of some approaches on environmental performance of SME. The results of this research can constitute a starting point for future researches in this concepts.

**Keywords:** *performance, environment, agricultural sector, SME, Romania*

## **INTRODUCTION**

Tourism is an important economic activity in the European Union (Dorobanțu and Nistoreanu, 2012, p.259).

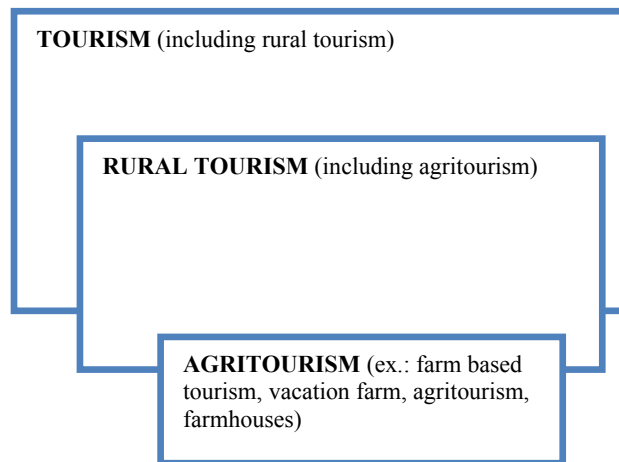
Recently in Europe it has experienced a growing interest towards a special type of tourism, like rural tourism, recognizing it as an important way of differentiation of the rural economy which is well integrated with farming activities (EC 2006).

Farmhouses are becoming more and more frequent in the choices of the people. First of all, this is due to the less costs related to such kind of accommodation. But, apart this reason, it's evident that farmhouses, thanks to the possibility of assessing closer relationships with people living in the surrounding areas, induce a sort of relational tourism, in this way facilitating the cultural exchanges between hosting and visiting

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\* The paper is the result of a complete cooperation and it is, therefore, of responsibility of all authors. The paragraphs 3 and 4 are attributable to Maurizio Lanfranchi; paragraphs 1,5 and 7 are attributable to Ionela Carmen Pirnea; paragraph 2 is attributable to Carlo Giannetto; the paragraph 6 to Maurizio Lanfranchi, Ionela Carmen Rizea and Carlo Giannetto.

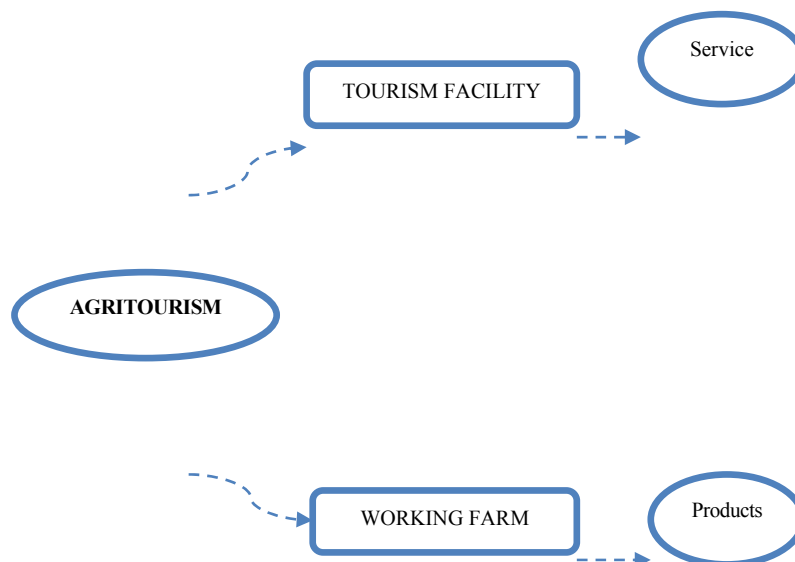
people. This last motivation seems to be an additional attractive reason for people in selecting such farms for their holiday's trips (Peri et al., 2010, 153).



(Source: made by authors after Peri et al., 2010, p.154)

*Figure 1. Dependence of agritourism on rural tourism and tourism as a whole*

Regarding the concept of agritourism, there should not be considered as a mere synonymous of the rural tourism, since it refers to a more specific concept. There are some interactions among tourism, rural tourism and agritourism. As we can see in the next figure, rural tourism is a part of the tourism considered in its wholeness, while on turn the agritourism should be considered as a part of the rural tourism (Figure 1).



(Source: made by authors after Peri et al., 2010, p.156)

*Figure 2. Representation of agritourism*



The tourist facility provides services in particular the accommodation one, while the agricultural farms provide products, in particular foodstuffs, whose quality, as it has been already outlined, plays an important role for encouraging people to select agritourism (Figure 2).

### THE LEVEL OF RURALITY OF THE EU COUNTRIES

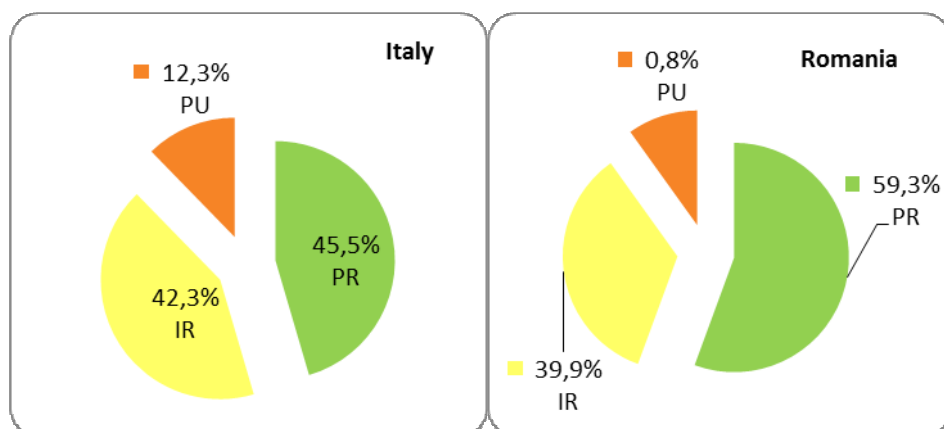
The only index that allows a clear distinction between rural and non rural areas is the one provided by the OECD (Organization for Economic Cooperation and Development), which defines rural areas as those with a population density of below 150 inhabitants per km<sup>2</sup>. The European Union has a rather narrow vision of rural areas. It defines them as those that have a population density below 100 inhabitants per km<sup>2</sup>. In Europe, moreover, there are other indices of "rurality" that refer to other variables, such as employment and added value. Typically in rural areas per capita income is lower than in urban ones. In relation to these considerations, we analyze the degree of rurality in the territory of the European Community.

*Table 1. Rural areas in EU 27 (2008)*

Country	% Territory			% Population		
	% PR	% IR	% PU	% PR	% IR	% PU
Belgium	33,8	31,8	34,4	8,6	23,8	67,5
Bulgaria	53,6	45,1	1,2	38,8	44,9	16,3
Czech Republic	48,3	37,1	14,6	33,2	43,4	23,4
Denmark	71,8	27,0	1,2	42,8	36,0	21,3
Germany	39,8	48,4	11,8	17,4	40,0	42,6
Estonia	82,3	17,7		48,2	51,8	
Ireland	98,7		1,3	72,6		27,4
Greece	82,2	12,1	5,6	43,0	10,5	46,5
Spain	46,1	39,5	14,4	13,2	38,3	48,5
France	64,6	27,3	8,1	28,7	35,7	35,6
Italy	45,5	42,3	12,3	20,5	44,0	35,5
Cyprus		100,0			100,0	
Latvia	62,8	21,1	16,1	38,2	13,4	48,4
Lithuania	65,0	19,9	15,0	43,5	31,3	25,3
Luxembourg		100,0			100,0	
Hungary	66,3	33,1	0,6	47,3	35,7	17,0
Malta			100,0			100,0
Netherlands	2,2	51,5	46,3	0,7	28,2	71,2
Austria	72,2	18,9	8,8	39,3	26,5	34,2
Poland	55,6	34,5	9,9	37,9	33,8	28,3
Portugal	84,1	8,7	7,3	36,2	15,2	48,5
<b>Romania</b>	<b>59,3</b>	<b>39,9</b>	<b>0,8</b>	<b>45,8</b>	<b>43,8</b>	<b>10,4</b>
Slovenia	61,0	39,0		43,2	56,8	
Slovakia	59,0	36,8	4,2	50,4	38,3	11,4
Finland	83,3	14,6	2,1	43,0	30,7	26,3
Sweden	52,6	45,8	1,6	22,5	56,1	21,3
United Kingdom	27,4	47,0	25,6	2,9	25,9	71,2
<b>EU-27</b>	<b>56,6</b>	<b>34,3</b>	<b>9,2</b>	<b>23,6</b>	<b>35,5</b>	<b>40,9</b>

(Source: Eurostat 2008)

This first table shows us that the majority of EU member states have an area identified as "predominantly rural" in their territory with a percentage close to or above 50%. Only Belgium, Germany, Netherlands and the United Kingdom do not have a large rural area within their borders. Other countries, however, such as Estonia, Ireland, Greece, Portugal and Finland, have rural areas of more than 80%. If we compare Italy to Romania using these particular indices, we find that Romania has a larger rural area than Italy.



(Source: Eurostat 2008)

Figure 3. Differences in rural areas Italy/Romania

An analysis of other index of rurality (value added and employment), we can highlight that, as regards the level of production and its wealth mainly produced for almost all EU countries from area falling in urban areas.

Table 2. Rural areas in EU 27 (2008)

Country	GVA %			Employment %		
	% PR	% IR	% PU	% PR	% IR	% PU
Belgium	5,5	19,1	75,5	6,7	20,6	72,6
Bulgaria	25,5	37,0	37,5	33,3	42,9	23,7
Czech Republic	27,1	37,0	35,9	31,9	40,2	27,9
Denmark	39,0	31,3	29,7	40,3	32,7	27,0
Germany	14,6	35,9	49,5	15,8	38,3	45,9
Estonia	32,3	67,7		42,9	57,1	
Ireland	60,0		40,0	67,9		32,1
Greece	36,6	10,0	53,4	40,8	10,8	48,4
Spain	10,8	35,6	53,6	12,0	36,4	51,6
France	22,4	31,5	46,1	26,4	34,0	39,5
Italy	18,6	42,6	38,8	19,4	43,5	37,2
Cyprus		100,0			100,0	
Latvia	22,7	10,4	66,9	35,9	12,8	51,3
Lithuania	30,1	30,7	39,2	41,2	31,0	27,8
Luxembourg		100,0			100,0	
Hungary	34,4	27,9	37,7	43,3	31,7	24,9
Malta			100,0			100,0

Country	GVA %			Employment %		
	% PR	% IR	% PU	% PR	% IR	% PU
Netherlands	0,8	25,9	73,3	0,6	26,0	73,4
Austria	30,4	28,9	40,7	34,8	29,6	35,6
Poland	27,5	30,8	41,7	35,4	32,0	32,7
Portugal	30,1	11,4	58,5	35,1	14,7	50,1
<b>Romania</b>	<b>32,1</b>	<b>42,6</b>	<b>25,3</b>	<b>41,7</b>	<b>46,7</b>	<b>11,6</b>
Slovenia	36,3	63,7		40,1	59,9	
Slovakia	40,8	33,1	26,2	44,5	36,3	19,2
Finland	36,5	28,0	35,5	39,6	29,1	31,3
Sweden	19,8	51,1	29,1	21,6	54,4	24,1
UK	1,9	21,9	76,1	3,0	26,2	70,8
<b>EU-27</b>	<b>16,9</b>	<b>32,0</b>	<b>51,1</b>	<b>21,6</b>	<b>34,5</b>	<b>43,9</b>

(Source: Eurostat 2008)

To this figure predominates, makes the exception Denmark, Ireland, Romania, Slovenia, Slovakia, and Finland, where the wealth comes mainly in areas where there is a predominantly rural area. This figure, however, is not in line with the employment, in fact, in ten EU countries that are: Bulgaria, Czech Republic, Denmark, Ireland, Lithuania, Hungary, Poland, Romania, Slovakia, and Finland, the employment is prevalent in rural areas. The country with the highest percentage of employed people in rural areas is: Ireland (67.9%), followed by Slovakia (44.5%) and Hungary (43.3%). As shown in tab. 2, Table 4 also shows that with the accession of 12 new countries within the European Community, has changed the percentage rate on the wealth and jobs arising from the three geographical areas. The indices relating to GVA and employment have both increased in rural areas.

*Table 3. Differences in rural areas EU 27 EU 15 (value added-employed)*

	GVA %			Employment %		
	% PR	% IR	% PU	% PR	% IR	% PU
<b>EU-27</b>	16,9	32,0	51,1	21,6	34,5	43,9
<b>EU-15</b>	15,9	31,7	52,5	17,6	33,6	48,8

(Source: Eurostat 2008)

Finally, considering the number of agricultural holdings and usable agricultural area (UAA), we can see that Romania is the country with the largest number of firms (3,931,350), followed by Poland (2,390,960) and Italy (1,679 .440), while the leading country in the EU with regard to UAA is France with 27,476,930 hectares, followed by Spain (24,892,520 ha) and Germany (16,931,900 ha).

*Table 4. Number of farms and agricultural area used UE 27*

<b>Country</b>	<b>Number of farms</b>	<b>UAA</b>
Belgium	48.010	1.374.430
Bulgaria	493.130	3.050.740
Czech Republic	39.400	3.518.070
Denmark	44.620	2.662.590
Germany	370.480	16.931.900
Estonia	23.340	906.830
Ireland	128.240	4.139.240
Greece	860.150	4.076.230
Spain	1.043.910	24.892.520
France	527.350	27.476.930
Italy	1.679.440	12.744.200
Cyprus	40.120	146.000
Latvia	107.750	1.773.840
Lithuania	230.270	2.648.950
Luxembourg	2.300	130.880
Hungary	626.320	4.228.580
Malta	11.020	10.330
Netherlands	76.740	1.914.330
Austria	165.420	3.189.110
Poland	2.390.960	15.477.190
Portugal	275.080	3.472.940
<b>Romania</b>	<b>3.931.350</b>	<b>13.753.050</b>
Slovenia	75.340	488.770
Slovakia	68.990	1.936.620
Finland	68.230	2.292.290
Sweden	72.610	3.118.000
United Kingdom	299.830	16.130.490
<b>EU-27</b>	<b>13.700.400</b>	<b>172.485.050</b>

(Source: Eurostat 2008)

This suggests that countries with a greater number of farms have an economic dimension of small scale agricultural activities and have extremely fragmented and pulverized, often characterized by dispersion phenomena land. This observation is confirmed by the fact that 78% of companies in Romania have a size smaller than 1 ESU, in Poland 52.8% and 17.6% in Italy. While in Germany, companies with less than 1 ESU are only 5.9%, France 6.9% and Spain 10%. Locate at a local rural and urban areas is important, since, in addition to the differences relating to the various economic indices, between the two areas there are also different problems.

