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**Directions towards sustainable agriculture**

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## Summary

- (1) Environmental considerations have become a major concern of the common agricultural policy (CAP). Agriculture and forestry rely on the availability of natural resources and, in exploiting these resources, can place environmental pressure on them. Differentiated landscapes and related biodiversity, shaped by agriculture over centuries, can be harmed by the abandonment of land use. The environmental significance of agriculture and the overall approach towards the integration of the environment into the CAP are outlined in this document.
- (2) The need to integrate environmental concerns was given effect in the Single European Act of 1986. At the Rio Summit, the signatory States adopted key declarations and conventions with relevance to agriculture and forestry. The 5th Environmental action programme and its revision in 1995 reinforced the need for integration of environmental issues into the CAP. The Amsterdam Treaty makes sustainable development an objective of the EU, while retaining the existing Treaty bases for environmental and agricultural policy.
- (3) The European Council at Cardiff in June 1998 notes the Commission's efforts to integrate environmental concerns into all Community policies and the need to evaluate this in individual decisions. The European Council at Vienna in December 1998 underlined the need to ensure that environmental integration is adequately treated in the decisions to be made on agricultural policies within the context of Agenda 2000.
- (4) Considerations to integrate environmental elements into the CAP need to take note of the general environmental policy measures to prevent pollution, to minimise environmentally harmful farming activities, and to preserve natural heritage. EU legislation of major significance for agriculture include the Habitats and Wild Birds Directives, the legislation on water protection, and the Nitrates Directive.
- (5) The new CAP reform as presented under Agenda 2000 is designed to achieve necessary structural adjustments in principal market regimes and a strong rural development policy, becoming a second pillar of the CAP. Environmental considerations aiming to assure farming practices, necessary to safeguard the environment and preserve the countryside, form an important element of the Commission's proposals. The general orientation is that farmers should observe a minimum level of environmental practice as part-and-parcel of the support regimes, but that any additional environmental service, beyond the basic level of good agricultural practice and respecting environmental law, should be paid for by society through the agri-environment programmes.
- (6) In the context of the common market organisations, the proposals include the option to link direct payments to the respect of environmental requirements. The agri-environment measures would be reinforced and form a compulsory part of rural policy programmes. The agri-environmental measures cover ways of using agricultural land, which are compatible with the protection and improvement of the environment, the landscape and its features, natural resources, the soil and genetic resources. The main objectives of measures in less favoured areas remain broadly unchanged, namely to assure continued farming and the maintenance of a

viable rural community, to preserve the landscape and to promote the continuation of sustainable farming. A specific provision foresees that payments may cover the costs of complying with obligations under environmental legislation. Support for forestry shall promote sustainable management and development of forests. Forests play an essential role in the preservation of the natural environment, notably water, soil, and air.

- (7) In addition, it has to be considered that promoting renewable energies from biomass or biofuels contributes to combating climate change.
- (8) The Commission's proposals provide Member States and regions with the instruments necessary to assure that minimum environmental standards are observed and to promote the conservation and improvement of Europe's unique environmental heritage.
- (9) This document complements and explains the environmental context for the Agenda 2000 proposals and underlines the need for the continuous process of integration and monitoring of progress.

## Directions towards sustainable agriculture

### 1. INTRODUCTION

Over three-quarters of the territory of the EU is agricultural or wooded land<sup>1</sup>. While there is a great diversity in environmental values and land uses from Mediterranean to sub-Arctic regions, a significant level of interdependence between agriculture and conservation of the environment is evident throughout the EU.

As commercial activities, agriculture and forestry are aimed principally at production, which both relies on the availability of natural resources and, in exploiting these resources, places environmental pressure on them. Technological developments, and commercial considerations to maximise returns and minimise costs, have given rise to a marked intensification of agriculture in the last 40 years. The role of the common agricultural policy (CAP) in contributing to intensification has also to be mentioned.

A high level of price support favoured intensive agriculture and an increasing use of fertilisers and pesticides. This resulted in pollution of water and soils and damage done to certain eco-systems; resulting high treatment costs had to be born by consumers or taxpayers.

Among the environmental developments, which the CAP helped to speed up, changes of landscapes due to the intensification of agriculture have mentioned. The destruction of hedge rows, stonewalls, and ditches and the draining of wet lands have contributed to the loss of valuable habitats for many birds, plants and other species. Intensification in certain areas led to an excessive use of water resources and to increased soil erosion.

During the last 15 years awareness has grown that the differentiated landscape and related biodiversity shaped by agriculture over several centuries which has given rise to a unique semi-natural environment with a rich variety of species dependent on the continuation of farming can be harmed by the intensification of agriculture. Intensification can raise problems not just in relation to landscape and biodiversity but also for soil, water and air.

The abandonment of land use for agricultural purposes which is taking place mainly for economic reasons also creates pressure on landscape and biodiversity. In Europe the abandonment of farming activities can damage biodiversity and in any case would not normally lead to the recreation of the aboriginal natural status. The challenges proposed by both the intensification

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<sup>1</sup> 44% agricultural land; 33% wooded land.

and abandonment of farming therefore raise questions concerning the relationship between agriculture and the environment and the future basis for the European model of sustainable agriculture.

The desired relationship between agriculture and environment can be captured by the term „sustainable agriculture“. Sustainability is the key concept of the 5<sup>th</sup> Environmental Action Programme, which refers to sustainable development as „development which meets the needs of the present without compromising the ability of future generations to meet their own needs“. This entails preserving the overall balance and value of the natural capital stock and a redefinition of short, medium and long-term considerations to reflect real socio-economic costs and benefits of consumption and conservation.

“Sustainable agriculture“ would call for a management of natural resources in a way which ensures that the benefits are also available in the future. This definition of sustainability reflects the self-interest of farmers. A broader understanding of sustainability extends, however, to a broader set of features linked to land and land use such as the protection of landscapes, habitats, and bio-diversity, and to overall objectives such as the quality of drinking water and air. Therefore, in a more comprehensive perspective, the beneficial use of land and natural resources for agricultural production has also to be balanced with society’s values relating to the protection of the environment and cultural heritage.

Increasing public awareness of the need to integrate environmental concerns into the European Community policies was given effect in the Single European Act of 1986. This required environmental protection requirements to be integrated into other policies. In 1987 the Commission produced a paper on ‘Agriculture and the environment’ taking up this theme.

Debate on environmental integration has not been confined to Europe as in 1992, at the Rio Summit, the signatory States adopted a series of key declarations and conventions, with relevance to agriculture and forestry. In particular, the concept of sustainable development was agreed and legally binding conventions on climate change, biological diversity and desertification adopted.

The 1992 reform of the CAP included specific instruments to encourage less intensive production, both to reduce market surpluses and to alleviate environmental pressure. This reform was accompanied by the agri-environment and afforestation programmes, which had a specific environmental focus. Agri-environment measures have become the focus of the Community’s environmental approach to agriculture within the CAP since 1992.

The 5th Environmental action programme<sup>2</sup>, which lays down *inter alia* objectives regarding the conservation of water, soil and genetic resources,

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<sup>2</sup> 5th Environmental action programme: Towards sustainability, COM(92) 23, 27.3.1992.

targeted agriculture as one of the five priority sectors. The revision<sup>3</sup> of the action programme reinforced the need for integration of environmental issues and underlined the need for improving the integration of the environment into common market regimes, including an inventory of environmental effects, development of environmental criteria and best practices and the evaluation of key policies.

The Amsterdam Treaty makes sustainable development an objective of the EU, while retaining the existing Treaty bases for environmental and agricultural policy. Agriculture remains a Community policy where all the instruments of the CAP are decided by the Council of Ministers. This enables environmental considerations to be developed, enacted and applied throughout the EU efficiently and with direct effect.

