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AGRICULTURE
AND ENVIRONMENT

Working notes on the Common Agricultural Policy

AGRICULTURE AND ENVIRONMENT

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Foreword by Dr Franz Fischler

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Farming and environmental protection are by definition inextricably linked: anyone involved in farming has an impact on the environment, and anyone trying to protect the environment needs to impose certain rules on agriculture. Nonetheless agriculture and the environment can be mutually beneficial.

Farmers stand to gain from protecting the environment because it is in their fundamental economic interest to conserve natural resources for the future. It makes more economic sense to take account of nature conservation from the outset than to have to repair damage after it has been done – and this may in any case not even be possible. What is more, environmental measures may even amount to marketing instruments, opening up new markets for agricultural produce. There is an ever increasing demand for foodstuffs produced in a natural and environmentally sound way, as consumers become more aware of quality and environmental issues. There are also indications that

consumers are prepared to pay a premium for the extra work farmers have to put in to produce such foodstuffs.

The environment in turn benefits from farmers' stewardship as the traditional landscape is maintained and the ecological balance required by wildlife is safeguarded. It goes without saying that environmental protection and nature conservation create extra work and costs for the farmers, but in no other sector can so much be achieved for the environment for so little input. We must no longer take for granted the contribution made to society by farmers through environmental measures but must compensate them appropriately.

The taxpayer can no longer accept that money should be spent on assisting a farming industry which does not take due account of environmental factors. He is, however, increasingly prepared to pay for sound environmental protection. We must therefore create economic incentives for environmentally acceptable agriculture and alternative farming methods such as organic production.

In this way we can not only keep our environment intact but also meet the consumer's demand for wholesome food and pave the way for competitive and sustainable agriculture.

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Introduction

Increasing attention is being paid to the relationship between agriculture and environment by European public opinion and policy-makers. The significance of agriculture for the environment in the European Union is illustrated by the fact that of the total territory of the EU 50.5% is agricultural land and 27.9% is wooded land. In addition, the various enlargements have increased the diversity of both the environmental features and agricultural activities in the EU.

Indeed, there is a significant *interdependence* between agriculture and environment. Like other human activities agriculture influences the environment. At the same time, even more than other human activities, it is conditioned by the environment.

On the one hand, by its very definition, agriculture aims at producing food and organic raw materials by modifying the natural environment. To achieve this aim, agriculture depends largely on the availability of natural resources and increasingly on their quality.

On the other hand, agriculture has traditionally contributed to shape the landscape and increase biodiversity so that in many cases cultivated landscape and the habitats of certain species can be maintained only if farming activities are continued.

Whether in an idyllic way or in a conflictual one, farmers have always been seen as the protagonists of the relationship between mankind and nature.

Certainly, this relationship has changed over time.

Traditional agriculture had a lower – or at least slower – impact on the environment. However, it was not always able to satisfy the growing demand for food and the living conditions of rural communities were often, therefore, quite precarious.

When the common market for agricultural products was set up, the replacement of national agricultural policies by a common one was conceived as a way of pooling efforts in order to ensure *inter alia* the availability of supply for consumers and a better living standard for the rural community. It is the very success in achieving this socio-economic objective that may have led to the neglect of the importance and legitimacy of the related measures.

Without doubt, the Common Agricultural Policy (CAP) has favoured the modernisation of agriculture in Europe. However, like in other economic sectors and in other parts of the industrialised world, this modernisation has been accompanied by damaging effects on the environment. In particular, politically stimulated intensification of agricultural production has led to both surpluses and environmental degradation.

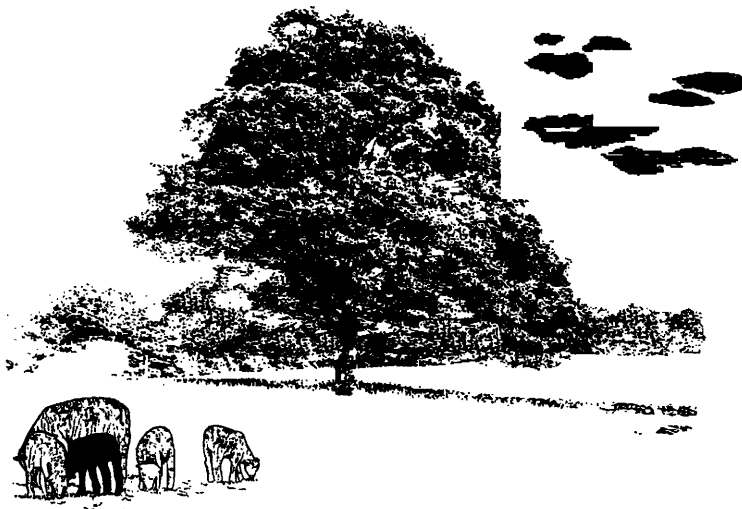
The increasing awareness of the need for an economically sounder and environmentally friendlier policy has inspired attempts to adjust the CAP from the 1980s onwards. The reform of the CAP approved in 1992 marked a turning point. In the same period, the Community's Fifth Environmental Action Programme set the policy objective of sustainability and the Treaty on European Union enhanced environmental policy. At an international level, "Agenda 21" – the programme of action adopted by the Rio Conference in 1992 – is pursuing sustainable agricultural and rural development for the future of mankind.

After outlining the development of the agricultural and environmental policies at the European Union level, this paper tries to present the complex interaction between agriculture and environment. (As forests as such are not under the scope of the common agricultural policy, they are not dealt with specifically in the paper).

Against this background it will be possible to analyze:

- on the one hand, the measures adopted in the framework of the CAP with a view to integrating environmental concerns and
- on the other, the measures taken in the environmental policy which have an impact on agricultural activities and practices.

Finally, some conclusions will be drawn and some policy perspectives will be briefly illustrated.



-
- The Communication on "Environment and Agriculture" (1988) described several environmental problems caused by agriculture and the measures intended to solve them. On this basis, the Commission defined four priority action fields: land use, pesticide use, intensive animal and plant production and product quality.
 - The document "Our farming future" (1988) called for rules limiting some damaging agricultural practices and encouraging practices with beneficial effects on the environment. These rules were to be accompanied by incentives or compensatory measures.

During the same period provisions in favour of the environment were introduced in the legislation, namely:

- Regulation (EEC) No 797/85 on improving the efficiency of agricultural structures included a set of measures for environmental protection. Article 19 authorised national aid in environmentally sensitive areas.
- In 1987 the Council amended Regulation (EEC) No 797/85 through Regulation (EEC) No 1760/87 with a view to improving the aids for environmentally sensitive areas, natural resources and landscape safeguard.
- In 1991, Regulation (EEC) No 2328/91 on improving agricultural structure efficiency included incentives for an agriculture compatible with the environment in the environmentally sensitive areas and in less favoured areas.

In the early 90s, the environmental discussion focused on the principle of sustainability which was established, at the international level, by the Rio Conference held in June 1992. At the EU level, the Maastricht Treaty, which entered into force in November 1993, embodied this principle and reinforced environmental policy by clearly stating the obligation of integrating environmental requirements in all EU policies. A new political push was given by the Fifth Environmental Action Programme adapted by the Commission in 1992.

Agriculture is one of the five target sectors of the *Fifth Environmental Action Programme*. The programme lays down the fundamental objectives of maintaining the basic natural processes indispensable for a sustainable agricultural sector, notably through the conservation of water, soil and genetic resources. The Programme also sets out specific objectives, namely, to reduce chemical inputs, to achieve a balance between nutrient inputs and the absorption capacity of the soil and plants, to promote rural environmental management practices, to conserve biodiversity and natural habitats and to minimise natural risks.

In the meantime reform of the CAP was discussed and approved and the structural funds were modified.

The *1992 CAP reform* was aimed primarily at restructuring agricultural markets. One of the central elements of the CAP reform was the encouragement of farmers to use less intensive production methods, thereby reducing their impact on the environment and cutting the creation of unwanted surpluses. As part of the CAP reform, the Union also agreed a set of complementary agri-environment and afforestation measures.

As for the *structural aspects of CAP*, environment was also recognised as a major component of the Community's rural development policy. The environmental dimension of structural policies was enforced in 1993 when the concept of assessment of the environmental effects of activities to be undertaken was made compulsory.

1.2. Comparative overview of CAP and Environmental Policy

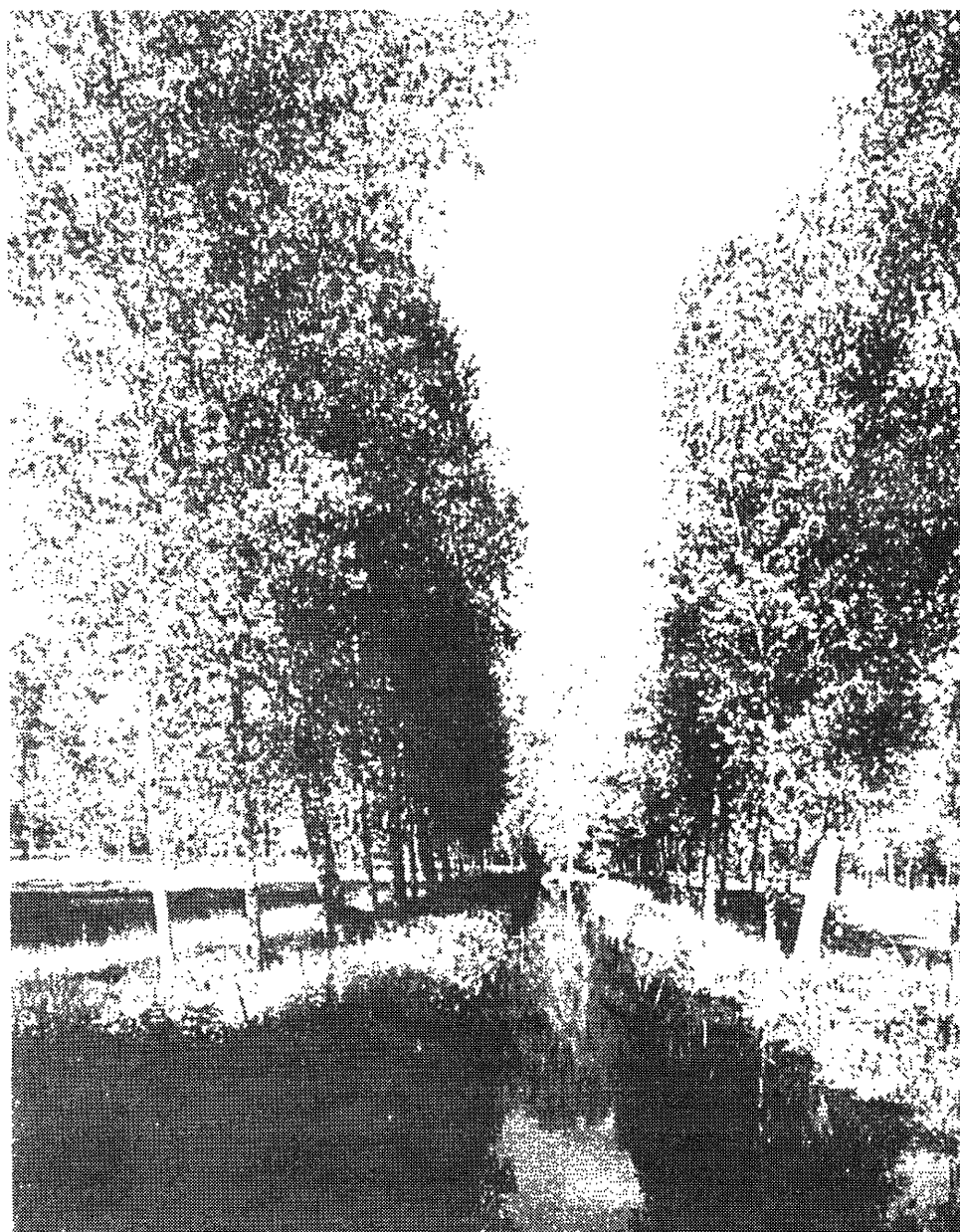
In the light of the historic developments it is possible to present the two policies under some different angles.

