



EUROPEAN CENTRE FOR NATURE CONSERVATION

## STIMULATING POSITIVE LINKAGES BETWEEN AGRICULTURE AND BIODIVERSITY

Recommendations for the EC-Agricultural Action Plan on Biodiversity



Editor: Laura Buguñá Hoffmann



WITH SUPPORT OF:



Ministère van Volkshuisvesting,  
Ruimtelijke Ordening en Milieubeheer  
Rijksplanologische Dienst



# STIMULATING POSITIVE LINKAGES BETWEEN AGRICULTURE AND BIODIVERSITY

Recommendations for the EC-Agricultural Action Plan on Biodiversity

## Editor

Laura Buguña Hoffmann  
European Centre for Nature Conservation

## With contributions by

- Mr David Baldock
- Dr Jan-Erik Petersen  
(Institute for European Environmental Policy  
- IEEP, United Kingdom)
  
- Mr Jim Dixon  
(English Nature, United Kingdom)

## With input from

- Dr Floor Brouwer  
(Landbouw Economisch Instituut, The Netherlands)
  
- Mr Ulrich Stachow  
(Centre for Agricultural Landscape and Land Use Research  
- ZALF, Germany)
  
- Dr J.T.C.M. Sprangers
- Dr W.K. R.E. van Wingerden  
(Alterra, The Netherlands)
  
- Dr Maria Dolores F. Guillén
- Mr Pablo Sastre Olmos  
(Universidad Complutense de Madrid - UCM, Spain)

# Table of contents

<b>Chapter 1</b>	<b>Introduction</b>	<b>7</b>
<b>Chapter 2</b>	<b>Introduction to the policy framework on biodiversity conservation, linked to agriculture</b>	<b>9</b>
2.1.	Background to the EC-Agricultural Action Plan on Biodiversity	9
2.2.	Setting the scene: Policy framework on biodiversity and agriculture	14
2.2.1.	The Conference of the Parties to the Convention on Biological Diversity (CBD)	14
2.2.2.	Food and Agriculture Organisation (FAO)	15
2.2.3.	Organisation for Economic Co-operation and Development (OECD)	15
2.2.4.	Pan-European Biological and Landscape Diversity Strategy (PEBLDS)	16
2.2.5.	The “Riga-Process” on Biological Diversity in Europe	17
<b>Chapter 3</b>	<b>Analysis and evaluation of the linkages between agriculture and biodiversity in the European Union</b>	<b>19</b>
3.1.	Linkages between agriculture and biodiversity	19
3.2.	Land management trends	23
3.3.	Biodiversity and the Common Agricultural Policy	25
3.4.	Monitoring agro-biodiversity	27
3.4.1.	Cardiff Mandate and follow-up: monitor environmental integration into sectors	27
3.4.2.	Agro-biodiversity Indicators	29
3.5.	Genetic resources and biosafety	33
3.6.	Market opportunities: Involving producers and consumers	36
3.7.	Wider socio-economic issues	36
3.8.	Evaluation of Agenda 2000 CAP reform	38
3.8.1.	Biodiversity and the Agenda 2000 CAP-reform	38
3.8.2.	Agenda 2000 and EU enlargement	42
<b>Chapter 4</b>	<b>Report from the European Workshop</b>	<b>45</b>
4.1.	Opening and Introduction	45
4.2.	Presentation of the European Commission’s preparations for the EC-Agricultural Action Plan on Biodiversity	45
4.3.	A perspective from an EU Member State	46
4.4.	Evaluation of linkages between agricultural policy and biodiversity conservation in the European Union	46
4.5.	Linking sustainable rural development and biodiversity conservation at EU and at national level	47
4.6.	Horizontal policy measures on agro-biodiversity	47
4.7.	Research and Monitoring	47
4.8.	Market instruments - the example of organic agriculture	48
4.9.	Conservation and sustainable utilisation of genetic resources	48
4.10.	Workshop Conclusions	48

<b>Chapter</b>	<b>5</b>	<b>Recommendations for building blocks for the EC-Agricultural Action Plan on Biodiversity</b>	<b>51</b>
	5.1.	Sources for the recommended building blocks	51
	5.2.	Recommended building blocks and action points	52
	5.3.	Relation of the recommended building blocks to the EC-Biodiversity Strategy	58
<b>Annex</b>	<b>1</b>	<b>Programme of the European Workshop</b>	<b>63</b>
<b>Annex</b>	<b>2</b>	<b>Presentations and Papers of the European Workshop</b>	<b>65</b>
<b>Annex</b>	<b>3</b>	<b>Workshop participants list</b>	<b>109</b>
		<b>List of Abbreviations and Acronyms</b>	<b>110</b>
		<b>References</b>	<b>112</b>
		<b>Tables, Boxes and Figures (chapter 1-5)</b>	
<b>Table</b>	<b>1</b>	Estimates of areas of low-intensity farmland in each of the nine European countries studied by Beaufoy et al. (1994)	21
<b>Table</b>	<b>2</b>	Characteristics of low-intensity livestock and crop-based farming systems (Beaufoy et al.,1994)	24
<b>Table</b>	<b>3</b>	Agri-environmental issues for biodiversity (Wascher, 2000)	32
<b>Table</b>	<b>4</b>	EAGGF-Guarantee Fund Support for rural development, period 2000-2006, Allocations to Member States (European Commission, 1999)	40
<b>Table</b>	<b>5</b>	Agri-environmental Measures in Central and Eastern Europe (Petersen, 1999)	44
<b>Table</b>	<b>6</b>	Objectives for the agriculture sector as mentioned in the EC-Biodiversity Strategy, compared with the recommended building blocks	59
<b>Box</b>	<b>1</b>	Sectoral objectives for agriculture, defined in the EC-Biodiversity Strategy	13
<b>Box</b>	<b>2</b>	Specific Objectives of the EU Agricultural Council Strategy (13078/99)	28
<b>Figure</b>	<b>1</b>	Recent policy and legal framework relevant for the relationship between biodiversity conservation and agriculture in the European Union	11
<b>Figure</b>	<b>2</b>	Area typologies as part of the Conceptual Framework of ELISA (Wascher & v. Meyer, 1999)	30
<b>Figure</b>	<b>3</b>	Sources for the recommended building blocks for the EC-Agricultural Action Plan on Biodiversity	51
<b>Figure</b>	<b>4</b>	Recommendations from the European Workshop on building blocks for the EC-Agricultural Action Plan on Biodiversity	52



## Preface and acknowledgements

*This publication is the final report of the European project 'Towards building blocks for an EC action plan for the relationship between agriculture and biodiversity' which aimed to support the development of the EC-Agricultural Action Plan on Biodiversity, under the European Community Biodiversity Strategy.*

Societies profit from rich agro-biodiversity, a high variety of agricultural products, local know-how and the sustainable development of rural areas. However, land abandonment and rapid decline in agro-biodiversity due to agricultural intensification are other sides of the coin.

Thus, agriculture constitutes both an opportunity and a threat for biodiversity conservation. The EC-Agricultural Action Plan on Biodiversity is a key instrument to stimulate the positive linkages between the Common Agricultural Policy and biodiversity conservation in Europe. Potentially it can make a major contribution towards sustainable development in Europe and abroad.

ECNC and its project partners are glad to have been able to contribute to the discussion in the framework of the preparation of the EC-Agricultural Action Plan on Biodiversity. We hope that this contribution was instrumental for the drafting and stakeholder support of the Action Plan and - thus - for implementing the European Community Biodiversity Strategy and Agenda 2000.

Several European experts on biodiversity and agriculture have provided valuable input into the implementation of the project. I would like to express our special thanks to the project partners, the workshop participants and the European Commission (Directorate-General for Agriculture and Directorate-General for Environment)

Special thanks as well are for Mrs Emmy Bolsius and Mr Goran Boberg for their important contributions, for Ms Laura Buguñá Hoffmann who coordinated the implementation of this project, for ECNC colleagues Dr Zbigniew Karpowicz, Dirk Wascher, Graham Drucker and Martijn Koobs who provided valuable input.

ECNC is grateful for the financial support granted by the European Commission, Directorate General for Environment, the National Physical Planning Agency of the Ministry of Housing, Spatial Planning and the Environment (The Netherlands) and English Nature (United Kingdom).

I hope you enjoy the reading of this report and I express the hope that it will contribute to further strengthening the positive interrelationship between agriculture and biodiversity in the European Community and the Accession Countries.



**Rob Wolters**

*Executive Director*

European Centre for Nature Conservation



# Introduction

## **This publication consists of four core parts:**

- An introduction to the policy framework regarding biodiversity conservation in Europe and abroad, as well as its links to agriculture;
- An independent analysis of linkages between agricultural policy and biological diversity, with a focus on EU policies;
- A report from the European Workshop 'Identification and Evaluation of building blocks for an EC-Agricultural Action Plan on Biodiversity' (Brussels, January 2000) in which the above mentioned evaluation and the recommended building blocks for the EC-Agricultural Action Plan on Biodiversity were further discussed;
- A set of suggested building blocks, including suggestions on action points, actors, relevant legal framework, available tools and time frames.

The EC-Agricultural Action Plan on Biodiversity is developed by the Directorate General for Agriculture of the European Commission, in close consultation with the Directorate General for Environment. At the time of finalising this report the European Commission has circulated a first draft of the EC-Agricultural Action Plan on Biodiversity; the preliminary results of the workshop discussions were provided to the European Commission for their use.