Table 5. Number of farms engaged in rural tourism UE 27

Country	Absolute value
Belgium	365.364
Bulgaria	276.621
Czech Republic	449.068
Denmark	393.359
Germany	3.012.369
Estonia	50.084
Ireland	182.478
Greece	850.365
Spain	3.301.576
France	5.865.238
Italy	4.698.852
Cyprus	88.234
Latvia	34.657
Lithuania	36.230
Luxembourg	70.525
Hungary	311.441
Malta	40.195
Netherlands	1.202.503
Austria	959.779
Poland	610.111
Portugal	471.043
<b>Romania</b>	<b>287.153</b>
Slovenia	91.729
Slovakia	127.525
Finland	217.278
Sweden	791.878
United Kingdom	3.176.565
<b>EU-27</b>	<b>27.962.220</b>

(Source: Eurostat – Tourism statistics 2010)

The development of disadvantaged areas can also come from private initiatives, such as tourism activities carried out by small businesses or farms. In Europe, rural tourism was born in central and northern Europe in the late 1950s, and is developed southern Europe only twenty years later, in 1970s. Rural tourism makes use of spaces suitable for the practice of a wide range of activities related to agriculture or directly connected with environmental resources (sports, recreational and cultural). This form of tourism can

satisfy different interests of tourists, supporting of the natural heritage and rural culture of modern society, which is being eroded by the advent of new technologies. This form of tourism primarily includes: visits to farms, education on the types of crops grown, tasting of local agricultural products, etc.

To date in Europe there are almost 28 million rural tourist facilities. The countries with the largest number of structures are France, Italy, the United Kingdom and Germany.

Among the countries of Eastern Europe, Poland holds the record with 610,111 structures.

### **ROLE OF AGRITOURISM IN THE RURAL AREAS**

The farmholiday, now for some years, has managed to carve out a significant space under the so-called "tourism is not traditional" (nature tourism, rural tourism, ecotourism, etc.). Fully we can say that the farmholiday, besides being a source of supplementary income, represents a valuable tool for competitiveness and enterprise development in rural areas. Indeed, where next to agricultural activity are also those of reception and hospitality, the synthesis is realized most significant in terms of income and employment, the multifunctional role of agriculture. Married, the latter, with the use and safeguarding the environmental, cultural, artistic, gastronomic and craft of most Italian regions.

The glorification of the concept of multifunctionality of agriculture can make a contribution to restore capacity to diversify both with respect to the laws adopted with regard to productive activities, such as restaurant, tastings of typical products from the company's hospitality, organization of cultural events, educational and recreational

The birth and development of the farm are attributable mainly to the change of relations between the city and countryside, between urban and rural reality.

A typical example of eco-tourism activity is certainly represented from the farm. Across Europe this particular form of tourism is embedded in the concept more generic you rural tourism, in Italy, instead, adopt a distinction between the two forms of tourism, rural tourism is in fact governed by the framework law n.96 of 2006, which repealed first framework law n.730 of 1985. In both read this activity is considered incidental and complementary to agricultural activity, which must remain the main, and provides that the principle of connection.

The farm can not be regarded as a simple email infrastructure in rural and marginalized urban environment outside but must be viewed in a more comprehensive and multidimensional, it plays as well as an economic role, even a social role as it helps to create a combination that combines entrepreneurship with the protection of biodiversity and the environment in general. In this respect, European policy has been active for years towards the development of the rural economy, promoting the integration between farming and tourism and thus supporting rural tourism. This form of tourism is characterized both the environment and for the close alliance between tourism, resources and culture of the territory. Italy is different from other countries because it is the only one to draw a distinction between farm and rural tourism, identifying some aspects of diversification, including the largest farm shows that the activity is a means of diversification of agricultural incomes and be exercised only by farmers as opposed to rural tourism activities that can be exercised by traders.

The farm can therefore be considered in all respects as a supplementary source of agricultural income, but it still to be seen as such should follow the concept of connectivity and complementarity, that is, the work must be made with the company farm and remain a secondary activity, (depending on hours used) compared to agricultural activity, must also use the facilities and products of the fund owned by the entrepreneur.

### **PERSPECTIVE OF DEVELOPMENT OF ROMANIAN FARMHOUSES**

Agritourism is seen as a regenerative factor of rural economies and, at the same time, as an element for preserving the rural environment. This form of tourism uses for the accommodation and dining only the touristic pensions and the agritouristic farms, benefiting from a not polluted and pictorial environment, from natural attractions and cultural historical values, and from traditions.

In the Report of the Project about European Charta of the rural space, The Commission of the Agricultural and rural development of the Council of Europe, appreciated that the rural space of Europe represents 86% of the total surface and that more than half of European population live there

Romania proves to be a country with touristy vocation of notoriety, comparable with that of some European states that are in the hierarchy's first places in the domain: Austria, Switzerland, Greece.

In Romania, 'rural areas' were defined in 2005 as areas belonging to communes and to the periurban areas of towns and cities. However, agritourism and related activities appear as especially appropriate tools to revitalize rural areas aiming to a sustainable future through people retention and employment maintenance (or even job creation), as well as increasing job diversity, retaining services, supporting farms exploitations, broadening cultural provision, and also by maintenance of landscape, nature resources, and rural art and handicraft as attractions for visitors.

Agritourism can be considered as one of key-tools for an ambitious and effective rural development system in Romania.

The rural area in Romania covers 212,700 km<sup>2</sup> (89% of the country's territory), has 212,700 km<sup>2</sup> agricultural surface (91% of the country's agricultural area), and the village population owns 80% of total agricultural lands. The rural area has 9.7 million inhabitants (44.8% of the country's population), of which 2.4 million are aged 60 and over, holds 47% of the housing fund and 46% of the built-up perimeter.

### **SOME APPROACHES ON ENVIRONMENTAL PERFORMANCE OF SMES**

Environmental protection is an integral part of business development strategies worldwide. Each company is trying to achieve and demonstrate, with great economical and environmental performance levels through compliance with environmental legislation.

In this context, countries that use standards and high environmental standards are interested in protecting themselves against competitors from countries where such rules are less stringent.

The competitive position of partners depends crucially on the ability to provide "clean" products, which, in terms of environmental protection are able to meet both consumer demands and standards imposed on them by their trading partners. Environmental management is the management of those activities of an enterprise which has or may have an impact on the environment (Sava, Pirnea and Flood, 2010).

Environmental management is growing and represents a challenge due to the complexity of environmental legislation. Foundation of environmental management is based on understanding the legal framework and regulations that apply to organizations. Mere compliance with the law is not sufficient and many companies have opted for strategies "beyond compliance".

Environmental assessment impact on the activities in Romanian SMEs has on the environment is achieved:

- be binding consisting of operators to obtain opinions, agreements, permits operation in relation to institutions. Environmental legislation in Romania is organized on 12 issues and the following types of regulations: laws, government decisions, ordinance, order of the authorities involved, the government ordinance.
- whether it's voluntary, SMEs, spurred by certain potential advantages, is committed to improve environmental performance. In this case, the environmental impact assessment forms are covered by these standards (ISO 14000 series, SA8000, EMAS, Eco-labeling) with a recognition at international, European and national level.

The International Organization for Standardization (ISO) is an international committee that promotes and governs international commercial standards. ISO 14000, a universal and international system of environmental management standards, has been developed in response to the tremendous costs that have been incurred by international marketers due to many separate, and sometimes incongruent, regional and national environmental standards (Miles, Munilla and McClurg, 1999, p.113).

These standards should reduce transaction costs and enhance cross-national exchanges. ISO 14000 is a process-based environmental management system that shares a core of common requirements and systems with ISO 9000 (Ichikawa, 1998).

ISO 14000 was developed in order to move „toward an international consensus on environmental management systems” (Boiral & Sala, 1998).

ISO 14000 has a universal set of elements and criteria, applicable in all nations and across all borders. Small and medium enterprises worldwide may be able to rely on ISO 14000 certification when is screening vendors for environmental performance. Next table presents a summary of the ISO 14000 environmental management system (Table 6).

*Table 6. The ISO 14000 series of Environmental Management System Standards as applied to SMEs*

<b>ISO 14000 Standards</b>	<b>Description</b>
Environmental management system	An environmental policy statement indicating the SMEs written and formal commitment to prevention/minimization of environmental impact and commitment to a system of continuous environmental performance improvement.
Environmental auditing	A system to objectively assess to SME's environmental performance including defined audit procedures, qualification requirements of auditors and environmental site assessments.
Environmental labeling	This standard impacts all promotions from advertising to packaging and includes claims, verification procedures, terms use of symbols and environmental criteria.
Environmental performance evaluation	This is a set of objective metrics and outcomes that the SME must measure and assess. The metrics include toxic inventory releases, energy utilization metrics, effluent metrics and hazardous waste management metrics.
Life cycle assessment	The LCA is the core of ISO 14000, mandating that the SME explicitly consider the product's design, procurement, production, distribution, consumption and disposition impact on the environment.

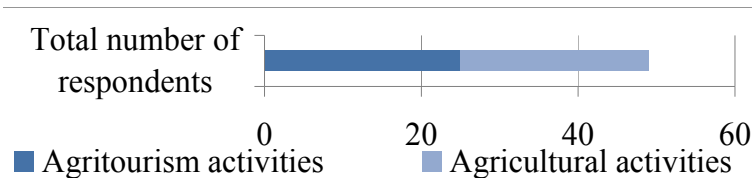
(Source: made by authors after Miles, Munilla and McClurg, 1999, p.114)



Based on the approaches above, we present next some results of our research, customizing and emphasizing research issues related to environmental performance of agritourism SMEs in Romania.

### RESEARCH METHODOLOGY

The research was conducted by the authors during 2011-2012. The research has based on a questionnaire applied in 49 farmhouses in Romania. Questionnaire primarily aimed to identify the main forms of tourism and to highlight the strengths and weaknesses of these pensions.



(Source: according to the research made by authors)

*Figure 4. Agritourism SMEs – surveyed profile*

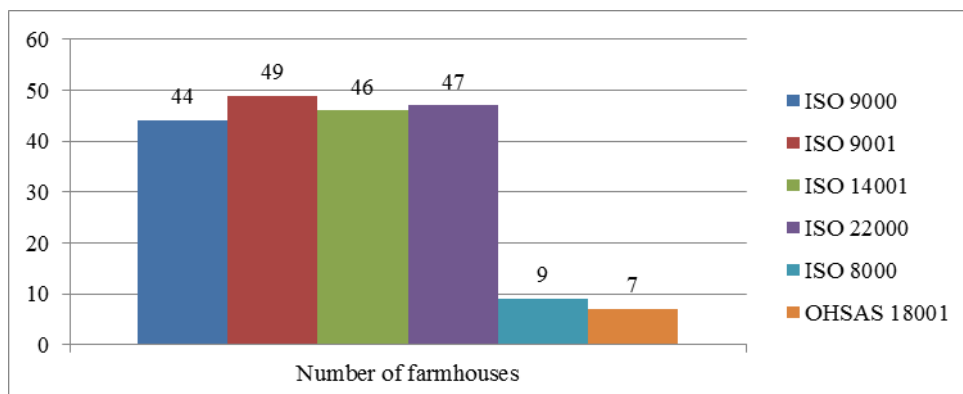
Research has shown that all 49 pensions have the main form of tourism, the agritourism; of all these, about 50% (24) pensions carries out agricultural activities.

### ANALYSIS AND INTERPRETATION OF RESEARCH RESULTS

The questionnaire included different questions related to the activity of the farmhouses. A part of the results of this research are already published (Pirnea, Lanfranchi and Giannetto, 2012, pp.176). So, in this paper we will present only the results of the research related to the preoccupations of the SMEs farmhouses on environmental performance but also in adopting a ISO 14000 international standards.

The research focused on the environmental preoccupations of the farmhouses had the scope to identify the main motives of these farmhouses in adopting a ISO 14000 and also the specific problems in implementing this standards.

To obtain performance, a very important role it has the quality certifications. This one of the questions included in the questionnaire aim to identify quality certified of farmhouses. The results are presented in the figure above (Figure 4).



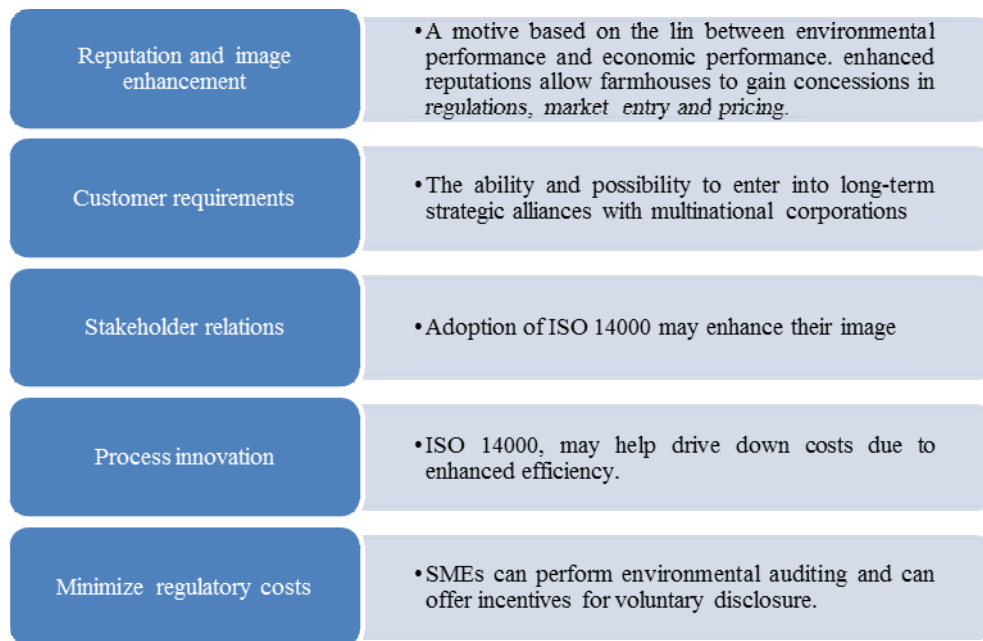
(Source: according to the research made by authors)

*Figure 5. Number of quality certifications of farmhouses*

As it can be seen in the figure above, 94% of the farmhouses participating to our research has already implemented a environmental standard related to ISO 14001.

A small number of farmhouses, respectively 9, had implemented a social responsibility standard according to ISO 8000 and only 7 farmhouses had implemented a occupational health and safety standard according to OHSAS 18001.

Research results regarding the motives for which farmhouses had adopted ISO 14000 can be seen in the next figure (Figure 6).



(Source: according to the study)

Figure 6. Some motives for adopting ISO 14000

The literature offer a big number of studies related to ISO 14000 and the benefits that the implementation of this standard can bring to the enterprises in general. One important point of view we find to Frambach (1993). He suggests that (1) the number of actors involved in the adoption process, (2) the adopting organization's characteristics, (3) availability of information about innovation, (4) characteristics of innovation and (5) the competitive intensity of the environmental should all be considered in the assessment of organizational adoption of an innovation (Frambach, 1993, p.27).