Agricultural and environmental policy – a comparison

	CAP	Environmental Policy
Age	<i>Old:</i> set up in 1958	<i>Recent:</i> commenced in 70s, codified in the SEA in 1987
Legal basis	art. 38 – 47 EC Treaty	art. 130r – 130t EC Treaty
Nature of the competence	<i>Exclusive:</i> this common policy is decided by EU	<i>Subsidiary:</i> EU intervenes only when its action is more efficient than the one of Member States
Decision-making procedure	<i>Qualified majority</i>	Programmes: <i>codecision</i> Implementation measures: <i>cooperation</i> (except: fiscal measures, land use, water resources management, energy supply: <i>unanimity</i> , unless Council decides to opt for <i>qualified majority</i>)
Scope	<i>Sectoral:</i> but moving towards rural areas policy	<i>Horizontal:</i> the principles of environmental policy must be integrated in all the other EC policies
<i>Objectives</i>	<ul style="list-style-type: none"> – increase in agricultural productivity; – fair standard of living for the agricultural community; – stabilisation of markets; – availability of supplies; – reasonable consumer prices 	<ul style="list-style-type: none"> – preserving, protecting and improving the quality of environment; – protecting human health; – prudent and rational utilisation of natural resources;
<i>Principles</i>	<ul style="list-style-type: none"> – market unity; – financial solidarity; – Community preference 	<ul style="list-style-type: none"> – precaution; – prevention; – rectification at source; – polluter-pays-principle
Nature of the instruments	<i>(mainly) Interventionist:</i> economic instruments like price support and direct payments	<i>(mainly) Regulatory:</i> normative instruments
EU Budget share	<i>Big:</i> since EU has the exclusive competence of managing the agricultural sector through economic instruments.	<i>Small:</i> due to the subsidiary, horizontal regulatory characteristic

These differences between the CAP and environmental policy can contribute to explain, on the one hand, the difficulties in achieving integration and, on the other, the potential complementarities. For example:

- although the objectives of the two policies are different and difficult to reconcile, the protection of resources is a condition for ensuring a sustainable production;
- despite the different nature of the competence, the very existence of a common agricultural policy may facilitate integration of environmental requirements all over the EU.



2. Impact of agriculture on environment

Agriculture may have damaging as well as beneficial effects on the environment. Both aspects have to be considered in order to understand the shortcomings but also the potential of farming activities vis-à-vis the environment. In fact, according to local conditions and to the way it is carried out, farming activities can, for example, favour or combat erosion, increase or reduce biodiversity.

2.1. The role of agriculture in preserving the environment

Agriculture influences the environment beneficially in several respects.

The landscape has been shaped by human activities and especially by agriculture. This explains why even what is considered natural European landscape is often only *semi*-natural. Since it reflects a certain relationship between man and environment, cultivated landscape is a cultural notion with a historically changing meaning. From today's perspective, sites with traditional farming systems are seen as being worth protecting.

By shaping the landscape, agriculture has also differentiated it. There is a variety of landscapes in Europe, each of which has cultural importance. Aesthetic value attaches to these cultivated landscapes with all their traditional features, including buildings, field boundaries and water courses.

Abandonment of agriculture would lead to a degradation of landscape quality. For example, preservation of extensive grassland between woodlands in mountain areas maintains variety in the landscape; it avoids reduction of open space due to uncontrolled afforestation. Forestry everywhere may be of limited aesthetic value.

Furthermore, agriculture over the centuries has given rise to specific forms of biodiversity by introducing and/or selecting new plant and animal species or creating new habitats. *"Many species from distant biogeographic regions have been established in the newly created environment: singing-birds such as the lark (*Alauda arvensis*), or the open-space species like the grey partridge (*Perdix perdix*) and the hare (*Lepus europæus*), are closely associated with the agricultural landscape"*.¹

Maintaining traditional farming with extensive crops and grasslands, in particular in wetlands, steppic areas and mountains contributes to the conservation of endangered species of flora and fauna.

By maintaining such biodiversity agriculture can ensure the survival of genetic resources. Genetic diversity is of crucial importance: it is a cultural heritage that designs our societies and it is the tool to reform agricultural practices towards more viable forms of production.

¹ European Environment Agency. *Europe's Environment. The Dobris Assessment*. David Stanners and Philippe Bourdeau (eds.). Office for official publications of the European Communities, Luxembourg 1995, p. 190.

The direct link between conservation and valorisation of genetic resources – including old varieties and landraces which are presently stored in the gene banks – can be made at the local level, where there are specific production problems to face, markets to serve, cultures to develop and a heritage to relate on.

Traditional semi-natural landscapes are very often essential to a sustainable balance between agricultural activities and environment. These semi-natural habitats can be preserved only if agriculture is continued. In fact abandonment of agriculture would result in the destruction of such landscapes. Normally, the outcome of this destruction process is not the re-creation of the original (natural) status.

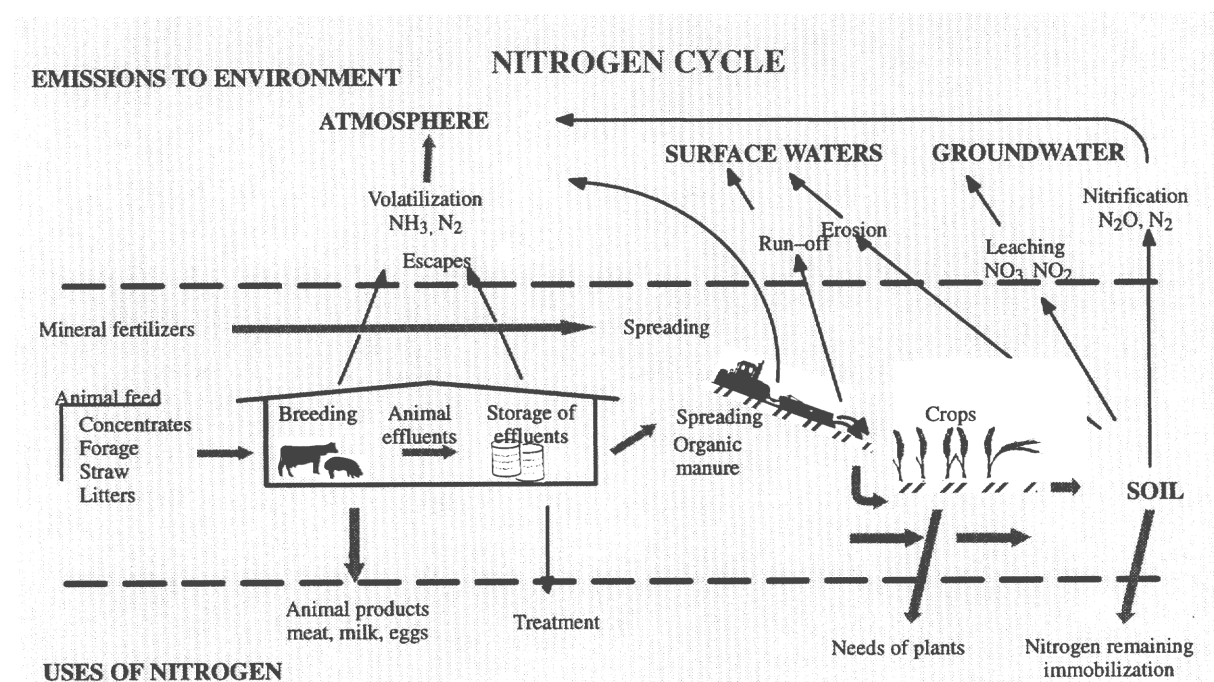
In addition, agriculture can contribute to the protection of natural media against specific forms of pollution or degradation, e.g. it can combat soil erosion and contribute to remedy the greenhouse effect as it provides an important CO₂ sink.