This publication starts with an analysis and an evaluation of the linkages between agriculture and biodiversity within existing policies at EU level. It does not present new policy scenarios, but it rather evaluates existing policies and proposes concrete instruments to foster via the EC-Agricultural Action Plan on Biodiversity the positive linkages between agriculture and biodiversity. However, suggestions to rediscuss or further elaborate certain existing framework conditions have been added as well. This applies in particular to recently approved policies such as the Agenda 2000 and the EC-Rural Development Regulation. The analysis has reached beyond the environmental linkages between agriculture and biodiversity, this way fully acknowledging the multi-functional character of agriculture.

An important part of the project was the organization of a European Workshop. The European Workshop 'Identification and Evaluation of building blocks for an EC-Agricultural Action Plan on Biodiversity' (Brussels, 20-21 January 2000) gathered more than 40 representatives of stakeholder groups, including government officers, from all over Europe and provided a platform to discuss proposals for building blocks for the EC-Agricultural Action Plan on Biodiversity.

After the Workshop, final recommendations for building blocks were identified. These building blocks are independent suggestions, which were presented to the European Commission.

The European Centre for Nature Conservation (ECNC) has drawn on a wide range of valuable expertise in order to implement the project, in particular by means of important contributions from the six project partners:

- Institute for European Environmental Policy (IEEP, United Kingdom);
- Landbouw Economisch Instituut (LEI, The Netherlands);
- Universidad Complutense de Madrid (UCM, Spain);
- English Nature (United Kingdom);
- Alterra (The Netherlands); and
- Centre for Agricultural Landscape and Land Use Research (ZALF, Germany).



## Introduction to the policy framework on biodiversity conservation, linked to agriculture

### 2.1. Background to the EC-Agricultural Action Plan on Biodiversity

The EC-Agricultural Action Plan on Biodiversity is part of the European Community's activities needed to fulfil its commitments under the Convention on Biological Diversity (CBD), through the European Community Biodiversity Strategy. The impetus for many of recent biodiversity initiatives stems from this Convention on Biological Diversity (CBD), an international agreement that was opened for signature in Rio de Janeiro on 5 June 1992 (Chapter 15 of Agenda 21). The European Union ratified the CBD on 21 December 1993, thus becoming a contracting party to the CBD.

It is widely acknowledged that global biological diversity is being eroded at an unacceptable rate (UNEP, 1995). Dramatic losses in genetic, species and ecosystem diversity are occurring as a result of several direct and indirect causes including habitat loss and fragmentation, pollution, global climate change and increasingly industrial agriculture and forestry. In response to growing recognition of the economic and social value of biological diversity, the United Nations Environment Programme (UNEP) convened an Ad Hoc Working Group of Experts on Biological Diversity in 1988. The work of the group culminated in the adoption of the Convention on Biological Diversity. The Convention is progressive and comprehensive in that it addresses all ecosystems, species and genetic resources and provides a global framework for linking conservation to the sustainable use of biological resources.

The Convention on Biological Diversity has three objectives:

- to ensure the conservation of biological diversity;
- to ensure the sustainable use of the components of biodiversity;
- to promote a fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

The Conference of the Parties to the Convention on Biological Diversity (COP), at its first meeting in 1994, decided to consider 'the conservation and sustainable use of agricultural biological diversity within the context of the Convention's three objectives and its provisions.' The Convention defines a whole raft of conservation actions to be undertaken as far as possible and where appropriate by the contracting parties to the Convention. Activities may include: the establishment of protected areas, the maintenance of viable populations of species, the promotion of environmentally sound and sustainable development in areas adjacent to protected areas, the restoration of ecosystems and recovery of threatened species, and the development or maintenance of legislation for the protection of threatened species. The Convention also pays particular attention to the issues facing developing countries and biotechnology. However, the focus of this paper is the territory of the EU, including the EU accession countries, and those topics relating to the farmed countryside. Both the EC and the individual Member States have ratified the Convention and are subject to its obligations. Of particular interest, with regard to EC and national policy development, is the requirement on contracting parties to develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity (Article 6a, CBD). In addition they are to integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into the relevant sectoral and cross-sectoral plans, programmes and policies (Article 6b, CBD).

On February 1, 1993, the European Union approved the Fifth Environmental Action Programme, 'Towards Sustainability', which later led to the adoption of the EC-Biodiversity Strategy in February 1998 by the European Commission. The **European Community Biodiversity Strategy** (COM (1998) 42), is developed around four major themes:

- Conservation and sustainable use of biodiversity;
- Sharing of benefits arising out of the utilisation of genetic resources;
- Research, identification, monitoring and exchange of information;
- Education, training and awareness.

The EC-Biodiversity Strategy considers the conservation and sustainable use of biodiversity and defines several measures:

- To formulate policy measures, programmes and projects that promote the implementation of the Global Plan of Action for the conservation and sustainable use of plant genetic resources for food and agriculture;
- To promote the development of technologies assessing levels of diversity in genetic resources;
- To reinforce the policy of conservation -in situ and ex situ- of genetic resources of actual or potential value for food and agriculture;
- To promote the development of adequate gene-banks useful for the conservation in situ and ex situ of genetic resources for food and agriculture so that they will be available for use;
- To endeavour to ensure that legislation does not obstruct the conservation of genetic resources.

A two step approach is being promoted by the EC-Biodiversity Strategy: "The first step is the adoption of this strategy, containing the general policy orientation. The second step is the **development and implementation of Action Plans** and other measures by the Commission through its services responsible for the policy areas concerned. This second step will enable to translate into concrete actions the objectives derived from the Convention" (Art. 16, EC-Biodiversity Strategy). Following this mandate, the Commission undertook to prepare Action Plans for the integration of biodiversity into a variety of policy sectors, including agriculture. The development of the Action Plans should be completed within two years after the adoption of the EC-Biodiversity Strategy. The EC-Biodiversity Strategy identifies agricultural policy as a policy area of particular relevance for biodiversity conservation within the European Union. As the EC-Biodiversity Strategy explicitly states, Action Plans have a very practical focus, aiming 'to implement this strategy', and 'set out clear tasks, targets and mechanisms to assess their performance and to evaluate progress in the implementation of the strategy'. The Action Plans are meant to be a key tool to attain the necessary integration of biodiversity conservation targets into relevant policy sectors, "by establishing a mechanism to ensure the integration of biodiversity concerns into other policy areas and instruments the strategy contributes to fill a gap in existing Community conservation policy." (Art. 17, section I, EC-Biodiversity Strategy). Six sectors have been identified in the EC-Biodiversity Strategy: Conservation of Natural Resources, Agriculture, Fisheries, Regional Policies and Spatial Planning, Forests, and Development and Economic Co-operation.

The EC-Agricultural Action Plan on Biodiversity is expected to be published in early 2000. The timing of the drafting of the EC-Agricultural Action Plan on Biodiversity is fortuitous (Figure1). Following the EU Treaty of Amsterdam, there is a new and strong emphasis on environmental integration within the CAP and mechanisms, such as the Cardiff Process, are now in place to create opportunities for progress.

Year	Policy and legal framework	Relevance for interaction between agriculture and biodiversity conservation
1992	launch of Convention on Biological Diversity (CBD), Rio de Janeiro	notes a significant loss of biodiversity at world-wide scale and notes that in-situ conservation of ecosystems and natural habitats is a fundamental requirement for biodiversity conservation
1992	approval of MacSharry- reform of CAP	Regulation 2078/92 on agri-environmental measures
1993	EC ratifies the CBD	
1994	First meeting of the Conference of the Parties to the Convention on Biological Diversity (COP) - Nassau (Bahamas)	COP Decision III/11, to consider "the conservation and sustainable use of agricultural biological diversity within the context of the Convention's three objectives and its provisions."
1998	EC-Biodiversity Strategy COM 98 (42), 4.02.1998	<b>Action Plan on agriculture and biodiversity conservation to be developed</b>
June 1998	Cardiff EU Council	Request to identify indicators to monitor the progress of strategies integrating environmental concerns in different sectors
March 1999	Berlin EU Council	Agenda 2000: CAP reform and EU enlargement Introduction of second pillar of CAP: integrated rural development
November 1999	EU Agriculture Council, Helsinki	EU Agriculture Council Strategy towards integration of environment into agriculture
11 January 2000	Lisbon: 3rd European preparatory committee meeting for European regional conference in Riga (March 2000)	Identification of agro-biodiversity as one of the six priority topics for debate
28 January 2000	Montreal	Adoption of Biosafety Protocol

**Figure 1** *Recent policy and legal framework relevant for the relationship between biodiversity conservation and agriculture in Europe*

During the Berlin European Council in March 1999, the 'Agenda 2000' was adopted, including a proposal for the reform of the Common Agricultural Policy (CAP). While there is scope for decisions at national and local level too, the strategic questions for the future of European agricultural policy are addressed mainly within the framework of the CAP. Hence the importance of a clear linkage between the EU's biodiversity objectives and the policy mechanisms designed and financed within the CAP.

The negotiations with EU accession countries are proceeding and arrangements for the so-called 'model of European agriculture', which combines the multi-functionality and competitiveness of the sector, are the basis for further consideration at EU level.

