

ORIGINAL PAPER

Agri-Environmental Policy in Poland: Challenges and Evaluation Approaches

Jadwiga Ziolkowska, Humboldt University of Berlin

KEY WORDS Agri-environmental policy, agri-environmental measures, transformation

UDC: 338.43.02:719.502.2 JEL: Q1, Q5

ABSTRACT - *The main objective of the paper is to investigate challenges for the agri-environmental policy in Poland and to detect methodical approaches which can be used for the evaluation and design of agri-environmental measures to make them more effective. Analysing the development of the agri-environmental policy in the transformation process in Poland, before and after the accession to the European Union, we state that several changes are necessary to improve the efficiency and effectiveness of agri-environmental measures in Poland. The acknowledged methodical approaches can be helpful to evaluate agri-environmental measures and to specify problems to be solved in the following years.*

Introduction

Before the transformation process in Poland, the necessity of environmental protection in rural areas has not been promoted very widely. The reason was the belief that environmental pollution was caused by the industry. In the following years of the transition process and before the accession to the European Union, several measures have been undertaken in order to improve the environmental protection in agriculture. Thus, in the course of the structural change in the Polish economy, also changes in the agricultural and environmental policy have appeared.

Since the accession of Poland to the European Union (EU) in May 2004 agri-environmental policy is obligatory for the policy of rural areas according to the EU regulation 1257/99 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF) (*Europäische Kommission, 1999b*). Also agri-environmental measures are realised in Poland as regular political instruments. As the agri-environmental policy is new in Poland, no empirical evaluation has been undertaken until now. The only available descriptive evaluation delivered by the Ministry of Agriculture and Development of Rural Areas is based on statistical data regarding the number of participating farmers and the budget amount spent on supporting the agri-environmental measures.

According to the EU regulation farmers realising agri-environmental measures are supported with compensation payments for their services for the environment. Thereby, following objectives should be promoted with agri-environmental measures:

- Ways of using agricultural land which are compatible with the protection and improvement of the environment, the landscape and its features,
- Natural resources, the soil and genetic diversity,
- An environmentally-favourable extensification of farming and management of low-intensity pasture systems,
- The conservation of high nature-value farmed environments which are under threat,
- The upkeep of the landscape and historical features on agricultural land,
- The use of environmental planning in farming practice.

According to the European Commission (*n.d.*), the agri-environmental measures are direct instruments to protect the environment in rural areas apart from the direct stimulation measures e.g. land set-aside scheme or the „Cross-Compliance“ (obligatory environmental requirements which have to be fulfilled to be eligible for direct payments from the first pillar of the Common

Agricultural Policy – CAP). Agri-environmental measures are interpreted as the most important instruments of environmental protection in rural areas in the national policy after the accession to the European Union. Therefore, we focus our investigation and discussion on these measures and do not address the other instruments.

In this paper we discuss the development of the agri-environmental policy in the transition process of the Polish economy. Additionally, we analyse changes occurred in the regulation of the agri-environmental policy before and after the accession of Poland to the European Union. Against this background we analyse challenges resulting for Poland in the following years and discuss methodical approaches which can be used for the evaluation and design of agri-environmental measures to make them more effective and objective-oriented.

The paper is structured as follows. First we present the development of the agri-environmental policy in the transformation process and continue the discussion for the pre-accession phase to the European Union. Next, we present the implementation rules and the realisation of agri-environmental measures after the accession to the European Union. In the following chapter we analyse challenges for the agri-environmental policy in Poland. Next, we compile and discuss possible methodological approaches which can be used in the evaluation and design of the agri-environmental policy. According to the experience with these methods in other countries of the European Union, we discuss advantages, potentials and difficulties connected with the implementation of the respective approaches.

Agri-environmental policy in Poland in the transformation process

Since May 2004 Poland is a new EU member state. With the accession to the European Union Poland adopted the “*acquis communautaire*” and thereby agri-environmental programmes were acquired as obligatory measures for the policy of rural areas. Agri-environmental measures are realised within the National Agri-environmental Programme which is a new paradigm in Poland.

The very first political discussions on the necessity of environmental protection in Poland were initiated in the 70-th, when the environmental protection was defined as a new political purpose. In 1976 the environmental protection has been established in the Polish constitution (*Welfens, 1993*). In the centrally planned economy, the economic progress had a priority against the environmental protection in rural areas.

After the economic changes and the transition from the centrally planned economy to the free market economy, a heterogeneous picture of environment was stated in Poland. On the one hand, immense environmental pollution caused by the industrial sector was found; on the other a lot of protected areas and natural resources were maintained. This phenomenon is called „post-communist paradox” these days (*Sandberg, 1999, p. 48*). Additionally, the low importance of the environmental protection in agriculture was determined by the fact that the factual measured pollution of the air, ground and water was ascribed to the industrial development. Due to the great importance of market-oriented agricultural activities, environmental problems such as ground and water pollution, accumulation of chemical pollutions, emissions of fertilisers were not discussed by political stakeholders. Moreover, economic and social problems in rural areas e.g. smallholder farming and missing information about the necessity of the environmental protection in agriculture or else missing political instruments were the main problematic issues in the transition process which inhibited the development of agri-environmental policy in Poland (*Sapek, 1998, p. 78*).