The new reform of the common agricultural policy (CAP), proposed as a part of Agenda 2000<sup>4</sup>, is designed to achieve necessary structural adjustments in some of the principal market regimes and the establishment of a strong rural development policy. Environmental considerations, a central element of the Amsterdam Treaty, form an important element of the Commission's proposals, both to integrate environmental concerns into the rules of the Common Agricultural Policy and to assure farming practices necessary to safeguard the environment and preserve the countryside.

In addition to adjustments of market regimes to the conditions facing farming in the new century, the reform would develop a coherent integrated rural development policy as a second pillar of the CAP, largely financed from the guarantee section of the EAGGF<sup>5</sup>. As foreseen in the proposal, the essence of the environmental elements of the proposals is that farmers should observe a minimum level of environmental practice as part-and-parcel of the support regimes, but that any additional environmental service, beyond the basic level, should be paid for by society through the agri-environment programmes.

The agri-environmental aspect figures in the White-Book on Renewable Energies (Com (97)599) in as far as developments foreseen for biomass should contribute to diminish CO<sub>2</sub> emissions significantly.

Section 2 of this paper summarises the development of policy concerning the interaction of farming on the environment, Section 3 covers the process of policy review and evaluation, and Section 4 sets out the strategy employed in the AGENDA 2000 reform proposals to achieve a better integration of environmental protection requirements into the definition and implementation of the CAP.

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<sup>3</sup> COM(95) 624.

<sup>4</sup> Agenda 2000: For a stronger and wider Union. COM(97) 2000 Final.

<sup>5</sup> EAGGF: European agricultural guidance and guarantee fund.

## **2. FARMING AND THE ENVIRONMENT**

### **2.1. General trends in European agriculture**

#### *2.1.1. Intensification and specialisation*

The relationship between agriculture and the environment is not static. Agriculture has intensified and intensification has in turn increased pressure on the environment.

The European livestock sector provides a clear picture of the trend towards intensification. Producer quotas were introduced in the milk sector in 1984 in order to avoid over-production and stabilise markets. In the ten-year period since then, milk production has been largely stable but dairy cow numbers have decreased by 20% as milk yields have risen. However, the number of producers has decreased by 50% while the average size of the dairy herd has risen from 19 to 30 cows. Indeed this figure masks the trend to very large herds as currently more than 40% of the EU's cows are held on farms with more than 50 cows which resulted in higher stocking densities per hectare in regions where concentration takes place.

In the EU pig sector, support is limited but production has been rising for many years. The trend is for further significant increases in both production and consumption. Pig numbers are rising. Pig production is concentrated in certain parts of the EU. Since the 1992 reform some shifts can be observed where pig production developed near the grain producing areas. Currently, there is a very high concentration of pigs in Belgium, the Netherlands and Denmark and in parts of Germany, France, Spain, Italy, Portugal and the United Kingdom.

In most Member States of the EU the vast majority of breeding pigs are held on holdings with more than 100 sows. The average number of sows on these holdings reaches more than 300 in the UK and Ireland and more than 200 in Denmark, Greece, Portugal Germany Netherlands and Sweden in 1995.

In the arable sector growth in yields has of course been accompanied by an increase in inputs: fertiliser consumption has increased from approx. 5 mio tonnes in 1950 (nutrients), peaking at over 20 mio tonnes in the 1970s and 1980s and decreasing to currently around 16 mio tonnes<sup>6</sup>. Pesticide use shows a similar development with a level in 1996 of approx. 300.000 tonnes p.a. However pesticide use has increased in Portugal, Ireland and Greece, countries with a traditionally low use.

The decline in recent years in the use of chemical fertilisers and pesticides is attributable to 1992 CAP reform but also to other factors, and this is an environmentally positive development; but it does not change the fact that overall usage today is several times higher than decades ago. In addition, most

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<sup>6</sup> EFMA: Forecast of food, farming and fertilizer use to 2008. EFMA 1998.

recent figures show a reversal of the downward trend for both pesticides and fertilisers<sup>7</sup>.

It should be borne in mind as well that the recent decline in pesticide use may be partly attributable to the fact that more specific or concentrated active substances have been developed. This means that, although further work needs to be done on the eco-toxicity of individual pesticide active ingredients, it is already clear that such a reduction in volume of use is not necessarily accompanied by a reduction in the biological effectiveness and hence the pollutant effect of pesticides.

The increase in inputs and yields has been accompanied by greater specialisation, with a huge reduction in mixed farming and in particular a loss of traditional rotations (including organic rotations). This mixed farming and traditional rotations brought environmental benefits greater than those of the systems that have replaced them.

Intensification, greater specialisation and unit enlargement are all long-term economic and social trends within agriculture. However, such trends produce environmental effects, which need to be controlled so as to ensure the sustainability of agriculture.

#### *2.1.2. Marginalisation*

At the same time, a process of agricultural marginalisation is occurring in some areas, from field to regional scale. Difficult areas within a farm may be abandoned whilst intensification proceeds on the rest of the holding, or whole farms may be under threat possibly to abandonment. Regions which are potentially most vulnerable to marginalisation and possibly of abandonment fall into two main categories – regions where extensive systems predominate and those where small scale agriculture is characteristic.

#### *2.1.3. Developments in organic farming*

Public concern about the environment has led to increased demands for environmentally beneficial agricultural production methods, such as integrated production, traditional low-input farming and organic farming.

In particular, public attention has focused on organic farming as it provides a combination of environmental, social and economic effects: Its main environmental benefits, particularly compared with intensive conventional farming, accrue to the sustainable rotation of land use and to the absence of synthetic pesticides, leading, to positive environmental impacts. e.g. on biodiversity. Non-environmental benefits include job creation due to a higher labour demand and substantial price premiums. Particularly in areas with a high proportion of permanent grassland or environmentally sensitive regions organic farming can be an interesting alternative. However, also with organic farming,

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<sup>7</sup>

Eurostat: pesticide in the EU: Sales, use, legislation (draft, 1998), ECPA, EFMA.

respect of certain environmental requirements will have to be ensured by specific rules in order to avoid leaching of nitrates or conversion of high nature value grassland into arable land.

The European Community's legislation corresponds with difficulties faced by the organic sector, the need to assure the single market and public interest in organic farming: A legal framework for organic production methods has been established, requiring strict controls (Regulation (EEC) No 2092/91). In addition, organic production methods have been the subject of agri-environmental measures under Regulation (EEC) No 2078/92 as a function of their environmental benefits and lower profitability, especially in conversions years. However, less attention has been paid to problems of processing and marketing, which are identified in many Member States as significant impediments to growth of the sector.

Remaining difficulties notwithstanding, Community measures have been able to contribute to the significant increase of organic farming. The number of organic farms (certified and in conversion) increased from 35.476 in 1993 to 93.830 in 1997. In the same period the area under organic production methods more than doubled from 889.919 ha to 2.209.866 ha. A result of this was that in 1997, organic farming accounted for some 1.6% of the total UAA and 1% of the number of agricultural holdings in EU-15.

In addition to measures to encourage extensification, the Commission has also proposed rules covering production standards, inspection and labelling for organic livestock production<sup>8</sup> and is considering the introduction of an organic logo. This complements legislation already enacted covering crop products and establishes the principle that Genetically Modified Organisms (GMO) should not to be used in organic farming.<sup>9</sup>

The measures, which are currently finalised in the Council, would encourage a type of agriculture which would have a beneficial impact on the environment and encourage consumer confidence. The European Union has also been active in ensuring that these consumer concerns receive sufficient consideration in international fora.