After the failure of the Seattle Millennium Round, further negotiations on trade liberalisation within the World Trade Organisation (WTO) are due to take place. These regulations could lead to further policy changes of significance to biodiversity, since support mechanisms are likely to be changed. Concretely, interim reports after the Seattle Round announce "substantial progressive reductions in domestic support". However, Article 20 of the WTO's Agreement on Agriculture gives scope to further negotiate the reform programme on agriculture, in particular as regards non-trade concerns; these include the need to protect the environment, food security, the economic viability and development of rural areas and food safety.

For the agricultural sector, the EC-Biodiversity Strategy defines an extensive number of objectives and instruments. It acknowledges the externalities generated by agriculture and the role of farming communities as contributors to nature conservation. The EC-Biodiversity Strategy calls for two mutually coherent approaches when aiming at the conservation and sustainable use of agro-biodiversity:

- The conservation and sustainable use - in situ and ex situ - of the genetic resources of species, varieties, domestic animal breeds and microbial life-forms with actual or potential value as agricultural commodities and the equitable sharing of benefits arising from the utilization of genetic resources in agriculture;
- The conservation and sustainable use of agro-ecosystems and their interface with other ecosystems.

In this publication, agro-biodiversity is not only regarded as the diversity of genetic resources or species conservation, but as covering broader spatial and scale dimensions (see also conclusions of FAO Conference on multi-functional agriculture, Wageningen, 1999):

- The variety and variability of animals, plants, and micro-organisms on earth that are used or are directly and indirectly related to food production and agriculture (genetic resources);
- The diversity of species that support production (soil biota, pollinators, predators, etc.) and the species diversity in non-productive landscape elements belonging to the ecosystem as well as the wider environment that supports agro-ecosystems (agricultural, pastoral, forest and aquatic species);
- The spatial and scale dimensions of soil protection, land resources management and cultural diversity;
- The diversity of the agro-ecosystems themselves.

The EC-Biodiversity Strategy states that the CBD implementation requires co-operation between the European Community and its Member States. EC Action Plans should build on Biodiversity Action Plans and Biodiversity Strategies from Member States (Art. 18, EC-Biodiversity Strategy). The EC-Biodiversity Strategy establishes the Clearing-House Mechanism (CHM) as the prime vehicle for international information exchange on biodiversity.

Action Plans and other measures should help to identify and review existing mechanisms to facilitate the exchange of relevant information through the Community Clearing-House Mechanism (Articles 21 and 22). Thus, all measures and programmes of this EC-Agricultural Action Plan on Biodiversity will be accessible via the EC Clearing-House Mechanism.

The sectoral objectives for agriculture set in the EC-Biodiversity Strategy are further described in Box 1. In the presentation given by Laura Buguña Hoffmann (ECNC Senior Programme Co-ordinator) at the European Workshop (see Annex 2) as well as in Chapter 5.3., a detailed comparison has been carried out between the (sectoral) objectives set in the EC-Biodiversity Strategy and the recommended building blocks.

**Box 1 Sectoral objectives for agriculture, defined in the EC-Biodiversity Strategy**

**1. Conservation and sustainable utilisation of genetic resources in agriculture**

- To formulate policy measures, programmes and projects which promote the implementation of the Global Plan of Action for the conservation and sustainable use of plant genetic resources for food and agriculture;
- To promote the development of technologies assessing levels of diversity in genetic resources;
- To reinforce the policy of conservation -in situ and ex situ- of genetic resources of actual or potential value for food and agriculture;
- To promote the development of adequate gene-banks useful for the conservation in situ and ex situ of genetic resources for food and agriculture so that they will be available for use;
- To endeavour to ensure that legislation does not obstruct the conservation of genetic resources.

**2. Conservation and sustainable use of agro-ecosystems and their interface with other ecosystems**

- To encourage the ecological function of rural areas;
- To integrate biodiversity objectives into the relevant instruments of the CAP;
- To promote farming methods enhancing biodiversity, by linking agricultural support to environmental conditions where appropriate;
- To promote good agricultural practice standards with a view to reducing the risk of pollution and of further damage to biodiversity;
- To increase awareness among all producers of the polluting potential of specific agricultural practices both short and long term and the need for all producers to be protectors of both environment and biodiversity. This includes the development of an integrated strategy for the sustainable use of pesticides.
- To promote and ensure the viability of those crop species and varieties and domestic animal races which have to be farmed to conserve the ecosystems of priority wild species;
- To promote and support low-intensive agricultural systems especially in high natural value areas;
- To further develop the agri-environment measures to optimise benefits on biodiversity by:
  - reinforcing targeted agri-environment measures;
  - assessing its performance against a specific set of biodiversity indicators;
  - increasing the relevant budget and resources, as proposed in Agenda 2000.

**3. The impact of trade policies on agricultural commodity production and land use**

- To promote trade related agricultural policies and disciplines which respect the needs for conservation and sustainable use of biodiversity as well as the principles of the World Trade Organization.

## 2.2. Setting the scene: Policy framework on biodiversity and agriculture

Many international bodies that work in the areas of agricultural policy and environmental protection have taken up the challenge to promote the sustainable use of ecological resources on farmland, including biological and landscape diversity. The following section summarises some of the initiatives taken by these organisations, which may contribute in a substantial way in setting the scene for the EC-Agricultural Action Plan on Biodiversity. Regarding the Common Agricultural Policy of the EU and its linkage to biodiversity, a detailed analysis is being carried out in Chapter 3 of this report.

### 2.2.1. The Conference of the Parties to the Convention on Biological Diversity (CBD)

The Secretariat to the Convention on Biological Diversity was established in Montreal (Art. 24 of CBD). Its 'Subsidiary Body on Scientific, Technical and Technological Advice' (SBSTTA) provides the Conference of the Parties and, as appropriate, its other subsidiary bodies with timely advice relating to the implementation of this Convention (Art. 25, CBD). The Conference of the Parties to the Convention on Biological Diversity (COP), at its first meeting in 1994 (Nassau, Bahamas), decided to consider "the conservation and sustainable use of agricultural biological diversity within the context of the Convention's three objectives and its provisions". The third meeting of the COP (Buenos Aires, 1996) considered agro-biodiversity as a priority item and decided to develop a multi-year programme (COP-III decision III/11) of activities on agricultural biological diversity aiming to promote:

- The positive effects and mitigate the negative impacts of agricultural practices on biological diversity in agricultural-ecosystems and their interface with other ecosystems;
- The conservation and sustainable use of genetic resources of actual or potential value for food and agriculture; and
- The fair and equitable sharing of benefits arising out of the utilisation of genetic resources.

In November 1995, during the Second Meeting of the Conference of the Parties (COP) to the CBD, the special nature of agricultural biological diversity, its distinctive features and problems as well as its need for distinctive solution have been recognised (Decision II/15, 1995). The Third COP meeting (Buenos Aires, 1996) welcomed the offer by FAO to continue serving countries in implementing the Convention in the area of agricultural biological diversity.

In its third meeting in September 1997, the 'Subsidiary Body on Scientific, Technical and Technological Advice' of the COP approved a multi-year work programme that includes the following activities in support of the implementation of ongoing or the initiation of new policies, programmes and plans in the field of agricultural biodiversity:

- The identification and assessment of relevant ongoing activities and existing instruments at the international level;
- The identification and assessment of relevant ongoing activities and existing instruments at the national level;
- The identification of issues that need to be addressed and relevant knowledge;
- The identification of priority issues for further development of the programme;
- The identification and implementation of case studies on issues identified;
- The sharing of experiences and the transfer of knowledge and technologies.

At the Fourth COP meeting in Bratislava, the sharing the benefits of agricultural biodiversity was further discussed. Currently, the Fifth COP meeting in Nairobi is being prepared, and agro-biodiversity will be one of the six key issues at the Riga Conference (see 2.2.5.).

### 2.2.2. Food and Agriculture Organisation (FAO)

The FAO regard biological diversity for food and agriculture as important for FAO's mandate to promote sustainable agricultural development to ensure global food security. Integrating biodiversity into national agricultural policies, programmes and projects continues to be a top priority for the organisation. Current sectoral programmes generate and transfer the information and the technical know-how which farmers need to conserve, develop and deploy biodiversity in sustainable and ecologically sound agricultural production systems.

FAO senses a growing recognition that food security and the conservation and sustainable utilisation of agricultural biological diversity are inextricably linked. The organisation has contracted an expert team on biodiversity to study the main elements of a Biodiversity Strategy related to agricultural activities and food production. The first part of the study has been completed and covers the biodiversity aspects of agriculture in four sectors: plants, animals, forests and soil (microbial) biodiversity (Rural Advancement Foundation International, 1997). The future of world food security depends mainly on people who use and maintain diversity on a daily basis. The report concludes that *in situ* conservation is a crucial element in the conservation of agricultural biodiversity and must be complementary to gene bank collections.

During the 'FAO/Netherlands Conference on the Multifunctional Character of Agriculture and Land' (12-17 September 1999), recognition of the multiple functions of agriculture was further established. "Nowadays, the growing attention given to the non-food functions of agriculture has augmented the relevance of policies to address the multifunctional character of agriculture and land within the framework of sustainable agriculture and rural development. In developing those policies participants confirmed the importance of targeted, transparent and cost effective policies which do not distort production and trade" (Alders, 1999).