The first concrete environmental measures in agriculture were defined in 1990 with the „National Environmental Policy” (*Ministry of Environmental Protection, Natural Resources and Forestry, 1991*). Following, new environmental organisations were established, e.g. Inspection for Environ-

mental Protection, Polish Ecological Club, National Fund for Environmental Protection and Water Policy. Environmental measures were, however, mostly supported by international and private foundations. The political comment from 1991 "Environmental Protection Policy of the Country" had the aim to diminish the agricultural pollution. In 1992 on behalf of the National Fund for Environmental Protection and Nutrition Policy the study "The Pro-Ecological Orientation of Polish Agricultural Policy at the End of the 20th Century" was published, which promoted a coherent agri-environmental policy (OECD, 1999, p. 31). In 1994, the document "The Outlines of Socio-Economic Policies for the Polish Countryside, Agriculture and Food Processing Industry until the year 2000" was published by the Polish Ministry of Agriculture and Nutrition Policy in which potential disadvantages of the agricultural production for the environment were presented. Since then, the environmental protection policy in rural areas was characterised by two targets: firstly – the necessity to remove environmental pollution caused by the industrial sector from the time of the centrally planned economy (OECD, 1995), secondly – the wish to access the European Union. In 1997 sixteen working groups for different sections of the Common Agricultural Policy were established in the Polish Ministry of Agriculture and Nutrition Policy such as e.g. "Structural Funds and Rural Development" or "Agriculture and Protection of Agricultural Environment" (Ministry of Economy and Food Agriculture, 1998). Hence, the terms "environmental protection in agriculture" and following "agri-environmental policy" have been adopted very quickly. In March 1997 the project "Green Lungs of Poland" was initiated in the East-northern part of Poland with the aim to create a basis for the future agri-environmental programmes according to the EU regulations (Tederko, 2000). Also other measures were planned and partially realised in preparation for the EU accession.

Agri-environmental measures in Poland before the EU accession

Before the accession of Poland to the European Union, no political regulations promoting environment-friendly measures in agriculture existed. The national budget expenditures were planned to a low extent also for environmental tasks such as:

- Preservation of domestic farm animal species,
- Support for ecological farming,
- Advisory services for farmers with regard to fertilisation and usage of pesticides (Klisowska, 2001, p. 79).

The first successful agri-environmental measures supported by the European Union were realised in 2000 and 2001 within the EU project Phare99 in two regions of Poland: Subcarpathia and Warmia-Masuria. The responsibility for the implementation of the measures was by the Polish Agency for Management Development, whereas the realisation was coordinated and controlled by the Ministry of Agriculture and Development of Rural Areas. Within the project, 277 farms in the voivodship Subcarpathia (from the 386 applications) and 131 farms in Warmia-Masuria (from 213 applications) were supported (UMWP, 2003; Faber and Duer, 2001; Domagalska, n.d.). In the following, additional agri-environmental measures were planned within the program SAPARD (Special Accession Programme for Agriculture and Rural Development) for the period 2000-2006. With this Programme, the adaptation of the Polish regulations to the European "acquis communautaire" should have been prepared and concrete realisation patterns for agri-environmental measures should have been delivered. The measures were planned as continuation of the Phare99 and as complementary instruments for the Phare2000 as well as Phare2001 which supported ecological farming with 2,5 million € (MRiRW, 2004b, p. B2). The measures were planned in chosen regions in

Poland with immense problems of natural protection or else in regions with valuable natural resources such as:

- Warmia-Masuria (13 500 ha) – high erosion problems,
- Subcarpathia (4 000 ha) – problems with fallow land,
- Valley of Warta-River (1 500 ha) – natural protection area for different bird species,
- Valley of Narew and Biebrza Rivers (11 000 ha) – the biggest peat and bog areas in Europe, biotopes for bird species of international importance.

Ecological farming was approved to be realised in each region of the country. The assessment of the regions was conducted on behalf of experts representing following institutions: Ministry of Agriculture and Development of Rural Areas, Ministry of Environment, Institute for Melioration and Greenland, Institute for Farming, Fertilisation and Soil Sciences, Institute for Agricultural Economics and Nutrition Policy, and the National Advisory Centre for Development of the Agriculture and Rural Areas. In general, the area of 30 000 ha and 3 500 farmers should have been engaged in the realisation of the agri-environmental measures under SAPARD 2000-2006 with the budget of 2 % of the total SAPARD-expenditures. The Programme should have been co-financed by 75 % from the EU budget (*Faber and Duer, 2001, p. 66*). For the time period 2000-2006, 22,3 million € were planned for agri-environmental measures and the annual payment rate was set to 120 €/ha (*MRiRW, 2002*). Due to changes in political strategies and missing legal rules for the appropriate implementation of the agri-environmental measures, the planning and realisation of agri-environmental measures was abandoned under the SAPARD in order not to hinder other political instruments of the SAPARD-Programme (*MRiRW, 2002, p. 117-121*). Apart from dissatisfaction of farmers, the Ministry of Agriculture and Development of Rural Areas advised to more precisely prepare agri-environmental measures. According to the statement of the Ministry, in the face of the awaiting accession to the European Union, the priorities should be placed on the preparation of agri-environmental measures under the National Agri-environmental Programme 2004-2006 (*Zysk, 2002*).