## **2.2. Water**

In many parts of the EU, serious environmental concerns have been expressed at the level of abstraction of water by agriculture for irrigation, particularly in Mediterranean countries. Where usage exceeds the rate of replenishment and the water table falls the environmental consequences can be serious: these can involve, e. g. salinisation by sea water invading the underground supplies, and loss of biodiversity resulting from changes in flow of watercourses. Irrigation

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<sup>8</sup> 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. COM(96)366 and COM(97) 0747 final.

<sup>9</sup> Regulation (EEC) No 2092/91 as amended by Regulation (EC) No 2083/92 and by Regulation (EC) No 1935/95

can result in water pollution because of an increased concentration of pesticides and nutrients in run-off water. In addition, even greater resources are needed to abstract the water from deeper wells.

Concerning water quality, agriculture is a major source of nitrates and phosphates in water. This can lead to eutrophication, with consequent deleterious effects on the natural environment, and levels of nitrate in drinking water supplies, surface and ground waters, which exceed EU standards<sup>10</sup>.

Comprehensive measures to remedy this problem are required under the terms of the Nitrates Directive. The adoption of this Directive represents an important step towards integration of environment into agriculture with the Directive adhering to both the "polluter pays" and the "prevention at source" principles. The implementation record of this Directive, however, is poor.<sup>11</sup> 12 of 15 Member States are subject of legal proceedings with respect to both the non-transposition and/or the incorrect application of the Directive.

Compliance with the Nitrates Directive would contribute significantly to solving certain structural problems such as the excessive concentration of pig and poultry production in some regions of the Union. The application of the directive must be kept under constant evaluation in order to stimulate enforcement.

The lack of implementation of the Nitrate Directive is worrying as the 1995 Dobris assessment indicated on the basis of model calculations that 87% of the agricultural area in Europe has nitrate concentrations in the groundwater that are above the guide-level value of 25 mg/l, and 22% that are above the maximum admissible concentration of 50 mg/l. In many areas, these levels are increasing, particularly so in areas of high livestock density, with existing sources of drinking water having to be closed or being subject to expensive treatment.

Elevated levels of nitrates are also significant contributors for eutrophication, particularly in marine and coastal areas. Large areas of the North Sea coast line and parts of the Mediterranean have been identified as suffering from eutrophication much of it due to pollution from agricultural sources, leading to algal growth and other forms of changes to the ecosystems. This may lead to economic losses for both the fisheries and tourism industry.

Some agri-environment programmes exist to further reduce nitrate leaching into the aquatic environment and to reduce abstraction. However, compulsory measures, for example, flowing from application of the Nitrates Directive are not the subject of agri-environment payments. This can be regarded as a direct consequence of the polluter pays principle which requires that minimum environmental standards as, for example, foreseen in Community legislation like

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<sup>10</sup> Directive 80/778/EEC concerning the quality of water intended for human consumption, OJ L 229, 30.8.1980.

<sup>11</sup> Report of the Commission to the Council and European Parliament: The implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources. European Commission, 1998.

the Nitrates Directive are respected by farmers without receiving additional remuneration.

A further source of environmental pollution is the use of pesticides in a manner, which allows residues to enter water supplies, surface and ground waters. EU rules exist to control maximum levels of pesticides in farm produce<sup>12</sup>. Measures to limit pesticide residues in water, for instance by applying sophisticated integrated pest management or organic farming, exist under agri-environment programmes, which may contribute to improve the situation. Nevertheless, further measures will be needed to better control the use of pesticides in order to decrease water contamination.

Land drainage and irrigation may lead to the destruction of habitats, which were part of the wet or dry conditions existing prior to the water management initiatives. In addition, efficient land drains and protection of flood meadows can lead to flooding by increasing the rapidity of peak run-off into river systems. Appropriate farming systems, including the continued use of flood plains, diminish this risk.

EU water legislation is being brought under the umbrella of a new instrument called the Water Framework Directive, which will simplify and refocus the present legislation. However, this will not change the role of the nitrates and pesticides legislation described above.

### **2.3. Land use and soil**

Agricultural land is under severe threat in many parts of the EU from alternative land uses and inadequate land use practices. In particular, sites for housing and industry as well as the expanding transport network remove, sometimes entirely, the environmental value of land. Agriculture, in contrast, in many cases preserves land, although negative pressure may be exerted on the soil quality. The damaging effects fall into 3 categories:

- physical degradation, such as erosion, desertification, waterlogging and compaction;
- chemical degradation, such as changes in acidity, salinisation, contamination by pesticides, heavy metals, etc. ;
- biological degradation, including changes to micro-organisms and to the humus content of soil.

The main agricultural driving forces for soil erosion are unsustainable agricultural practices on sloping lands, such as lack of effective erosion control measures in production systems such as certain types of intensive fruit production and olive trees, soil compaction through the use of heavy machinery, cropping systems that leave soil bare during the rainy season, improper

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<sup>12</sup> Pesticide residue directives: for summary, see “Agriculture and Environment”, section 4.4.1.

irrigation systems, burning of crop residues, removal of river bank trees and scrub and non-soil protecting monoculture.

At the same time, certain farming systems, such as managed grazing, the presence of hedges and trees, and traditional rotation patterns, may be essential to maintain soil quality. Several agri-environment programmes have the conservation of soil resources as an aim. These concern programmes for assuring certain crop rotations and in particular the promotion of organic farming. Programmes also exist to guard against erosion and fire risk, particularly in relation to abandoned land. Afforestation programmes under Regulation (EEC) No 2080/92 can also make an important contribution to reduce soil erosion.

Despite positive results achieved in areas covered by agri-environmental or afforestation measures, soil erosion is increasing. About 115 mio hectares in Europe are suffering from water erosion and 42 mio hectares from wind erosion. Particular problems exist in the Mediterranean region<sup>13</sup>.

#### **2.4. Air and climate change and ozone depletion**

Agriculture, particularly as a result of an increasing number of animals over the last 40 years, is the major source for ammoniac emissions, which lead to soil and water acidification and contribute to damage to forests through acidity in rainfall. In addition, together with the natural environment, agriculture is a major source of emissions of methane from animal production and nitrous oxide from fertiliser, which contribute to the greenhouse effect. Methyl bromide, an ozone depleting substance, has been widely used in horticulture and the Commission is now seeking to speed up the curtailment of its use. Moreover, pesticide ingredients can be carried in the air and deposited elsewhere through wind or rainfall.

In general, farming practices, which intensify the use of inputs, will increase the emissions. However, in the case of methane<sup>14</sup>, an extensive system of animal rearing, which entails the use of less-efficient fodder over a longer period than intensive production, results in substantially higher levels of methane output per unit of livestock product. Some methane mitigation options related to livestock production therefore suggest to increase the intensity of animal production. However, considerations on measured water pollution and decreased biodiversity potential of such an option raise questions as to its overall beneficial effect.

Concerning EU policy in this area, several investment schemes are aimed at establishing treatment units to reduce emissions or recover waste gasses. However, while the agricultural contribution to air pollution is understood, no particular agri-environment strategy has been established to counter the effect.

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<sup>13</sup> Europe's Environment. The second assessment. 1998 ("Dobris+3").

<sup>14</sup> Options to Reduce Methane Emissions (Draft Final report for DG XI), AEA Technology Environment, June 1998, p. 10 ff.

In relation to intensive or extensive farming, the balance of environmental benefit has been determined to lie with extensive farming, despite the greater methane emissions, which result.