FAO's 'Global Plan of Action for the Conservation and Sustainable Utilisation of Plant Genetic Resources for Food and Agriculture' (GPA) aims to place greater emphasis on *in situ* and farmer/community level management of genetic resources. In 1993, with FAO help, a group of governmental and non-governmental organisations from Asia, Africa, the Americas and Europe launched the 'Community Biodiversity Development and Conservation Programme', a long-term initiative to strengthen local level genetic resources management. The programme's main focus is on *in situ* and on-farm conservation. The 'Global Plan of Action for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture', adopted by 150 countries at the International Technical Conference, has subsequently been endorsed by the Conference of Parties to the Convention on Biological Diversity.

The three objectives of the 'Community Biodiversity Development and Conservation Programme' are:

- To provide direct support in strengthening community innovation systems;
- To investigate and assess selected community innovation systems related to the conservation and the use of best available methods;
- To recommend ways in which the institutional system can better support and/or implement community systems.

FAO plans further efforts to protect and conserve agricultural biodiversity, especially by on-farm *in situ* management of genetic resources. A major initiative of FAO, supported by the UN Environment Programme and the European Association of Animal Production, has been the global inventory and basic description of domestic livestock breeds. By mid-1995 the global databank listed 3,882 breeds from 28 species to be used as a Global Early Warning System for Animal Genetic Resources. FAO is also planning to elaborate a substantial forest strategy in relation to biodiversity in the near future. As far as the EU's negotiating position is concerned when implementing the Guidelines for the revision of the International Undertaking on Plant Genetic Resources within the framework of the 'Commission on Genetic Resources for Food and Agriculture' (CGRFA) of FAO, the EU Council has given a mandate to the FAO Coordination (Agri) Working Party in its Agricultural Council meeting in Helsinki (15.11.1999) to accomplish all the preparatory work and report back to the Permanent Representatives Committee and the Agriculture Council by the end of February 2000.

### **2.2.3. Organisation for Economic Co-operation and Development (OECD)**

A sizeable programme of work in the OECD is focussed on agricultural policy and its connection to the environment. In this respect, the organisation has established a Joint Working Party of the Committee for Agriculture and the Environment Policy Committee. Amongst other things this committee has discussed the development of agri-environment indicators, future policies for sustainable agriculture, environmental impacts of trade liberalisation, reference levels, ways of integrating agricultural and environmental policies and the provision of 'public goods' by farmers.

Biodiversity is recognised as a major 'public good' associated with farming systems in many parts of Europe as well as other OECD countries. OECD is driving forward the elaboration of agri-environmental indicators through a series of workshops, working groups and contracted reports. The OECD indicators cover biodiversity and landscape, as well as, other topics and are likely to have an important influence in the international debate. In its EU Agricultural Council Strategy, the EU Member States are explicitly requested to support the OECD activities on agri-environmental indicators, noting that it may also be a base for a European set of indicators.

The concept of multifunctional agriculture has also been analysed among OECD member states. Agriculture Ministers met at OECD in March 1998 to discuss the concept. Views differed widely across countries on the compatibility of agricultural policy reform and trade liberalisation with provision of the multiple outputs that society expects from the agricultural sector. Thus, a rigorous analytical framework has been developed at OECD, to define appropriate ways of integrating trade liberalisation with good domestic policy practice by internalising the external costs and benefits of agriculture (OECD, 1998 a). The OECD is also active in environmental policy and has made a number of contributions to biodiversity policy thinking. Recently, the OECD published a study entitled 'Handbook of Incentive Measures for Biodiversity Conservation - Design and Implementation'.

### **2.2.4. Pan-European Biological and Landscape Diversity Strategy (PEBLDS)**

This Strategy, whose secretariat is being hosted by the Council of Europe and UNEP, together with ECNC, is intended to support the implementation of the Convention on Biological Diversity in Europe. Adopted at the Ministerial Conference 'Environment for Europe' in 1995 (Sofia, Bulgaria), PEBLDS has a life span of 20 years, which is divided into four 5-year Action Plans. The Strategy has clearly defined aims and objectives relating to the conservation of biological and landscape diversity across Europe. It identifies ten strategic principles

to be applied within all sectors using natural resources to achieve the wise management of biological and landscape diversity. These principles, together with the action points for the first 5-year Action Plan, illustrate an important approach running through PEBLDS - the integration of biodiversity objectives into other economic sectors, agriculture in particular.

One important motivation for the Strategy is the co-ordination of, and collaboration between, the many biodiversity initiatives across Europe, including the Bern Convention. This requires an exchange of information and a transfer of knowledge - areas in which the work of the Council of Europe at the pan-European level plays an important role. The work of the PEBLDS, in particular, shows the need to go beyond national and EU borders when dealing with biodiversity issues.

Action Theme 2 of PEBLDS, the 'Integration of biological and landscape diversity considerations into sectors', includes an analysis and review of policies related to the interaction between agriculture and biodiversity conservation. Following the decision as reflected in the Aarhus Conference Declaration (Fourth Environment for Europe-Conference, Aarhus, 1998) to explore the need for a high level biodiversity and agriculture ministerial conference, the third meeting of the PEBLDS Council (April, 1999) looked into the possibility for a ministerial conference on agriculture and environment. It was decided to establish an ad hoc working group on agriculture and environment with the task to discuss the options for such a conference (document STRA-CO (99) 25 of October 1999).

### 2.2.5. The 'Riga-Process' on Biological Diversity in Europe

From 20-23 March 2000, the Pan-European Conference 'Europe's Biodiversity' was held in Riga, Latvia. This conference brought together in a unified approach the key actors involved in European biodiversity policies while focusing on the Pan-European Biological and Landscape Diversity Strategy and its Council, the EU Member States Working Group on Biodiversity, and the focal points to the Convention on Biological Diversity. The objective of the conference was to prepare for the Fifth Conference of the Parties to the Convention on Biological Diversity (Nairobi, May 2000).

The Conference focused on the following six issues regarded as being of European importance to the CBD, among them agro-biodiversity:

- Agro-biodiversity (lead: Netherlands with IUCN),
- Sustainable use, including tourism (lead: Germany),
- Identification, monitoring and assessment and indicators (lead: Latvia with ECNC and EEA),
- Scientific and technical cooperation and the Clearing-House Mechanism (lead: Germany with ECNC and EEA),
- Financial resources and mechanisms (lead: Switzerland with ECNC), and
- Regional implementation (lead: United Kingdom with UNEP and Council of Europe).

The discussions in Riga on agro-biodiversity contribute to bringing the European activities and policy frameworks dealing with agro-biodiversity closer together and will lead to a comprehensive European position towards this issue, and towards the Fifth Conference of the Parties to the CBD, in particular to its work programme for agrobiodiversity.



## Analysis and evaluation of the linkages between agriculture and biodiversity in the European Union

### 3.1. Linkages between agriculture and biodiversity

In a continent in which agricultural land occupies around 45% of the terrestrial area and in which the extent of natural habitats is now very small, there is no question about the importance of agricultural policy in influencing the state of biodiversity.

The importance of agricultural land use for biodiversity in Europe has been recognised in many international documents, including the Dobriš Assessments from the European Environment Agency, the EC-Biodiversity Strategy, the Pan-European Biological and Landscape Diversity Strategy, the declarations from the Fourth Ministerial Conference 'Environment for Europe' in Århus (Denmark) in June 1998, and the European Commission's Communication 'Directions towards sustainable agriculture' (COM (1999) 22).

The concept of **multi-functional agriculture** has been firstly discussed at the World Food Summit (Rome, 1996) and had been included into the World Food Summit Plan of Action. Some of the functions of agriculture are interrelated, such as the ecological function, i.e. natural resource conservation, the promotion of tourism (Aldington, 1998). As the Parliament's Committee on Agriculture and Rural development noted in a recent draft opinion, "whilst agriculture is no longer the sole option, it will, however, continue to play an essential role... ..also because farmers play a fundamental role in terms of land-use management, preserving biodiversity and helping to protect the environment" (European Parliament, Committee meeting report, December 1999, Brussels).

Agriculture has an important role in determining the character, management and status of the semi-natural areas of Europe (as acknowledged and followed up via Action Theme 8 of the Pan-European Biological and Landscape Diversity Strategy). A large number of common species rely on agricultural land, at least for a part of their lifecycle, as do many rare and threatened species.

The impact of agriculture on biodiversity conservation has been widely recognised as particularly threatening. This impact is rather broad, ranging from water quality, erosion and removal of hedges to socio-economic issues such as land abandonment. The interaction between agriculture and biodiversity has been analysed in a range of publications (e.g. Baldock et al., 1993; Nowicki, 1997; Pain & Pienkowski, 1997; EUROSTAT, 1999; Potter, 1997; Wascher, 2000). Most of these publications concentrate on adverse changes arising from the development of modern agriculture. There is some literature on the loss of diversity within agricultural crops and domesticated livestock, but the majority of research has been concentrated on broader changes in species numbers and diversity and the quality and extent of semi-natural habitats. It is clear that agriculture has been undergoing major changes and that the majority of the impacts on biodiversity have been negative.

Recent data on farmland birds, for example, show that this group has been declining more rapidly than most other groups of species (Hagemeijer & Bibby, 1999). The small remaining areas of natural habitats and the high proportion of rural land under agricultural management is one of the defining characteristics of the rural landscape in Europe. There are regions, such as northern Scandinavia, where forestry is the dominant land use, but elsewhere agriculture is a prime force in shaping a largely cultural rather than natural rural landscape.