Research results regarding the specific problems in implementing ISO 14000 in farmhouses included in our research are the following, according to the filled in questionnaire:

- They have less formal planning and control systems, managers that are typically multi-functional, more of the entrepreneurial orientation. The most farmhouses are managed by the owner and they have some difficulties in documentation. They need consultants needed to develop an objective environmental management system;
- They have fewer and less sophisticated financial and activity control systems;
- They could gain advantage by exploiting green design and minimal impact manufacturing practices.

Farmhouses managers, in general, like all the small and medium enterprises managers are concerned about the new regulations and customers requirements which will impact their current business practices and profitability.

### CONCLUSION

In this paper we have been presented only a short part of a complete research. We chose to analyze the results of our study regarding the preoccupation related to environmental performance of some farmhouses in Romania.

The paper highlighted the current situation of farmhouses in adopting a quality certification but also the motives for adopting a environmental management system. Thanks to some farmhouses, we identify also some specific problems that farmhouses in Romania have related to environmental management system.

This paper can constitute a starting point for future researches related to the environmental management system.

### AKNOWLEDGEMENTS

This article is a result of the project POSDRU/88/1.5./S/55287 „Doctoral Programme in Economics at European Knowledge Standards (DOESEC)". This project is co-funded by the European Social Fund through The Sectoral Operational Programme for Human Resources Development 2007-2013, coordinated by The Bucharest Academy of Economic Studies in partnership with West University of Timisoara.

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# Urban Freight Transport and the Problems Caused by the Lack of Infrastructure

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## **ABSTRACT**

Although urban freight transport is part of our daily life and the volume of emissions caused by this sector is quite high, it seems that it doesn't play such an important role within the urban transport planning process. While in developed countries we can already talk about good practices in what concerns urban freight transport, in Romania the authorities haven't yet surpassed the base level of gathering information regarding this sector. Thus, the premises of finding solutions that best fit each city are virtually inexistent. That is why the current paper wishes to review some of the measures and initiatives adopted worldwide, analyzing in the same time the most important aspects of the Romanian freight transport.

***Keywords:** urban freight transport, infrastructure, good practices, urban mobility, policies*

## **INTRODUCTION**

Everyone that has the chance of living in a city has certainly faced one of the biggest disadvantages of this century which is urban mobility and that tends to look more like an urban "immobility", whether we speak about freight or passenger transport.

As the population of cities grows, human needs expand and diversify, the consumption of goods following the same rising trend. That is why, whether we talk about a small local store, a supermarket or even about a hypermarket, all of them need to procure the necessary goods in a quite alert rhythm, sometimes even on a daily basis. This is the moment when urban freight transport comes into the picture.

In the light of most definitions, urban freight transport refers to the action of performing transfers of materials and goods within urban areas. It includes all the movements of commodities that have an origin and / or a destination within those particular areas and shows complex features especially in what concerns the identification of some characteristics between the requests of several users and the ones of the carriers.

## URBAN FREIGHT TRANSPORT AT WORLD LEVEL

Despite the fact that urban freight transport is part of our daily life and the volume of emissions caused by this sector is quite high, it seems that it doesn't play such an important role within the urban transport planning process (Lindholm, 2010). That is why authors such as Maria Lidholm consider that a higher attention should be paid to this aspect and that authorities should involve more because otherwise we cannot talk about a sustainability of the freight transport system. According to a recent article from the *Transporter* magazine (Farc, 2012), urban freight transport covers 15% of a city's transport flow and is responsible for 40% of the total carbon dioxide emissions.

The European Commission has issued several recommendations concerning this problem, but authorities seem not to understand them. Even in Sweden, a country with a strong urbanization, only 1% of the cities have a particular person that deals with the freight transport problems. Nevertheless, a starting point could be Lindholm's list of factors that influence urban freight transport. According to the author, cooperation and communication between all the actors involved (stakeholders, politicians, managers, technical planners etc) are mandatory in order to be heading correctly towards sustainable development, while the research conducted in this field could be used to outline several strategies that best suit the problems faced at urban freight transport level.

When we take into consideration the geographical and demographical factors in order to analyze the quantities of goods produced (we wish to determine whether urbanization and the concentration of economic activities cause a high efficiency of the production process), Holmgren (2012) demonstrated that there is a negative relation between the economic activity and the volume of transported goods. Moreover, transport is the only field that featured a constant increase in the CO<sub>2</sub> emissions over the last years, people usually considering that a higher transport volume automatically means an increase in the economic activities. Holmgren used the data available for 21 Swedish regions, tracking the quantities of loaded goods in each region and that had as destination the same region, the gross regional product, the population of those areas, the urbanization index, as well as the density. Using a mathematical model, the author shows that there is a negative relation between the quantity of goods transported in a region and the economic growth of that location.

And if it has been demonstrated that the volume of transported goods does not lead to an economic growth, then we can focus on reducing the traffic in this sector. Dezi et al. (2010) suggest some technical solutions for freight transport within cities, solutions that value each warehouse's policy to deliver the merchandise on time in order to satisfy clients' needs, as well as everyone's wish to reduce traffic and inherent vehicles' impact on the environment. Using the data from the case of Bologna city, a location with strong urbanization roots, the authors provide some examples for the optimization of parking lots which are especially designed for freight vehicles, focusing on the dimension of these spots in comparison with the types of vehicles encountered, their number, as well as their placement.

The image of a city, whose determinants are its sustainability and attractiveness, requires a good understanding and awareness among officials and decision makers (Toth-Szabo & Varhelyi, 2012). And even though the term sustainability has different meanings depending on each person's value system, all definitions point at the idea of a state that satisfies the present needs without compromising the ones of the future generations. We wish for the same thing in the field of transport, including in what concerns the freight transport sector, where accessibility, safety, environmental protection and cost efficiency are the main principles tracked.

Some researchers on the other hand have addressed the way authorities implement certain measures that aim at reducing the negative impact of freight transport without a

previous evaluation (Filippi et al., 2010). Consequently, they suggest a methodology with the help of which we can quantify the impact of freight transport policies in terms of environment sustainability and achievement of objectives proposed. The five steps outlined refer to the identification of a transport system, of the urban freight transport policy, to the modelling of a freight transport system, to an estimation of the impact and, last but not least, to the evaluation of the degree of objectives' attainment (the extent to which these correspond to the targets).

Russo and Comi (2012) agree with the same idea of an “ex-ante” evaluation, the results of these two authors showing as well that large investments used for reaching environment targets are not necessary.

At the same time, Browne et al. (2012) tried to accomplish a quintessence of the initiatives, measures and policies related to urban freight transport and reached the conclusion that their range is above expectations, which leads to the idea that authorities' attention regarding this problem tends to expand. Moreover, it seems that the initiatives can be encountered at local, regional, national and even international level, which is an encouraging situation especially for the knowledge transfer between cities.

To the specialty literature some research about good practices in Holland can be also added (Quak, 2012). There, carriers do not face problems such as finding innovative solutions towards increasing transport efficiency and environmental protection (which usually represent a real challenge), but try to make themselves heard and recognized by stakeholders.

Nevertheless, there are certain opinions according to which the measures implemented in big cities cannot always be applied to small and medium size cities (Lindholm, 2012). That is why we can find models or instruments that can rather be used for this category of towns, than for big capital cities.

Other authors have gone so far as to build a multifactorial model that allows the introduction of an index (UFTI – Urban Freight Transport Index) through the agency of which we can quantify the intention of authorities to cooperate with urban freight transport externalities. The table below wishes to describe the variety of measures recommended to authorities by Betanzo-Quezada and Romero (2010).

*Table 1. Possible measures that can be adopted by authorities and the private sector*

<i>Measures</i> <i>Current no.</i>	<i>National level</i>	<i>Local / regional level</i>	<i>Private sector</i>
1	Defining national policies regarding urban freight transport	Defining local policies regarding urban freight transport	Reducing the rolling stock of carriers
2	Standardizing the measures adopted	Limiting the access	Using intelligent transport systems
3	Limiting the access of trucks	Limiting parking lots	Tracking logistic performance indexes
4	Limiting parking lots for trucks	Creating urban distribution centers supported by the local authorities	Resorting to information technology
5	Creating urban distribution centers	Supporting pilot projects	
6	Applying measures aimed at reducing noise pollution	Creating special corridors for tankers	
7	Granting subsidies or financial incentives	Integrating freight transport within urban planning	
8	Providing money for research and development		
9	Providing money for pilot projects		
10	Dissemination of information		

*Source:* author's own processing according to Betanzo-Quezada and Romero (2010)

Creating an urban distribution centre is another solution provided by many authors (de Oliveira et al., 2012). In addition, several surveys have been conducted in some Brazilian cities and the results have underlined the fact that carriers are willing to accept this type of centres, provided that all the actors involved, retailers, shippers, the government and the general population, respect their commitments.

In a different approach, de Magalhaes (2010) noticed some extremes in the case of Belo Horizonte region (the city has a number of inhabitants similar to that one of Bucharest) where, on one hand, approximately 30% of the trucks move without loading within a certain area and from those that carry merchandises most of them are half empty, and, on the other hand, most trucks fully loaded weight with 23% more than their nominal capacity. The main conclusions that can be drawn from his research are the following:

- there are too many trucks, vans and motorcycles within the region under observation and this doesn't necessarily mean that the services are faultless, but that the costs are very high
- there is a lack of information and an unsatisfying management as there are vehicles which move without loading
- there is a lack of logistic platforms that could facilitate the storage of goods.

Last but not least, we must also mention the fact that if in most articles related to transport an issue is always brought into discussion, namely the importance of reducing carbon dioxide emissions, there are still some authors that are keen on investigating the connection between these emissions and the financial balance (Doi & Kii, 2010).

### **ROMANIA, A COUNTRY WHERE REGULATIONS ARE UNLIMITED BUT THE INFRASTRUCTURE IS LIMITED**

In Romania, the gap between the large number of vehicles and the weak infrastructure make up the context where freight transport takes place. The small number of parking lots and the lack of involvement on behalf of the authorities in traffic fluidization can be added to the aspects mentioned above. Even though the Romanian statistics regarding urban freight transport are not so rich, some data in what concerns the frequency with which a city of two million inhabitants is supplied can be seen in table 2.

*Table 2. The delivery frequency for each type of store*

<i>The type of location from where consumers can procure their goods</i>	<i>The delivery frequency</i>
Retail and neighborhood stores	3-4 times a week
Retail chains and commercial shopping centers	once a week
Markets	daily
Fast delivery and courier services	70-90 movements a day

*Source:* author's own processing according to Farc (2012)

In figure 1 we can observe the evolution of urban freight transport in terms of distance done by vehicles, with a peak before the financial crisis, followed by a decreasing trend until 2010 and by a slight recovery starting with the last year. Making a simple mathematical calculation, we can see that the percentage of freight transport on



distances smaller than 50 km out of country's total freight transport is very big, which means that much of this transport takes place within cities or neighboring areas. This aspect thus manages to strengthen the importance of urban freight transport (figure 2).

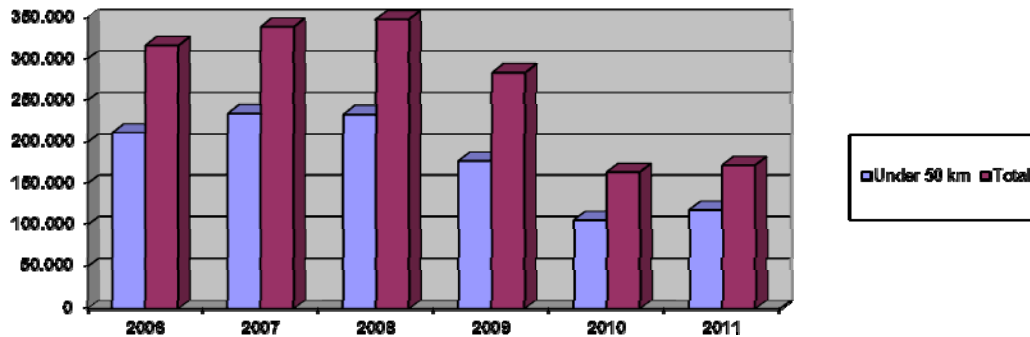


Figure 1. Romanian freight transport in terms of distance (thousand tonnes)  
 Source: author's own computation according to Eurostat (2012a)

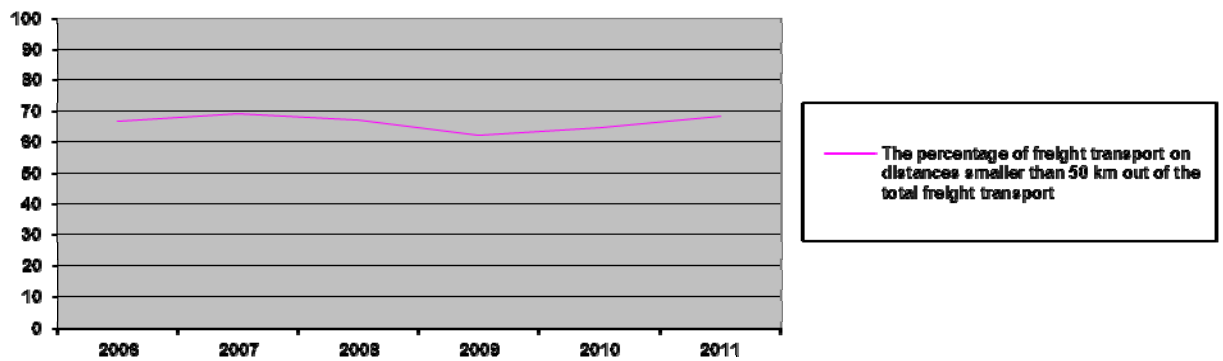


Figure 2. The percentage of freight transport on distances smaller than 50 km out of the total freight transport (%)  
 Source: author's own processing according to Eurostat (2012a)

Table 3. The evolution of freight transport in all the Romanian counties, for the period 2006-2011 (thousand tonnes)