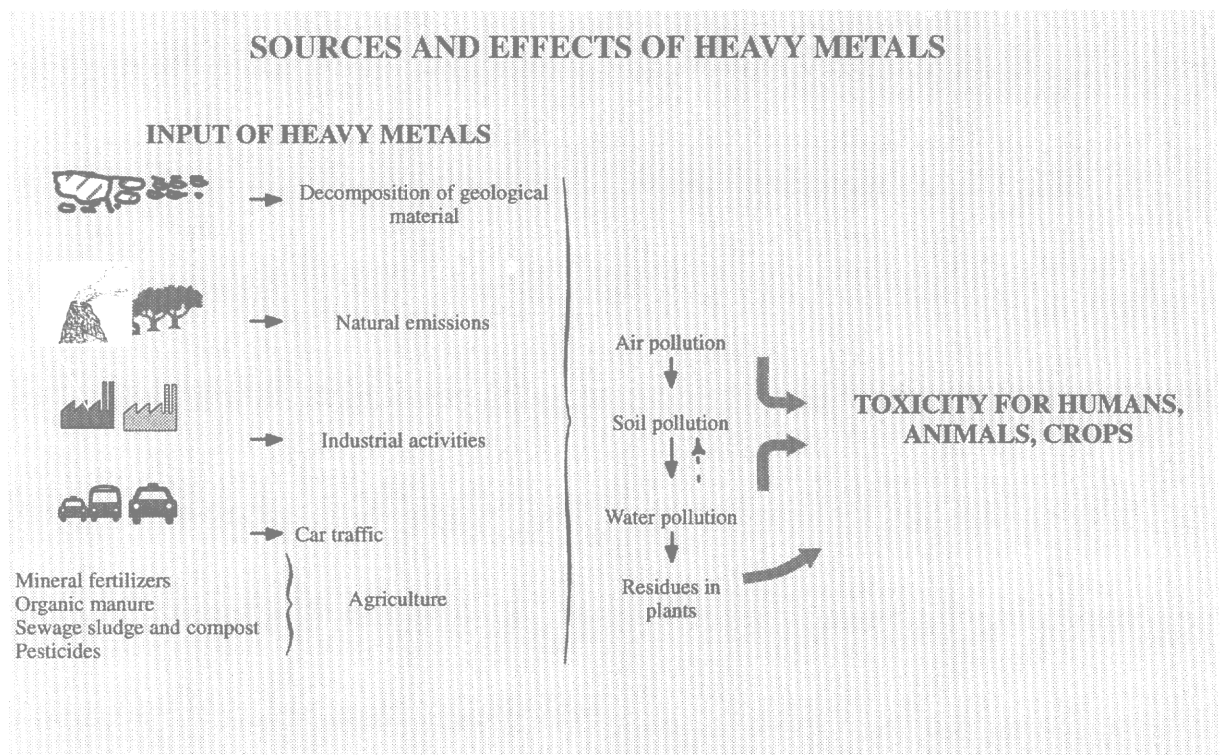
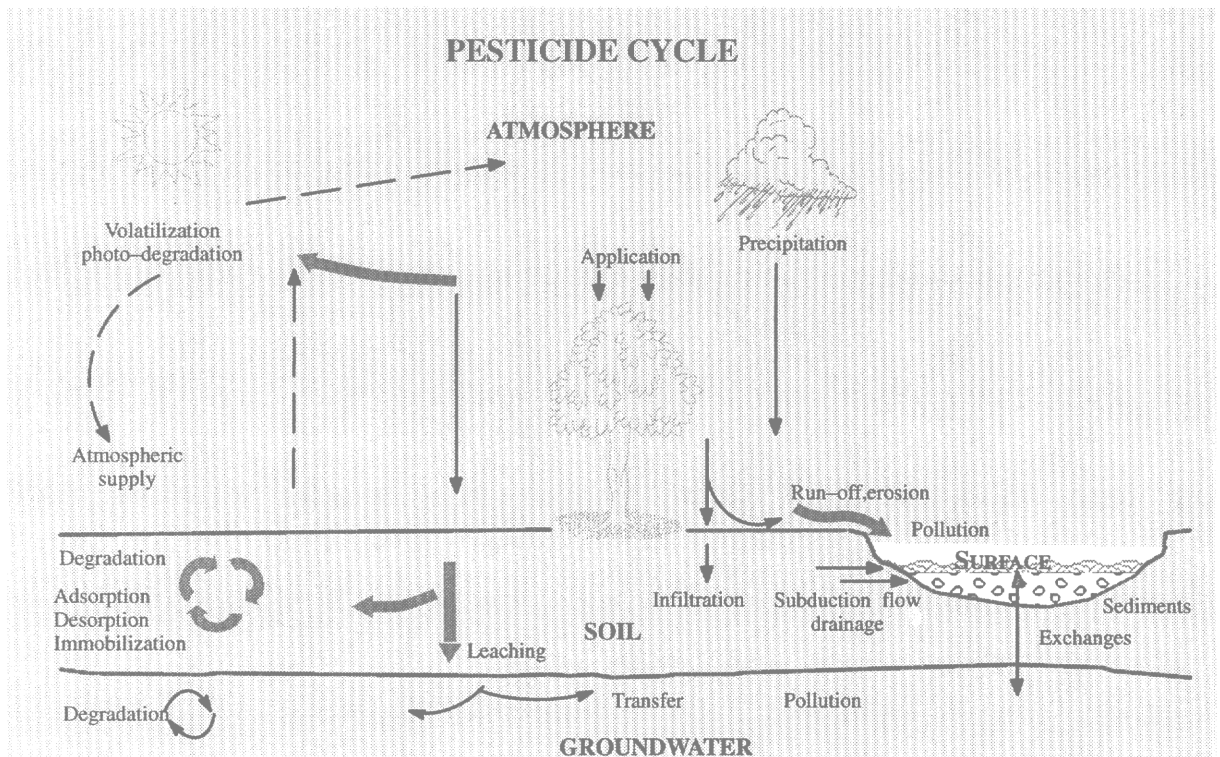
2.2. Environmental degradation caused by agriculture

The analysis of the damaging effects of agriculture on the environment can be presented according to three different perspectives:

- the natural media (air, water, soil) as well as spatial, biological and climatic systems, *i.e.* landscape, biodiversity and global climate;
- the agricultural activities and practices;
- the polluting substances and their cycles.

While the approach which is adopted hereafter is media oriented, the major pollutants cycles are also presented (see the graphs) and the farming activities responsible for environmental degradation are pointed out.





When dealing with the impact of agriculture on the environment, the following elements should be borne in mind:

- the pressure exerted by agriculture on the environment has a different intensity in different areas: on the one hand, farming activities and practices vary from one region to another; on the other, due to the local conditions, the same farming activity can have different consequences for the environment;
- agricultural pollution originates from "point sources" (e.g. inappropriate manure storage) or, more often, from diffuse sources (e.g. manure spreading);
- pollution of a certain medium can have effects on other media and systems;
- agriculture is not the only factor responsible for environmental degradation; other human activities affect environment sometimes more seriously (e.g. concerning air emissions see table below).

In any case, the interaction between different pollution sources and between different media and systems must be taken into account.

The sources of air pollution, EUR 12, 1990

Inventory of emissions by source (CORINAIR 1990), %								
EUR 12 (except new German <i>Länder</i>)	SO ₂	NO _x	NMVOC	CH ₄	CO	CO ₂	N ₂ O	NH ₃
Public power, etc.	52	18				26	4	
Combustion commercial, residential etc.	6	4	3	1	10	18	2	
Industrial combustion	25	11			6	22	2	
Production processes	4	2	6		5	5	24	3
Extraction and distribution of fossil fuels		1	6	16				
Solvent use			25					
Road transport	4	51	34	1	65	18	2	
Other mobile sources and machinery	3	12	3	4	3			
Waste treatment and disposal	1	1	1	24	6	1	1	1
Agriculture			4	34	1	1	33	95
Nature	5		17	24	3	6	32	2

NO_x = NO₁, NO₂

NMVOC = Non-Methane Volatile Organic Compounds

Source : Europe's Environment Statistical Compendium

The most significant forms of soil *physical degradation* due to agriculture are:

- erosion;
- desertification;
- water–logging;
- compaction.

Inappropriate land use practices such as deforestation, overgrazing, some agricultural cultivation practices, removal of vegetative cover or hedgerows can exacerbate these occurrences. The increasing demand for water, the sometimes excessive mechanisation and ploughing must be also pointed out as causes of this form of degradation.

Chemical degradation is characterised by the following processes:

- acidification;
- salinization;
- contamination by micro–pollutants, such as pesticides and their metabolites, heavy metals and nutrients *i.e.* nitrogen and phosphorous. (However, some pesticides may stay in the soil for some time without any consequences for the environment).

The major consequences of the above contamination are toxification and eutrophication.

Related agricultural practices are:

- the inappropriate use of manure and mineral fertilizers;
- the increasing emissions of pollutants by intensive breeding;
- the increasing spreading of sewage sludge on agricultural soils (if it is not disposed of according to strict guidelines);
- the use of pesticides with unintended side–effects (slow degradation);
- irrigation with techniques not adjusted to local conditions.

As regards *biological degradation*, it should be remembered that the quality of the soil is mainly defined by its biological activity, which is affected by:

- important humus mineralisation; and
- changes in biodiversity.

Lowering the humus content makes soil more susceptible to compaction, erosion and other forms of physical degradation. Inappropriate land use practices, especially in agricultural fields, are most often the reason for this problem. The unintended side–effects of pesticides use on soil life can explain many changes in biodiversity. However, this occurrence must be interlinked with the degradations described above.

2.2.4. Landscape

The landscape has been for a long time influenced by human activities. Intensive agriculture has several negative effects on the landscape and it often destroys features that traditional agriculture has contributed to create in previous centuries. Major examples of this impact are: reparation with removal of hedgerows and stonewalls and clearing of woods; realignment of watercourses and abandonment of terraces.

3. Impact of the environment on agriculture

Environment conditions agriculture both by providing the indispensable natural resources and by influencing the quantity and quality of its products.

3.1. Importance of natural resources for agriculture



Air, soil and water are essential to agriculture. Also the spatial and biological systems, which have been often shaped by agriculture itself, have a fundamental role, *e.g.* hedgerows contribute to maintain landscape characteristics, biodiversity and to fight erosion, while biodiversity represents an enormous richness for agriculture because it ensures the existence of the genetic resources which agriculture relies on. In addition, biodiversity can contribute to the control of agricultural pests.

Semi-natural rural areas are also an economic resource which must be preserved with a view to diversifying agricultural activities.

3.2. Negative effects of environmental pollution on agriculture

Agriculture is affected by several forms of pollution partly due to other human activities, partly due to farming activity itself.

For example, sulphur dioxide and nitrogen dioxide in the atmosphere are harmful to plant growth. The increase in tropospheric ozone diminishes yields. Accumulation of heavy metals in the topsoil may lead to reduced yields by affecting plant growth, or they can be absorbed by the agriculture products, which enter the food-chain. They can also be directly ingested with soil by grazing animals.

Urban and industrial pollution is harmful to agricultural activities. Urbanisation and the development of industrial sites and infrastructures often lead to the occupation of land which is suitable for agriculture.

Different forms of pollution can seriously disturb ecosystems, by causing the progressive extinction of certain species which are beneficial to agriculture (*e. g.* insects in the case of plant protection).

The presence of micro-pollutants in water bodies can disturb many agricultural activities: directly, by affecting the cycle of certain plants; indirectly, by compromising the health quality of the agricultural products.

Finally, soil erosion and salinisation make significant parts of the European territory unsuitable for cultural activities.

This system can be beneficial for the environment. Most recent data suggest that total non-food set-aside in 1995/96 amounted to 1 020 000 hectares (EUR 15) as compared to 677 000 hectares (EUR 12) in 1994/95. The 1 020 000 hectares in 1995/96 included some 945 000 hectares of oilseeds, a significant proportion of which being used for biofuel.

Crop land set-aside and long term environmental set-aside

While the market reform introduced crop land set-aside, the accompanying agri-environmental measures opened the possibility for farmers to set-aside for 20 years in order to create biotopes or small natural parks.

In the early stage of the reform it became clear that the two set-aside regimes could not be used at the same time for the same parcel. In fact the land made subject to accompanying measures was no longer covered by the crop regime. This meant that it was still necessary for the farmers to set-aside the percentage required in order to qualify for compensation under the CMO. Coordination appeared necessary to achieve better economic and environmental results.