Farmland areas of particular value for biodiversity in Europe include:

- semi-natural areas that consist of extensive tracts of low intensity agricultural land where more traditional forms of management are still widespread. These include not only grassland but also extensively managed areas of permanent crops, arable and mixed farming;
- certain agricultural habitat types of value for particular species, including some relatively intensively managed areas of farmland where certain species have adapted to modern agricultural practices, such as wet grasslands;
- structural elements in the farmed landscape, such as hedgerows, individual trees, ponds or field margins, that contain their own particular flora and fauna and are important resting, nesting and feeding sites for many other species of agricultural habitats.

Research on bird species, which have been studied in greater detail than other fauna and flora, suggests that, at a European scale, agricultural habitats have the highest overall species richness of any category of habitat (Tucker & Evans, 1997; Nowicki, 1997). However, the research stresses the importance of green veins in the farmland for biodiversity and opportunities for combinations of biodiversity (in terms of high or common nature value preservation) and agriculture as well as other land use forms (recreation, water retention). In spite of the research data available, Europe lacks a reliable base line survey of biodiversity on farmland. Research is particularly scarce on the variety of farm practices and its impact on biodiversity.

A negative impact of the recent agricultural policy comes from the abandonment of marginal farmland: 'Agricultural land in regions that in the past were farmed less intensively, because of the climate, soil or economic conditions, is now being abandoned. In some regions (e.g. mountains) this leads to reduced biodiversity, the impacts being more pronounced in areas where small-scale traditional farming methods predominate' (Delbaere, 1998). This particularly applies to the more economically fragile regions in **Less Favoured Areas**, where agriculture is mainly livestock based (cattle, sheep, and goats).

The change of farm practices over the past 20 years had a substantial impact on wildlife diversity and habitats; this impact has been best researched in north Western Europe. The reports emanating from this research (e.g. Baldock, 1990; Nature Conservancy Council, 1977, 1984, 1991; SRU, 1985, 1994; Tucker & Evans, 1997) show a substantial loss of species and habitats due to general agricultural intensification and specific, often grant-aided, land improvement schemes.

**HNV farming systems** (high nature value farming) probably account for the management of the greatest farmland area of importance for biodiversity in the EU and accession countries. Estimates of the scale of such farmland vary greatly and further research is necessary. HNV farmland may account for as little as 10 or as much as 82 percent of the total utilised agriculture area in different EU Member States. Mediterranean countries, such as Spain, generally include particularly large areas of HNV agriculture (see Table 1). The importance of low-input, traditional farming systems has been clearly demonstrated for the EU territory (Signal & McCracken, 1996). It is suggested to periodically monitor the ecological value of farming systems and also investigate future prospects for farming in HNV areas (Hellegers & Godeschalk, 1998; Wascher, 2000). More research on farming types such as High Nature Value farming regarding its contribution to biodiversity conservation is required.

**Table 1** Estimates of areas of low-intensity farmland in each of the nine European countries studied by Beaufoy et al. (1994)

Country	Land surface (ha)	Utilised Agricultural Area (UAA ha)	Farmland under low-intensity systems (ha)	Low-intensity farmland as percentage of UAA
France	4 702 600	31 016 400	7 754 000	25
Greece	13 194 400	9 183 300	5 600 000	61
Hungary	9 303 000	6 493 500	1 500 000	23
Italy	30 122 500	22 650 000	7 100 000	31
Poland	31 267 700	19 135 800	2 735 000	14
Portugal	9 208 200	4 558 100	2 735 000	60
Ireland	7 028 300	5 650 750	2 000 000	35
Spain	50 478 200	30 589 800	25 000 000	82
UK	24 413 900	18 425 500	2 000 000	11
<b>Total</b>	<b>229 709 500</b>	<b>147 703 150</b>	<b>56 424 000</b>	<b>38</b>

The **features of a landscape** include the landscape specific variety of soil, moisture, and climatic conditions. These sets of environmental variables constitute potentials for the development of species communities, dependent on the type of land use. It seems that every type of land use will 'create' a typical species community. However, species with specific adaptations to typical site conditions will find suitable habitats mostly if the disturbances and alterations through agricultural practices are low.

High input productions systems (frequent soil tillage, chemicals, fertilizers) will allow the development of only more ubiquitous species. Production systems play a key role for biodiversity conservation and regional development, including the following criteria:

- Organisation (family, enterprise etc.);
- Market orientation (cash crops, fodder, animals, etc.);
- Production types (conventional high input, low input, organic etc.);
- Production Input (soil tillage, pesticides, fertilisers etc.);
- Output: landscape delineation and biodiversity assessment (in addition to the mere yield output).

Consequently, one important scale to analyse biodiversity in relation to agriculture is the landscape. Therefore, in order to assess and evaluate the biodiversity of an agricultural landscape, it seems important to analyse the variety and distribution of both the site conditions and the productions systems at the same time.

An analysis of the relationships between agriculture and biodiversity on the landscape scale would include:

- The delineation of landscapes within a region;
- The assessment of the site variability, their distribution and their biological potentials;
- The variability and distribution of production systems in relation to the sites.

An example of a landscape with a very close link to agriculture is the Spanish steppe. Spanish cereal steppes are estimated to cover four million hectares, about 20% of all cultivated land in Spain. In addition, there are about half a million hectares of dry grassland and more or less permanent chamaephyte shrub steppes (Suárez et al., 1997). The plant communities of the highest diversity and rarity are found in the grasslands and the chamaephyte shrub steppes. These habitats contain a considerable number of those species that have their only representation within the European Union in some pseudo steppe areas of Spain. In total, 302 vascular plant species are defined as 'proper steppe species'. Of these, 126 species of the total are considered to be endemic to the Iberian Peninsula (42 per cent), and are thus dependent on the survival of the pseudo steppe ecosystems in Spain and Portugal.

In the European Union, habitats and species of particular importance for conservation have been defined through the EU Birds and Habitats Directives. Site and species protection are currently the mainstay of biodiversity conservation policy although both the EU Bird Directive 79/409 and the EU Habitats Directive 92/43 have important articles with implications for the wider countryside. Member States have been identifying candidate Special Areas of Conservation under the EC Habitats Directive, which, in combination with the Special Protection Areas designated under the EC Birds Directive form the '**Natura 2000 Network**'.

Important Bird Areas (IBA), comprising on the one hand, breeding areas, and on the other hand, feeding areas and roosts of migratory water birds, substantially contribute to biodiversity conservation. Analysis of related monitoring data shows that important bird species are more associated with agricultural habitats than with any other type of land use. Many of these protected areas incorporate farmland, usually in marginal areas, and consequently are affected by agricultural and rural development policies (see also 'Natura 2000 and agriculture', European Commission 1999). In the United Kingdom, over 40 per cent of the biotopes listed in the Birds Directive are managed farmland habitats. However, a study that analysed the impact of the EU Birds Directive in conservation of birds species revealed that in the countryside the trends have been unfavourable and Member States have insufficiently addressed the implementation of the EU Birds Directive (Hagemeijer & Bibby, 1999). The study also revealed that agricultural intensification is the primary source for the decline of bird species, agricultural abandonment ranking as sixth.

Biodiversity in agricultural landscapes is a result of many factors, two of which seem to be of predominant importance: the natural conditions and the land use systems. The management of **Environmentally Sensitive Areas** (ESA) was introduced in the United Kingdom in the mid 1980s and is a management tool that helps to conserve and enhance the biodiversity of habitats or broad group of species, such as lowland heath or grazing marshes. One aim is to encourage participation by farmers, and all holders of the agreement have to adhere to basic environmental measures. Most of the habitats within many agricultural landscapes are shaped by the land uses, arable fields, meadows and pastures being dominant habitats themselves. Other important habitats which are spread out across this matrix, like woodlots, hedgerows, ponds and many others, constitute essential elements of the landscape's biodiversity, playing an important role for the dispersal of species and colonization of semi-natural habitats.

### 3.2. Land management trends

Different economic developments such as agricultural specialisation, marginalization, and intensification are the main driving forces behind the decline of biodiversity on farmland in the EU. Perversely, both abandonment and intensification can occur in the same region at the same time.

A number of different trends in the management of agricultural land contribute to a loss of biodiversity:

- a) **Loss of non-agricultural habitats** due to land reclamation, drainage projects, or indirect pollution. Examples are irreversible damage to peat bogs in north-western Germany due to land drainage schemes, the conversion of heathland areas in north western Europe into arable land, the clearance of many farmland woods in the United Kingdom, and large scale irrigation schemes in southern Europe.
- b) **Agricultural ‘improvement’ of low-intensity farmland** has led to substantial and mostly irreversible loss of habitats. The management of this type of agricultural land has often been intensified through the application of fertilisers and lime, the upgrading of drainage schemes, higher stocking densities, and ploughing and reseeded. Chalk grasslands, grazing marshes or extensive pastures on poor acidic soils are examples of this type of habitat loss. Agricultural measures to increase the soil productivity lead to a significant loss of diversity of environmental conditions because the ‘improved’ sites represent a much higher similarity than the former ‘unimproved’ sites. Consequently, habitats for species are lost in this process.
- c) **Disappearance of structural elements in the agricultural landscape** such as hedgerows, field verges or grass tracks. The most common causes of this habitat loss are land consolidation, increases in average field sizes, and mechanisation. Reliable estimates calculate the length of hedgerows lost between 1950 and 1978 in Schleswig-Holstein, the most northern region of Germany, to be 25,000 km, one third of the total (Eigner, 1978). For England and Wales the loss of hedgerows is estimated at 140,000 miles (from a total of 500,000) in the period between 1946/47 to 1974 (Nature Conservancy Council, 1984, p. 55), and continued at a rate of 17,000 miles per year into the 1980s (Barr et al., 1993).
- d) Loss of diversity on productive agricultural land through **intensification**, better tillage and harvesting techniques, intensive irrigation systems, increased use of fertilisers and pesticides, simplified management methods, crop specialisation, application of covering plastic elements to prevent evaporation, shorter rotations, etc. (see Table 2). Arable weed communities, formerly common birds like the Grey Partridge (Potts, 1986) and the species diversity of productive grasslands (Nature Conservancy Council, 1984) are all negatively affected for example. Research on low to medium intensity arable cropping system in Spain shows that agricultural changes have also had negative impacts on agro-ecosystems in southern Europe (Petersen, 1998).