Agri-environmental measures in Poland after the EU accession

After the accession of Poland to the European Union and the implementation of the “*acquis communautaire*” agri-environmental measures became obligatory for the policy of rural areas. In the first membership period 2004-2006 the agri-environmental measures were co-financed from the European Agricultural Guidance and Guarantee Fund (EAGGF) and from the Polish state budget.

The support for agri-environmental activities is granted to farmers who are owners or tenants of farm land of more than 1 ha and who oblige themselves to meet all agri-environmental commitments for at least five years. The agri-environmental measures exceed the requirements of the “good agricultural practice”. Therefore, additional realisation costs resulting for farmers should be reimbursed with public funds in form of compensation payments. The support should be calculated by responsible national or regional administration offices on the basis of: income losses, additional costs resulting from the commitment given, and the need to provide an incentive (stimulation premium). The compensation rates for agri-environmental measures can be enlarged by 20 %, provided one measure is realised on the NATURA-2000 protection areas or in the case when in organic farming system, plant production is balanced with animal production.

In the negotiation process seven agri-environmental measures (‘Sustainable agriculture’, ‘Organic farming’, ‘Extensive meadow farming’, ‘Extensive pasture farming’, ‘Ground and water protection’, ‘Buffer zones’, and ‘Domestic farm animal species’) were proposed by the Polish Min-

istry of Agriculture and Development of Rural Areas and approved afterwards by the European Commission.

Due to a differentiated system of cost calculation for the respective agri-environmental measures and due to different instructions for the monitoring process, the agri-environmental measures were divided in 40 realisation options. Additionally, agri-environmental measures can be realised horizontally (in all regions in Poland) as well as regionally (in specific priority zones). While the measures 'Organic farming', 'Ground and water protection', 'Buffer zones', and 'Domestic farm animal species' are realised in all regions of the country, the 'Sustainable agriculture', 'Extensive meadow farming', and 'Extensive pasture farming' can be realised only in the 69 priority zones in Poland.

The agri-environmental measures are realised within the National Agri-environmental Programme. The National Agri-Environmental Programme is an integral part of the Plan for Development of Rural Areas (PROW). The available budget for agri-environmental measures amounted to 348,9 million € for the time period 2004-2006 and was stepwise extended in the following years: 70,5 million € in 2004, 116,2 million € in 2005 and 157,7 million € in 2006 (*MRiRW, 2004a, p. 129*). The co-financing rate for agri-environmental measures amounts to 80 % from the EAGGF which results from the fact that all regions in Poland were ascribed as "objective-1-regions" [1] (*European Commission, 2003, p. 20*). The other 20 % are financed from the Polish state budget. The budget expenditures can be utilised according to the "n+2" rule during two following years after the finish date of the Programme. After this time, the budget not used for the approved objectives has to be repaid to the European Union (*Europäische Kommission, 2004*). Thus, due to a low interest of farmers in the agri-environmental measures in Poland in the first membership period 2004-2006, the Committee for Monitoring of the Plan for Development of Rural Areas decided on the 23.11.2006 to shorten the budget for the National Agri-environmental Programme by 37 % down to 218,9 million € (*MRiRW, 2007*).

The National Agri-environmental Programme is defined, planned and coordinated by the Polish Ministry of Agriculture and Development of Rural Areas. The competences regarding the preparation, realisation and control processes rest on the national and regional offices of the Agency for Restructuring and Modernisation of Agriculture. However, regional experts, stakeholders or farmers have no impact on political decision-making processes in agri-environmental policy.

Challenges for the agri-environmental policy in Poland

Agri-environmental measures are regular political instruments which create chances both for farmers which directly benefit from financial support and for the society due to an improvement of environmental quality. However, the agri-environmental measures create also a great challenge as the idea of environmental protection in agriculture realised in the form of regular political instruments is relatively new in Poland. Therefore, little experience is given in this term and no practical implementation patterns are known, especially by political decision-making committees. Thus, decision-making with regard to environmental objectives is not familiar to political stakeholders, farmers, or the society.

The first challenge is the fact that financial support from the first pillar of the CAP for market-oriented farms is strictly dependent on the implementation of "cross compliance" – environmental rules which have to be fulfilled to be eligible for direct payments. Challenging for farmers is to implement new requirements and to adopt farming systems to new regulations. For political stakeholders the challenge is given by the necessity to undertake appropriate measures to make agri-environmental policy more effective and to alleviate the further evaluation process.

According to the experience with agri-environmental policy in the EU-15 as well as to a case study conducted in Poland (*Ziolkowska, 2007*) challenging is to influence farmers perception of agri-environmental measures and to show ways to understand the measures as not only supported activities but also as instruments which can directly improve the environmental quality. Thus, challenging is to sensitise farmers for the problems of the natural protection and to teach them to be not only producers but also 'nature guards', which undoubtedly would strengthen their social role.