	2006		2007		2008		2009		2010		2011
Bucuresti	21,947	Bucuresti	27,251	Bucuresti	45,572	Timis	28,090	Bucuresti	14,846	Bihor	15,631
Cluj	21,483	Constanta	24,264	Bihor	24,150	Arges	17,634	Bihor	11,793	Prahova	11,683
Prahova	16,437	Cluj	20,748	Cluj	23,164	Bihor	17,260	Prahova	9,658	Bucuresti	11,196
Constanta	15,935	Bihor	17,529	Harghita	16,208	Bucuresti	16,988	Constanta	8,868	Timis	10,294
Suceava	14,244	Suceava	16,951	Constanta	15,585	Prahova	16,081	Timis	7,798	Constanta	10,063
Alba	11,646	Prahova	13,994	Caras-Severin	13,984	Hunedoara	13,251	Arges	7,708	Arad	7,219
Bihor	11,407	Hunedoara	13,374	Mures	13,796	Constanta	12,957	Cluj	6,726	Suceava	6,205
Arges	11,316	Mures	13,338	Arges	12,868	Gorj	12,272	Ilfov	6,067	Ilfov	5,774
Hunedoara	11,217	Arges	13,211	Brasov	12,467	Arad	9,233	Hunedoara	5,690	Cluj	5,651
Caras-Severin	10,175	Alba	12,559	Hunedoara	11,500	Caras-Severin	9,189	Suceava	5,532	Brasov	5,640
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Valcea	5,267	Gorj	5,014	Salaj	5,174	Alba	4,245	Maramures	2,196	Valcea	2,433
Ialomita	5,014	Calarasi	4,933	Maramures	4,796	Sibiu	3,942	Tulcea	2,107	Mures	2,345
Dolj	4,732	Olt	4,872	Alba	4,439	Olt	3,691	Olt	1,866	Harghita	2,325
Calarasi	4,671	Harghita	4,637	Calarasi	4,376	Harghita	3,607	Teleorman	1,788	Olt	2,055
Braila	3,983	Vrancea	4,388	Sibiu	4,284	Tulcea	2,921	Satu Mare	1,762	Maramures	1,902
Tulcea	3,742	Valcea	4,268	Mehedinti	3,615	Braila	2,688	Mures	1,726	Galati	1,721
Salaj	3,736	Ilfov	3,843	Satu Mare	3,486	Ialomita	2,096	Dolj	1,424	Neamt	1,511
Giurgiu	3,637	Braila	2,955	Olt	3,216	Teleorman	1,889	Botosani	1,380	Vrancea	1,500
Vrancea	3,610	Satu Mare	2,911	Braila	2,836	Salaj	1,853	Braila	1,365	Satu Mare	1,491
Maramures	3,409	Teleorman	2,864	Teleorman	2,772	Covasna	1,848	Harghita	1,278	Braila	1,416
Mehedinti	3,292	Neamt	2,768	Dolj	2,524	Maramures	1,775	Covasna	1,268	Botosani	1,308
Teleorman	3,286	Maramures	2,659	Neamt	2,485	Satu Mare	1,675	Salaj	1,212	Salaj	1,234
Vaslui	3,109	Covasna	2,512	Tulcea	2,391	Neamt	1,626	Neamt	1,194	Giurgiu	1,171
Bistrita-Nasaud	2,957	Botosani	2,124	Covasna	2,005	Botosani	1,337	Vrancea	1,033	Teleorman	1,151
Satu Mare	2,694	Vaslui	1,495	Vaslui	949	Vrancea	1,337	Giurgiu	827	Dolj	1,151
Botosani	2,183	Ialomita	992	Ialomita	901	Giurgiu	976	Ialomita	701	Covasna	1,085
Covasna	2,015	Giurgiu	910	Giurgiu	694	Vaslui	804	Vaslui	517	Vaslui	850

Moreover, table 3 wishes to summarize the evolution of freight transport (expressed in thousand tonnes) in all the Romanian counties, for the period 2006-2011. As expected, Bucharest has the largest volume of transported goods in most of the years under analysis. The main reason in this case is the large number of inhabitants, which is higher than in the other counties. The information regarding 2009 and 2011 is quite a surprise because the capital city was overthrown by Timis and Bihor counties. A credible explanation of this situation is the location of these two counties in the west of the country, which could provide a better openness towards the Occident.

At the other end of the list there are Covasna, Giurgiu and Vaslui counties (in this order). Most probably the Vaslui County sits at the bottom of the list for the last three years because it is one of the country's most poor regions where it is quite normal to have such a low level of consumption on behalf of the population and thus a lower store procurement frequency which causes a low freight transport volume. For the other two counties, the small number of the population represents the main cause for a low freight transport volume.

Still, the overall data shows that county statistics follow the same rising trend till 2008 and then a decreasing one until 2010, with a slight upswing in 2011 as in the case of national statistics.

## CONCLUSION

Summing up, it could be acknowledged that urban freight transport has high implications upon the society and its prosperity. Given that two of the biggest problems the sector of European urban freight transport faces are represented by congestions created by freight vehicles and the safety of citizens that take part in traffic as pedestrians, it is vital for urban freight transport to become a sustainable one. The explanation of this necessity was given by the British writer, Jonathan Raban (1974), who said that *living in cities is an art, and we need the vocabulary of art, of style, to describe the peculiar relationship between man and material that exists in the continual creative play of urban living.*

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# ROMANIA'S AGRICULTURE CONTRIBUTION TO GLOBAL WARMING

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## ABSTRACT

Global warming is the phenomenon of increasing the average temperatures of the atmosphere near the ground and the oceans. Global warming began to worry after 60 years, following massive industrial development and increasing concentrations of greenhouse gases that are considered largely responsible for this phenomenon. Climate models developed by experts in the field estimate that the global climate will warm by 1.1 to 6.4 Celsius degrees during the 21st century. Estimates may vary because it can not be predicted in evolution of gas emissions that cause the greenhouse effect. Moreover, the planet warming trend continues in the XXI century which is revealed in many studies. Very disturbing is the fact that these climate scenarios show that the polar areas will warm more, which could have dramatic consequences.

**Keywords:** *global warming, agriculture, pollution, greenhouse gases*

## INTRODUCTION

**The main cause of global warming** is increasing the concentration of CO<sub>2</sub> in the atmosphere in recent centuries. It was 280 ppm before the industrial revolution, is now 430 ppm, which is almost double, and in the year 2035 could be 550 ppm, if the flow of current emissions of greenhouse gases (GHG) would maintain over natural absorption capacity. This could result in the immediate period to increase by another 2 Celsius degrees, especially if we consider that the developing economies in China, India, Brazil, Australia, South East Asia or Eastern Europe and the fact that the U.S. does not yet ratified the Kyoto Protocol, while replacement using clean renewable sources of energy and CO<sub>2</sub> retention advances hard fossil fuel plants.

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## **AGRICULTURE AND THE GLOBAL WARMING**

Agriculture is one of the areas with a strong contribution to global warming. Agriculture "provides" an impressive amount of annual greenhouse gas emissions. A Greenpeace report, entitled Cool Farming, presents the details of the destructive practices that are used in agriculture and offers solutions to reduce agriculture's contribution to climate change. In the view of environmentalists, these measures will help to protect the environment and will benefit both farmers and consumers. The report details for the first time explicitly direct and indirect contributions to global warming.

The most importantly, according to the authors, is that agriculture can make a big polluter, in an area of one hundred to one hundred "Green". **The** agriculture use chemical fertilizers, which degrades soils, contributing to the destruction that absorb carbon sources (especially forests). Most emissions are recorded because excessive use of fertilizers. Solutions relate to sustainable agriculture, which involves storing soil carbon (in various ways) and a very low use of fertilizers.

Intensive farming has led to: excessive use of fertilizers, land clean of vegetation, soil degradation, increased intensively animals. If we speak in order of severity, the most important is the excessive use of fertilizers. More than half of the total quantity of fertilizers used in agriculture reaches the atmosphere or water. One of the main chemicals in fertilizers is the nitrous oxide (N<sub>2</sub>O) greenhouse gas impact, which is 296 times stronger in atmosphere than carbon dioxide (CO<sub>2</sub>). Use of fertilizers into the atmosphere the equivalent of 2.1 billion tonnes of CO<sub>2</sub> each year. Producing the fertilizers is equivalent of other fertilizer production of 410 million tons of CO<sub>2</sub>. This means that from all industrial chemicals which are done, fertilizers contributes most to global warming. The second largest "producer" of GHG emissions is livestock farming. It was found that livestock excrements produces a huge amount of methane, another greenhouse gas. Because the demand for meat is increasing, worldwide methane emissions are expected to rise gradually in the coming decades. Cattle and sheep "contribute" most to the global warming. Each kilogram of beef produced contributes to 13 pounds of carbon emissions. Each kilogram of lamb produced contributes with 17 pounds of carbon emissions. Agriculture has a strong indirect impact on global warming. Deforestation to create land for agriculture or pasture for livestock means destruction of the "dixod" the main source of carbon absorption from the atmosphere and release the oxygen. This is best seen in the destruction of rainforests, where significant areas are used for growing soybeans (used in food industry and for animal feed) or palm (from which the oil is converted to biodiesel). In conclusion, agriculture

affects climate in every region of the globe. North America and the Pacific are the only developing region where the amount of greenhouse gases emitted into the atmosphere is steadily increasing. In Asia, we expect the same phenomenon, as there is a growing livestock. In EU forests and grasslands has absorbed yet 125 million tons of carbon per year in 2000-2005. This has offset 12% of the billion tons of CO<sub>2</sub> emissions from burning fossil fuels, but the biosphere were unable to store all emissions from agriculture. Thus, the difference of 34 million tons of carbon released into the atmosphere contributes to global warming.

*Table 1. GHGs from Agriculture, in Gg CO<sub>2</sub> eq.*

	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
European Union (27)	475.886	475.367	464.288	461.567
Romania	17.907	18.416	18.136	16.777
Romania/Eu27	3,763%	3,874%	3,906%	3,635%

Romania's contribution to GHGs compared to the European Union fall below 4% in 2007-2010 (table 1), the lowest level was in 2010, by 3635%. Comparing the Gross Production Value to the same period, we note the same value limits below 4% (table 2), which may lead to the conclusion that our country's agriculture falls into the EU in this regard.

*Table 2. Gross Production Value (constant 2004-2006 1000 I\$) (1000 Int. \$) year*

	<b>item</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Romania	Agriculture (PIN) + (Total)	8303030	10009962	9793989	9810268
European Union + (Total)	Agriculture (PIN) + (Total)	257198008	266655056	268582272	263658089
Romania/Eu 27		3,23%	3,75%	3,65%	3,72%

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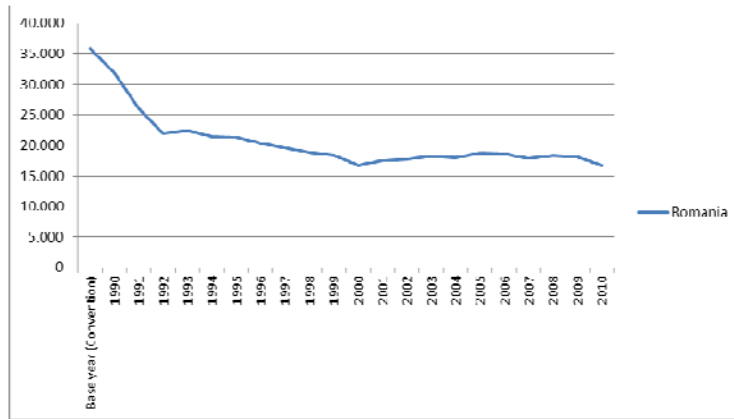


Figure 1. Romania: GHGs from Agriculture, in Gg CO2 eq.

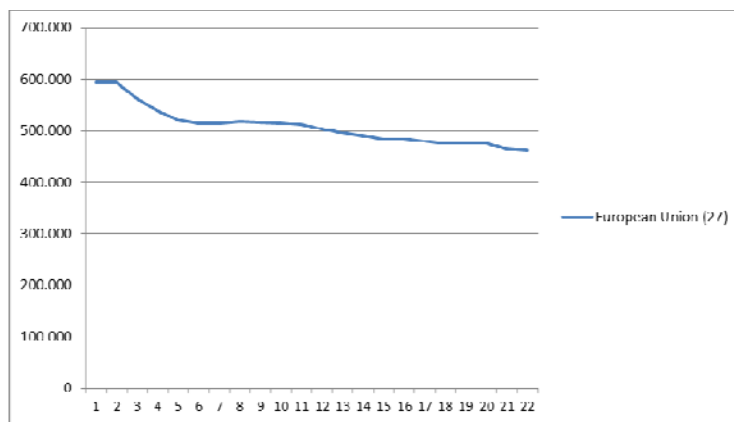


Figure 2. European Union 27: GHGs from Agriculture, in Gg CO2 eq.

## ROMANIAN AGRICULTURE ESTIMATES OF THE CONTRIBUTION TO GLOBAL WARMING

Analysing the GHGs trend from Agriculture, in Gg CO2 eq. in period between 1990-2010 (Figures 1 and 2), we remark that Romania falls in trend at European level. Using a forecasting model –simple average (Time series forecasting, time unit annual, number of time units 14 -1997-2010), we obtain an estimation of GHGs from Agriculture, in Gg CO2 eq. in Romania, for 18,1165 (figure 3), comparative to 487,9594 in EU27, that means 3.7127%.



12-02-2012 Annual	Actual Data	Forecast by SA	Forecast Error	CFE	MAD	MSE	MAPE (%)	Tracking Signal	R-sqaure
1	19,641								
2	18,882	19,641	-0,7590008	-0,7590008	0,7590008	0,5760822	4,019705	-1	1
3	18,378	19,2615	-0,8835011	-1,642502	0,8212509	0,6783282	4,413545	-2	1
4	16,76	18,967	-2,207001	-3,849503	1,283167	2,075836	7,331784	-3	1
5	17,497	18,41525	-0,918251	-4,767754	1,191938	1,767673	6,81085	-4	1
6	17,728	18,2316	-0,5036011	-5,271355	1,054271	1,464862	6,016822	-5	1
7	18,203	18,14767	5,533218E-02	-5,216022	0,8877811	1,221228	5,064681	-5,875347	1
8	17,974	18,15557	-0,181572	-5,397594	0,7868941	1,051477	4,485468	-6,859365	1
9	18,713	18,13288	0,5801239	-4,817471	0,7610478	0,9621102	4,312298	-6,33005	1
10	18,619	18,19733	0,4216652	-4,395805	0,7233387	0,8749648	4,084788	-6,077106	1
11	17,907	18,2395	-0,3325005	-4,728306	0,6842548	0,798524	3,861991	-6,910153	1
12	18,416	18,20927	0,206728	-4,521578	0,6408433	0,729816	3,612951	-7,055668	1
13	18,136	18,2265	-9,049988E-02	-4,612078	0,5949814	0,6696805	3,353456	-7,751634	1
14	16,777	18,21954	-1,442539	-6,054617	0,6601781	0,7782373	3,756906	-9,171186	1
15		18,1165							
CFE		-6,054617							
MAD		0,6601781							
MSE		0,7782373							
MAPE		3,756906							
Trk. Signal		-9,171186							
R-sqaure		1							

Figure 3. EU 27 estimating GHGs from Agriculture, in Gg CO2 eq.