**Table 2** Characteristics of low-intensity livestock and crop-based farming systems  
(Beaufoy et al.,1994)

Livestock systems	Crop systems
<i>Low nutrient input; predominantly organic</i>	<i>Low nutrient input; predominantly organic</i>
<i>Low stocking density</i>	<i>Low yield per hectare</i>
<i>Low agrochemical input</i>	<i>Low agrochemical input (usually no growth regulators)</i>
<i>Little investment in land drainage</i>	<i>Little investment in land drainage</i>
<i>Relatively high percentage of semi-natural vegetation</i>	<i>Crops and varieties suited to specific regional conditions</i>
<i>Relatively high species composition of sward</i>	<i>More traditional crop varieties</i>
<i>Low degree of mechanisation</i>	<i>Low degree of mechanisation</i>
<i>Often hardier, regional breeds of livestock</i>	<i>Use of fallow in the crop rotation</i>
<i>Survival of long-established management practices, e.g. haymaking, transhumance</i>	<i>More traditional harvesting methods</i>
<i>Reliance on natural suckling</i>	<i>Tree crops tall rather than dwarf</i>
<i>Limited use of concentrate feeds</i>	<i>Absence of irrigation</i>

e) A further trend, more pronounced in southern than in northern Europe, has been the **marginalization and abandonment of farmland**. Marginalization on European farms takes a variety of forms and occurs at a range of different scales, from the individual patch of land no longer worth cultivating to sizeable regions. While most forms of marginalization occur progressively over a period of time, not all result in a permanent change in land use and some are purely temporary (Baldock et al., 1996). The land abandonment process can progress through various stages, beginning with the simplification and alteration of traditional farming systems, some of which have proved an effective means of balancing food production with the conservation of biodiversity.

During the creation of historical agricultural landscapes across Europe, the maintenance or creation of habitats and landscape elements has been intrinsically linked to agricultural needs and methods. Stonewalls and hedges, for example, serve as fences for livestock and/or as a source of wood products. Fallow land or legumes are an essential part of the crop rotation to preserve or build up soil fertility.

In most parts of Europe, hedgerows or fallow land have become redundant due to the introduction of modern production methods and technologies. The *dehesas* in Spain and *montados* in Portugal are an example of traditional systems now undergoing drastic change if not outright abandonment. However, in recent years abandonment has slowed down in many parts of Europe.

The environmental services that farming used to deliver have thus become detached from agricultural production and are often considered as additional costs by farmers who are pursuing economic efficiency gains. This separation of environmental goals from agricultural production has been recognised as a major impediment for the protection of biological and landscape diversity in all regions of Europe.

### 3.3. Biodiversity and the Common Agricultural Policy

The objectives defined for the CAP in the Treaty of Rome (Article 39) make no reference to the environment. Since the mid-1980s, however, environmental concerns have become more prominent within the policy. This began with the introduction of agri-environmental schemes under Article 19 of Regulation 1760/87, permitting EU co-financing for such programmes.

When the European Council approved the first reform of the CAP in 1992, it also passed a package of measures called 'the CAP accompanying measures'. In this way several environment-related measures which had previously been implemented through EU Regulations 2328/91 (VII) and 4115/88 (extensification of agricultural and livestock production) were re-formulated and included in EU Regulation 2078/92 which made the introduction of agri-environmental schemes obligatory for all Member States. At the same time, environmental elements began to enter the market regimes within the CAP via the 1992 CAP reform:

- There was a major switch from price support to area payments within the arable regime;
- Limits were placed on livestock densities in the regime for beef cattle;
- A form of cross-compliance was introduced for set-aside;
- Member States were given the option of introducing cross-compliance for beef and sheep headage payments although only two have done so.

In recent years, the CAP has been associated with several of the negative environmental consequences of modern farming methods in the Community. Production-related subsidies and financial support under the CAP for drainage schemes or land consolidation, for example, have definitely contributed to habitat and species loss. This process goes hand in hand, however, with the general trend towards the application of modern technology and machinery to increase labour productivity and the need for higher economic efficiency due to declining agricultural product prices relative to input costs.

At the same time it must be acknowledged that the CAP has also provided support for some forms of production which are undoubtedly of importance for biodiversity. Many semi-natural habitats rely on grazing by sheep and cattle and without a substantial level of CAP support, particularly in the less favoured areas, livestock numbers may have fallen to a level inducing large scale abandonment or afforestation, both of which would have been damaging for many species and habitat types.

The recent introduction of incentives for agri-environmental management agreements has been an important change in the CAP, involving environmental related support for about a fifth of the farmed area. Agri-environment programmes ask farmers to undertake environmental activities and pay any income losses and costs. Expenditure for EU-12 has risen from ECU 0.1 billion in 1993 to an estimated ECU 1.2 billion in 1998 (ECU 1.7 billion for EU-15). The programmes apply to 900.000 farms and 27 million ha, or 20% of EU farmland, although application is considerably more widespread in five Member States (European Commission, 1998e).

The question is how far CAP subsidies, grants and other support have been the cause of the observed change in agricultural land management. The trend towards intensification and specialisation is in part a response to general economic developments and technological change (Buckwell, 1989; Potter, 1997). Thus, many of the changes in farming that have led to negative environmental impacts are linked to technological developments and increased competition in agricultural markets.

However, the CAP exists to exert an influence over developments within the agricultural sector, so it is important to try to identify where it has promoted changes that are detrimental to the environment or has hindered positive developments, as well as where it may have promoted environmental benefit (e.g. by establishing close linkages to the Natura 2000 network).

Considerations for the environment are gaining increasing importance in the CAP, as explained by the following statements of the European Commission on the Agenda 2000 proposals in March 1999, at the occasion of the Berlin Council: “The so-called ‘agri-environmental measures’ will support the sustainable development of rural areas and will respond to society’s increasing demand for environmental services by encouraging farmers to use farming practices compatible with environmental protection and natural resources conservation. As an additional measure which will help in the further ‘greening’ of the CAP, the compensatory allowances in support of farming in ‘Less Favoured Areas’ (LFAs) have been extended to areas where farming is restricted by the existence of specific environmental restrictions. EU Member States may also make direct payments to farmers conditional on the observance of environmental requirements. In other words, Member States should define environmental measures to be applied by farmers, as well as proportionate penalties for environmental infringements. These could involve, where appropriate, the reduction or cancellation of direct payments” (European Commission, ‘Agenda 2000’ - Strengthening and widening the European Union, 1999).

Agri-environment schemes are a key measure to ensure integration of biodiversity objectives into agricultural land management. The Rural Development Regulation (1257/99) retains agri-environmental schemes as the only mandatory measure for Member States, but the planned budgetary increase for these schemes is very limited. Under the previous agri-environment Regulation 2078/92, around 85% of the agri-environmental measures were concentrated in five key countries (Austria, Finland, France, Germany, Italy), whereas several Member States with major areas of high-nature value farmland (e.g. Greece) have adopted much smaller programmes. Regulation 2078/92 provided support for less intensive farming systems in many regions, for example the prime à l’ herbe in France, but participation in schemes designed specifically to advance biodiversity objectives (e.g. in National Parks, RAMSAR sites etc.) has been on a limited scale only. Some ecological objectives are difficult to meet purely by the use of voluntary schemes, which may result in a fragmented uptake. Nonetheless, management agreements over a five-year period do offer an opportunity to make real progress and shorter agreements should be resisted.

A weakness of many agri-environment schemes has been the widespread absence of precise objectives, clear targets or specific indicators of performance. Clearly, more priority needs to be given to the use of indicators, as emphasised at an OECD workshop in York, United Kingdom, 1998. Evaluation of the environmental success of schemes has also been hampered by poor baseline data in many countries and a lack of rigorous monitoring, as well as more intractable difficulties such as a shortage of studies comparing land inside and outside schemes. There is a need to integrate agri-environment schemes with other policies, both to avoid conflict, which may occur with afforestation policies, for example, and to create complementary measures. It can be important to offer to farmers aid for investment, as well as land management, and the new Rural Development Regulation offers positive opportunities in this respect.

The conservation management of agricultural areas in Natura 2000 sites needs to be addressed through appropriate measures in the CAP. Member States can directly foster a positive linkage between Natura 2000 and agriculture by reviewing the requirements of Natura 2000 sites when drawing up and implementing their Rural Development Plans for the period 2000 - 2006.