Several analyses on agri-environmental measures proved that the compensation payment rates in Poland are assessed as insufficient to reimburse all costs resulting for farmers from the implementation of the measures. Indeed, the compensation payment rates were calculated by the Ministry of Agriculture and Development of Rural Areas on the basis of income losses and other costs estimated within an economic survey of farms in the three following years 1999, 2000, and 2001 (*Rada Ministrów, 2004*). However, the calculation does not contain any stimulation premium. This fact can have contra-productive effects for farmers in a long term perspective. Thus, the compensation payment calculation covering all costs of implementing the agri-environmental measures is an important challenge for Poland. Alternatively, other approaches can be recommended such as bidding payments successfully used in the US. According to this system farmers participating in the Conservation Reserve Programme offer their environmental services to the state (*Reichelderfer and Boggess, 1988*). Thus, prices are estimated for the respective environmental services of the applying farmers and only the offers are accepted which can be realised by the minimal costs and which simultaneously promise the highest environmental benefits (*s.a. Latacz-Lohmann, 1993; Lehmann, 2005, p. 4-6*). Although this system is very successful in the US, it has not found any wide acceptance in the European Union until now.

Additionally, in the first membership period of Poland in the European Union the investment costs for agri-environmental measures had to be covered by farmers, which was a serious financial challenge. The recent evaluation of the National Agri-environmental Programme in Poland helped to improve the implementation regulations and established the investment costs as an integral measure ("non-productive investments") in the National Agri-environmental Programme 2007-2013 (*MRiRW, 2006a,b*).

Also the evaluation of agri-environmental measures is challenging also due to the fact that the effects of agri-environmental policies can be estimated in a long-term perspective. Moreover, the environmental effects can be influenced by other external effects of economic activities in other sectors and can be measured only by means of concrete indicators. *Linckh et al. (1996, p. 22)* and *Bussmann et al. (1997)* proved that environmental elements such as water, ground, air, biodiversity, and landscape can be influenced by different external factors. Therefore, the extent and the effect quality of agri-environmental measures can not be assessed in the short perspective, which is the state in Poland nowadays.

Agriculture is said to "produce" both positive and negative external effects. As difficult applies to completely cover all external effects and evaluate them with economic monetary approaches. Potential indicators can be helpful, however, in many cases, they can not reflect all aspects of the complex agri-environment. Thus, economic evaluation approaches are in several cases inappropriate to characterise intangible (immeasurable) characteristics or effects of agri-environmental programmes. The evaluation of agri-environmental measures is of a particular importance as usage of natural resources has a great influence on the social welfare, apart from the externalities (positive externalities – external economies or negative externalities – external diseconomies). According to the recommendations of the European Commission, the externalities should be analysed possibly on the lowest administrative level in order to consider typical environmental, political, and institutional conditions/ contexts of the regions (*Europäische Kommission,*

2000, p. 15). Thus, the challenge resulting for the evaluation and realisation of agri-environmental measures in Poland is to design and implement the measures on the regional level (in voivodships – regional administrative units) which is opposite to the current conception in Poland to design the agri-environmental measures on the national level. The positive results of regional responsibilities for agri-environmental measures were proved by several studies. The German Agricultural Association and World Wide Fund For Nature (WWF) proposed recommendations for the future design of agri-environmental programmes in the European Union. According to it, the adaptation of agri-environmental measures to specific regional conditions and priorities can help to more effectively design and finance the programmes (DLG, 2002).

Other challenges for the Polish agri-environmental policy are related to the cooperation between regional and national entities and stakeholders in terms of design and evaluation of the National Agri-environmental Programme. In Poland, this cooperation is given between the Ministry of Agriculture and Development of Rural Areas and the national and regional offices of the Agency for Restructuring and Modernisation of Agriculture. However, the plans to develop and finance the National Agri-environmental Programme are taken on the national level without any participation of regional stakeholders or farmers. The practitioners are, however, the persons who best know regional necessity and priorities with regard to environmental protection. In this term, the integration and tighter cooperation between national and regional stakeholders and decision-makers would be beneficial both for farmers and the environment (DLG, 2002).

Moreover, DLG recommends replacing the current activity-oriented measures (payments for the realisation of the measures) by the result-oriented measures (compensation for the actual environmental outputs). Thereby, higher efficiency can be achieved and potential negative external effects (spillover effects or farmers' income losses) can be minimised (Latacz-Lohmann, 1995). From the other point of view, the result-oriented realisation pattern of agri-environmental measures would discourage many farmers and bring the question if all investment costs met nowadays can be reimbursed on the base of the achieved outputs in the future. The proposition of the DLG seems to be effective and efficient to improve budgeting of the agri-environmental policy. However, at the current development stage of agri-environmental measures in Poland its adaptation would result in a decreasing participation in the National Agri-environmental Programme.

Other difficulties and challenges for the evaluation of agri-environmental programmes result from different environmental conditions and different usage of natural resources in different regions in Poland. The fragmented structure of the Polish farms (the average farm size in Poland amounts to 8,6 ha (Dmochowska, 2003)), the diversification of the agricultural production, simple farming systems with a huge variety of biotopes are characteristics which require to define different objectives in each region. However, in each voivodship the same agri-environmental measures with the same objectives are realised. Thus, a risk exists that the compensation payments for the realisation of agri-environmental measures will be used by farmers in region, in which no problems occur or else the problems are very minor. Thereby, aside-effects of agri-environmental measures can be stated (spillover effects). In order to minimise such negative effects, regional conditions should be considered in political strategies.