It was therefore decided that, if eligible, the land set-aside for environmental purposes could be included in the calculation of the land to be set-aside in order to qualify for aids under the crop market organization.

The new system allows farmers to set-aside, for a long term, marginal parcels which are sometimes environmentally fragile.

4.1.2. Beef and sheepmeat

The reduction by 15% of the price at which beef may be bought into intervention, planned as part of the 1992 CAP Reform with a view to decreasing the level of market support through this mechanism, has been compensated by a system of direct payments to producers, made up of a series of premium schemes. The total number of rights to premium available in each Member State is limited by individual producer or regional quotas, depending on the scheme in question. In the beef sector, in order to encourage extensive rearing, the total number of animals qualifying for the special premium and the suckler cow premium is limited by a stocking density factor. This factor has been progressively tightened since its introduction in 1993. Extensive production is further stimulated by additional payment, known more commonly as the "extensification premium", which is granted to producers whose stocking density factor is particularly low.

Member States may apply appropriate environmental provisions which correspond to the specific situation of the land used for the production of male bovine animals or suckler cows qualifying for premia as well as for sheep and goats eligible under the premium scheme. Member states which avail themselves of this possibility shall impose penalties appropriate to and commensurate with the seriousness of the ecological consequences of any breach of these measure. Such penalties may provide for the reduction or, where necessary, the abolition of the benefits linked to the respective premium schemes. Member States shall inform the Commission of the measures they take.

Environmental measures

United Kingdom

According to UK authorities overgrazing refers to grazing land with livestock:

- a) in such numbers as adversely to affect the growth, quality or species composition of vegetation (other than vegetation normally grazed to destruction) on that land to a significant degree, or
- b) in such numbers that the need for supplementary feeding leads to excessive trampling or poaching of the land by the animals or excessive rutting by vehicles used to transport the feed.

In cases when it is established that land is being overgrazed, the number of animals on which allowances are paid may be restricted to the number which the land can carry without giving rise to serious overgrazing. Such reduction in livestock numbers will apply only to land on which significant damage is being caused and will not necessarily affect the entire holding. It may therefore be possible for producers to increase livestock numbers on unaffected land (always provided that such an increase does not in turn give rise to significant overgrazing on that land) and thus maintain overall livestock numbers. If the land is considered to be overgrazed, the authorities discuss with the farmer the measures which are necessary to prevent overgrazing continuing. The premium will not be affected until the farmer is notified in writing of the number of animals considered to be the number that the land can carry without overgrazing and any conditions (e. g. changes in management practice) which are attached. Payment of premium for the scheme year after notification, in respect of the overgrazed land, will be restricted to the number notified.

If the farmer does not take action to restrict the number of animals actually grazing overgrazed land and to comply with the conditions notified during the Scheme year after notification, the premium for that year may be withheld altogether.

If supplementary feeding is considered to be unsuitable, the premium will be reduced by 10% in the first year and by 20% in the following year. Unless the farmer takes steps to change the feeding practices, he will not be paid premium after the second year.

Denmark

The Danish authorities intend in 1997 to reduce premiums for producers who do not comply with national requirement to submit a *manure balance* for their holding

Greece

In Greece they have started to apply measures for environmental protection enforcement, via the premium schemes, for forested areas of Attica suffering fire damage.

Ireland

The Irish authorities are discussing with producers, for implementation in 1997, measures to protect vulnerable ecosystems from overgrazing.

4.1.3. Wine

According to the proposal put forward by the Commission [COM(94) 117], a multiannual adjustment programme should be drawn up by national or regional authorities in order to meet the objective of market balance by promoting permanent abandonment of wine–grapes areas. However, these programmes have to include measures to preserve the environment, such as reparcelling and soil protection by means of appropriate soil cover. Furthermore, the proposal recognizes that there are areas where maintenance and reconstruction of vineyards is important for environmental reasons. This is the case of hills or steep slopes and land particularly sensitive to erosion or fire. In addition, the Commission proposed to integrate uprooting measures with accompanying measures like afforestation.

4.1.4. Fruit and Vegetables

In July 1996, the Council adopted the reform of the CMO for this sector. The new, more market–oriented regime involves the progressive elimination of structural surpluses and a new system of managing surpluses, while also taking into account environmental concerns. Producer groups will manage an operational fund in order to finance programmes to be approved by competent national authorities. These programmes have to aim at promoting environmentally friendly production techniques, respect of pesticide legislation and organic farming. The operational funds will be financed by the producers. An aid (up to 50% of the effective expenditure) will be given by EU and national authorities.

4.2. Accompanying measures

When approving the reform of the market organisations three accompanying measures were adopted. Some of these measures were the reinforcement and rationalisation of actions which had been already established in previous years in the agricultural structural policy. Apart from early–retirement, these measures concern agri–environment and afforestation. Since they are meant to accompany and assist CMOs to shift from price support to income support, they are financed by the Guarantee section of the European Agriculture Guidance and Guarantee Fund.

4.2.1. Agri–environmental measures

Regulation (EEC) No 2078/92 concerns agricultural production methods compatible with the requirements of the protection of the environment and the maintenance of the countryside.

The objective of the regulation is twofold:

- to combine beneficial effects on the environment with a reduction of agricultural production; and
- to contribute to agricultural income diversification and rural development.

To achieve such objectives, Member States have to draw up schemes. Subject to positive effects on the environment and the countryside, these schemes may provide aid for farmers who undertake:

- a) to reduce substantially the use of fertilizers and/or plant protection products, or to maintain the reductions already made, or to introduce or continue with organic farming;
- b) to change, by means other than those referred to in (a), to more extensive forms of crop, including forage production, or to maintain extensive production methods introduced in the past, or to convert arable land into extensive grassland;
- c) to reduce the number of sheep and cattle per forage area;
- d) to use other farming practices compatible with the requirements of protection of the environment and natural resources, as well as maintenance of the countryside and the landscape (e. g. upkeep of habitats like traditional orchards, field margins and river banks), or to rear animals or local breeds in danger of extinction;
- e) to ensure the upkeep of abandoned farmland or woodlands;
- f) to set aside farmland for at least 20 years with a view to use it for purposes connected with environment, in particular for the establishment of biotope reserves or natural parks or for the protection of hydrological systems;
- g) to manage land for public access and leisure activities.

In addition, the schemes may include measures to improve the training of farmers with regard to farming or forestry practices compatible with the environment.

The impact for the citizens at large should be provision of environmental services and a greater availability of products obtained through environmentally friendly production methods, including those obtained through organic farming. In certain areas, the public may be permitted to access private farmland for leisure activities. Moreover, pollution derived from intensive farming activities may be reduced and typical landscape elements will be better maintained. Abandoned land will be kept in good environmental conditions and damage from fires and erosion may be reduced. The creation of biotopes for the protection of wild fauna and flora will be encouraged.

While Member States are obliged to set up schemes, farmers' participation is voluntary.

The schemes provide for farmers to commit themselves for a minimum of 5 years (or 20 years, for long term environmental set-aside) in one of the above measures. The levels of premia paid to farmers are based on the income foregone and costs incurred by farmers as a result of their participation in the schemes. Part-finance from the Community budget is available to Member States up to the maximum rates set out in the table below.

The cost of the programmes is shared with the Member States. Co-financing takes place on a 50% basis except for regions of Objective 1, where costs are co-financed at a rate of 75%. As regards the Community resources available, the total allocated within EAGGF Guarantee Section for co-financing of expenditures under this regulation in the period 1993-1997 is about 5 billion ecus (EUR 15).

The schemes available are diverse, reflecting different regional conditions. Member States can set up programmes either at national, regional or local level, depending on the degree of administrative decentralisation as well as on the environmental and agricultural characteristics of the relevant areas and their specific needs.

EU maximum annual premia for agri–environmental measures

Measure	Specification	Maximum annual premium eligible for part–financing by the Community (ECU)
Crop extensification and organic farming	annual crops covered by the CMO	181,1 per ha
	other annual crops and pasture	301,9 per ha
	specialized olive groves	483 per ha
	citrus fruits	1 208 per ha
	other perennial crops and wine	845,3 per ha
Livestock extensification		253,6 for each livestock unit by which a herd is reduced.
Rearing of endangered breeds		120,8 for each livestock unit reared.
Upkeep of abandoned land		301,9 per ha
Long–term (20 years) set–aside		724,5 per ha
Cultivation of plant threatened by genetic erosion		301,9 per ha
Training		3 019 per person completing a full course or traineeship

Emphasis on the different environmental objectives of the programmes varies widely among Member States, both as a function of the environmental awareness of farmers and of the environmental characteristics and needs of the Member States.

The Member State programmes can be grouped according to the degree of regionalization broadly as follows:

- (a) low level of regionalization: Finland, Greece, Ireland, Luxembourg, the Netherlands, Portugal and Sweden where programmes involve measures generally applicable throughout their territory;
- (b) medium regionalization, both measures applicable throughout the territory and regionally: Austria, Denmark, France, Spain and the United Kingdom;
- (c) high level of regionalization, programmes almost entirely regionalized: Belgium, Germany and Italy.

By the end of 1995 the Commission had approved 160 decisions in relation to agri–environmental programmes in the framework of Regulation (EEC) No 2078/92.

For the majority of Member States, the years 1994/95 and 1995/96 have been the first years of full implementation. On the basis of information gathered so far, it can be said that, in the majority of cases, uptake of the programmes has been lower than expected. In all cases, the Commission and the Member are now reflecting on the best ways and means to monitor and evaluate these programmes.

In this context, the Commission issued the Regulation (EC) No 746/96 concerning the implementation of Regulation (EEC) No 2078/92.

Evaluation of the programmes will cover the socio–economic, agricultural and environmental aspects of over 1000 area–specific agri–environmental measures contained in about 100 programmes or groups of programmes.

Pursuant to article 10 para. 2 of the regulation the Commission is preparing a report on the implementation of the agri–environmental measures.

Examples of agri–environmental measures

United Kingdom

The English Countryside Stewardship Scheme aims at conserving, enhancing and restoring specific categories of landscape, such as coastal land and old meadows, which have been targeted because of their natural beauty, wildlife diversity and historic and recreational value. To this end it establishes some management practices parameters.

Coastal land: managed salt marshes

Land which is entered into a 10–year agreement is required to be managed in a traditional manner which usually involves light and regulated grazing to sustain semi–natural vegetation and the birds and invertebrates it supports. All agricultural improvement including cultivation, fertilizer, herbicide and pesticide application must cease. Stocks are withdrawn between autumn and early spring with numbers limited early in the grazing season so as not to disturb ground nesting. Grazing or exceptionally cutting is required during the summer and early autumn with objective of creating a grass sward that is attractive to overwintering wildfowl and other migrant birds.