12-03-2012 Annual	Actual Data	Forecast by SA	Forecast Error	CFE	MAD	MSE	MAPE (%)	Tracking Signal	R-sqaure
1	516,327								
2	514,678	516,327	-1,649048	-1,649048	1,649048	2,719359	0,3204038	-1	1
3	511,856	515,5025	-3,646515	-5,295563	2,647781	8,008215	0,5164071	-2	1
4	503,583	514,287	-10,70398	-15,99954	5,333181	43,53054	1,052793	-3	1
5	495,378	511,611	-16,233	-32,23254	8,058136	98,52549	1,608818	-4	1
6	490,379	508,3644	-17,98541	-50,21796	10,04359	143,5154	2,020585	-5	1
7	483,852	505,3668	-21,51483	-71,73279	11,95546	196,7442	2,424917	-6	1
8	484,42	502,2933	-17,87326	-89,60605	12,80086	214,2741	2,605589	-7	1
9	478,888	500,0591	-21,17111	-110,7772	13,84715	243,5168	2,832501	-8	1
10	474,962	497,7068	-22,74475	-133,5219	14,83577	273,9398	3,049863	-9	1
11	475,886	495,4323	-19,5463	-153,0682	15,30682	284,7516	3,155611	-10	1
12	475,367	493,6554	-18,28836	-171,3566	15,57787	289,2709	3,218484	-11	1
13	464,288	492,1313	-27,84335	-199,1999	16,59999	329,7693	3,450027	-12	1
14	461,567	489,9896	-28,42258	-227,6225	17,50942	366,5443	3,65832	-13	1
15		487,9594							
CFE		-227,6225							
MAD		17,50942							
MSE		366,5443							
MAPE		3,65832							
Trk. Signal		-13							
R-sqaure		1							

Figure 4. Romania estimating GHGs from Agriculture, in Gg CO2 eq.

## CONCLUSION

Agriculture affects air quality and the atmosphere in four main ways: 1) particulate matter and Greenhouse Gases (GHGs) fromland clearance by fire (mainly rangeland and forest) and the burning of rice residues; 2) methane from rice and livestock production; 3) nitrous oxide from fertilizers and manure; and 4) ammonia from manure andurine. In the world, agriculture now contributes about 30 percent of total global anthropogenic (human induced) emissions of GHGs.

Romanian agriculture's contribution to global warming follows the EU trend (3.7127%) for the next period.

The effects of global warming will lead to an addiction to the genetically modified organisms resistant to new conditions of life, or to a geographical redistribution cultures through global warming nighttime temperatures which are higher, and thus decreases the risk of frost and therefore can be started works in early spring, thus avoiding the risks of hot periods of summer drought. A solution to reduce the effects of global warming is the use of clean technologies, along with afforestation.

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# Strategies for Market Food Industry in Sicily: some Tests through Interviews

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## ABSTRACT

It is known from the literature that the competitiveness of a region depends on the innovative capacity of existing enterprises. Empirical studies find that the agri-food enterprises in Italy and particularly in the South, they prefer, mainly conquer new markets by producing goods 'quality' (innovative marketing strategy). As an alternative hypothesis to remain on the market shrinking labor costs and/or using only state aid (defensive marketing strategy). Taking into account this interpretative framework, this research seeks to identify, through interviews, the strategy followed by the entrepreneurs in the agro-food sector in Sicily. The interviewed entrepreneurs identified in the lack of infrastructure, lack of human capital in the high cost of credit and the main obstacles to develop and to be competitive.

*Keywords: Agro food Industry, Regional economic development, Southern Italy*

## INTRODUCTION

The food in Italy, and, in particular, in the South, has an important quantitative dimension, in terms of output, value added and employment. According to Istat estimates, in 2011 the revenue of the food industry in Italy is 127 billion euro. It is distributed as follows: 91.00 billion to the North, the Centre and 17.9, 18.1 in the South. In North concentrates approximately 72% of sales. The total exports of 23 billion Euros, about 74% is produced in the North, on 12 and 14% in Central and South. The southern agro-industries most important are: fruits and vegetables, the dairy, the segment of the wine and olive oil. According to ISTAT, the Italian food industry, including beverages and tobacco, has about 58,000 active companies. Employment peaked in 2010, 441,000 work units with an incidence of 10.1% of total employment in the industry. In Central and Northern focus 70% of employees and 77% of the value added. The economic importance of agriculture and the food processing industry is still higher in the South than in the rest of Italy. Referring to the value added, it amounts, in Italy, about 21% of the total primary and secondary sectors, a figure that grows to about 40% if one considers only the South.

In Southern Italy, the top three regions in terms of value of production are: Campania, Puglia and Sicily. They represent more than 80% of the total production in the South. The structure of the agri-food sector is mainly composed of small and medium enterprises: 95% of enterprises do not invoice more than € 5 million. In addition, firms in the South showed themselves particularly careful to compete by offering quality products. DOP and IGP products of 241 Italians, 88 pertain to the southern regions.

Virtuous behavior of agribusiness in the South, in theory (Vazquez Barquero, 2010), it could generate long-term positive externalities on the economy of the South. In particular, we note that if in a certain geographical area dominated companies that maintain their competitiveness through innovation and / or differentiating the product sold will be more likely that there will be economic development drive propulsion (innovative marketing strategy). There will be the opposite results, however, in the geographical areas where companies prefer only reduce labor costs and / or resort to state aid (defensive marketing strategy). This research seeks to identify, through interviews, the strategy followed by the entrepreneurs of the food sector in Sicily. The results show that the entrepreneurs interviewed, on average, do not prefer a defensive marketing strategy.

The work is structured as follows. In the second section we identify the main obstacles to the development of the manufacturing industry in general and the food industry in particular. In the third section, we expose the marketing strategies for small enterprises. In the fourth section, on data that is collected through interviews with entrepreneurs in the agri-food sector Sicilian (year 2008-9), it identifies the prevailing strategy followed by agribusiness Sicily.

## **DISECONOMY FOR THE AGRIFOOD SMEs**

Obstacles or weaknesses of small and medium enterprises can be divided into two groups (Ofria, 2000a): 1) those that apply to all small and medium enterprises regardless of the territory in which they operate, 2), those that are present only in certain geographical areas such as the south of Italy, where there are some specific environmental conditions. In reference to the first group, the smaller size makes them less competitive, because: 1) do not enjoy economies of scale, 2) can not undertake appropriate marketing strategies, which require substantial investments, and 3) cannot afford the cost of investments innovative, 4) in the credit market, have low bargaining power (on this, see, among others, Ofria & Venturi, 2000). These weaknesses do not always characterize small businesses. They increasingly are brought together in consortia (eg, consortia) to minimize their contractual weakness especially with the financial market. The growing demand for differentiated products (local products, products produced with biodynamic methodologies, products with high service content, etc.) is the strong point for these types of businesses. The increasing fragmentation of markets can only increase the competitive potential of smaller companies. In essence, the smaller companies the strengths in competitive terms are: 1) greater flexibility in the methods of production, 2) strong ability to accommodate new markets, and 3) the superior ability to operate in niche markets.

In reference to the second group, the recent debate on policies for the development of backward areas seem to converge towards the adoption of an intervention that strengthens infrastructure, which eliminates some social and environmental conditions, such as the presence of crime and social unrest. Several research for the Italian economy showed significant correlations for the region between these factors and the level of economic development - See, among others: Ofria (1997, 1998, 2000a, 2002), Di Liberto & Symons (1998), Paci & Pigliaru (1999); Lodde (2000), Paci & Usai (2000); Destefanis & Sena (2009); Papagni (2008), Daniele and Marani (2008), Capuano and Purificato (2012). For a review of this literature, among others, see: Centorrino & Ofria (2001, 2008); Carillo et. Al (2008); Ofria & Farinella (2011).

## **MARKET STRATEGIES AND PROSPECTS FOR DEVELOPMENT**

According to Vazquez-Barquero (2010), the strategy followed by the most dynamic companies must be to guarantee it remains on the market in the long run. He considers the quality of human resources as a strategic factor for success. Instead, this author considers only the regressive reduction of production costs, since this strategy does not allow companies to maintain their competitive position on the market. With regard to the specialization by firms in specific market niches, two situations should be highlighted. If you adopted a strategy of high segmentation could strengthen its competitive position and maintain the benefits in the long run. But if the aim is simply to find shelter in a niche market, competitive conditions can be maintained only in the short run, in a precarious situation. "Vazquez-Barquero, then, by significant importance to the context in which the enterprise operates, giving an important role in the endogenous factors of economic growth and technological change, considered essential for the process of economic restructuring. This author, however, in interpreting the dynamics of local systems, has placed more emphasis on the concept of "innovative environment", rather than the well-known, the "industrial district". The innovative environment into account, also, the strategic role of innovation, human capital, the relationship between research institutions and public private agents.

## **A CHECK FOR AGRI-FOOD IN SICILY**

As we have seen in the previous paragraph, the enterprise policy is conditioned by several factors territorial. This part of the research using the questionnaire formulated in 1998 by prof. Francesco Latella and already applied in a previous study (Ofria, 2000b). It should be noted, by field survey, which now (2008-9), for all Sicilian provinces entrepreneurs adopt a competitive policy. The results are consistent with those obtained in Ofria (2000b), for the years 1998-99 (At the time, he noted that the entrepreneurs interviewed for the provinces of Palermo and Trapani seem mostly directed to follow an industrial policy "defensive").

Table 1 Sicilian companies interviewed are divided by province and by sector of origin. This research want to verify:

1) what kind of marketing strategy the firm adopts; 2) in which sectors there is "optimism"; 3) which sectors export more. On this point, it was considered high, the level of internationalization for companies that export more than 80% of their production, medium, when export between 40-80% lower when exporting between 1-40% invalid, when not export any goods produced; 4) what are the main external diseconomies; 5) the characteristics of entrepreneurs that require fiscal incentives.

The results of the research show: 1) Almost all the entrepreneurs interviewed, exclude the hypothesis to be competitive only reducing costs. Prefer a policy of product differentiation; 2) The degree of "optimism", as can be noted in Table 2, it is up to all the provinces of Sicily with the exception of the provinces of Palermo and Trapani; 3) The level internalisation as can be seen in Table 3, is high for the industry "and citrus juices." The provinces with higher propensity to export are: Catania, Messina and Syracuse; 4) for the entrepreneurs interviewed the main obstacles to grow and to be competitive are: the lack of infrastructure, lack of human capital and the high cost of credit; 5) the new generation of entrepreneurs, for all provinces, mostly asking for tax incentives.

## CONCLUSIONS

*It has followed the model of Vazquez-Barquero to interpret the strategies of firms interviewed in Sicily. It should be noted that firms adopt a strategy of high segmentation, strengthen their competitive position and maximize profit long-term. When, however, the companies merely seek to find refuge in a niche market, competitive conditions can be maintained only in the short run, in a precarious situation. Companies surveyed in this research show that for all Sicilian provinces seems to prevail a market strategy of an innovative nature. In particular it is noted that: 1) almost all entrepreneurs interviewed, to be competitive, they prefer to improve the quality of the product, rather than reduce production costs; 2) the level of internalisation is strongly influenced by the type of production; 3) the entrepreneurs interviewed consider obstacles to development: the lack of infrastructure, lack of human capital and the high cost of credit, 5) the new generation of entrepreneurs, often, use the tax and financial benefits offered by the law.*

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## Appendix

*Table 1 Number of enterprises surveyed by sector*

provinces	Catania and Siracusa	Ragusa	Messina	Palermo and Trapani	Sicily
Total number of companies	25	19	14	30	88
Citrus and jucies	5	1	4	6	16
Confectioniery	5	4	2	2	13
Dairy	1	6	2	2	11
Oil	0	0	1	2	3
Wine	1	0	0	9	10
Fish	1	0	0	1	2
Roasting	2	2	1	2	7
Bread and pasta	4	4	1	4	13
Biological	1	0	1	0	2
Preserves	4	2	2	1	9
Other	1	0	0	1	2

*Table 2 Forecast future by the companies interviewed turnover*

provinces the turnover	Catania and Siracusa			Ragusa			Messina			Palermo and Trapani		
	Increase	will be stable	will reduce	Increase	will be stable	will reduce	Increase	will be stable	will reduce	Increase	will be stable	will reduce
Citrus and jucies	4	1		1			4				3	3
Confectoniery	4	1		3	1		2			1		1
Dairy	1			3	3		2			2		
Oil							1			1	1	
Wine	1									3		6
Fish	1										1	
Roasting	2			2			1				2	
Bread and pasta	3	1			3	1		1		1	1	2
Biological	1						1					
Preserves	4		1	2			2					
Other	1									1		

*Table 3 Internalisation of the companies surveyed*

Provinces Internalisation	Catania and Siracusa				Ragusa				Messina				Palermo and Trapani			
	High >80%	Ave- rage 40- 79%	Low 1- 40%	No- ne	High >80%	Ave- rage 40- 79%	Low 1- 40%	None	High >80%	Ave- rage 40- 79%	Low 1- 40%	No- ne	High >80%	Ave- rage 40- 79%	Low 1- 40%	No- ne
Citrus and jucies	1		2	3				1	3	1			1	1	2	2
Confectoniery			1	3		1	2	1	1	1			1	1		
Dairy			1			2	3	1				2			1	1
Oil											1					2
Wine		1											5	2		
Fish			1										1			
Roasting			2				2				1				2	
Bread and pasta	1		2	2			1	3		1					1	3
Biological									1							
Preserves	1	3					2				2				1	
Other			1													1



# Measuring the economic value of ecosystem services – key stage for ecosystem management

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## ABSTRACT

Contemporary society has as barometer the market as ideal institutional structure for securing an optimal use of resources. Nevertheless there a number of things that are valuable for us but that are not distributed through the market. Among these ecosystem services occupy a priority position. The value of ecosystem services was interpreted differently along time, the presentation and analysis of the most relevant approaches being the focus of the paper. Economists and decision makers perceived the value of biological resources in accordance with their direct use – raw material for the production of goods. By demonstrating the total economic value of ecosystems we will illustrate the benefits associated with the conservation and preservation of nature and will highlight the large size of groups that depend on these ecosystems. The measurement of the economic value of ecosystem services could also show the high costs associated with biodiversity loss or ecosystem degradation, including the loss of means of subsistence, jobs, and incomes and could estimate the expenditure needed for replacement of ecosystems. It also turns out that ecosystem services are more than a biological reserve, being a capital that if it is properly managed could provide continuously direct and indirect economic benefits for the population.

**Keywords:** *natural capital, ecosystem services, economic measure, benefits, total economic value*

## INTRODUCTION

The fact that biodiversity is important for all human activities is quite well known and widely accepted. In fact, there are advanced several monetary values that attempt to measure how important ecosystems are for humans. Further, another well-known fact is that biodiversity loss is occurring at a much higher path than it should without human interference. The linkage between these facts is the value of nature and how it could be expressed in order to have a significant impact on decision making at governmental, corporate, or individual level.

Value is a puzzling issue for economists and philosophers because of its dynamic pattern that depend of human judgment, aspiration desire, but also on specific contexts. Value is easily recognizable by all members of society and it should be respected. The value of nature is only emerging as concept, and both economic and ethical approaches

are facing important resistance within an anthropocentric society. Some of these challenges will be analyzed in order to reveal what is nature should be evaluated for and at what extent these reasons could be expressed in monetary terms that further allow the economic integration of nature. Ecosystem management is the human intervention that should be among the first beneficiaries of changes in valuation and that is why we considered as the most appropriate field to mirror the utility of economic valuation of ecosystem services.