Other problems connected with the evaluation processes are missing methodological and conceptual evaluation tools. Also missing reference data, limited data access or high evaluation costs inhibit evaluation processes of the agri-environmental policy. These problems can be already stated in Poland. Due to the complex character of the programmes, the named difficulties can not be abolished. They create, however, a challenge to diminish negative or limiting factors in the evaluation processes.

The evaluation and design of the agri-environmental policy with the aim to achieve possible maximal environmental effects is very complex. The discussion shows, however, that the environmental effects can be maximised while planning the agri-environmental measures on regional levels considering concrete environmental, economic and social conditions.

Evaluation approaches for agri-environmental policy in Poland

Due to a short experience with agri-environmental policy in Poland the methodical evaluation approaches have not been implemented to a wide extent until now and little experience is given in the evaluation and design of agri-environmental measures. Before the implementation of the National Agri-environmental Programme, an ex-ante analysis was conducted by the Ministry of Agriculture and Development of Rural Areas (*MRiRW, 2004a*) and output, effect, and result indicators were defined (*MRiRW, 2004b, p. P4-P8*). By means of these indicators solely qualitative analysis can be done basing on statistical data regarding the number of participating farmers or the support amount for the respective measures in the country or else in the voivodships. The evaluation of agri-environmental measures is complex due to the fact that no market for environmental goods exists and no marginal prices are set for the usage of natural resources. In this context a question arises which evaluation methods are most appropriate to directly capture ecological effects of agri-environmental programmes? The evaluation theory of the agri-environmental policy delivers several approaches which were already proved in practice. As an example, by means of the “willingness to pay” (in the case of positive external effects) or the “willingness to accept” (in the case of negative external effects), ecological outcomes can be indirectly measured. The implementation of a certain approach is, however, combined with several risks, especially with regard to indirect assessments (*Bartmann and Busch, 1998, p. 24*).

Other problems can be related to the incommensurability and the subjectivity of evaluation approaches on regional and the EU-level. Thus, positive effects in terms of environmental objectives assessed in one EU member country by means of a certain evaluation approach and compared to the status-quo of this country can differ from the effects in other countries after similarly positive evaluation conducted by means of the same method (*Hilfenhaus, 1991*). Thus, using different approaches, more significant distortions should be taken into account.

According to the OECD (*1994, p. 31-33, 1997*), environmental indicators could be used in Poland for the evaluation of agri-environmental measures to estimate the influence of agriculture on the environment. The indicators are related to the soil erosion, water quality, grade of the environmental protection, greenhouse gases, biodiversity, habitats, and agricultural landscape. The aim of these indicators is to reflect the current situation compared to a reference situation. The OECD indicators as well as other indicators developed by the European Commission (“Indicators for Integration of Environmental Issues in the Common Agricultural Policy” (*KEG, 1999, 2000*)) and the European Environment Agency (*EEA, 1993, 2005*) create an extension of the implemented output, effect, and result indicators in Poland and could help to more effectively evaluate and design the agri-environmental policy in the long-term perspective.

The evaluation methodology provides several direct and indirect approaches (primary and secondary analysis) to state about the agri-environmental programmes. The most used are Multi-Criteria-Decisionmaking-Method (MCDM) which can be used in political decision-making processes for design of the environmental policies. Best known are cost-benefit and cost-effectiveness analysis.

As new approaches count ‘agri-environmental panels’ as a form of “round tables” and ‘mediation practices’ which have the aim to get together political stakeholders and practitioners in

order to find best possible solutions for agri-environmental problems (WWF, 2001, p. 44-50; Endres, et al, 1991, p. 94-95). For a sectoral and regional analysis „Regionalised agri- and environmental information system for Germany“ (Regionalisiertes Agrar- und Umweltinformationssystem für Deutschland“ (RAUMIS) has been approved (Weingarten and Schleaf, 2000; Gömann, et al, 2005).

According to Pruckner (2003) for the evaluation of environmental problems, approaches should be chosen which can help to better create political decision-making processes. For practical evaluation and policy design mathematically founded interactive decision-support methods were developed. Kirschke and Jechlitschka (2002) propose Linear Programming for evaluation and design of agri-environmental measures. A successful evaluation of the agri-environmental policy in an interactive process with political stakeholders is provided with a case study for Saxony-Anhalt in Germany (Kirschke, et al, 2004, 2007). The suitability of this method was also proved for evaluation and design of agri-environmental measures in Poland (Ziolkowska, 2007). Landscape modelling, which also covers the field in agri-environmental policy, is an innovative evaluation tool in the last years (Dabbert, et al, 1999).

Due to the complexity of agri-environmental aspects, no unique and homogenous methodology is given to be implemented for the evaluation of all environmental problems/ programmes. The European Commission has not accurately specified which approaches should be used for the evaluation of agri-environmental measures (Europäischer Rechnungshof, 1998). Principally, approved methods should be used in the evaluation process (Europäische Kommission, 1999a, p. 21).