Methane emissions as a whole are expected to decrease significantly by 2010 due to ongoing initiatives, mainly at a member state level. In the context of Agenda 2000, there are a number of concrete EC common measures, as well as other measures that provide a wider scope for action at the national and regional level, that would contribute to reducing emissions.<sup>15</sup>

Furthermore, non-food agricultural production such as oilseeds and biogas could provide a significant contribution to reductions in CO<sub>2</sub> and other polluting emissions through the development of renewable energy sources.

As regards specifically the contributions of bio-mass and bio-fuels to reducing emissions, reduced CO<sub>2</sub> emissions should result according to the estimates of the White Book on Renewable Energies from an annual increase of 90 mio tonnes of oil equivalent (toe) produced from bio mass: 30 mio from wood and agricultural residues, 45 mio from energy plants (18 toe from liquid bio-fuels and 27 toe solid bio-fuels), and 15 toe from bio-gas. It should be underlined that the production of bio-gas contributes also to the reduction of methane emissions and therefore achieves a double-dividend in combating climate change.

In developing the non-food sector it would be necessary to ensure that the overall environmental impact was positive. As it is indicated in the proposed regulation on supporting rural development, for afforestation with fast growing species in short-term rotations three types of aid are foreseen (planting costs, annual premium to cover maintenance costs up to 5 years, annual premium to cover income losses up to 20 years), provided that the local environmental conditions are respected.

As regards bio-fuels, the energy and environmental balance is, in general, positive and the Commission encourages their development simultaneously in the energy and agricultural context, and in measures to combating climate change. The proposed Directive concerning taxation of energy products (COM(97)30 of 13/3/97) foresees the possibility their exemption. The legislation already in effect provides for the possibility for tax exemptions for bio-fuels in the context of pilot projects (Dir 92/81 of 19/10/92). In expecting the adoption of the new proposal, the Commission suggested in the above-mentioned White Book on Renewable Energies that up to a market share of 2 % one could consider to be still in a pilot phase.

Recent analysis suggests that developing the non-food sector would need to be combined with appropriate fiscal measures.<sup>16</sup>

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<sup>15</sup> Climate Change – Towards and EU Post Kyoto Strategy COM (98) 353

<sup>16</sup> Working Document on Non-Food Crops in the context of Agenda 2000. SEC(1998) 2169

## 2.5. Biodiversity

The rural environment is foremostly a living environment. The complex ecology of flora, and fauna have adapted to and been influenced by farming activities. In Europe this symbiotic relationship has evolved over, not only centuries, but thousands of years. The result is that many species are dependent for their life-cycle on the continuation of farming practices. Thus, for example, once common birds such as the Chough (*Pyrrhocorax pyrrhocorax*), now confined to a few breeding areas in Europe, rely on traditional grazed pastures. Another example is the globally threatened steppic bird, the Great Bustard (*Otis tarda*), which thrives in extensive mosaics of cereals fallow and pasture in Spain and Portugal.

EU environment policy ensures that especially valuable habitats are identified and designated under the Habitats and Wild Birds<sup>17</sup> Directives. These require Member States to assure the necessary conservation measures, which often require the continuation of farming. The ensuing network of sites is known as NATURA 2000.

Farm-dependent biodiversity is not confined to the NATURA 2000 sites. Over 70% of threatened vascular plant species in Sweden depend on the open farmed landscapes. Throughout Europe, the centuries-old practice of haymaking has produced diverse field flora adapted to a rapid growing season and seeding before mowing takes place. Both, the decline of and earlier haymaking have inevitably led to a corresponding decline in the populations of field herbs.

The threats to farm-dependent biodiversity fall essentially into two categories: intensification and under-use. While the links between intensification and biodiversity are the subject of much continuing research<sup>18</sup>, the main agents of change include:

- increased fertilisation (organic or inorganic);
- land improvement; land drainage and irrigation;
- increased specialisation such as monoculture and the decline of mixed farming. This process may be promoted through reallotment [remembrement] schemes and rationalisation of field patterns;
- loss of field margins and non-farmed habitat areas such as wet areas, farm woodlands, hedgerows;
- indiscriminate use of pesticides;
- replacement of traditional practices, such as haymaking replaced by silage production and temporary fallow by continuous cereals;

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<sup>17</sup> Directive 79/409/EEC of 2.4.1979 on the protection of wild birds and their habitats, OJ L 103, 2.5.1979, p. 1.

<sup>18</sup> e.g. FAIR projects: pesticides and biodiversity; farm margins.

- increased mechanisation leading to soil compaction

The combination of some of the above practices is believed, for example, to have contributed to the decline in numbers of farmland birds<sup>19</sup>. However, it should be noted that there are cases where farm land was taken out of agriculture for nature conservation without subsequently achieving the protection objectives. As a consequence, well-adjusted farm practices had to be reintroduced in order to create suitable conditions for birds. Agri-environment measures are developing techniques for the maintenance and improvement of bird population.

In most Member States, agri-environment measures have been implemented under Regulation (EEC) No 2078/92 to preserve biodiversity, for example, by reducing or ceasing the use of fertiliser and pesticides on the maintenance of rotational practices. Examples include the introduction of organic farming, integrated crop management, set aside of field margins and specific measures, tested through LIFE nature projects, aimed at particular habitats. Measures are also in place to manage farm woodlands, wetlands and hedgerows to benefit flora and fauna.

Concerning under-use of agricultural land, abandonment can have disastrous consequences for the natural environment. In mountain regions, other less-favoured areas such as drylands and northern zones, the cessation of agriculture quickly leads to the growth of scrub and then forest with a loss of the higher levels of biodiversity associated with the farmed environment. However, the continued existence of farming may not be sufficient to conserve biodiversity in the absence of appropriate practices. Thus, where managed grazing has been replaced by uncontrolled large-scale ranching systems, the semi-natural environment may deteriorate. CAP support can play a pre-eminent role in maintaining threatened agricultural systems, notably through LFA measures, particularly in marginal areas where agricultural activity would otherwise cease. In addition agri-environment measures form a key part of efforts to preserve farm-dependent biodiversity in these areas. They are therefore a major ongoing and practical element of the Community's approach to the protection of biodiversity.

Although 20% of the agricultural land in the EU is currently covered by agri-environmental undertakings which exceeds the initial 15% target set out in the 5<sup>th</sup> Environmental Action Programme to be achieved by the year 2000, only five Member States account for 86% of the expenditure. Uptake of programmes is generally low in highly productive and intensive agricultural areas. Biodiversity in these areas may come under increasing pressure.

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<sup>19</sup> Rösler, Stefan and Weins, Christof (1996): Aktuelle Entwicklungen in der Landwirtschaftspolitik und ihre Auswirkungen auf die Vogelwelt (**Vogelwelt 117:169-185**).

## 2.6. Landscape

A more complete picture is described with reference to an entire landscape. A comprehensive analysis of a landscape enables identification of all processes and features in a holistic way. From this description, policy choices can be more easily made to express the desired direction for development. Competing interest need to be balanced and positive elements maximised and negative aspects reduced.

A landscape can be regarded as a system comprising a specific geology, land use, natural and built features, flora and fauna, watercourses and climate. To this should be added habitation patterns and socio-economic factors. Farming may not feature in every landscape, but covering 51% of EU territory, agriculture remains the main land use. Thus farmers have historically and to a large extent unwittingly been responsible for the development and stewardship of the landscape. They have provided environmental, social and amenity benefits for free, while pursuing the production of food, fibre and fuel for subsistence or for profit.

In particular, the preservation and improvement of landscape quality permits the meeting of needs of people who wish to have an authentic experience of the countryside, close to nature and away from crowded areas; landscape is therefore an essential component of the tourist potential of rural areas.

The physical landscape is inextricably linked to the farming practices, which have shaped it. As with biodiversity, the landscape may be threatened by the abandonment of farming or by changed practices.