## **ECOSYSTEM MANAGEMENT: CHALLENGES AND ACCOMPLISHMENTS**

Natural ecosystems are sources of important raw materials and support key environmental processes that contribute to human wellbeing. Their preservation is among the first environmental initiatives and consisted in the restraint of any human activity. Since this is true for the nineteenth century, it is to expect several changes within the contemporary context, when environmental concerns are taking the lead on global and national policy agendas. Indeed, nature conservation is currently underpinned by very different rationales and unlike the historical predecessor is putting human in the core of its planning.

The conceptual framework of this novel approach is called ecosystem management or ecosystem approach and it was advanced within the framework of the world convention on biological diversity around a decade ago. Although controversy persists around the meaning of the concept, a broad outline of its significance is captured in principles and common themes such as:

- Sustainability, by securing the viability of ecological systems;
- Balancing human use with ecological integrity;
- Exclusive managerial alternatives that imposes the analysis of costs and benefits;
- Recognizing the complexity of socio-ecological systems. The recognition of this feature has two major implications:
  - o Use of both scientific and traditional knowledge, making availability the only criteria for acquiring information;
  - o Assuming uncertainty as framework of decision making. Uncertainty could be related to:
    - Ecological impact: the impact of extinction is poorly documented, only 10% of the species are known etc.
    - Philosophy and ethics: biodiversity comprises both desired (most of) and undesired species (pathogens, several insects and spiders, rats etc.)
    - Methodology: methods for ecosystem services that have no market value have small reliability, human is assumed to be a factor with only negative impact etc.
- System perspective;
- Use of adequate spatial and time scales;
- Recognizing that ecosystems are dynamic;
- Using ecological criteria for outlining the management units;
- Involving stakeholders and promoting horizontal cooperation – proactive building of consent;

- Adaptive management based on the quantitative expression of goals and outcomes. The management should be based on a learning process (learning by doing);
- Science is the source of information and knowledge;
- Establishing goals is a political process by which perceived gains and benefits are balanced within the value matrix of the society.

Implementing ecosystem management that targets ecosystem health along with sustainable use of its resources reinforces the challenge of valuation. The priority actions comprised in Message from Athena are emphasizing the need to find an economic rationale for biodiversity preservation. This reanimated an otherwise unsettled debate with many uncertainty sources such as the very need of performing valuation, the value elements that could and should be counted for in economic terms, the reliability, cost and availability of economic valuation methods.

### **ECONOMICS, VALUE, AND NATURE**

Value is an important economic concept, but it received less attention in the last decade. Most of the changes needed in the quest toward sustainable development involve a rethinking of the value concept in general, and in economy in particular. The environmental value framework is debated on the ground of philosophy and gives inputs for more or less impacting discourses. In case of economy, the content of value should comprise nature contribution.

Definitions of value are anthropocentric and dominated economics with the power of axiomatic statements. Economic value was measured initially in terms of human effort invested in the production of certain good or delivering a certain service. This measurement approach was replaced in the modern time by the one based on the utility of the good or service that comes to light as market value. Both approaches have advantages and drawbacks for both employers and employees, but the last one is ruling currently the world economy. Georgescu-Roegen (1996) notice the mechanical nature of the economic theory, which is unable to take in account qualitative changes occurring in environment. Since these changes are entropy law's action expression Bran (2010) proposes another basis for the measurement of economic value. That is the low entropy embodied in things and processes that are entering the economic circle. The low entropy value would reflect more accurately the environmental effects of human actions and will allow economic processes to balance human needs with environmental restraints.

In the narrower framework of nature conservation, determining the economic value of nature is continuous challenge that despite important progress in methodology is still the playground for contradictory opinions. Some of the most debated subjects will be discussed below.

### **The opportunity for the measurement of ecosystem services' economic valuation**

Progress in economic valuation of natural capital was hindered, among others, by the little confidence in its opportunity. Fact is nature conservation was initially motivated by romantic visions and exempted nature from any practical contribution to the human welfare. According to this vision nature should be preserved because it could be admired, it is pleasant and above all it is a creation of God.

Advances in environmental economics and the policy measures underpinned by them made unavoidable situation than nature's benefits or environmental damages necessitated economic valuation. Thus, the counter argument for the opportunity of economic valuation changes its focus within the framework of the utilitarian approach. It consists in the irrefutable evidence about nature's contribution to human benefits. Thus it is against common sense to consider that economic evaluation is necessary for something that is:

- i. Essential for the existence of humans;
- ii. Could not be replaced;
- iii. Is not or should be not for sell.

Consequently to these reasons and underpinned by the methodological complexity of evaluation methods a quite strong economic argument was built too. This is that economic valuation of ecosystem services is an inefficient use of resources. Fact is valuation in case of non-market ecosystem services is a very resource intensive process.

The opportunity of economic valuation is, on the other hand, based on a very solid argument that consists in:

- Economic implication are of high importance and difficult to assess, necessitating good theoretical and methodological foundations;
- The current state of the global ecosystem is indicative for the ineffectiveness of ecosystem management approaches that did not use economic valuation for underpinning conservation measures;
- Population's level of information and awareness is very poor and its interest in this respect is not expressed in political decisions;
- Improvement of science and policy analysis of biodiversity loss needs the development of integrated approaches, based on both ecological and economic information.

Studies regarding the economic valuation of ecosystem service should be considered critically since they are usually a lower estimation of unknown value of ecosystem services. In case of definitive loss of ecosystem we will face absolute rarity and an irrevocable change; such a change could jeopardize human's survival on long term. Because of these interdependencies economic valuation would be only a part of a wider ethical valuation framework. On the other hand, market is barometer of present society being considered the ideal institutional structure for making the best from the use of resource. Nevertheless, there are a number of things that are not marketed, but still are valuable for humans.

### **Total economic value**

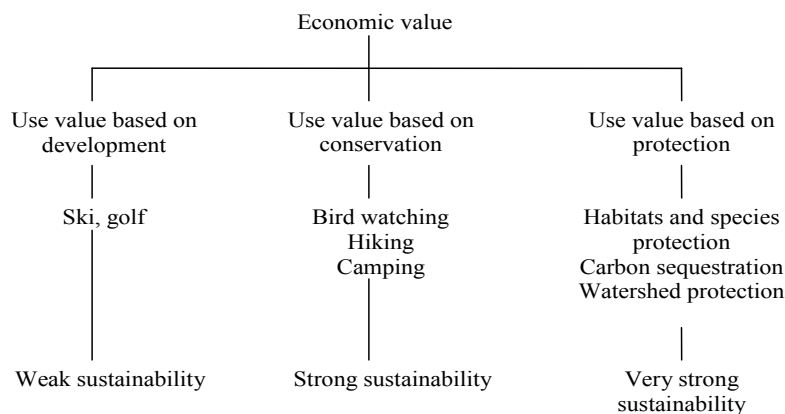
The value of ecosystem services was interpreted differently and the most relevant approaches will be reviewed in this section.

One of the most popular approaches is the model of Total Economic Value (TEV). This model considers that all contributions to human wellbeing should be explicated and organized in order to employ for each of them an adequate measurement method and then find out the total economic value by summing up the values of its components. The structure of the TEV according to Barbier (1994) is as follows:

- Use value that comprises:
  - o Direct use value
    - Extractive: fishing, aquaculture, trade with wildlife species, pharmaceutical products

- Non-extractive: tourism and recreation, research, education, esthetical value
    - Indirect use value: the benefits of ecosystem services that are perceived indirectly such as wildlife, ecosystem, soils, seaside, navigation, carbon sequestration
    - Option value: future direct and indirect use
  - Intrinsic value
    - Quasi-option value: new information obtained by avoiding irreversible loss of species, habitats and biodiversity;
    - Bequest value: the value of transmitting the use and intrinsic value to future generations
    - Existence value: values coming from the fact ecosystems should exist because of a moral conviction

The economic value of ecosystem services is part of the use value and it is related to the needs of cost-benefit analysis. The theoretical basis of economic valuation is the variation of income as compensation or as equivalent for the direct or indirect impact on human's wellbeing due to a certain change in the state of the ecosystem.



*Figure 1. Alternative economic value model applicable to ecosystem service for ecosystem management within protected areas*

Source: Suh, J., Harrison, S. (2005). *Management Objectives and Economic Value of National Parks: Preservation, Conservation and Development*. Discussion Paper no.337, School of Economics, University of Queensland.

The TEV model is the most widespread model to underpin the economic approach of ecosystem services and for the development of economic valuation methods and techniques. Nevertheless, there are opinions according to which this is not consistent with the needs of ecosystem management especially because there is disagreement regarding the belonging of certain categories. For instance, Bateman and Turner (1993) consider the recreational use as indirect use, while Mitchell and Carson (1989), Barbier (1994) included it in direct use category. Further, Walsh et al. (1984) demonstrated that bequest value is a combination of option and existence value.

Suh and Harrison (2005) even proposed an alternative model such as the one in figure 1. In their model, value components are correspondent with the goals of

ecosystem management, namely: protection value, conservation value, and development value. The alternative model of economic value is built considering that the benefits of natural resources could be classified with the spectrum of exploitation-conservation-protection.

*Exploitation* is the complete and maximal use of resource for individual and social gains on the short term. *Conservation* is the rational use of resources, in case of which short term use is temporized by protection in order to secure the continuity for the availability of resource. *Protection* is the non-use of resource, the resource being prevented from any use in order to be kept for future generation.

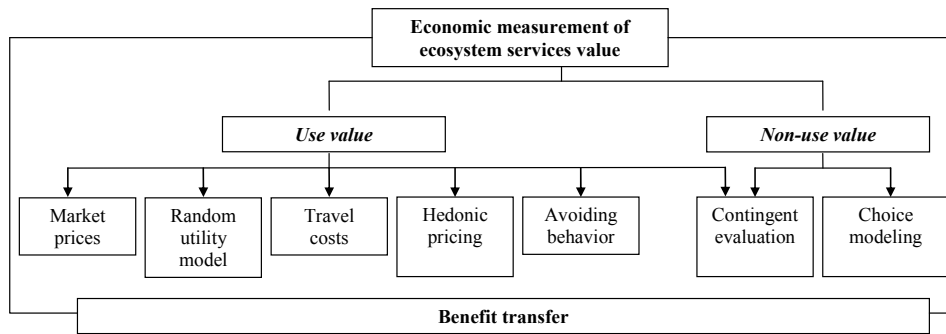
The difficulty of non-use value definition was addressed by Turner (1999) who proposes a more general typology of value. This typology distinguishes four forms of value for environmental resources on the basis of anthropocentrism and use or non-use values (table 1).

*Table 1. Typology of general value*

<p><i>Anthropocentric use value</i>            Equaling TEV = use value + non-use value. The non-use category is limited by the existence of the value concept which is a much debated one. Existence value could comprise one or more of the following motivations:</p> <ol style="list-style-type: none"> <li>i. Intragenerational altruism: resource conservation for ensuring their availability for others;</li> <li>ii. Intergenerational altruism (bequest motivation and value): resource conservation for ensuring their availability for future generations;</li> <li>iii. Motivation of administration: human responsibilities for resource conservation for the entire nature; this motivation could be underpinned by the belief that non-human resources have rights and/or interests and these should not be disturbed.</li> </ol> <p>In case that existence value comprises administration it would overlap the following value category.</p>
<p><i>Intrinsic anthropogenic value</i>            This value category is related with the administration considering the subjective sense of value. It depends on culture. Value is attributed to entities that have their role and instrumentally use other parts of nature for their intrinsic results. It is an anthropocentric concept because there is a human evaluator which prescribes the intrinsic value of non-human nature.</p>
<p><i>Use non anthropocentric value</i>            Entities are considered as having their purpose that is independent from human interests. Comprises collective entities too such as ecosystems. This category cannot gain access to moral consideration on the behalf of humans.</p>
<p><i>Non-anthropocentric intrinsic value</i>            It is given by "inherent value" in nature, the value of an object independently from the value established by the evaluator. It is a meta-analytical claim and implies the search of powerful rules to restrict anthropocentric use values and policies based on them.</p>

Source: Turner, R.K. (1999). *The place of economic values in environmental evaluation*, in *Valuing environmental preferences. The theory and practice of contingent valuation in US, EU and developing countries*. I.J Bateman and K.G. Willis eds., Oxford: University Press, pp.21.

The economic measurement method depends on the possibility that ecosystem services to be or not to be transacted on markets, respectively on the components of the value that is measured. One of the most frequently employed typology of methods and techniques applicable for economic measurement of ecosystem services is presented in figure 2.



Source: adapted after Nijkamp, P., Vindigni, G., Nunes, P.A.L.D. (2008). Economic valuation of biodiversity: A comparative study. *Ecological economics*, 67, pp.217-231.

Figure 2. Economic measurement methods for the value of ecosystem services

The organization of methods is not very sharp. Thus, contingent assessment although is widely used for determining the non-use value could be applied for use value too. For instance, protected areas are evaluated using both methods, the confrontation of methods being considered a possibility to improve the reliability of the results.

Economy is important for ecosystem management because if the economic and financial justification for conservation and protection cannot be highlighted against exploitation it is little probability that individuals, households, industries, companies or government to act for their support. People will continue to destroy environment and exhaust ecosystem resources because they perceive that it is more profitable and economic to act in this way.

## CONCLUSIONS

The opportunity of economic evaluation of ecosystem services for ecosystem management was explored by considering the needs of this activity and the valuation frameworks developed by research. It could be concluded that economic valuation could be a violation of nature's real value for humanity, but it would provide the instrument for nature conservation on short term. The temporal dimension is a very influential premise because non-action results in major and irreversible losses of biodiversity and ecosystem services. The TEV proposed by Barbier (1994) could be considered almost as an exhaustive map of value components and structure, but it has several restrains for ecosystem management. The general value model associated with the methods corresponding to each component offsets this drawback. Economic measurement should provide, according to Emerton (2000) the following information:

- Identification and evaluation of benefits associated with ecosystem service conservation and the analysis of their distribution;
- Identification and evaluation of costs for losing ecosystems services and the analysis of their distribution;
- Evaluation of beneficiaries and cost bearers for conservation and exploitation.

Many ecosystem services are under-evaluated by market, ignored by national and sector policies. Ecosystem services are valued below their real price being overexploited with no protection being treated as free goods that could be exhausted or degraded without supporting the cost of these losses. To reduce the occurrence of such processes there were projected and are implemented a number of policy instrument that are more or less based on studies about the economic value of ecosystem services.

## ACKNOWLEDGEMENT

This work was supported by CNCSIS-UEFISCDI, project number PN II-RU code TE\_336/2010, agreement no. 45/03.08.2010

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# Sustainable rural development

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## ABSTRACT

Rural sustainable development is closely linked to economic and ecological development, involving multiple way and sustainability methods that can be used long term, taking into account a three-dimensional analysis of this space, namely economic, social, and also the ecological one. Adopting measures for sustainable development of the rural area is absolutely necessary, considering the importance and complexity of global agriculture.