Conclusions

With this study several challenges for the agri-environmental policy in Poland have been revealed. Additionally, the importance of an extended evaluation of agri-environmental measures was confirmed. The deliberation presents outlooks for the future development of the agri-environmental policy, and especially the agri-environmental measures to make them more effective and efficient. The question is the more important as no empirical evaluation of agri-environmental measures in the first membership of Poland in the European Union has been conducted by the Ministry of Agriculture and Development of Rural Areas in Poland until now. In the course of the transition process and before the accession of Poland to the European Union several changes in terms of the environmental protection in rural areas have been undertaken. Beginning with pilot projects before the accession to the EU, agri-environmental measures became regular instruments of the environmental protection in agriculture (obligatory for the policy of rural areas). With the implementation of the agri-environmental measures new challenges revealed.

According to the presented discussion, several challenges have been revealed for agri-environmental measures such as the necessity to sensitise farmers for the problems of the natural protection, the necessity of a more precise calculation of compensation payments for agri-environmental measures, the necessity to improve financing of the agri-environmental measures and to consider regional preferences in the decision-making process, the necessity to minimise negative aside-effects of the agri-environmental measures such as spillover effects or income losses resulting for farmers, the necessity to extend evaluation of agri-environmental measures, the necessity to improve access to statistical data and diminish other disturbing evaluation factors, and the choice of an appropriate evaluation method.

By means of qualitative and quantitative evaluation approaches, existing difficulties in the realisation and financing the agri-environmental measures can be found and solved. The most approved methods are cost-benefit and cost-effectiveness analysis as well as Multi-Criteria-Decisionmaking-Methods. New methods such as ‘agri-environmental panels’ and mathematical

approaches such as Linear Programming give a chance to evaluate and design agri-environmental measures interactively with political decision-makers. These methods have been already successfully proved in Germany and Poland. Using these or other evaluation approaches, ways can be found to more effectively design the agri-environmental measures in the future.

[1] As „objective-1-regions“ are classified those regions in the European Union which are characterised by poor economic conditions. In order to improve the competitiveness of these regions, higher support rates from the European Funds were adopted. According to the CAP reform on the 26. June 2003 in Luxembourg, the maximal EU co-financing rate for agri-environmental programmes was enlarged up to 85 % in objective-1-regions (from heretofore 75 %) and up to 60 % (from heretofore 75 %) in the non-objective-1-regions.

References

- Bartmann, H. and Busch, A.A. (1998), *Ökonomische (monetäre) Bewertung als Basis für umweltpolitische Maßnahmen*. Beiträge zur Forschung, Mainz: Johannes Gutenberg-Universität Mainz.
- Bussmann, W., Klöti, U., and Knoepfel P. (1997), *Einführung in die Politikevaluation*, Basel und Frankfurt am Main: Helbig & Lichtenhahn.
- Dabbert, S., Herrmann, S., Kaule, G., and Sommer M. (1999), *Landschaftsmodellierung für die Umweltplanung. Methodik, Anwendung und Übertragbarkeit am Beispiel von Agrarlandschaften*, Berlin: Springer.
- DLG (Deutsche Landwirtschafts-Gesellschaft) (2002), *The Agri-Environmental Programmes – Approaches to their further development*. // http://www.pg.fal.de/pdf/agrarumweltprogr_e.pdf (Accessed: 04.11.2005).
- Dmochowska, H. (2003), *Portrety polskich regionów*, Warszawa: GUS.
- Domagalska, E. (n.d.), *Prezentacja programów rolnośrodowiskowych w Unii Europejskiej i w Polsce*. // http://www.rcd.wroc.pl/ROW/Ekologia/AgroInfo/programy_rolnosrodowiskowe.pdf (Accessed: 19.01.2005).
- EEA (European Environment Agency) (1993), *European Environmental Indicators*. // <http://themes.eea.europa.eu/indicators/#otherind> (Accessed: 06.07.2006).
- EEA (2005), *EEA core set of indicators. Technical report No 1/2005*, Luxembourg: Office for Official Publications of the European Communities.
- Endres, A., Jarre, J., Klemmer, P., and Zimmermann K. (1991), *Der Nutzen des Umweltschutzes – Synthese der Ergebnisse des Forschungsschwerpunktprogramms „Kosten der Umweltverschmutzung/ Nutzen des Umweltschutzes“*. In: Umweltbundesamt (ed.), *Berichte 12*. Berlin: Erich Schmidt Verlag GmbH & Co.
- Europäische Kommission (2000), *Gemeinsame Bewertungsfragen mit Kriterien und Indikatoren. Teil A: Zweck und Anwendung des Katalogs gemeinsamer Bewertungsfragen mit Kriterien und Indikatoren*. // http://europa.eu.int/comm/agriculture/rur/eval/evalquest/a_de.pdf (Accessed: 12.03.2006).
- Europäische Kommission (2004) *„Haushaltsausführung der Strukturfonds: Leistung steigt“*, *Inforegio news*, 119. Brüssel: GD Regionalpolitik.
- Europäische Kommission (n.d.), *Landwirtschaft und Umwelt: Einleitung. Agrarumweltindikatoren*. // http://ec.europa.eu/comm/agriculture/envir/index_de.htm (Accessed: 28.06.2006).
- Europäische Kommission (1999a) *Bewertung von Programmen zur Entwicklung des ländlichen Raums im Zeitraum 2000-2006 mit Unterstützung des Europäischen Ausrichtungs- und Garantiefonds für die Landwirtschaft: Leitfaden*, Brüssel: EK.
- Europäische Kommission (1999b) *„Verordnung (EG) Nr. 1257/1999 des Rates vom 17. Mai 1999 über die Förderung der Entwicklung des ländlichen Raums durch den Europäischen Ausrichtungs- und Garantiefonds für die Landwirtschaft (EAGFL) und zur Änderung bzw. Aufhebung bestimmter Verordnungen“*, *Amtsblatt der Europäischen Gemeinschaften L 160*, pp. 80-102.
- Europäischer Rechnungshof (1998) *„Sonderbericht Nr. 15/98 über die Bewertung der Strukturfonds-Interventionen in den Zeiträumen 1989-1993 und 1994-1999, zusammen mit den Antworten der Kommission“*, *Amtsblatt, C 347* (16/11/1998), pp. 0001-0047.
- European Commission (2003), *Report on the results of the negotiations on the accession of Cyprus, Malta, Hungary, Poland, the Slovak Republic, Latvia, Estonia, Lithuania, the Czech Republic and Slovenia to the European Union*. Brus-