In 1995, the European Commission defined in the 'Progress Report on implementation of the European Community Programme of Policy and Action in relation to the environment and sustainable development' (COM (95) 624) that "the link between nature legislation (Habitats and Birds Directives) and CAP measures remained inadequate." Article 10 of the Habitats Directive encourages Member States to improve the ecological coherence of the Natura 2000 Network through 'the management of features of the landscape which are of major importance for wild fauna and flora'. The most important EU instruments for achieving this goal are part of the Common Agricultural Policy, such as agri-environmental, rural development and LFA measures under the new Regulation 1257/1999 on support for Rural Development.

### **3.4. Monitoring agro-biodiversity**

#### **3.4.1. Cardiff Mandate and follow-up: monitor environmental integration into sectors**

In June 1998, the EU Council meeting in Cardiff (United Kingdom) agreed to review the progress on the integration of environmental concerns and sustainable development into Community policies. The Cardiff EU Council requested to identify indicators to monitor the progress of strategies integrating environmental concerns in different sectors. All relevant formations of the Council were invited to develop integration strategies with the Energy, Transport and Agriculture Councils starting the process.

The EU Agricultural Council adopted the 'Strategy on the environment integration and sustainable development in common agriculture policy' (13078/99, 16 November 1999) that sets clear objectives for water, agrochemicals, land use and soil, climate change and air quality, as well as landscape and biodiversity (Box 2). For biodiversity conservation, the Strategy defines the nature of land and land use as important issues within sustainable agriculture. The concrete objectives address a number of issues, including biodiversity conservation, landscape preservation as well as biosafety, soil protection, forestry, the enlargement: "Farmers should observe the reference level of good agricultural practices as a part of the support regimes, but that additional environmental services beyond the reference level and respecting environmental legislation should be adequately compensated by society, for example, through agri-environmental measures".

### **Box 2 Specific objectives of the EU Agricultural Council Strategy 13078/99**

- Landscapes and biodiversity vary a great deal across different parts of the EU. Agricultural practices have created and help to maintain the cultural landscape and the wildlife habitats dependent on agriculture;
- For the purpose of nature conservation, important habitats have been and should continue to be identified, designated and maintained to protect flora and fauna, which are adapted to traditional agricultural environments. In regard to the planned conservation area network Natura 2000 now being harmonised throughout Europe the application of good agricultural practices and agri-environmental measures beneficial to nature conservation should also be promoted. The creation of an integrated rural development policy under Agenda 2000 CAP reform will be an important mechanism in encouraging more environmentally responsible farming;
- The precautionary principle shall be applied for adoption processes of genetically modified organisms (GMOs);
- Genetic resources for food and agriculture, in particular genetic material of crops and domestic animals should be preserved for example by agri-environmental measures and by founding and promoting gene banks. Evaluation and research of these resources with a view to their sustainable use should be advanced;
- To maintain soil quality, certain farming systems, e.g. managed grazing, the presence of hedges and trees should be promoted. Also, measures to guard against erosion and fire risk are needed as well as afforestation to make an important contribution to reducing soil erosion;
- Open landscapes with natural and semi-natural elements created by agricultural practice constitute high biodiversity values, which should be conserved and maintained;
- For less-favoured areas, special targeted measures are needed, particularly in the most marginal ones where agricultural activity would otherwise cease and land consequently would be left unused which would have negative consequences for the natural environment and landscape;
- Traditional farming and typical local productions contribute to safeguard certain existing natural or semi-natural ecosystems.

The Agriculture Council Strategy underlines the need for rigorous monitoring and evaluation of integration. In this respect, the European Commission prepared a report on 'From Cardiff to Helsinki and beyond: Report to the European Council on integrating environmental concerns and sustainable development into Community policies' (European Commission, (1999) 1941). The report was a contribution by the Commission to the Helsinki European Council (10-11 December 1999) and follows the Cardiff European Council's request of taking stock of the progress achieved since Cardiff. The report concludes that while progress has been made towards the achievement of a coherent overall indicator system, considerable effort is still required to complete the system.

As DG Environment states in its press release of 24 November, 1999, “clear timetables and objectives for individual measures are largely absent which makes the monitoring of progress difficult”. The European Council in its meeting in Helsinki (10-11 December, 1999), which reviewed overall progress on the integration of environmental concerns and sustainable development into Community policies, welcomed these first steps and agreed to follow up on the integration strategies during the Portuguese Presidency (January-June 2000).

### 3.4.2. Agro-biodiversity Indicators

The role of indicators is to transform complex physical and/or financial data on human activities and the state of environment into practical information that can facilitate decision-making.

The search for biodiversity indicators in agriculture has been motivated mainly by the following needs:

- Understanding the impacts of agricultural driving forces on biodiversity and landscapes;
- Identification of agricultural landscapes with high quality biodiversity (High Nature Value Areas);
- Guidance for policy implementation in EU Member States;
- Monitoring changes of biodiversity in agriculture through time series of observations;
- Development of agri-environmental reports (to inform the decision-makers, experts and the wider European public).

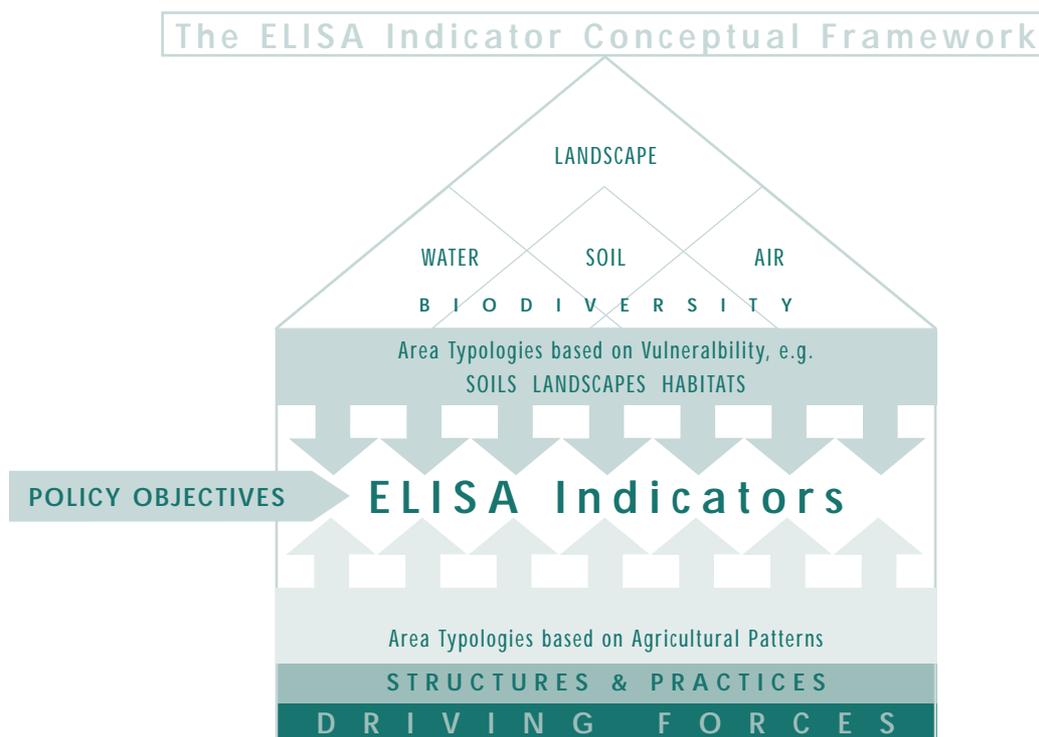
Currently, there is a clear lack of data on agro-biodiversity, partly due to the fact that policy-makers have not been fully aware of the direct linkage between biodiversity, landscape protection and further socio-economic values. A weakness of current agri-environmental schemes is the widespread absence of adequate control mechanisms that allow the proper monitoring of the successful implementation of existing agri-environmental policies. In order to make multifunctional agriculture accountable, the linkages between agriculture, biodiversity and rural development need to be evaluated, both at the EU and the Member States level.

In recognition of the above-mentioned deficit, the European Commission and the European Environment Agency have taken an active role in the development of environmental and sectoral assessment schemes to allow European and national institutions to achieve a better performance in evaluating the policy implementation. The EEA's Driving Force - Pressure - State - Impact - Response (DPSIR) framework for future environmental monitoring and its technical work on biodiversity indicators, as well as the co-ordinating activities of DG AGRI and EUROSTAT in support of the development of landscape and biodiversity indicators in contribution to the OECD international workshop in York in 1998 must be considered as significant first steps.

The European Commission underlines the need to develop agri-environmental indicators as core part of the monitoring process when it states, “appropriately developed agri-environmental indicators will be particularly important in improving transparency, accountability and ensuring the success of monitoring, control and evaluation. This will contribute significantly to the effectiveness of policy implementation and feed Global Assessment processes” (European Commission, COM (2000), 20 final).

In order to advance in the field of indicator conceptualisation at the European level, the European Commission had launched a larger Concerted Action-research project on ‘Environmental Indicators for Sustainable Development’ (ELISA) that has been co-ordinated by the European Centre for Nature Conservation (Wascher, 2000). Besides the environmental media of soil, water and air, the project covered also the environmental systems

comprising biodiversity and landscapes. This contribution draws in large parts on the findings of the ELISA project. The conceptual framework promoted by ELISA is based on the assessment of driving forces for understanding the overall dynamic nature of agricultural processes differing from region to region, while attempting to interpret data for concrete agricultural activities (e.g. pesticide use, water consumption, biodiversity) on the basis of the landscape concept as an overarching spatial reference that combines both ecological and cultural considerations (figure 2).