*Keywords: rural space, sustainable development, agriculture*

## INTRODUCTION

Rural area is defined by most experts through a reverse reference to the concept of urban space.

Consequently, rural areas gain valence of a space with low numerical density and a reduced population, the main concern being related to agricultural activities (Cândeș et al., 2006). According to recommendation 1296/1996 of the European Parliament Assembly, rural area, including villages and small towns, where land is primarily intended utility following activities:

- agriculture, forestry, aquaculture and fisheries
- economic and cultural activities of the inhabitants of these areas (crafts, industry, services etc.).
- arrangements for non-urban areas for leisure and entertainment (or nature reserves);
- other uses (except housing).

The main types of rural area are the following representative categories:

- Predominantly rural regions with over 50% of the population residing in rural areas;
- Predominantly rural regions with 15-50% of the population residing in rural areas;
- Predominantly urban regions in which more than 15% of the population lives in rural communities.

An area is considered rural if the proportion of the population living in rural settlements exceeds 15% (Blidaru et al., 2008).

*Table 1. National criteria used to classify rural settlements*

<b>Country</b>	<b>National criteria used to classify rural settlements</b>
Austria	Communities with less than 5,000 inhabitants
Denmark	Communities with less than 200 inhabitants
France	Villages containing a crowd of less than 2,000 inhabitants, living in neighboring houses or at a distance of less than 200 meters from each other
Greece	The population of municipalities and communes in which the largest center of population is less than 2000 inhabitants
Iceland	Settlements with less than 200 inhabitants
Ireland	Settlements with less than 500 inhabitants
Luxembourg	Villages with less than 2,000 inhabitants in the administrative center
Netherland	Municipalities with a population of less than 2000 inhabitants but more than 20% of the active population engaged in agriculture, excluding certain residential municipalities of commuters
Portugal	Settlements and other administrative areas with less than 10 000 inhabitants
Sweden	Settlements with less than 200 inhabitants
Scotland	Settlements and other administrative areas with less than 1 000 inhabitants
Spain	Municipalities with less than 2000 inhabitants
Switzerland	Settlements with less than 10 000 inhabitants

Source: (United Nations Demographic Yearbooks)

Rural development includes in its area the types presented in table 2.

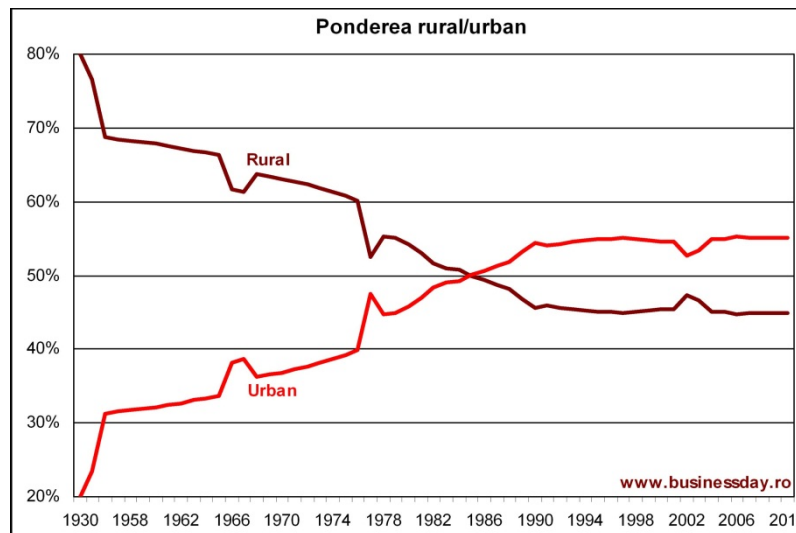
*Table 2. Rural development types*

<b>Type of development</b>	<b>Characteristics</b>
Local development	include the development of a locality and its immediate surroundings targeting villages and towns with farms components
Local-territorial development	higher infrastructure investment aiming more regions (counties)
Transfrontalier development	projects and development programs of border communities in different countries.
Pan-European rural development	scale development programs, including areas in Europe or continentally

The concept of sustainable development refers to the use and sustainable rural organization. Sustainable development implies an efficient use of resources in these areas, so as to ensure the needs of present generations without being affected the interests of future generations.

Current global trend experience a massive expansion of urban areas, which is generated preponderant by the numerically increase population and migration from rural to urban areas.

Expanding urban areas determine the change of spatial organization, but involve economic and social changes whose effects go beyond territorial boundaries and generate a widespread impact due to the fact that at present, urban centers are considered strong development and progress centers, whose attractiveness increased compared to that of rural areas.



Source: [www.businessday.ro](http://www.businessday.ro)

*Figure 1. The ratio between rural and urban population*

Diagnosis and quantification of sustainable rural development include:

- Diagnosis rural area
- Rural development strategy
- Action Plan
- Pilot projects.

Study of sustainable rural development is differentiated according to the criteria and indicators used, but it must end with a synthetic index characteristic for the entire rural space, including physical-geographical criteria, housing, equipment, social, ecological (status indicators), economic, demographic and have a diagnostic function of the state of development and function in identifying and highlighting the important factors in future endogenous development areas (indicators of resources) (Mitrache, 2000).

Sustainable development aims to increase the productivity of individual, community and institution, which can lead to higher income insurance for individuals in rural areas. Development may include in its provisions also growth, but this is not directly related to it.

Sustainable rural development involves the adoption of measures and establishing optimal means of implementation, which requires a long period of time.

According to Bruntland (1985), the objectives set out in this respect are strategic objectives, essential in this respect are:

- Identification concept and practical alternatives to solving strategic issues;
- Establishing obstacles that stand in the way of strategic objectives;

- Make proposals for overcoming obstacles;
- Determining modes of action that will apply long-term
- Developing detailed programs of action in the short term.

For business efficiency and the improving outcomes, but essentially to achieve expected results is necessary to apply successive programs, long term defining parameters in order to ensure improvement of rural area. The ultimate goal of rural development is that rural areas are able, in a sustainable manner to fulfill their functions in society (Mitrache, 2000).

Rural sustainable development concept promoted by United Nations bodies relate mainly to the following aspects (Istudor, 2006):

- equitable and balanced economic development;
- high levels of employment, social cohesion and inclusion;
- accountability for the use of natural resources and environmental protection;
- coherent, open and transparent policies;
- international cooperation to promote sustainable development globally.

The report of colloquium held in 1971 in Rome shows that "through sustainable rural development also means all the measures - government and non-government aimed at disseminating modern techniques among rural populations and facilitating their adoption by those concerned." These techniques aim at:

- increase rural production, productivity and rural incomes;
- increase living standards in economic and social;
- use, development and protecting the environment
- training rural people to active participation in the social life of the community.

Each country, depending on specific conditions adopted its integrated rural development policy. In general, three methods have been tested integrated rural development (Moga and Rădulescu, 2004):

- development in the areas;
- delegation of authority and decentralization of decision-making bureaucracy;
- principle of autonomy.

Sustainable development in terms of ecological conditions are:

- regeneration of natural resources and preserving their natural stock to a normal level;
- pollution at a "minimum level of security";
- observance of biodiversity conservation;
- avoid irreversible effects of economic processes through risk prevention strategies by adapting green technologies through institutional means oriented environment, through measures of equity and the ecological efficiency (Mărăcineanu, 2003).

Course of rural economy and sustainable development of this area is influenced by factors present in each structure component from community members, the local government institutions and local authorities, all having an essential role in sustainable development. Basically, it is necessary to establish local diagnostic strategies based on local socio-economic assessment and along real evidence-based programs and complete to ensure the adoption of the most effective steps towards sustainable development.

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# Using travel cost to provide estimate on the economic value of ecosystem services

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## **ABSTRACT**

Travel cost method (TCM) is considered an approximation of the price that visitors are willing to pay for ecosystem services. The economic hypothesis is the fact that demand is lower when price is high. The method was proposed in 1947 by Harold Holding for the estimation of natural park's value. It is a method projected to measure in monetary terms the benefit obtained by humans by visiting recreation areas. The method was employed widely in USA, Great Britain and Australia. By using the TCM estimation is made departing from the value of procured complementary goods that have market value.

**Keywords:** *ecosystem services, measurement, travel cost method*

## **INTRODUCTION**

Estimates on the economic value of ecosystem services are a valuable input in decision making in many areas with special relevance for ecosystem management. Nevertheless, such estimates are scarce and their procurement involves high costs and long time.

There are a number of methods employed to provide such estimates, with a certain correspondence between the type of value and the method employed. In other words, no method is able to provide an estimate of the total economic value.

The travel cost method (TCM) is one of the methods used to provide such estimates. We will reveal its economic premise that also explains the procedure of its application, type of value estimates that could be obtained and the advantages and drawbacks that should be considered in the interpretation of its result.

The use of TCM is associated with recreational areas, although there are other applications too. Therefore our analysis would be of relevance for ecosystem management of protected areas which are on the short term assigned to become tourist destination.

## ECONOMIC PREMISES OF THE TRAVEL COST METHOD (TCM)

Travel cost is an approximation of visitors' willingness to pay and it is widely employed to reveal the recreational value of natural ecosystems, especially of those situated in protected areas.

The economic foundation of this method is the basic demand function according to which demand decreases when price is increasing. The total benefit of the resource is given by the area that is situated below the demand curve. The total value is in fact the consumer surplus and knowing it allows establishing the entrance fees (Rojanschi et al., 2003).

The estimation is made using the market value of complementary goods procured by consumers, goods that have market value. Most of analyzes indicate two types of TCM: individual and area.

Individual TCM is establishing the relation between the number of annual visits and the costs of the travel and other individual variables (age, sex, education, income) that could influence travel decision. It could be applied only if the variation of the number of visits from one visitors to another is not significant.

The area TCM supposes a division of the analyzed area in more patches that are considered homogenous from the point of view of travel costs that will be supported by potential visitors. The dependent variable is the number of visits for one thousands resident people per year, and will be calculated using relation (1).

$$V_t = [(v_i/n)*N*1000]/p_i \quad (1)$$

where:

- $v_i$  – number of  $i$  patch visitors per year
- $n$  – total number of interviewed visitors
- $N$  – total number of visitors per year
- $p_i$  – total population in  $i$  patch

The rate of area visitation is correlated with the average travel cost resulting in the first part of the demand curve. The curve is used to establish the relation between entrance fees and number of visitors (figure 1).

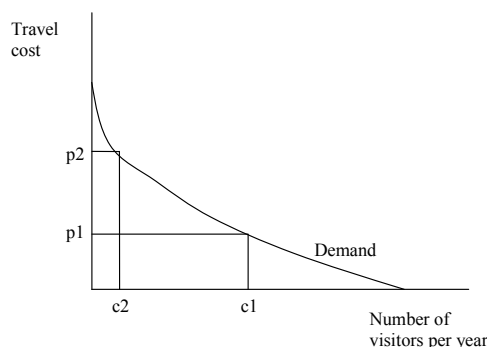


Figure 1. Demand curve

## APPLICATION OF TCM

The data that are needed for area TCM are the following:

- Total number of visitors for a given period: could be obtained from the records of protected areas administrators;

- Origin of visitors (survey);
- Average travel costs (estimations based on survey responses);
- Other costs;
- Duration of staying;
- Duration of travel.

These could be organized as in the model presented in table 1.

*Table 1. Organization of data collected by TCM*

Observation nr.	Nr of visits, r	Travel cost, $cc_r$	Travel cost to other destinations $cc_a$	Incomes, y	Nr of years that the form of recreation was chosen	Nr of children
1	7	45	200	45000	17	0
2	1	150	20	100000	2	2
3	21	12	65	77000	22	1
...	...	...	...	...	...	...
...	...	...	...	...	...	...
N	3	98	25	40000	4	1

The stages of TCM application are:

- Dividing origin area of visitors;
- Selecting a representative sample of visitors;
- Estimating travel cost;
- Calculation of visit rate;
- Obtaining a statistical regression;
- Building the demand curve that expresses the linkage between travel costs and the rate of visits.

Herath and Kennedy (2004) considered for travel cost the following components: access fee, cost of food and cost of transportation. In the calculation it was also integrated the value of time. For the estimate of this there are used different methods, most frequently being applied the ones based on wages that express the opportunity cost of time. For instance, it could be estimated that 50% of the net wage of an unqualified worker.

A brief presentation of the application of TCM is presented in box 1.

*Box 1. Application of TCM*

<p>Assessed ecosystem: private property forest</p> <p>Subject of assessment: which are the economic benefits of forest?</p> <p>Collecting addresses from visitors</p> <p>Repartition visitors on regions</p> <p>Calculation of distance from each region to the forest</p> <p>Calculation of travel cost</p> <ul style="list-style-type: none"> <li>- Distance is converted in travel cost using x lei/km</li> <li>- x lei/km is obtained by including estimates for: <ul style="list-style-type: none"> <li>o fuel cost</li> <li>o a fraction of fix costs</li> <li>o the value of time needed for travel</li> </ul> </li> <li>- there could be made sensitivity analysis</li> </ul>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



#### Estimating the demand for visitation

- for each region it is calculated a travel cost  $TC_i$
- the variation of  $TC_i$  is the variation of price
- variation visitation:  $Q_i$  = number of visits/100 000 inhabitant of region i
- estimation of visitation curves
- other control factors
  - o income in region i
  - o price of other destinations

#### Benefit estimation

- it is established the consummator surplus for each region:  $SC_i$
- the net benefit for region i:  $BN = (SC_i) \times \text{population (100 000 inhabitants)}$
- annual net benefit:  $BAN = NB_1 + \dots + NB_n$
- the value of benefit is expressed in lei/visitor according with the visitation rate (visitors/year)

The method estimates the willingness for visiting a specified area; there are considered the transportation costs that have a direct influence on the number of visits in a certain area. By this method the esthetical value of ecosystems are best estimated. Travel costs are treated as a delegation of access prices that have indication on the willingness to pay for a certain attraction.

The method supposes the application of questionnaires that could comprise the following issues:

- from where were obtained information regarding the destination;
- how is the visiting integrated in planning the travel;
- the purpose of the travel;
- the used access point;
- other places visited around;
- duration of the staying at the destination;
- place and type of accommodation;
- type of group;
- personal characteristics: age, code, number of visits in the last 12 month, number of visitors per group, race/ethnic, use of services and their quality etc.

According to Helberling and Templeton (2009), the TCM model is given by the function (2) and could be constructed using the Poisson model or the model of binomial regression (RBN).

$$C_i = f(s_i; \beta) + c_i \quad (2)$$

where:

$C_i$  – number of travels made by the  $i^{\text{th}}$  visitor within a timeframe;

$s_i$  – the vector of explanatory variables for the  $i^{\text{th}}$  visitor, including travel cost, income, age, type of travel, size of group etc.