- sels. // http://europa.eu.int/comm/enlargement/negotiations/pdf/negotiations_report_to_ep.pdf (Accessed: 12.02.2004).
- Faber, A. and Duer I. (2001), "Programy rolnośrodowiskowe w Unii Europejskiej i w Polsce", *Pamiętnik Puławski*, Vol.124, pp. 59-67.
- Gömann, H., Kreins, P., Kunkel, R. and Wendland F. (2005), "Model based impact analysis of policy options aiming at reducing diffuse pollution by agriculture – a case study for the river Ems and a sub-catchment of the Rhine", *Environmental Modelling & Software*, Vol.20, pp. 261-271.
- Hilfenhaus, L. (1991), *Konzepte zur Bewertung von Umweltschutzmaßnahmen im Agrarbereich*, Kiel: Wissenschaftsverlag Vauk Kiel KG.
- KEG (Kommission der Europäischen Gemeinschaften) (1999), Mitteilung der Kommission an den Rat, das Europäische Parlament, den Wirtschafts- und Sozialausschuss und den Ausschuss der Regionen. Wegweiser zur nachhaltigen Landwirtschaft. // http://europa.eu.int/comm/agriculture/envir/9922/9922_de.pdf (Accessed: 01.02.2006).
- KEG (2000), Mitteilung der Kommission. Indikatoren für die Integration von Umweltbelangen in die Gemeinsame Agrarpolitik. // http://europa.eu.int/eur-lex/de/com/cnc/2000/com2000_0020de01.pdf (Accessed: 27.06.2006).
- Kirschke, D., and Jechlitschka K. (2002), *Angewandte Mikroökonomie und Wirtschaftspolitik mit Excel*, München: Verlag Franz Vahlen.
- Kirschke, D., Daenecke, E., Häger, A., Kästner, K., Jechlitschka, K. and Wegener S. (2004), "Entscheidungsunterstützung bei der Gestaltung von Agrar-Umweltprogrammen: Ein interaktiver, PC-gestützter Programmierungsansatz für Sachsen-Anhalt", *Berichte über Landwirtschaft*, Vol.82, pp. 494-517.
- Kirschke, D., Häger, A., Jechlitschka, K. and Wegener S. (2007) "Distortions in a multi-level co-financing system: the case of the agri-environmental programme of Saxony-Anhalt", *Agrarwirtschaft*, Vol.56, No 7, pp. 297-304.
- Klisowska, A. (2001), "Miejsce programów rolnośrodowiskowych w polityce rolnej po integracji Polski z Unią Europejską", *Więś i Rolnictwo*, Vol.3, No 112, pp. 71-85.
- Latacz-Lohmann, U. (1993), "Ausgestaltung des Prämiensystems als Mittel zur Steigerung der Effektivität von Extensivierungs- und Vertragsnaturschutzprogrammen", *Agrarwirtschaft*, Vol.42, No 10, pp. 351-358.
- Latacz-Lohmann, U. (1995), "Weg von der Gießkanne!", *DLG-Mitteilungen*, Vol.12, pp. 60-65.
- Lehmann, P. (2005), *An Economic Evaluation of the U.S. Conservation Reserve Program*. (UFZ-Discussion Papers 1/2005), Leipzig: UFZ Centre for Environmental Research Leipzig-Halle.
- Linckh, G., Sprich, H., Flaig, H. and Mohr H. (1996), *Nachhaltige Land- und Forstwirtschaft. Voraussetzungen, Möglichkeiten, Maßnahmen*. Veröffentlichungen der Akademie für Technikfolgenabschätzung in Baden-Württemberg, Berlin: Springer.
- Ministry of Economy and Food Agriculture (1998), *Medium-Term Strategy for Agriculture and Rural Areas Development*, Warsaw. // <http://www.fao.org/regional/SEUR/ceesa/Poland.htm> (Accessed: 06.10.2004).
- Ministry of Environmental Protection, Natural Resources and Forestry (1991), *National Environmental Policy of Poland*, Warsaw. // <http://www.mos.gov.pl/mos/publikac/environment.htm> (Accessed: 17.05.2005).
- MRiRW (Ministerstwo Rolnictwa i Rozwoju Wsi) (2002), *SAPARD. Program operacyjny dla Polski*. Wersja z dnia 20 marca 2002, Warszawa. // <http://www.arimr.gov.pl/docs/sapard/progsap.pdf> (Accessed: 07.10.2004).
- MRiRW (2004a), *Plan Rozwoju Obszarów Wiejskich na lata 2004-2006*, Warszawa. // <http://www.minrol.gov.pl/DesktopDefault.aspx?TabOrgId=1419&LangId=0> (Accessed: 12.10.2004).
- MRiRW (2004b), *Plan Rozwoju Obszarów Wiejskich na lata 2004-2006: Załącznik B,E, F, G, H, L, P*, Warszawa. // <http://www.minrol.gov.pl> (Accessed: 12.11.2004).
- MRiRW (2006a), "Program Rolnośrodowiskowy na lata 2007-2013 – nowy projekt", *PROWinki*, Vol.15, No 44.
- MRiRW (2006b), "Informacja o działaniu Programu Rozwoju Obszarów Wiejskich na lata 2007-2013 – Program rolnośrodowiskowy oraz inwestycje nieprodukcyjne", *PROWinki*, Vol.34, No 63.
- MRiRW (2007), "Informator Planu Rozwoju Obszarów Wiejskich na lata 2004-2006", *PROWinki*, Vol.6, No 87.
- OECD (1997), *Environmental Indicators for Agriculture*, Paris: OECD.
- OECD (1994), *Environmental Indicators: OECD Core Set*, Paris: OECD.
- OECD (1995), *Review of agricultural policies: Poland*, Paris: OECD.
- OECD (1999), *The agri-environmental situation and policies in the Czech Republic, Hungary and Poland*. COM/AGR/ENV(99)60/FINAL, pp. 1-49.
- Pruckner, G. J. (2003), *Was leistet die monetäre Bewertung in der Umweltpolitik?* // <http://www.economics.uni-linz.ac.at/Pruckner/papers/jahrbuch.pdf> (Accessed: 04.11.2004).