The current rate of payment is 23.5 ecus/ha. However, agreement holders are eligible for a supplement of 47 ecu in the first year to compensate for initial measures such as cutting of course invasive grasses which allow beneficial management practices to be adopted.

Germany

One of the sub–programme of the agri–environmental programme of Nordrhein–Westfalen concerns *the protection of flower species accompanying the arable land*.

This measure aims at establishing and maintaining border strips managed in an extensive way in order to protect the species threatened of extinction. Furthermore, these strips serve as buffer zone around biotopes and allow the creation of an environmental network among biotopes.

Farmers who want to adopt this measure have to :

- create strips of 3 to 6 metres wide on arable land with flowers threatened with extinction;
- give up nutrient and pesticide application as well as any mechanical weeding;
- limit the seed density on high quality land.

The amount of aid depends on the undertakings and may vary from ECU 212 to 334/ha (only applicable to the strip of land and not to the whole field).

Denmark

One of the horizontal measures applicable in the entire country aims at *the reduction of the use of N–fertilizers*.

Aid is given to farmers who reduce their input of nitrates to below 60% of the norm. The norm is established each year according to specific rules laid down by the Plantedirektoratet. Aid cannot be given to farms which are authorized for organic farming. All eligible areas under the holding which in the first year of commitment will be used as arable land must be covered by the obligation. Normally, the minimum size of each field should be 0.3 continuous hectare. Regardless of the size of their holding, beneficiaries are obliged to prepare plans on crop rotation and on manuring and fertilization and to keep balance sheets on manure and fertilisers.

France

Maintaining extensive grassland ("prime à l'herbe")

The objective of this horizontal scheme is the maintenance of grassland areas for extensive livestock farming. This scheme applies throughout the country and aims at curbing the trend to conversion away from grassland in order to limit landscape degradation and to maintain the environmental potential of grassland. This scheme has a major role in the context of the agri–environmental measures adopted by France because it represents 75% of the Community appropriations allocated to this Member State in the framework of Regulation (EEC) No 2078/92 for the period 1993–1997.

To benefit from this scheme, farmers have to fulfil the following obligations for 5 years and for a minimum of 3 hectares of grassland and 3 livestock units (LU) per holding:

- not to exceed a livestock intensity rate per hectare of 1 LU. If this rate is between 1 and 1,4, the holding is eligible provided that grassland makes up at least 75% of the utilised agricultural area (for contracts signed in 1994, all holdings have to respect this percentage). In case of a livestock intensity rate lower than 0,6 specific provisions for the granting of the premium apply.
- maintaining the permanent grassland area (for at least 3 years as for temporary grassland), harvesting the grass (grazing or mowing) and upkeeping the area under the scheme as well as the hedgerows, dikes and water points.
- not exceeding the threshold of 70 kgs of Nitrogen per ha for the fertilisation of the grassland.

The level of the premium is 300 FF (46 ecus)/ha for 1995, 1996 and 1997 (this level applies also to the categories of farmers who have the possibility of signing the scheme from now onwards, by committing themselves for a 5–year period but with a payment guarantee only until 1997).

4.2.2. Afforestation of farm land

The Community aid scheme for forestry measures in agriculture [Regulation (EEC) No 2080/92] is based on economic and environmental considerations. It accompanies the Community's policy for controlling agricultural production and contributes to an eventual improvement in forest resources. It aims at encouraging forms of countryside management more compatible with environmental balance, combatting the greenhouse effect and absorbing carbon dioxide.

This Community aid scheme promotes afforestation as an alternative use of agricultural land and the development of forestry activities on farms.

Financial aid is granted on a contractual basis to cover the costs of afforestation, maintenance, income losses from agricultural land and investments for the improvement of farm woodlands such as forest fire prevention measures.

As in some cases afforestation of farm land may also have negative consequences for the environment, evaluation of environmental impact is therefore obligatory for the Member States.

Member States may devise zonal afforestation plans reflecting the diversity of environmental situations, natural conditions and agricultural structures. Zonal afforestation plans shall be concerned in particular with:

- the setting of an afforestation objective,
- conditions in respect of the location and grouping of areas which may be afforested,
- forestry practices to be complied with,
- selection of species of trees adapted to local conditions.

Some examples can illustrate the application of these clauses.

Examples of the application of environmental clauses in the implementation of Regulation (EEC) No 2080/92

Several programmes establish authorization systems in order to avoid unsystematic afforestation. In particular, in Italy the region of Veneto excludes afforestation in the mountain areas where the priority is to ensure the continuity of farmed open areas. In Lorraine afforestation is discouraged in the areas which are already widely afforested or closed; in the wet valleys, afforestation may be negative for local flora and fauna and may lead to the closure of landscape. In the Spanish region of Navarra several afforestation permits have been refused in order to protect birds biotopes.

At present all of the EU territory is covered by programmes. While most of the Member States have presented only national programmes, in Italy, Spain, Portugal, France also regional sub-programmes have also been presented. As far as Belgium is concerned, implementation is the responsibility of the Walloon and Flemish regions which have presented two different programmes. To date, all the programmes submitted by the Member States under Regulation (EC) No 2080/92 have obtained a positive opinion from the Permanent Forestry Committee regarding approval by the Commission.

On the basis of Regulation (EEC) No 2328/91 concerning the improvement of agricultural structures, it is possible to finance farm investment aiming at protecting the natural environment. In this context it has to be noted that such investments are not covered by the agri–environmental Regulation (EEC) No 2078/92.

Furthermore, Regulation No 2328/91 incorporates the regime of compensatory allowances for the farmers of less favoured areas established by Directive 75/268/EEC. This regime covers:

- mountain areas;
- areas with a risk of depopulation where it is necessary to ensure the upkeep of natural space; and
- areas of small size where maintenance of agricultural activities is necessary for the preservation of the environment.

When negotiating the accession of Sweden and Finland, high latitude (indicating a short growing season) was accepted as an equivalent to the high altitude criterion.

In order to get compensatory payments, farmers have to commit themselves to keep farming for 5 years on a minimum area which varies according to the Member States.

This measure may have beneficial effects on the environment. By ensuring continuation of farming, it encourages the maintenance of cultivated landscape and avoidance of erosion. In fact, less favoured areas are often very interesting from an environmental point of view. As in these areas intensification was only limited, they provide semi–natural habitats which deserve great attention. Abandonment would be negative for it would imply the loss of high value natural habitats and landscapes.

The less–favoured farming areas total 55% of all the Union’s utilized agricultural area. This shows the interest raised by this measure but also the risk of dilution of their positive impact. Since a major objective of this scheme was to maintain agricultural population, it has to be noted that this objective has been achieved only to a limited degree.

4.3.2. Regional measures

In the regions where development is lagging behind (so–called Objective 1 regions) the aid allocated to rural development has to take into consideration the environmental situation. For example, as southern European regions have problems of water resource management, measures concerning water management and use for agricultural and human needs receive a priority in Objective 1 programmes. In the rural areas, efforts are concentrated on soil conservation, combating erosion, afforested land management, biodiversity conservation, vegetative cover improvement protection, development and use of forests and woods.

The rural areas in difficulty which do not fall within the scope of Objective 1 are covered by the so–called Objective 5b. In the rural development programmes of Objective 5b, the presence of environmental measures is more visible than in Objective 1 programmes. These measures concern both infrastructures such as water treatment plants and other sectors linked to the protection of landscape, creation of natural parks and natural space conservation. In the context of these conservation measures there is strong support for rural tourism which offers new job opportunities and, more generally, diversification of activities and income sources, by creating *inter alia* favourable conditions for marketing traditional and organic products.

Monitoring and implementation of rural development programmes for the period 1994–1999 foresees the establishment of indicators, including some concerned with assessing the impact on the environment. If well monitored, these indicators will give interesting information about the effectiveness of the Community investments in these areas.

Contribution of the Structural funds to direct environmental measures

(in Mio ECU / 1994 prices)

Objective 1 (1994–1999)	Total	93 810,0	
	Environnement	8 328,0	8,9%
Objective 5b (1994–1999)	Total	6 134,0	
	Environnement	720,5	11,7%

4.3.3. LEADER

The Community initiative LEADER is designed to help rural associations and local governments in rural areas to exploit their potential better. After the positive experience of the first programme (1991–1993), LEADER II has been established for the period 1994–1999.

The Commission stated in its Notice to the Member States that the eligible measures include the safeguard and improvement of environment. This is seen in a broad sense because it encompasses both natural and architectural heritage. Actions concern tourism, organic farming, pollution reduction, water management, alternative energy, creation of parks and habitat protection and promotion of environmental awareness.

In the framework of LEADER an information network has been set up deal with *inter alia* with environment and its job creation potential.

LEADER in favour of the landscape protection

Landscape protection is one of the major preoccupations of the LEADER local groups.

In Belgium, the Hageland group concludes agricultural management contracts with farmers who undertake to plant hedgerows to upkeep trees, to create marshes. Financial compensation is granted in the case of income loss. In Denmark, the Danish Islands group supports the initiative "blooming island" in the little island of Mørstø: set-aside land, grassland and dykes are sown with local species of wild flowers. In France the Ardèche Centrale group ensures the upkeep of landscape features like paths and terraces.

4.3.4. Towards a sustainable cohesion policy

Agricultural structural measures must be seen in the context of the broader cohesion policy. The Commission issued a Communication on the relationship between environmental concerns and cohesion policy [COM(95) 509]. In this text the Commission pointed out that, as the implementation of the programmes is the responsibility of the Member States, the necessary improvement of monitoring and evaluation of environmental impacts can only be achieved in close cooperation with them and where appropriate with the regions concerned.

4.4. Other measures related to the CAP

Integration of environmental considerations into agriculture is promoted by the legislation on pesticides and by rules on labels attesting organic farming production, specific characters and geographical description.

4.4.1. *Legislation concerning plant protection products and their residues*

Plant protection products are used in conventional modern agriculture principally to control the various pests, diseases and weeds that affect crop production and preservation. These products may present important risks for man and the environment when they are not used properly.