When the farmed landscape was created, the driving force was economic necessity and the response of farmers was the adoption of the best available agricultural technology. Thus stonewalls were needed to clear fields and to control stock. However, technology has moved on to the extent that imperatives are now completely different. No commercial farmer would today contemplate building a stonewall in place of a fence; the market for pollarded willow is no longer there. Instead the farmer who chooses economically efficient agricultural practice in 1998 finds that many traditional landscape features have to be sacrificed.

Thus stone or earth terraces may fall into disrepair, leading to erosion and even to loss of farming potential. Stonewalls are expensive to restore and their agricultural function is superseded by the electric fence. The living landscape, such as pollarded and coppiced trees, small and irregular fields, farm woodlands and hedgerows, a diverse mosaic of land uses, and traditional rotation patterns, including perennial ley and fallow, are also threatened by the commercial realities facing farming.

In marginal farming areas, preservation of the cultural landscape faces a double challenge. Not only does society desire farmers to adopt certain environmental practices, but they must remain on the land in the first place. Abandonment or near-abandonment manifested as under-use, neglect or farm amalgamation, is a reality in parts of the EU and it is clear that when farming declines, scrub and forest encroach and the open landscape will disappear. In productive areas,

farmers will be under pressure to maximise output and remove landscape features.

Many programmes exist in Member States to meet the costs of preserving the landscape and its cultural heritage under the agri-environment regulation. In the less-favoured areas, compensatory allowances are designed to encourage farmers to maintain, and not to abandon the countryside.

### **3. POLICY REFORMS**

#### **3.1. Developments in the overall policy context**

In 1995 the Commission undertook a review of the outlook for the markets and the necessary policy adjustments which may be needed. In particular, a strategy paper<sup>20</sup> was presented to the Madrid European Council in December 1995. This document concluded that reform would be necessary for internal reasons within the EU in order to ensure the balance of supply and consumer demand and to respond to environmental and consumer concerns. The review also covered the situation in the light of enlargement to central and eastern European countries. The strategy paper recommended a continuation of the direction of reform taken in 1992; that is to promote competitiveness by reducing guaranteed prices, to increase decoupled direct payments, and to reinforce rural development policy. This approach was endorsed by the heads of state and government at Madrid.

In 1996 the Commission organised the Cork conference on rural development<sup>21</sup> bringing together experts in rural development from around the EU. In this forum, ideas were developed for the achievement of a sustainable and coherent rural development policy, based on regional needs and potential, with farming policy at its core.

In relation to the agri-environment programmes, their evaluation has been a priority of Commission implementation policy<sup>22</sup>. In 1996 the legal obligations of the Member States to evaluate their programmes were clarified<sup>23</sup> and since then evaluation reports have been produced by the responsible authorities. As a result of the evaluations and review of programmes, adjustments have been made to most programmes, a process, which will continue. Most developments in programmes are designed to ensure that the environmental benefits delivered are maximised and that payment rates are appropriate in order to avoid over- and under-payment. In November 1998 the Commission published an evaluation

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<sup>20</sup> Agricultural Strategy Paper COM(95) 607, presented by the Commission to the European Council, Madrid, December 1995.

<sup>21</sup> “European Conference on Rural Development: Rural Europe - Future Perspectives”, Cork, Ireland, 7-9.11.1996.

<sup>22</sup> See also Report on application of Regulation (EC) No 2078/92, COM(97) 620, 4.12.1997, sections 3.5, 3.6 and 4.3.

<sup>23</sup> Agri-environment implementing regulation: Commission Regulation (EC) No 746/96, OJ L 102, 25.4.1996, p. 19, as amended by Commission Regulation (EC) No 435/97 of 6.3.1997, OJ L 67, 7.3.1997, p. 2.

document concerning agri-environment programmes based on 150 reports received from Member States. It detailed the many positive impacts of the programmes as well as some failures and shortcomings.<sup>24</sup>

In July 1997, the Commission published a communication entitled AGENDA 2000<sup>25</sup>. This contained the results of the policy review, in particular perspectives for financing and for the operation of the CAP following the 1992 reforms, and recommendations for the way forward. Following consultations, in particular with the European Parliament and the Member States, the broad strategy for market changes and an outline of plans for rural development policy were then elaborated into the legislative texts proposed by the Commission<sup>26</sup> in March 1998.

In February 1998, the European Commission adopted a Communication to the Council and to the Parliament on a European Community Biodiversity Strategy (COM (1998) 42) which defines the policy orientations to integrated biodiversity concerns and agriculture. The Council, in its Conclusion of 16-17 June 1998 and the European Parliament in its Resolution of 20 October 1998, endorsed this strategy. The Strategy requires the development of an action plan.

In June 1998, the Commission adopted a Communication to the Council and the European Parliament, Climate Change - towards an EU post-Kyoto strategy. This document provides an analysis of how the European Union could shape a strategy to meet its Protocol Commitments involving the sharing of implementation responsibilities, flexible mechanisms, monitoring and a strengthened dialogue with third countries. It identifies priority areas for agriculture as intensified research, appropriate afforestation measures, promotion of renewable energy crops, methane and nitrous oxide emission reduction<sup>27</sup>.

The European Council at Cardiff in June 1998 inter alia endorsed the principle that major policy proposals by the Commission should be accompanied by its appraisal of their environmental impact. It notes the Commission's efforts to integrate environmental concerns in all Community policies and the need to evaluate this in individual decisions, including on AGENDA 2000. It invited all relevant formations of the Council to establish their own strategies for giving effect to environmental integration and sustainable development within their respective policy areas. It invited among others the Agriculture Council to start this process.

The European Council in Vienna in December 1998 reaffirmed the commitment to integrate environment and sustainable development into all Community

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<sup>24</sup> Working Document VI/7655/98 – State of Application of Regulation 2078/92 – Evaluation of Agri-environment Programmes – November 1998.

<sup>25</sup> AGENDA 2000: For a stronger and wider Union, COM(97) 2000, European Commission, Strasbourg 15.7.1997.

<sup>26</sup> Proposals for Council Regulations (EC) concerning the reform of the common agricultural policy, COM(98)158 final, 18. 3. 1998, comprising 8 proposed texts.

<sup>27</sup> COM(98)353

policies and invited the Agricultural Council to continue its work with a view to submitting a comprehensive strategy, including a timetable for further measures and a set of indicators, to the Helsinki European Council. The Council also recognised the importance of ensuring that environmental integration is adequately treated in the decisions to be made on agricultural policies in the context of Agenda 2000.

### **3.2. Environmental elements of the CAP reform under Agenda 2000**

#### *3.2.1. General orientations*

As is clear from Section 2, the instruments of the CAP form only a part of Community policy towards the protection of the farmed environment. In addition, to measures cited, most Member States have their own environmental policy measures to prevent pollution, to set limits on farming activities which cause negative environmental effects, and to preserve their natural heritage.

Of course, the full context of the CAP proposals needs to be considered. This reform aims to prepare Europe's agriculture for the 21st century and enlargement of the EU.

The internal pressures on domestic markets, resulting from increased productivity and a slower increase or even a long-term decline in consumption in some key sectors (notably cereals and beef), have led to the conclusion that farming must become more efficient and respond better to consumer demands. In the international context, Europe needs to be in a position to take advantage in the expected growth in global consumer demand for many products, such as cereals, beef, value-added milk products.

To respond to these challenges, farmers will have to assess their practices carefully, and further optimise their use of factors of production. However, in order to ensure that the necessary re-orientation of the CAP and European agriculture does not lead to an environmentally damaging intensification of production and abandonment of marginal land, policies are required to develop EU agriculture on a sustainable path, ensuring an environmentally sound, economically viable, and socially acceptable European model of agriculture.