- Rada Ministrów (2004), "Rozporządzenie Rady Ministrów z dnia 20 lipca 2004 r. w sprawie szczegółowych warunków i trybu udzielania pomocy finansowej na wsparcie przedsięwzięć rolnośrodowiskowych i poprawy dobrobytu zwierząt objętej planem rozwoju obszarów wiejskich", *Dziennik Ustaw*, Vol.174, No 1809, pp. 12120-12148.
- Reichelderfer, K. and Boggess W. (1988), "Government Decision Making and Program Performance: the Case of the Conservation Reserve Program", *American Journal of Agricultural Economics*, Vol.70, No 1, pp. 1-11.
- Sandberg, M. (1999), *Green Post-Communism? Environmental Aid, Polish Innovation and Evolutionary Political Economics*, Routledge Studies of Societies in Transition, London: Routledge.
- Sapek, B. (1998), "Rolnictwo polskie i ochrona jakości wody", *Zeszyty edukacyjne*, Vol.5, pp. 78-81.
- Tederko, Z. (2000), *Programy rolno-środowiskowe w Europie Środkowo-Wschodniej na przykładzie Zielonych Płuc Polski w latach 1997-1999. Raport końcowy*, Warszawa: Narodowa Fundacja Ochrony Środowiska.
- UMWP (Urząd Marszałkowski Województwa Podkarpackiego) (2003), *Programm Phare99*. // <http://um.podkarpackie.pl/print.php?nn=89> (Accessed: 07.02.2004).
- Weingarten, P. and Schleef K.-H. (2000), *Auswirkungen und Bewertung agrarumweltpolitischer Maßnahmen im Problembereich Stickstoff*. In: *Deutscher Rat für Landschaftspflege* (ed.), *Honorierung von Leistungen der Landwirtschaft für Naturschutz und Landschaftspflege*, Schriftenreihe des Deutschen Rates für Landschaftspflege, Vol.71, pp. 50-63.
- Welfens, M. (1993), *Umweltprobleme und Umweltpolitik in Mittel- und Osteuropa*. Heidelberg: Physica-Verlag.
- WWF Deutschland (2001), *Die Agrarumweltprogramme. Naturschutz in ländlichen Räumen*. Tagungsband zur Podiumsdiskussion am 22. Januar 2001 im ICC Berlin. // <http://www.jagd-online.de/downloads/bericht310501.pdf> (Accessed: 25.10.2004).
- Ziolkowska, J. (2007), *Agrar-Umweltpolitik in Polen nach dem EU-Beitritt: Bewertungs- und Gestaltungsansätze und Fallstudie für die Wojewodschaft Vorkarpaten*. Berliner Schriften zur Agrar- und Umweltökonomik 12, Aachen: Shaker.
- Zysk, A. (2002), "Co dalej z programami rolnośrodowiskowymi?", *Środowisko*, Vol.17, No 233, pp. 7-10.