Given the possible risks, the Union has developed an extensive legislation covering in particular the placing on the market and use of these products, as well as their residues in treated agricultural products and the environment. In the framework of the CAP related measures, the following basic Council directives should be mentioned in particular:

- a) Council Directive 79/117/EEC, prohibiting the placing on the market of plant protection products containing certain active substances, lists the active substances which all the Member States have to prohibit for marketing and use on their territories. These substances have been judged unacceptable because of their effects on human health and/or the environment. Currently 18 active substances have been listed, in particular all mercuric compounds and a large number of persistent organochloric compounds (DDT, aldrin, dieldrin, etc).
- b) Council Directive 91/414/EEC concerning the placing of plant protection products on the market, provides that plant protection products may only be placed on the market and used, when they have been authorized after an examination has been made showing that the product, when properly used, does not have harmful effects to human health or unacceptable effects to the environment. Directive 91/414/EEC has laid down detailed rules on procedures, data requirements, evaluation and decision-making requirements both for pesticide active substances and plant protection products containing those substances. It provides for a gradual reevaluation of all active substances on the market before the implementation date of the Directive as well as an immediate evaluation of the active substances not yet on the market on that date. The Directive provides further some general rules concerning the safe use of plant protection products as well as concerning control on placing on the market and use of such products.
- c) The Community has developed five basic directives (74/63/EEC, 76/895/EEC, 86/362/EEC, 86/363/EEC and 90/642/EEC) which lay down maximum residue level in most food crops. These levels are not health safety limits but represent the maximum residue level which should arise when plant protection products are correctly used. They are normally considerably below the safety thresholds and take into account, where relevant, the different crops on which plant protection products containing the same active pesticide substance may be used.

4.4.2. Legislation concerning organic farming

Regulation (EEC) No 2092/91 sets up a harmonised framework for the labelling, production and control of agricultural products bearing or intended to bear indications referring to organic production methods. Organic farming meets increasing consumers' demand for food products produced under strong limitations with regard to chemical fertilizers and plant protection products' use. At the same time it helps farmers cope with reorientation of agricultural activities and diversification.

To ensure fair competition and to protect consumers, the regulation lays down the minimum which must be complied with in order to be permitted to label a product as organic. The regulation applies to both unprocessed and processed agricultural crop products as well as any products intended for human consumption composed essentially of ingredients of plant origin.

The major benefits for the environment are:

- avoidance of chemical pesticides and mineral fertilisers reduces pollution of soil and water;
- maintenance of the soil structure thanks to the use of techniques like cultivation of legumes;
- increase in bio-diversity, directly through the choice of species not usually cultivated; indirectly through the use of natural antagonists and the beneficial effect of the pollution reduction.

Of course, as regards the use of organic fertilizers, it must be clear that the Nitrate Directive is also applicable to organic farming.

Financial aid for the promotion of organic farming can be granted on the basis of the following Regulations:

- Regulation (EEC) No 2328/91 on improving the efficiency of agricultural structures;
- Regulation (EEC) No 2078/92 on agri-environmental measures;
- Regulation (EC) No 3669/93 amending Regulation (EEC) No 866/90 on improving the processing and marketing conditions for agricultural products; organic farming is one of the priorities for investments eligible to aids;
- Regulations (EC) No 2081/93 and No 2085/93: structural funds aiming at rural development can support investment quality agricultural products such as organic products.

The Commission has adopted a proposal for a Council Regulation [COM(96) 366] supplementing Regulation (EEC) No 2092/91. This proposal lays down a framework for organic livestock farming to achieve balanced agricultural production which takes account of the environment by the following means:

- recognition of the interdependence between stockfarming and the land with a view to ensuring responsible management of effluent and favouring feed produced on the holding;
- consideration for the welfare of the livestock, in particular by eschewing systematic mutilation and eliminating stress during transport and slaughter;
- choice of breeds which are adapted to local conditions, search for biological diversity and the use of natural service;
- obligation to manage the whole livestock production unit in accordance with the principle of organic production.

4.4.3. *Phytosanitary protection, quality of plant propagating material and Community plant variety rights*

Concerning the conservation and sustainable utilization of plant genetic resources for food and agriculture, the European Union has developed a comprehensive set of legislation relating to:

- The protection of plants including plant genetic resources, to prevent the introduction into the Community or the spread within the Community of organisms harmful to plants or plant products (*phytosanitary legislation*). Under this legislation, the Commission has, in 1992, set up a Community Plant Health Inspectorate to monitor and assist national inspectorates.
- The quality of plant propagating material of agricultural and horticultural crops and of forests (*legislation on the marketing of seed and plant propagating material*). The seed marketing Directives prescribe minimum quality standards for seeds, to ensure that purchasers are insured of receiving seeds of a reasonable and uniform quality, and require checks to be made on seed health, on varietal and analytical purity and germination; they also prescribe conditions and procedures for the official field inspection of crops and testing of seeds. Seeds of agricultural plant species may only be marketed if they have been certified in accordance with the requirements of the appropriate Directives and if the variety in question has been officially accepted.
- the property protection at Community level of new plant varieties, to encourage continued breeding of improved plant varieties (*Community plant variety rights legislation*).

Moreover, the Commission submitted in 1993 a proposal to complete the legislation on the marketing of plant propagating material by measures for improved alignment with the conditions of the internal market and for establishing specific conditions to take account of developments in the area of the conservation of genetic resources, such as "on farm conservation and sustainable utilization of plant genetic resources through growing and marketing of landraces and varieties which are naturally adapted to the local and regional conditions and threatened by genetic erosion". This proposal also includes provisions for environmental risk assessment and for food safety assessment in the case of transgenic varieties of plants, to be accomplished, at the latest, at the time of official acceptance of those varieties.

4.4.4. *Labels for specific character and geographical denominations*

Regulation (EC) No 2515/94 lays down detailed rules for the application of Council Regulation (EEC) No 2082/92 on certificates of specific character for agricultural products and foodstuffs. It sets out the technical rules for the reproduction of a Community symbol and indication of a traditional speciality guarantee. In order to increase the credibility of the symbol attributed, Member States have lists of producers authorised to use it. Inspections organized by Member States will ensure consumer protection, with a view to monitoring the observance and constancy of the characteristic attested.

By applying a logo and by using it in publicity campaigns, producers of agricultural products can distinguish their products from others on the markets. This allows producers of agricultural products and foodstuffs to raise the profile of their products. This system has the potential to inspire increased confidence in consumers who will be prepared to pay higher prices for such guaranteed quality products.

To the extent that a specific character for agricultural products implies less intensive farming practices, this system may be beneficial for the environment.

As regards protected designations of origin and protected geographical descriptions [Regulation (EEC) No 2081/92], a framework of Community rules provides a uniform approach and therefore ensures fair competition between producers.

Designations of origin and geographical indications mean that the name of a geographical area is used to describe an agricultural product or a foodstuff. The regulation indicates also the difference between the two notions. In the case of the designation of origin, the product must possess the quality or characteristics which are essentially or exclusively due to a particular geographical environment with its inherent natural and human factors. In addition, the production, processing and preparation must take place in the defined geographical area. As regards geographical indication, the product must possess a specific quality, reputation or other characteristics attributable to that geographical origin and its production and/or processing and/or preparation must take place in the defined geographical area.

Producers and processors may apply for registration of their products. A procedure for the evaluation of the application as well as a system of approved inspection bodies ensure that the regulation is complied with.

While respect for the environment is not an explicit condition for granting a geographical label, the promotion of products with this label may be of considerable benefit to the rural economy, in particular to less favoured or remote areas, by improving the incomes of farmers and by retaining the rural population in these areas. Indirectly, these labels may promote environmental protection.

Agricultural labels and the environment

Agricultural labels may play a role in encouraging farming activities which contribute to maintaining fragile ecosystems like mountains, Mediterranean as well as Arctic forests. As for the mountains, the "fromages d'alpage et d'estives" are well-known examples of specific products linked to traditional practices. Their promotion can be a way to maintain the balance between the natural heritage and human presence. Similarly, in the Mediterranean regions grazing associated with woodland contributes to upkeeping the woods by reducing some natural risks. Production of traditional products and the harvest of underbrush products in the Arctic regions help maintain rural communities.

4.5. Research in agriculture

Agricultural research contributes to the establishment of extensification and environmentally friendly farming with a view to having sustainable agriculture.

The Second and Third Framework Research Programmes included agricultural research programmes CAMAR (*Competitiveness of Agriculture and Management of Agricultural Resources*) and AIR (*Agriculture and Agro-industry, including Fisheries*).

Under the Fourth Framework Research Programme the current EU agricultural research programme is FAIR (*Agriculture and Fisheries, including Agro-industry, Food Technologies, Forestry, Aquaculture and Rural Development, 1994–1998*). Sustainable, environmentally friendly farming and forestry are priority areas in FAIR.

Some of the projects which are supported financially by the programmes aim directly at environmental improvement. Environmental considerations are also integrated into research on complete agricultural systems, for example, organic or integrated farming systems with adapted crop rotations, reduced soil tillage, reduction of chemical inputs, resistant cultivars, management of buffer zones in field margins.

The integration of the environment into agricultural research projects aims at developing techniques enabling farmers to combine agricultural quality production at competitive prices with environmental protection and care of the countryside. This approach is likely to result in farmers benefiting from the research results.

The main instrument for carrying out the research programmes are "Shared Cost research projects" and "Concerted Actions". Shared Cost projects contribute (up to 50%) to the cost of multinational research teams. Concerted actions pay the expenses of coordinating scientists, in different Member States, who are already working on a given topic, without paying for the research itself. Other measures of the programmes include demonstration projects, sponsorship of conferences and training visits.

The agricultural research programmes are coordinated with other Community specific research programmes, for example the "Environment and Climate" programme which deals with water resources, soil erosion, terrestrial ecosystems, biodiversity, treatment of agricultural wastes, forest fires, barriers to the integration of sustainability into Community policies, sustainability indicators.

In addition, Article 8 of Regulation (EEC) No 4256/88 as amended by Regulation (EC) No 2085/93 and Article 6(2) of Regulation (EEC) No 2078/92, offer financial support and demonstration projects in relation to the CAP.

Some examples of research in agriculture

Fertilizers: the research projects focus specifically on fertilisers or deal with low-input farming systems such as organic, integrated or ecological farming.

Bio-fuels. Non-food production, including bio-fuels is a priority in agricultural research. FAIR already finances several projects on energy crops. FAIR encourages research in order to improve the yield and quality of energy crops; this includes breeding, agronomy, harvesting, storage, transport, processing and socio-economic conditions.

Environmental instruments: FAIR finances a concerted action which examines policy measures to control impacts from agriculture on the environment. This includes levies on fertilisers, pesticides and energy.

Genetically modified products. A number of research projects are co-financed in order to achieve reduced use of pesticides by genetic improvement. In some projects, this includes the insertion of natural genes by genetic engineering techniques.

5. Environmental policy related to agriculture

A number of general environmental measures have an impact on agriculture. While some of them have a very broad scope and regulate several sectors, others focus on more specific problems, *i.e.* nature conservation and water, which involve agriculture significantly.

5.1. Horizontal measures

5.1.1. *Environmental impact assessment*

In order to ensure pollution prevention and fair competition on the internal market, Directive 85/337 laid down the rules concerning the assessment of the effects of public and private projects on the environment.