The philosophy underpinning the environmental aspects of CAP reform is that farmers should be expected to observe basic environmental standards without compensation. However, wherever society desires that farmers deliver an environmental service beyond this base-line level, this service should be specifically purchased through the agri-environment measures.

The Commission's strengthened approach to environmental integration into agriculture within CAP reform, contains a number of core elements, which together lay the foundation for European agriculture, which both respects the environment and contributes to its protection and enhancement. The reorientation of the CAP under Agenda 2000 should also be considered as a significant part of the future framework for a biodiversity action plan and agriculture's contribution to combating Climate change.

### 3.2.2. *The horizontal regulation*

The horizontal regulation establishing common rules for direct support schemes under the CAP would apply to payments granted directly to farmers, except those provided for under rural development.

As a general rule, it would oblige Member States to apply environmental measures they consider appropriate in view of the land used and the production concerned. In fulfilling the obligation, Member States would have three options at their disposal<sup>28</sup>. In the first place, implementation of appropriate agri-environment measures applied under rural development programmes may be sufficient. Secondly, the Member State may make the market payments conditional on observance of generally applicable mandatory environmental requirements. Thirdly, Member States may attach specific environmental conditions to the grant of payments under a market regime where the environmental situation requires additional efforts.

Member States would have to decide on any appropriate sanctions for non-respect of the conditions they have set down. This could include a reduction or cancellation of the benefits accruing from the support schemes.

This could allow Member States to ensure that environmental improvements achieved for certain farms and regions were not undermined by other production practices in the same region leading to pollution.

The application of the proposal by Member States should therefore enable them to improve the balance between intensive agriculture and the environment. This would eliminate damaging features of intensive agriculture and improve the image of agriculture as a sector in harmony with the environment. Society in general, although prepared to take into account legitimate social and economic interests, does not expect CAP funding to lead to environmental degradation which it, in turn, would have to pay to restore.

Although proposed by the Commission prior to the Cardiff Summit of June 1998, the measures mentioned under the horizontal regulation present a significant step into the direction laid down by the Heads of State and Governments at that meeting.

Cross compliance has a great potential, if well implemented by the Member States, to contribute to environmental improvement and sustainable development in agriculture.

While very intensive and frequently non land using agriculture is often not supported by direct payments from the EU, it too places increasing strain on the environment. Society may reasonably expect that activities in these sectors should not result either in degradation. Member States may therefore wish to

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<sup>28</sup> Horizontal Regulation, Article 3.

integrate the application of environmental measures within a broader national framework.

The application of environmental measures needs to be considered in the light of two factors. Firstly, the main message of the AGENDA 2000 CAP reform proposals is to increase competitiveness. The Commission does not intend to undermine the competitive position of farmers by adding excessive environmental conditions beyond what is reasonable for farmers to provide. In fact, this will strengthen the position of the large majority of farmers who already comply in practice with environmental standards as it would be unfair to reward those farmers gaining an unfair competitive advantage by making excessive and damaging demands on environmental resources. Where farmers provide services to the environment beyond the base level of good agricultural practice, these should be paid for through the agri-environment mechanism.

The second factor is that the farm sector needs to take account of the legitimate demands of society that agricultural activities should not pollute the environment, nor lead to severe erosion, nor destroy cultural landscape features valued particularly highly by society. Thus, the application of measures referred to in the horizontal regulation, including agri-environmental measures, environmental legislation and cross-compliance, is a key element in assuring a farm practice observing minimum environmental requirements while maximising competitiveness. To this end, Member States would have to apply them in such a way as to ensure equal treatment between farmers and to avoid market and competition distortions<sup>29</sup>.

### 3.2.3. *Common market organisations*

In addition to the powers available under the horizontal regulation, several specific environmental measures have been suggested to be included in the market regimes under examination (arable, beef & veal and milk & milk products<sup>30</sup>). The relevant measures concern the conditions under which direct payments are delivered. In the case of the beef regime, payments would be structured to give extra assistance to extensive farms, defined by reference to a stocking density of 1.4 LU/ha. This measure, strengthened both in terms of funding and definition, would provide both market and environmental benefits in addition to contributing to the improvement of the image of part of beef production.

In the case of the beef and dairy market regimes, the Commission proposes to reserve a substantial part of the overall funding to be placed at the disposal of the Member States to support the sectors through direct payments according to special needs. This funding could be granted on an area basis which would reduce the incentive on farmers to over-stock land, in particular, under the beef

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<sup>29</sup> Horizontal Regulation, Article 5(1).

<sup>30</sup> On-going reforms of the Tobacco and Olive Oil regimes are not covered in this paper as they are not included in the AGENDA 2000 document.

proposals Member States would have to establish a stocking rate<sup>31</sup> which takes account of the environmental impact of the type of production concerned and the environmental sensitivity of the land<sup>32</sup>.

For the basic beef premium, payments are only made on animals up to 2 LU/ha. For the additional extensification premium, the maximum level of 1.4 LU/ha is calculated on the basis of the total number of adult bovine animals and sheep and goats<sup>33</sup>.

In the arable sector, in addition to the measures under the horizontal regulation cited above, Member States would have to take the necessary measures to bring the provisions of relevant environmental conditions to the attention of farmers<sup>34</sup>. Concerning set-aside, the Commission proposes to retain this production-control instrument but, given the market outlook, the initial rate for compulsory set aside will be 0%. Voluntary set-aside can be established for up to 10% of the base area for up to 5 years<sup>35</sup>. Where set-aside is allowed, Member States would have to apply appropriate environmental conditions to correspond to the specific situation of the land<sup>36</sup>.

#### 3.2.4. *Rural development measures*

The new approach proposed by the Commission in relation to rural areas builds on the conclusions to the Cork conference on rural development. In essence, regions will be invited to develop integrated programmes for the sustainable development of rural areas<sup>37</sup>. The programmes are to be developed following prior appraisal to achieve *inter alia* impacts on the rural environment. The agri-environment measures would form a compulsory part of all rural development programmes to apply throughout the territories of the Member States<sup>38</sup>.

In line with the general philosophy, rural development measures would be applied subject to the condition that minimum environmental standards should be observed or attained as a result of the action<sup>39</sup>. For activities going beyond the application of base line standards, agri-environment measures would normally be foreseen.

Moreover, the tourist potential based on good environmental conditions of rural areas enables the diversification of economic activities to be considered; this requires a sustainable and integrated approach in order to meet the quality requirements of tourists, to improve the situation of local businesses and

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<sup>31</sup> Beef, Annex VI, Section III, stocking rate includes all beef animals, but not dairy cows.

<sup>32</sup> Beef, Article 14(2)(b).

<sup>33</sup> Beef, Article 11(2), *Note*: only sheep and goats for which premia are paid are counted.

<sup>34</sup> Arable, Article 8(3).

<sup>35</sup> Arable, Article 6(5).

<sup>36</sup> Arable, Article 6(2).

<sup>37</sup> RDR, Article 1.

<sup>38</sup> RDR, Article 41.

<sup>39</sup> RDR, Measures related to agriculture: Articles 5 (investments), 8(1) (young farmers), 11(2) (early retirement), 24(1) (improving processing and marketing) and 28(2) (forestry).

communities and to preserve the natural (landscape and biodiversity) and cultural (architecture, handicrafts, traditions) heritage.

Concerning the grant of assistance for farm investments, specific provisions are suggested for investments which preserve and improve the natural environment<sup>40</sup> and it is no longer necessary to prove that the investment itself will lead to greater farm profitability, although the farmer would still be expected to make a financial contribution to these investments.