$c_i$  – error

In case of the Poisson model it is made a supposition on the equi-dispersion, while the RBN uses a function with different variance, which allows more versions according to the relation between average and variance. The results of applying TCM for various forests in Great Britain are presented in table 2.

Table 2. Estimating the recreational costs for forests in Great Britain using TCM  
-sterling pounds-

Forest	Recreational value per visitor	Number of annual visitors	Total annual value of recreation
Cheshire	1,91	225 000	429 750
Ruthin	2,52	48 000	120 960
Brecon	2,60	41 000	106 600
New Forest	1,43	68 000	97 240
Loch Awe	3,31	3 000	9 930
Newton Stewart	1,61	70 000	112 700
Lorne	1,44	10 000	14 400
Buchan	2,26	84 000	189 840
Aberfoyle	2,57	145 000	372 650

Source: Rojanschi, V., Bran, F., Grigore, F., Diaconu, S. (2003). *Abordări economice în protecția mediului*. Bucharest: ASE Publishing.

In the application of the method there are a number of statistical problems. Thus, the number of travels from the last 12 months is higher than 0 or is limited to 0, fact the lead to biased determination, inconsistency and over-estimation for the consummators' surplus. Meanwhile, the fact that visitors that made many travel are the ones with the highest probability to be interviewed generated endogenous stratification issues that if there are not corrected will lead to over-estimation. Other problems that could alter the results of estimate are:

- transposing travel cost in money;
- considering travel as benefit, not cost;
- the analysed destination are not unique for the visitor who could made circuits;
- subjectivity;
- limited capacity to capture the on-use vale and the value resulting from the use of ecosystem services by local population.

The advantages of using TCM are:

- the method is very similar to conventional empirical techniques used by economist for measuring economic value based on market prices;
- is based on expressed behaviour (preference);
- field surveys allows to use large samples, visitors being interested in participation;
- results are relatively simply to be interpreted and explained.

## CONCLUSIONS

The TCM is an appropriate method to estimate demand for recreational services, therefore for the benefits resulting from their protection and enhancement. The method is applied very well for remote places where the access is made by car and where the characteristics of the place are constant. Meanwhile, it has good results where people consider travel time as cost.

## **ACKNOWLEDGEMENT**

This work was supported by CNCSIS-UEFISCDI, project number PN II-RU code TE\_336/2010, agreement no. 45/03.08.2010

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# Adventure Tourism – A Fundamental Pillar in the Development of Sustainable Tourism

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## **ABSTRACT**

This article presents some aspects regarding adventure tourism as well as the situation of the ATDI Index – Adventure Tourism Development Index. The latter used in recent years a range of pillars in order to find out which are the states with the highest representativeness in the adventure tourism field. Data was provided by several global institutions and is in a direct agreement with the appraisals of international experts. Romania has ascended in world's top ten developing countries, occupying the 9<sup>th</sup> place in 2010. At the same time, the current article presents the situation regarding the Romanian adventure tourism, both with its advantages and limits.

**Keywords:** *trips, adrenaline, adventure tourism, ATDI*

## **INTRODUCTION**

At the global level, tourism has an important position in economy. In the developed countries and developing countries in the same time, tourism is highlighted through a sustainable economic growth (Ashley, 2009).

Also, tourism is defining through its direct or indirect effects and even through its tertiary effects, all of them leading to the “multiplier effect”. On the whole, this can be translated through:

- the direct effects – including tourism agencies, air plane companies, hotels, restaurants;
- the indirect effects - communication services, marketing, including Internet facilities, team-building, etc;
- tertiary effects - arising from trading activities, shops, museums, festivals, concerts, cultural or sports events and so on. Lately, new forms of tourism have appeared among which adventure tourism can be listed.

According to the Romanian Explanatory Dictionary, adventure tourism refers to “a risky, reckless, dangerous and very brave action”. This means that the tourist, the person who practices adventure tourism should possess many skills, including knowledge, wisdom, physical ability and training. On the other hand, all these are combined with adrenaline, with the desire for adventure or to meet new things, to see farther over hills, valleys and waters.

In this way, adventure tourism, by his travels and adventures, heads for multiple forms of knowledge, often complex ones, but full of transparency.

More than that, an adventure travel may become a real life lesson, because the horizon of knowledge is expanding, going further, to the emotional and moral side (Comanescu, 2008).

On its turn, this type of tourism can be easily divided into soft adventure tourism and hard adventure tourism. The first type of tourism, the soft one, encompasses a large category of individuals out of the total number of tourists, examples here being hiking, walking, cycling, boating, horseback riding, swimming, skiing on the mild or moderate slopes. In exchange, hard adventure tourism involves a high degree of risk that requires intense effort, energy and training. Being risky one, it attracts a smaller number of tourists than the first case.

In general, light adventure tourism refers to a single sport, but in some cases may include multiple activities. What is interesting to note is that there isn't a certain age group for this type of tourism and these people usually express a desire to ecotourism, offering respect to nature, being willing to learn new things through this particular area, paying a special interest for traditional cuisine and local customs.

Among the main features of adventure tourism we can find the following:

- usually, it has a high risk;
- it requires a minimal training, specific skill and a good shape;
- it takes place in little or no populated areas, in areas difficult to reach.
- it can be practiced throughout the calendar year, both summer and winter.

Therefore, man's need for adrenaline began to insert new types of activities, as there are climbing, aviation sports, water sports, paragliding, motocross and more, all these becoming, in time, opportunities for the achievement of adventure tourism (Nistoreanu, 2005).

## **ADVENTURE TOURISM DEVELOPMENT INDEX**

Internationally, for several years, a specific index of adventure tourism called Adventure Tourism Development Index (ATDI) has been introduced. This index is the joint effort of several institutions - Adventure Travel Trade Association – ATTA, The George Washington University and Xola Consulting. The indicator as well as the way of calculating it is published annually, both for developed countries and for the developing ones (currently 28 developed countries and 164 developing ones).

ATDI is based on the principles of sustainable development of adventure tourism. The ATDI target score of a country does not necessarily reflect the popularity of adventure tourism but there are cases when scores are awarded in accordance with that state's reputation for this type of tourism. A classification of states is thus obtained, by applying a poll according to several quantitative data from international indicators. State's security and hospitality are usually hinted at, as well as the training in the field of adventure tourism or the resources for this area. In 2010, the three entities have conducted a study which showed that 26% of tourists engage in this type of tourism industry \$ 89 billion (The George Washington University, ATTA & Xola, 2009). Further, it can be seen that adventure tourism, even during the recession, registers a growth estimated at 17% annually, from December 2009 to December 2010. The main purpose of this indicator is to promote sustainable development of adventure tourism. In this way, support for entrepreneurs and governments involved in creating sustainable products and services in the area of adventure tourism is offered, bringing with itself a

certain support for the environment and the local community. States are ranked according to ten principles of the adventure tourism competitiveness, principles which were proposed by the Xola Consulting Company.

*Table 1. The three types of calculation methodologies of the ATDI Index and its related pillars*

Safety and hospitality	Adventure	Readiness
<ul style="list-style-type: none"> <li>➤ sustainable development</li> <li>➤ safety and security</li> <li>➤ <b>natural resources</b></li> <li>➤ <b>health</b></li> </ul>	<ul style="list-style-type: none"> <li>➤ entrepreneurship</li> <li>➤ adventure activity resources</li> </ul>	<ul style="list-style-type: none"> <li>➤ humanitarian</li> <li>➤ infrastructure</li> <li>➤ cultural resources</li> <li>➤ image</li> </ul>

Source : Adventure Tourism Development Index, 2010 Report, [http://www.adventureindex.travel/docs/atdi\\_2010\\_report.pdf](http://www.adventureindex.travel/docs/atdi_2010_report.pdf), p.10

ATDI enjoyed the presence of 316 experts, each with over 5 years of experience within the adventure tourism industry. These experts are also advised to comment on any state which they have visited in the last five years. Moreover, an expert can comment on several states. There is an equal number of men and women, all with an average of twelve years of experience in tourism. Among these people, 54% were tour operators, 17% travel writers and 5% worked for the development of tourism. The remaining 25% worked in areas such as consulting, hospitality, destination management organizations or a mixed situation.

The pillars corresponding to the three types of calculation of the ATDI index can be described as follows:

1. Sustainable development – takes into consideration the environmental performance index and unemployment rate per state (as total number of workforce).
2. Safety and security – brings to the foreground the index of perceived corruption, the threats of foreign travellers and the opinions of experts.
3. Health – takes into account the number of hospital beds available for 1000 people and the number of doctors for 1,000 people.
4. Natural resources – this indicator consists of urban concentration, population density, the number of coastal kilometres and, last but not least, the number of coastal miles compared to the entire state.
5. Cultural resources – include the World Heritage sites of UNESCO and the protected areas relative to the total area of the state.
6. Resources for adventure activities – this includes all sports and activities that make up the adventure tourism area and at the same time protected species of forests, green spaces, etc
7. Entrepreneurship – considers business freedom, trade freedom, fiscal freedom, government size, monetary freedom, investment freedom, financial freedom, rights owners, free labour and corruption freedom.
8. Humanitarian – the index of a harmonious planet, the density of NGOs and their presence.

9. Tourism infrastructure – consists of "heavy" infrastructure such as roads, airports, access roads, and a "soft" infrastructure – maps of the routes, accessible information regarding the patrimony and the culture, training for adventure tourism, guides, ecologists, etc.
10. The image of a country – is based on the application of questionnaires regarding tourist perceptions of those countries, data which are analyzed and completed by experts.

Table 2. The situation of developing countries between 2008 and 2010

Source: Adventure tourism development

WEIGHTED RANKING 2008				WEIGHTED RANKING 2009			
Rank	Country	ISO3V10	ADTI score	Rank	Country	ISO3V10	ADTI score
1	Estonia	EST	17	1	Slovak Republic	SVK	30
2	Chile	CHL	34	2	Israel	ISR	37
3	Slovak Republic	SVK	51	3	Czech Republic	CZE	42
4	Czech Republic	CZE	59	4	Estonia	EST	51
5	Hungary	HUN	71	5	Slovenia	SVN	52
6	Botswana	BWA	77	6	Chile	CHL	61
7	Bulgaria	BGR	79	7	Bulgaria	BGR	68
8	Jordan	JOR	79	8	Latvia	LVA	72
9	Latvia	LVA	80	9	Botswana	BWA	83
10	Uruguay	URY	82	10	Lithuania	LTU	84
...	.....	.....	.....	11	<b>Romania</b>	<b>ROM</b>	<b>88</b>
<b>21</b>	<b>Romania</b>	<b>ROM</b>	<b>115</b>				

WEIGHTED RANKING 2010			
Rank	Country	ISO3V10	ADTI score
1	Israel	ISR	40
2	Slovak Republic	SVK	41
3	Chile	CHL	50
4	Estonia	EST	52
5	Czech Republic	CZE	55
6	Bulgaria	BGR	74
7	Slovenia	SVN	76
8	Jordan	JOR	78
<b>9</b>	<b>Romania</b>	<b>ROM</b>	<b>82</b>
10	Latvia	LVA	83

index, <http://www.adventureindex.travel/downloads.htm>

According to the table above it can be seen that, in general, European countries hold the top ranking, especially Eastern Europe. In 2010 Israel, Slovak Republic and Chile were designated as the developing countries with the best perspective on adventure tourism. Regarding the situation of developed countries, one can say that in 2010, the top five was composed of Switzerland, Iceland, New Zealand, Canada and Germany.

## ROMANIAN ADVENTURE TOURISM

In terms of tourism potential in general, Romania has an important fund that can be exploited by international tourists, especially in terms of adventure tourism. This fact is materialized through the existence of the Carpathian Mountains with rivers and heights that allow the practice of most of the following sports: paragliding, skiing, climbing, bungee-jumping, rafting and kayaking, off-road and driving ATVs.

*Table 3. The ATDI index for Romania, 2009*

Sustainable Development	Health	Natural Resources	Adventure Activity Resources	Entrepreneurship	Humanitarian	Cultural Resources	Infrastructure	Image	ADTI score
7.78	3.96	6.34	7.29	7.32	3.83	5.69	8.29	8.86	65,69

Source: 2010 Adventure Destination Tourism Index (ADTI), <http://www.adventureindex.travel/downloads.htm>

*Table 4. The ATDI index for Romania, 2010*

Sustainable Development	Health	Natural Resources	Adventure Activity Resources	Entrepreneurship	Humanitarian	Cultural Resources	Infrastructure	Image	ADTI score
7.22	1.58	4.69	9.90	7.18	2.30	5.60	7.58	9.52	55,57

Source: 2010 Adventure Destination Tourism Index (ADTI), <http://www.adventureindex.travel/downloads.htm>

The above tables are presented to show the trend encountered in Romania, a comparison between 2009 and 2010. Thus, in 2010, Romania has climbed within the ATDI ranking, mainly due to the resources related to the adventure tourism activity and the image of the country, ranking up to the 9th place among all the developing countries.

The table below describes the most relevant data of 2011 for Romania in terms of competitiveness in tourism, in general:

*Table 5. Travel and tourism competitiveness index for Romania*

Field	Rank Score (out of 139)	Score (1–7 scale)
Environmental sustainability	50	4.8
Safety and security	35	5.4
Health and hygiene	59	5.1
Prioritization of Travel & Tourism	80	4.4
Air transport infrastructure	81	2.8
Ground transport infrastructure	101	3.1
Tourism infrastructure	38	5.0
Affinity for Travel & Tourism	95	4.4
Natural resources	94	2.7
Cultural resources	41	3.3

Source : The Travel & Tourism Competitiveness Report 2011, [http://www3.weforum.org/docs/WEF\\_TravelTourismCompetitiveness\\_Report\\_2011.pdf](http://www3.weforum.org/docs/WEF_TravelTourismCompetitiveness_Report_2011.pdf)

In this case, according to The Travel & Tourism Competitiveness Report 2011, safety and security, tourism's infrastructure and cultural resources, place Romania on a higher position in the ranking of 139 countries analyzed in the report. At the other end, prioritizing tourism, air and the ground infrastructure and the affinity for travel are the limits for Romania. However, it is remarkable the climbing from the 66th place in 2009 to the 63rd in 2011.



## CONCLUSION

Here, you should provide a discussion on the overall coverage of the paper and include your concluding remarks. In what concerns Romania, lately it can be noticed a growing interest towards adventure tourism. This comes due to the fact that tourists want a continuous diversification of how to have fun and spend their holidays. The ATDI index benefits are multiple, especially because it provides the data about one country's potential in terms of adventure tourism. It provides, at the same time, an annual review in order to see the progress or regress in a given country. Instead, ATDI features several limits, either because it cannot show a perfect way of calculation or in some cases there are missing data and information. In this case, regional averages are used which equals to a deviation from the actual outcome, especially because ATDI mainly aims at the country as a whole and not the locations designed for adventure tourism.

Romania must continue to develop land and air infrastructure, including tourism infrastructure, although it made some progress in recent years and it has to encourage entrepreneurship as much as possible to achieve a lasting and sustainable tourism consistency.

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