Member States have to ensure, before consent is given, that an environmental impact assessment (EIA) is made for projects likely to have significant effects on the environment by virtue *inter alia* of their nature, size or location. The EIA will identify, describe and assess the direct and indirect effects on the following:

- humans and fauna and flora,
- soil, water, air, climate and the landscape,
- the interaction between the above factors,
- material assets and the cultural heritage.

As for the scope, the Directive makes a distinction between the projects listed in Annex I which must be made subject to EIA and those indicated in Annex II which are assessed where Member States consider that their characteristics so require.

Annex II includes also agricultural projects concerning:

- restructuring of rural land holdings;
- use of uncultivated land or semi-natural areas for intensive agricultural purposes;
- water-management for agriculture;
- initial afforestation where this may lead to adverse ecological changes and land reclamation for the purposes of conversion to another type of land use;
- poultry-rearing installations;
- salmon breeding;
- reclamation of land from the sea.

In the course of the EIA environmental authorities and the public concerned have to be informed and consulted in an appropriate way.

Agricultural projects which are co-financed by the Structural Funds under Objectives 1 and 5b are subject to EIA if they belong to the list included in Annex II.

In 1993 the Commission proposed to revise the Directive in order to ensure a more uniform implementation of the EIA.

In particular, it proposed to amend the list of agricultural projects of Annex II as follows:

- restructuring of rural land holdings;
- irrigation and land drainage;
- afforestation, reforestation, deforestation;
- intensive stock farming;
- production of exotic species of flora and fauna;
- intensive fish or shellfish farming.

In addition the Commission proposal aims at clarifying:

- the circumstances in which Annex II projects will be required to undergo an EIA, i.e. where they are liable to have a significant effect on special protection areas designated by Member States and communicated to the Commission in accordance with the Community Directives on environmental protection;
- the selection criteria Member States must apply in all other cases in order to ascertain whether an assessment is necessary, using criteria defined and agreed at the Community level. Where appropriate these criteria can be accompanied by thresholds to be laid down by the Member States.

5.1.2. Integrated pollution prevention and control (IPPC)

The Directive on integrated pollution prevention and control aims at providing for measures and procedures to prevent, whenever practicable, or to minimise emissions from industrial installations within the Community, so as to achieve a high level of protection for the environment as a whole through an authorization system based on the best available technology. This system will apply to new installations, while the existing ones have to comply with it in an eight– year period.

Among the installations falling within the scope of the Directive there are those for the intensive rearing of poultry and pigs with more than 40 000 places for poultry and 2 000 places for pigs in production (over 30 kg) or 750 places for sows.

5.1.3. Environmental liability

In 1993 the Commission presented a Green Paper on Remedying Environmental Damages [(COM(93) 47 final)] with a view to developing a Community policy in this field.

The Green Paper proposes an integrated system encompassing both civil liability and joint compensation. It makes a clear distinction between these two regimes by indicating the circumstances under which they were effective. Moreover, as for civil liability, it highlights the advantages as well as the limits of the fault–based liability and of the strict liability. The former requires proof that the liable party committed a negligent or otherwise wrongful act causing damage. The latter eases the burden of establishing liability because fault needs not to be proved while the causation link must be ascertained. In particular, the Green Paper acknowledged that the scope of the strict liability regime will be determined by the definition of notions like damage, activities concerned and liable party. This paper did not clarify the implications of environmental liability for the agricultural sector.

In 1995 a debate has been launched on environmental liability with the aim of preparing a communication from the Commissioner for the Environment to the Commission. This provides for the opportunity to discuss the form and limits of environmental liability in agriculture.

5.2. Nature conservation

5.2.1. Natura 2000

EU nature conservation policy relies mainly on the Birds Directive (79/409/EEC) and on the Habitat Directive (92/43/EEC). While the former has a specific scope, the latter tries to have a wider approach by establishing a coherent European ecological network called Natura 2000.

This network includes:

- the Special Protection Areas (SPAs) classified according to the Birds Directive.
- the Special Areas of Conservation (SACs) *i.e.* the sites hosting the natural habitat types and the habitats of species to be designated under the Habitat Directive.

The normal procedure for the designation of sites as SACs is the following. Each Member State had to propose a list of sites and transmit it to the Commission before June 1995. The Commission in agreement with the Member State concerned establishes a draft list of sites of Community importance by June 1998. The list of sites selected as sites of Community importance is adopted by the Commission. The Member State concerned designates that site as a special area of conservation before June 2004.

Apart from the habitat protection Directive 92/43/EEC also provides for the strict protection of certain species of plants and animals. The species are grouped in annexes which give different levels of protection status according to their ecological needs. So far, strict protection covers 468 plant species, 71 invertebrates and more than 160 vertebrates. There is a ban on deliberate capture and killing and disturbance of animal species during critical life-phases such as hibernation, breeding, rearing. Similarly, it is forbidden to pick, uproot or destroy the protected plants. Protected species may not be kept, transported or placed on the market.

The Habitat Directive contains some important provisions on the following questions:

- *Conservation measures*

For Special Areas of Conservation, Member States shall establish the necessary conservation measures involving, if needed, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures. Co-financing is possible in order to allow Member States to meet their obligations of implementing conservation measures. The EU financial instrument at hand is LIFE. However the Informal Council held in Arles in June 1995 called also for other EU funds to be used for habitat conservation.

- *Environmental Impact assessment*

Any plan or project not directly connected with or necessary to the management of a habitat site but likely to have a significant effect on the site must be environmentally assessed.

– *Spatial development*

Member States shall endeavour, where they consider it necessary, in their land-use planning and development policies and, in particular, with a view to improving the ecological coherence of the Natura 2000 network, to encourage the management of features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure (such as rivers with their banks or the traditional systems for making field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species.

The major impacts of the Natura 2000 network on agriculture are the following:

- management plans may impose restrictions on farming activities;
- protection of species – especially against perturbation – can conflict with agricultural activities. However, Member States may derogate, *inter alia*, in order to prevent significant damage to agriculture, in particular to crops and livestock.

Open spaces and land use

In many cases, species and natural habitats are interdependent over long distances. Diffusion and migration have been affected by human interventions such as the destruction of certain habitats important as stopping places, setting up of physical obstacles on the ecological corridors or creation of chemical barriers due to the substances used in agriculture.

The overall surface of the Special Protection Areas designated by the Member States according to the Bird Directive has increased five times from 1986 to 1994, (from 1.4 million to 6.8 million hectares). However, there is still a gap between the number and the area of the SPAs and what is estimated as necessary to establish a sufficient and coherent network. In addition, the designation of a site as a SPA is not always followed by the implementation of the necessary measures.

5.2.2. Integrated management of coastal zones

In October 1995 the Commission adopted a Communication which highlighted the continuing environmental degradation of European coastal zones. In order to promote the sustainable development of coastal areas, the Commission has launched a demonstration programme on integrated management of coastal zones.

The programme aims at showing how to apply in practice the principles of integration and subsidiarity through a better coordination between the different sectors of activities and the various levels of territorial authority. The demonstration programme is essentially financed by LIFE-Nature and TERRA. However, the experiences based on Community initiatives such as LEADER and agricultural structural measures will be useful to enhance the integrated approach of coastal zones management.

5.2.3. LIFE

LIFE (*L'Instrument Financier pour l'Environnement*) was set up by Regulation (EEC) No 1973/92 subsequently amended by regulation (EC) No 1404/96. The general objective of LIFE is to contribute to the development and, if appropriate, implementation of Community environmental policy and legislation.

LIFE is implemented in phases. The first phases ended on 31 December 1995. The second phase covers the period 1996–1999. The financial resources for the second phase amount to ECU 450 million.

The main fields of action and the allocation of the financial resources are shown in the table below.

Fields of Action	Allocation of financial resources
Actions in the Community	
1. Nature conservation actions	46%
2. Other actions designed to implement EC environmental policy and legislation (<i>i.e.</i> protection and rational management of coastal areas, protection of water resources and water management, combatting acidification, etc.)	46%
Actions outside Community territory	8%

5.3. Water policy



Present EU water policy is based directly or indirectly on several directives and on the obligations undertaken by the Union under some international conventions. Some proposals have been tabled by the Commission in recent years. During the discussion on these proposals the need has clearly emerged for going beyond a fragmentary approach and ensuring a comprehensive water policy.

While some existing and proposed acts aim at protecting water resources, others try to secure better water quality for consumers by defining a number of quality parameters to be complied with. From the agricultural perspective, the most relevant water Directives are those dealing with groundwater, drinking water and nitrates. However, while the drinking water Directive does not concern agriculture directly, the Groundwater Directive deals with some forms of agricultural pollution and the Nitrate Directive focuses on farming practices. When considering water protection one must also take into account the Directive on marketing pesticides which has clear implications for agriculture. The discussion on an overall approach for water policy is also of great importance for agriculture.

5.3.1. Groundwater Directive and Groundwater action programme

The present Groundwater Directive (80/68/EEC) aims at the protection of groundwater quality from potential sources of pollution, primarily of a point source origin. The Directive is based on an authorization requirement for installations and activities discharging a defined number of substances directly and indirectly into groundwater.

In November 1996 the Commission adopted a proposal for a Decision on an action programme for integrated groundwater protection and management [COM(96) 315 final]. This proposed action programme recognises the particular importance of protection of groundwater in the countryside where the largest quantities of high quality groundwater are formed and found. In order to ensure the protection and sound management of groundwater, the programme addresses both point sources predominantly of urban and industrial origin and diffuse sources originating mainly from agricultural practices or to a lesser degree from urban or industrial activities.

5.3.2. Drinking water Directive

Directive 80/778/EEC relating to the quality of water intended for human consumption laid down a set of mandatory quality standards for drinking water throughout the Community. The total number of water quality parameters listed in Annex I of this directive is 67.

A proposal for the revision of the Drinking water Directive is currently under examination. In the light of the precautionary principle and the improvements in scientific understanding, the parametric values for the quality parameters listed in Annex I have been reviewed. For nitrates, the Commission is proposing a parametric value which is in accordance with the World Health Organisation guidelines. This means an unchanged parametric value for nitrate of 50 mg/l. The limit for pesticides is 0.1 µg/l per active ingredient.

In comparison with the existing directive, the proposal provides much more flexibility which will improve its workability, especially with respect to agriculture. The major innovations are:

- the inclusion of a conditional possibility to make provisions for temporary derogation from the parametric values in Annex IB (chemical parameters);
- the abandonment of a summarized limit value of 0.5 µg/l for pesticides.

5.3.3. Nitrate directive

Directive 91/676/EEC aims at reducing water pollution caused or induced by nitrates from agricultural sources and at preventing further such pollution.

It targets water affected by pollution or which could be affected if action is not taken. Member States were given two years in which they had to designate as vulnerable zones all known areas of land for which the corresponding

- surface freshwater contains or could contain more than 50 mg nitrates per litre;
- groundwater contains more than 50 mg/l nitrate;
- natural freshwater lakes, other freshwater bodies, estuaries, coastal waters and marine waters are found to be eutrophic or in the near future may become eutrophic.