Concerning training of farmers, the new proposals bring together the training available under the structural measures and under the agri-environment regulation. In particular the training would be designed to assist farmers to protect better the environment and apply practices compatible with the maintenance of the landscape<sup>41</sup>.

In a coherent and integrated approach, a number of measures from the rural development regulation (e.g. investment, training, agri-environmental measures, processing and marketing) can be targeted to promote organic farming, biodiversity and combating climate change. The Agenda 2000 CAP reform proposals, and the completion of the long outstanding livestock amendment to Regulation (EEC) No 2092/91 on organic farming can add to a more dynamic development of the organic sector, while avoiding distortions of competition, with the aim to lead to sustainable organic production and distribution.

Agri-environment measures, measures in Less Favoured Areas (LFA) and measures concerning forests form part of rural programmes. These measures are described in the following chapters.

### 3.2.5. *Agri-environment measures*

The core of the Community's environmental strategy within the CAP has been the application of the targeted agri-environment measures throughout the territories of the Member States<sup>42</sup>. The agri-environment programmes offer payments to farmers who, on a voluntary and contractual basis, provide environmental services to protect the environment and maintain the countryside. These services improve the quality of life in the countryside and can contribute to the diversification of economic activities, in particular through tourism. Such

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<sup>40</sup> RDR, Article 4.

<sup>41</sup> RDR, Article 9.

NOTE : DRAFT LEGISLATION UNDER AGENDA 2000 CITED IN TEXT

“Arable”: Proposal for a Council Regulation establishing a support system for producers for certain arable crops, 98/0108 (CNS);

“Beef”: Proposal for a Council Regulation on the common organisation of the market in beef and veal, 98/0109 (CNS);

“RDR”: Proposal for a Council Regulation on support for rural development from the EAGGF, 98/0102 (CNS);

“Horizontal”: Proposal for a Council Regulation establishing common rules for direct support schemes under the common agricultural policy, 98/0113 (CNS).

<sup>42</sup> RDR, Articles 20-22 and 41(2).

payments are also open for bio-mass and bio-fuels, provided that environmental protection is ensured.

The payments are based on the costs incurred and income foregone by the farmer who carries out the environmental activity. In addition, where necessary, a limited incentive element may be added<sup>43</sup>. The application of the agri-environment regulation up to 1997 was set out in a Commission report<sup>44</sup> to the Parliament and Council, which included detail of the Commission's approval policy.

Existing policy lines as described in the report are continued in the proposed rural development regulation with a clear focus on support for agricultural methods designed to protect the environment and to maintain the countryside (agri-environment) which shall contribute to achieving the Community's policy objectives regarding agriculture and the environment.

The agri-environment measures cover ways of using agricultural land, which are compatible with the protection and improvement of the environment, the landscape and its features, natural resources, the soil and genetic resources. This includes organic farming and other low-input farming techniques, agricultural practices needed to support the nature protection value of NATURA 2000, set-aside for environmental purposes, and the environmental maintenance of abandoned farmland<sup>45</sup>.

The policy proposals also expressly cover the environmentally favourable management of low-intensity pasture systems, and a new measure for the conservation of high nature farmed environments which are under threat, for example from erosion, abandonment or fire, is introduced. Concerning the upkeep of landscape features, the maintenance of historical farmland features is included as well. Finally, the use of medium-term and long-term environmental planning would be expressly promoted<sup>46</sup>.

Payment would only be made for measures, which go beyond the application of good agricultural practice<sup>47</sup>, which implies that the farmer already respects minimum environmental requirements. The costs of any necessary non-remunerative capital items, previously excluded, would be taken into account in setting payment rates<sup>48</sup>.

Concerning the level of Community and Member State contribution, the similar levels are set as for other rural development measures (broadly, up to 75% for Objective 1 areas and up to 50% for other areas), but the Community maximum contribution may be raised by 10% for measures of particular environmental

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43 RDR, Article 22.

44 COM(97)620, 4.12.1997, Report on the application of Regulation (EEC) No 2078/92.

45 RDR, Article 20.

46 *ibid*

47 RDR, Article 21(2).

48 RDR, Article 22(1).

merit<sup>49</sup>. The schedule of maximum co-financible amounts would be greatly simplified from the 12 levels at present,<sup>50</sup> which differ according to measure and land use, to 3 levels dependent only on land use<sup>51</sup>. In general, the cofinancible margins would be increased compared with the present limits<sup>52</sup>. For particularly costly measures, which cause farm losses exceeding these limits, Member States may top-up the difference provided the full payment is justified on the same criteria<sup>53</sup>.

Agri-environment measures would only cover services which are not financed by other measures, in particular the compensatory allowances and common market organisations<sup>54</sup>. However, agri-environment payments would be a necessary adjunct to direct support payments where the latter do not cover the full income foregone or net costs. For example, environmental considerations may suggest extensive management for beef cattle at specified stocking densities for certain zones. Should this involve net costs or income loss to the farmer not covered by the beef market premia, including the extensification premia, then the balance may be the subject of an agri-environment payment.

Despite considerable moves towards greater subsidiarity contained in the AGENDA 2000 proposals, the CAP remains a common, Community policy and the agri-environment volet forms an essential part of that policy. For this reason, the Commission proposes continued compulsory application of the agri-environment measures throughout Member States, while all programmes remain voluntary for farmers. In line with this an increase in application of the agri-environment measures is foreseen. Currently an amount of ECU 2,8 billion per annum is mentioned in the budget evaluation for Agenda 2000 for the accompanying measures. Experience of the 1992 introduction of agri-environmental measures showed that actual application of measures can be more ambitious than estimates. Member States would be able to transfer moneys saved, through the restriction of direct payments by modulation of direct payments or application of environmental cross-compliance, to the agri-environment budget<sup>55</sup>,

### 3.2.6. *Compensatory allowances in less-favoured areas*

In designated areas subject to handicaps to farming, the payment of compensatory allowances would be continued within the proposed rural development regulation<sup>56</sup>. The main objectives remain broadly unchanged, namely to assure continued farming in the less-favoured areas, to contribute to the maintenance of a viable rural community, to preserve the landscape and to promote the continuation of sustainable farming in areas where it is necessary

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<sup>49</sup> RDR, Article 45(2).

<sup>50</sup> Regulation 2078/92, Article 4.

<sup>51</sup> RDR, Article 22(2).

<sup>52</sup> RDR, Annex (cf. Regulation 2078/92, Article 4).

<sup>53</sup> RDR, Article 49(3).

<sup>54</sup> RDR, Articles 21(2), 35(3) and 36.

<sup>55</sup> Horizontal, Article 5(2).

<sup>56</sup> RDR, Articles 13-19.

for the protection of the countryside<sup>57</sup>. In addition, a specific provision is included to clarify that the payments may cover the costs of complying with obligations under environmental legislation<sup>58</sup>. The Commission proposes to make all payments of compensatory allowances on an area basis<sup>59</sup>, thus avoiding any tendency to overstock resulting from the current headage payments.

In parallel with the provisions suggested for introduction into the market regimes by the horizontal regulation (which does not apply to the compensatory allowances), farmers are expected to follow normal standards of sustainable farming as a condition of receiving compensatory allowances<sup>60</sup>. The rules of good agricultural practice, defined for the area concerned would include a level of environmental prudence, which a reasonable farmer would apply anyway, including respect of environmental legislation.

Mountain areas, areas north of the 62nd parallel and other less-favoured areas are defined with reference to the handicaps to farming imposed by altitude, slope, climate or poverty of the soil which lead to pressures for abandonment<sup>61</sup>. Such areas are often of high nature and landscape value, where the cessation or diminution of farming care would threaten the landscape and lead to a loss of biodiversity value. In these areas, the continuation of environmentally beneficial agriculture may require a substantial effort on the part of the farmer, and where costs exceed the level of compensatory allowances, Member States and regions will need to promote additional agri-environment measures to assure in particular the preservation of high nature value farmed landscapes and environmentally beneficial low intensity systems<sup>62</sup>.

In addition to the mountain and other less-favoured areas, Member States would be enabled to continue to designate areas subject to specific handicaps where farming should be continued in particular to protect the environment, preserve the tourist potential of a region and to protect the coastline. Such areas could include zones subject to mandatory environmental conditions<sup>63</sup>. The area covered by this provision is extended from 4% to 10% of the territory of the Member State<sup>64</sup>.

### 3.2.7. *Sustainable management and development of forests*

Support for forestry shall promote sustainable management and development of forests<sup>65</sup>. Forests play an essential protective role in the preservation of the natural environment notably regarding water and soil protection, improvement

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<sup>57</sup> RDR, Article 13 (cf. Regulation (EC) No 950/97, Articles 17, 22, 24 and 25).

<sup>58</sup> RDR, Articles 13, 4th indent, and 15(1).

<sup>59</sup> RDR, Article 14(2).

<sup>60</sup> RDR, Article 14(2), 3rd indent.

<sup>61</sup> RDR, Articles 17 and 18.

<sup>62</sup> RDR, Articles 20, 2nd and 3rd indents, and 21(2), 2nd sub-paragraph.

<sup>63</sup> RDR, Article 19(1).

<sup>64</sup> RDR, Article 19(2).

<sup>65</sup> RDR, Article 27.

of the quality of the air, prevention of avalanches, contribution to the climatic stability, etc.

The chapter on forestry provides for support for a whole range of actions to promote the sustainable management of forests and to ensure the protection of our forest heritage. The measures include: forest protection measures in particular regarding forest fires<sup>66</sup>, afforestation and restocking measures adapted to local conditions, compatible with the environment<sup>67</sup>, preserving and improving of the ecological value of woodlands, restoring damaged forests, and ensuring the protective function of forests in particular of those whose protective and ecological functions can not be solely assured by income from silviculture<sup>68</sup>. The introduction of a new compensatory payment along above lines would constitute a relevant step towards the preservation of the most environmentally valuable forests of the EU.

Moreover, the Commission, following a resolution of the European Parliament, has in November 1998 adopted a communication on a European Union forestry strategy, and the principle of integration of sustainable development and environmental protection into forestry related policies has been retained as a guiding principle of the strategy.

Under the Commission's priorities, projects can be found which combine activities to provide energy from wood residues with measures to combat forest fires. As a matter of fact, a cause for forest fire is residues remaining in woods and, therefore, using them as bio-fuels contributes to combat forest fires. However, care needs to be taken to ensure that, where bio-mass from forest residues is to be promoted for its beneficial contribution to the carbon cycle, this promotion should not result in a reduction in bio-diversity.

#### **4. DEVELOPING AGRI-ENVIRONMENTAL INDICATORS**

The Councils in Cardiff and Vienna underlined the importance of developing environmental indicators. Environmental indicators help to transform physical and monetary data about human activities and the state of the environment into decision supporting information. With the help of environmental indicators it is possible to better understand complex issues in the domain of agriculture and environment, to show developments over time, and to provide quantitative information. All of these are needed for targeting and monitoring.

A coherent system of environmental indicators should go beyond single environmental media and themes. A piecemeal approach does not fully take into account that the environment is a comprehensive system, where composition and interaction of its constituent elements matter. With respect to agriculture, a "systems approach" is even more important, since agriculture itself interacts as a

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<sup>66</sup> RDR, Articles 27 and 30.

<sup>67</sup> RDR, Articles 28 and 29.

<sup>68</sup> RDR, Article 30.

system with the environment. Understanding agriculture in its multiplicity of positive and negative environmental effects would require taking into account the full context of such an interaction. A meaningful spatial context of agri-environmental indicators can be provided by the concept of “landscapes” as the cultivated, partly semi-natural space within which agricultural production takes place and which is characterised by the totality of its bio-physical and cultural features.

Developing environmental indicators relating to agriculture requires a differentiated approach, reflecting regional differences in economic structures and differences in natural conditions. The available, most often highly aggregated data on livestock, fertilizer and pesticides may provide some valuable insights, but can - due to a missing regional differentiation - also be misleading.

The shortcomings of a lacking spatial or thematic differentiation can be illustrated with data on agricultural inputs: the development of fertiliser use has a meaning, only if set into relation with the development of the fertiliser uptake. Where decreasing nitrogen balances can be identified at the national level, this should not disguise the fact that a significant nitrogen surplus may exist in certain areas. Similarly, observations can be misleading, if they are not sufficiently specific: as stated in chapter 2.1.1, the identification of a declining use of pesticides could result from changes of in the type of substance applied which does not necessarily imply an improvement in environmental terms.

Regional (NUTS2) Nitrogen balances, which take into account not only the inputs of fertilizers and spreading of animal manure, but also the uptake of nitrogen by crops have been compiled by Eurostat. These balances can be used as indicators to identify clearly areas where the ground water may be at risk, and to indicate where further investigation into the vulnerability of ground water may be needed.

Other activities in the field of environmental statistics and indicators carried out by Eurostat include the work on the emissions of greenhouse gases from agriculture, the compilation of data on individual pesticides used by different crops in EU countries, and the identification of quantifiable indicators for 'Landscape'.

With respect to the use of agri-environmental indicators for the monitoring of rural policies and agri-environmental programmes, indicators have to reflect site-specific features and programme criteria in order to be meaningful. General indicators, which are more readily available, tell little about the performance of specific policies. Specific and spatially differentiated information would be needed to indicate shortcomings or merits of rural and agri-environmental policies.

The implementation of indicators must be based as far as possible on existing statistics. It should be avoided, however, that it is too much driven by current data availability. It is necessary to intensify the efforts on the conceptualisation of indicators and to launch, at the same time, reflection groups concerning data

requirements in order to meet the new needs. It will be necessary also to make sure that the adequate statistical tools will be established.

This will remain a priority in the work of the Commission over the coming months and years.

## 5. CONCLUSIONS

The relationship between agriculture and the environment is not static. Agriculture has intensified and intensification has in turn increased pressure on the environment. The desired relationship between agriculture and environment can be captured by the term „sustainable agriculture“. “Sustainable agriculture“ would call for a management of natural resources in a way which ensures that the benefits are also available in the future. It has to be ensured that environmental integration is adequately treated in the decisions to be made on agricultural policies within the context of Agenda 2000.

Five main objectives cover the CAP reform proposals of the Commission: to increase competitiveness; to assure food safety and food quality; to maintain a fair standard of living for the agricultural community and stabilise farm incomes; to better integrate environmental goals into the CAP and to develop alternative job and income opportunities for farmers and their families.

Making the CAP more acceptable to the citizen in the street, to the consumer, is one of our primary task in the years ahead. The various roles performed by farmers, in particular in maintaining and conserving the countryside, are increasingly under close scrutiny by society. On the one hand farmers must reach the minimum standard of environmental care demanded by society including observance of compulsory legislation; on the other hand, if society wants farmers to provide environmental services beyond the basic level of good agricultural practice, they should be paid for their costs and incomes losses in delivering these public benefits.

The Commission’s proposals are balanced and provide Member States and regions with the instruments necessary to assure that minimum environmental standards are observed and to promote the conservation and improvement of Europe’s unique environmental heritage.

The Commission underlines the importance of ensuring that environmental integration is adequately treated in the decisions to be made on agricultural policies in the context of Agenda 2000. The Commission will continue to monitor and evaluate progress towards full integration.