In order to achieve the objectives, the Member States have to adopt measures both at general level and for vulnerable zones. They have to establish codes of good agricultural practice to be implemented by farmers on a voluntary basis and, where necessary, a programme promoting the application of the codes. As regards in particular the vulnerable zones, Member States have to establish binding action programmes. They have to be implemented within four years of their establishment and shall ensure that the amount of manure spread within the zone does not exceed 170 kg N/ha.

Codes of good agricultural practice

A) A code or codes of good agricultural practice with the objective of reducing pollution by nitrates and taking account of conditions in the different regions of the Union should contain provisions covering the following items, in so far as they are relevant:

1. periods when the land application of fertiliser is inappropriate;
2. the land application of fertilizer to steeply sloping ground;
3. the land application of fertilizer to water-saturated, flooded, frozen or snow-covered ground;
4. the conditions for land application of fertilizer near water courses;
5. the capacity and construction of storage vessels for livestock manures, including measures to prevent water pollution by run-off and seepage into groundwater and surface water of liquids containing livestock manures and effluent from stored plant materials such as silage;
6. procedures for the land application, including rate and uniformity of spreading, of both chemical fertiliser and livestock manure, that will maintain nutrient losses to water at an acceptable level.

B) Member States may also introduce in their code(s) of good agricultural practices the following items:

7. land use management, including the use of crop rotation systems and the proportion of the land area devoted to permanent crops relative to annual tillage crops;
8. the maintenance of a minimum quantity of vegetation cover during (rainy) periods that will take up the nitrogen from the soil that could otherwise cause nitrate pollution of water;
9. the establishment of fertilizer plans on a farm-by-farm basis and the keeping of records on fertilizer use;
10. the prevention of water pollution from run-off and downward movement beyond the reach of crop roots in irrigation systems.

5.3.4. *Towards a sustainable water policy*

In June 1995 the Council and the Environment Committee of the European Parliament called for a fundamental review of Community water policy. In February 1996 the Commission adopted a Communication on a EC water policy. This Communication emphasizes the need for a Water Resources Framework Directive which should lay down the principles of water management in the countries of the EU. It would be based on an integrated approach considering:

- the relations between different bodies of water;
- the interactions between water policy and other policies;
- the interdependence of quantity and quality;
- the integration of emission control with environmental objectives, and
- the principle of the river basin as the elementary unit for water management.

Conclusions and perspectives

The increasing awareness of the interdependence between agriculture and environment has led to a realization of the importance of an integrated and sustainable policy approach.

The principles of sustainability and integration are themselves the result of two decades of cultural and political evolution marked by progressive policy changes.

The Treaty on European Union establishes the task of promoting "*sustainable ... growth respecting the environment*" (article 2) and requires that "*environmental protection requirements must be integrated into the definition and implementation of the other Community policies*" (article 130r).

The present state of the art of integrating environmental requirements into agricultural policy can be summarized as reducing the pressure exerted on the environment while ensuring, where necessary, the environmentally friendly land upkeep and financially supporting farmers who undertake further actions favourable to the environment.

In addition, measures have been taken in the framework of environmental policy aimed at preventing farming – like other human activities – from harming the environment and, in particular, natural resources, including genetic resources.

Agriculture was selected as one of the target sectors of the Fifth Environmental Action Programme which drew attention to the environmental damage caused by some farming activity, but also stressed the dual role of farmers: producers of agricultural goods and stewards of the environment.

As the 1994 Interim Review of Implementation of the Fifth Programme [COM(94) 453 final] made clear, agri–environmental measures constitute a first and very positive step towards full integration of environmental consideration into agricultural policy. However, the pace and extent of integration must be strengthened in future adjustments of the CAP.

In January 1996 the Commission adopted the Progress Report on the Implementation of the Fifth Environmental Action Programme [COM(95) 624 final].

Its qualitative assessment of the progress highlighted the results achieved but also the additional efforts still to be made. The Report recognises the improvements concerning agricultural practices and some sectors of the common market organisation. It expresses a positive appreciation of the agri–environment measures and of LEADER initiative as well as of the rural policy in Member States encouraging rural diversification, extension of organic farming and guidance and training on sustainable practices.

It is important, however, to realize that establishing environmental indicators does not automatically result in defining environmental objectives. Environmental objectives should only be identified on the basis of political decisions which can, of course, make use of information received from environmental indicators systems.

The EU is committed to support sustainable agriculture and rural development at the international level. To this aim, the European Commission is participating actively in the works of the UN Commission on Sustainable Development which monitors the implementation of "Agenda 21".

In the light of the European and international context, it is time to reflect on the future of CAP in the 21st Century. The Commissioner for agriculture and rural development, Mr Franz Fischler, has outlined some policy orientations which should characterise the CAP:

- reduced reliance on market price support and use of more direct measures;
- increased emphasis on the integrated development of rural areas;
- stress on the multifunctional role of agriculture;
- simplification and increased decentralisation.

In particular, fostering the potential of the relationship between agriculture and environment is a top priority. In Mr Fischler's words: *"What could be more obvious than further upgrading the role which can be played by farmers in relation to environmental protection, the care and maintenance of our cultivated areas and our natural resources. But this assumes that in agricultural policy and in environmental policy the proper background conditions are created and also assumes when special efforts are made which go beyond what is generally referred to as 'good professional practice' these special services should be suitably rewarded."*³

³ Franz Fischler, *The Common Agricultural Policy in the 21st Century – First Reflections*, speech delivered on 9.10.1995 at the European Commission Representation Office in Bonn.

Annex 1

Integration in progress: the farmer's perspective

Am I in a special area as regards environment?

- special protection area (Birds and Habitat Directives);
- vulnerable zone (Nitrate Directive);
- less favoured area;
- area covered by regional objective (1 or 5b) of structural funds;
- area covered by a zonal agri-environmental action [Regulation (EEC) No 2078/92]

Which environmental factors do I have to take into account in my choices?

- respecting natural resources;
- choosing appropriate pesticides (Directive 91/414/EEC);
- respecting set-aside rules;
- considering legislation affecting intense rearing facilities.

Which environmental factors do I have to take into account in my practices?

- good use of pesticides (Directive 91/414/EEC and legislation on residues);
- good agricultural practices (Nitrate Directive);
- maximum level of manure spreading (Nitrate Directive);
- limit values for sewage sludge.

What else can I do for the environment?

- extensification: low input level and less intensive breeding [Regulation (EEC) No 2078/92];
- organic farming [Regulations (EEC) No 2092/91 and 2078/92];
- to preserve biodiversity and natural resources [Regulation (EEC) No 2078/92];
- to be steward of the countryside [Regulation (EEC) No 2078/92].

Can I take a benefit from other encouraging measures not directly linked to environment?

- labels;
- Regulation (EEC) No 2328/91;
- LEADER.
- training and demonstration farms to promote good practice [Regulation (EEC) No 2078/92]

Annex 2

Main Community texts concerning agriculture and environment

Regulations

Council Regulation (EEC) No 797/85 of 12 March 1985 on improving the efficiency of agricultural structures. OJ L 93 of 30.3.1985.

Council Regulation (EEC) No 1760/87 of 15 June 1987 amending Regulations (EEC) No 797/85, (EEC) No 270/79, (EEC) No 1360/78 and (EEC) No 355/77 as regards agricultural structures, the adjustment of agriculture to the new market situation and the preservation of the countryside. OJ L 167 of 26.6.1987.

Council Regulation (EEC) No 4256/88 of 19 December 1988, laying down provisions for implementing Regulation (EEC) No 2052/88 as regards the EAGGF Guidance Section. OJ L 374 of 31.12.1988.

Council Regulation (EEC) No 3013/89 of 25 September 1989 on the common organization of the market in sheepmeat and goatmeat. OJ L 289 of 7.10.1989.

Council Regulation (EEC) No 866/90 of 29 March 1990 on improvement of conditions for marketing and processing agricultural products. OJ L 91 of 6.4.1990.

Council Regulation (EEC) No 2092/91 of 24 June 1991 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs. OJ L 198 of 22.7.1991.

Council Regulation (EEC) No 2328/91 of 15 July 1991 on improving the efficiency of agricultural structures. OJ L 218 of 6.8.1991.

Council Regulation (EEC) No 2078/92 of 30 June 1992 on agricultural production methods compatible with the requirements of the protection of the environment and the maintenance of the countryside. OJ L 215 of 30.7.1992.

Council Regulation (EEC) No 2080/92 of 30 June 1992 instituting a Community scheme for forestry measure in agriculture. OJ L 215 of 30.7.1992.

Council Regulation (EEC) No 2081/92 of 14 July 1992 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs. OJ L 208 of 24.7.1992.

Council Regulation (EEC) No 2081/93 of 20 July 1993 amending Regulation (EEC) No 2052/88 on the tasks of the Structural Funds and their effectiveness and on coordination of their activities between themselves and with the operations of the European Investment Bank and the other existing financial instruments. OJ L 193 of 31.7.1993.

Council Regulation (EEC) No 2085/93 of 20 July 1993 amending Regulation (EEC) 4256/88 laying down provisions for implementing Regulation (EEC) No 2052/88 as regards the European Agricultural Guidance and Guarantee Fund (EAGGF) Guidance Section. OJ L 193 of 31.7.1993.

Council Directive 90/642/EEC of 27 November 1990 on the fixing of maximum levels for pesticide residues in and on certain products of plant origin, including fruit and vegetables. OJ L 350 of 14.12.1990.

Council Directive 91/414/EEC of 15 July 1991 concerning the placing of plant protection products on the market. OJ L 230 of 19.8.1991.

Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources. OJ L 375 of 31.12.1991.

Council Directive 92/44/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. OJ L 206 of 22.7.1992

Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control. OJ L 257 10.10.1996.

Documents COM

COM(93) 47 final of 14.5.1993. Communication from the Commission to the Council and Parliament and the Economic and Social Committee : green paper on remedying environmental damage.

COM(93) 575 of 16.3.1994. Proposal for a Council Directive amending Directive 85/337/EEC.

COM(94) 117 final of 11.5.1994. Proposal for a Council Regulation (EC) on reform of the common organisation of the market in wine.

COM(95) 511 final of 31.10.1995. Communication from the Commission to the Council and the European Parliament on the integrated management of coastal zones.

COM(95) 509 final of 22.11.1995. Communication on cohesion policy and the environment.

COM(96) 59 final of 21.2.1996. Communication from the Commission to the Council and the European Parliament. European Community Water Policy.

COM(96) 366 final of 26.7.1996. Proposal for a Council Regulation (EC) supplementing Regulation (EEC) No 2092/91 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs to include livestock production.

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