**Figure 2** Area typologies as part of the Conceptual Framework of ELISA (Wascher & v. Meyer, 1999)

An important precondition for setting-up an international scheme of biodiversity indicators, which should be applicable to the entire EU, is to carefully explore the territorial dimensions of the following monitoring aspects:

- **Collecting data,**  
on agricultural structures and practices, as well as on environmental media and systems;
- **Processing data,**  
in particular with regard to identifying relevant agricultural changes and environmental impacts;
- **Creating area typologies,**  
such as landscape types that can help to structure the analysis;
- **Analysing various indicators or indicator bundles,**  
be it with respect to general trends, specific types of areas or individual places;
- **Presenting analytical results,**  
in different formats or scales: European, national, regional or local.

There is a need for identifying a common set of comparable and compatible basic agrobiodiversity data that enable integrated data analyses at the agriculture-environment interface (see also Annex 2, presentation by Dirk Wascher, ECNC). Many attempts for setting up national and international sustainability indicators merely refer to national average figures. Neglecting the wide variety of differences in socio-economic structures and natural conditions among European regions risks to hide important problems and potentials for sustainable agriculture. Consequently, such inappropriate choices may lead to false conclusions and problematic policy recommendations. The main objective for the future is an application of the existing European data on agricultural driving forces, including CORINE Land cover information, EUROFARM from EUROSTAT, the Farm Accountancy Data Network Network (FADN), as well as the available environmental data on species, habitats and landscapes. Though the data on species is partly very promising (e.g. on birds), a continuous and targeted updating for key agro-ecosystem species needs to be ensured.

The agri-environmental indicators identified under ELISA constitute a core set and should hence be considered as a required short list for future assessment. Agro-biodiversity indicators have to address the wide range of land-related issues, identify key land-quality problems, monitoring progress on issues such as soil erosion, fertility decline, decrease in natural biological diversity, rural unemployment, and genetic erosion. To comply with the concrete targets and objectives of the EC-Agricultural Action Plan on Biodiversity, response indicators regarding market structures, awareness and socio-economic developments need to be further identified and integrated into the scheme. The evaluation scheme for implementing the integrated rural development programmes (European Commission, Evaluation guidelines VI/8865/99-Rev.) does constitute a good tool for evaluating the impacts on the socio-economic factors. However, a set of appropriate indicators on the conservation and sustainable utilisation of genetic resources, the equitable sharing of resources and the liability regarding the risks to genetically modified organisms on agro-ecosystems needs to be integrated.

Agri-environmental issues have been identified on the basis of general policy relevance and are hence considered as those subjects that are in the political, professional and public debate.

The overview on agri-environmental issues related to biodiversity (see Table 3) is based on the following three key components:

- Habitats;
- Species;
- Genetic diversity.

**Table 3** Agri-environmental issues for biodiversity (Wascher, 2000)

Issue	Description
Habitat coherence	At least 25 of the European habitat types listed in the Annexes of the EC Habitats Directive (92/43/EEC) can be considered as types that are closely associated with agricultural land use. Given the European land use history it is not surprising, that a relatively large proportion of ecologically valuable habitats is a product of certain - mostly low intensity - farming practices.
Structural complexity	Changes in structural complexity do not only address the spatial distribution, dimension and type of farm structural components, but also include the complexity of the spatial resource and energy flow systems. In the past, as high richness of agro-morphological forms and patterns were characteristic of many rural landscapes.
Habitat extent	Land use change resulted in the disappearance of extensively managed lands of high conservation importance because they are known to host a high level of biological diversity.
Habitat connectivity	Due to agricultural intensification, but also urban and infrastructure development, previously large and coherent habitat areas or habitat areas that have been connected by means of ecological corridors, have been disconnected and put into isolation. Smaller and isolated habitats are more vulnerable to external impacts.
Species Presence	The concept is that the greater the number of species present, the greater is the biodiversity of an area and hence its value. However, particular care must be taken in interpreting the results of such analysis. Some semi-natural habitats of high ecological value are characteristically species poor, such as some steppe grasslands, upland grasslands and moorlands. The main focus of attention here is the trend in a species population, and specifically whether or not the population is significantly declining or in a favourable condition. There are four combinations of density and range changes that are likely to occur as a population of a species declines: density reduction, range restriction, combined range and density reduction, concentrations.
Species trends	
Species richness	
Species diversity	
Species populations	
Flagship species	The presence of certain indicator species may be used to indicate the presence of certain semi-natural agricultural habitats of particular value.
Genetic diversity	Under the impact of agriculture intensification and specialisation, genetic stocks show reduced intra-specific genetic diversity and caused further genetic erosion by replacing less productive but genetically resilient landraces, local varieties and breeds.
Semi-natural agro-ecosystems	Biodiversity loss due to population bottleneck/species extinction caused by vulnerability to environmental changes driven by agricultural change and other external forces (industries, urbanisation, etc.), is preceded by an alteration of the infra-specific gene pool diversity, and this has to be monitored in order to capture in advance any forthcoming biodiversity loss.
Farm species	Genetic diversity provides the essential key to ensure productive and profitable sustainable agriculture. Crop mixtures may restrict the spread of weeds (by lowering their competitive ability for limiting resources such as light), diseases and pest population.

### 3.5. Genetic resources and biosafety

The interaction between biodiversity in non-productive elements around fields and pastures and crop growth in the productive areas may play an important role in plant disease control and pollination. The spatial context of the wider (natural) environment of the agro-ecosystems including non-productive fringes and borders may have an important impact on the stability of the agro-ecosystem.

The EC-Biodiversity Strategy defines several measures for the conservation and sustainable use of biodiversity. National biodiversity strategies play a key role in planning, preserving and maintaining the genetic resources within our countries. National gene banks, inter-departmental ministerial committees, providing in-situ and ex-situ conservation areas as well as scientific research has to be put in place to stop the ongoing threat of genetic erosion, as required for the implementation of the CBD and Agenda 21 mandates. Thus, Theme 2 of the EC-Biodiversity Strategy regulates the sharing of benefits arising out of the utilisation of genetic resources.

The legal framework for the conservation of genetic resources in the EU is defined under Regulation (EC) No. 1467/94 on the conservation, characterisation, collection and utilisation of genetic resources in agriculture. The Helsinki Agriculture Council (November 1999) took stock of the situation concerning the implementation of the Work Programme set up under the Regulation No. 1467/94. It took note of the Commission's aim of concluding contracts as soon as possible, so as to allow the financing and implementation of all pending projects.

For Europe's plant genetic resources, the FAO report 'Conservation and sustainable utilization of plant genetic resources in Europe' (FAO, 1996) categorises Europe as primary centre for diversity of several agricultural crops such as cereals, oil crops, vegetables, or fruits. Europe is also categorised as home to a great diversity of useful plants belonging to the category of under-utilized species, such as water cress, carob tree, liquorice, several medicinal species, etc. The report identifies a particularly strong genetic erosion in Eastern European countries (with the exception of Poland) due to (previous) industrial production methods in agriculture.

The interaction between the environment, genetic resources and management practices determines the evolutionary process which may involve, for instance, introgression from wild relatives, hybridization between cultivars, mutations, and natural and human selections (International Technical Workshop, FAO/CBD, 1998, Rome).

There is genetic erosion of invaluable crop species and existing diversity in crop species is not used to the extent possible for increased food production in a sustainable way. Thus, formal incentive schemes and advice to farmers have to be fostered, ideally on a regional level, as an integral part of national biodiversity strategies and of the EC-Agricultural Action Plan on Biodiversity. Capacity building has to be fostered since existing institutional structures and capacity and programmes on genetic diversity and in-situ conservation measures are generally inadequate and largely under-funded.

Substantial data are still missing or not available on Europe's genetic resources, their management and conservation policies as well as their sustainable use. Farmers, traders, suppliers, retailers, industries, as well as citizens, should be better informed on the status of the genetic resources in Europe and the policies and strategies towards a proper management of these resources in order to follow the UN-Agenda 21 mandate towards sustainable development. As Chapter 14 of Agenda 21 clearly states, 'the primary objective is to safeguard the world's genetic resources while preserving them to use sustainable. This includes the development of measures to facilitate the conservation and use of plant genetic resources, networks of *in situ* conservation areas and use of tools such as ex-situ collections and germ plasma banks'.

Many reports and documents refer to policies towards conservation and sustainable use of genetic resources (Jakarta Mandate for aquatic resources, REFORGEN initiative for forests genetic resources, the Global Strategy for the Management of Farm Animal Genetic Resources, the SINGER information network on genetic resources being developed by CGIAR, etc.).

FAO prepared a draft 'Code of Conduct on Biotechnology as it relates to Genetic Resources for Food and Agriculture', later presented to the COP of the CBD. Genetic erosion continues to be a major threat: "In the remaining 5,000 breed resources of the 14 main farm animal species, about 30% are currently at high risk" (FAO, 1999a).

**Genetic modification of organisms** in the agricultural sector involves the selection of plants for the purpose of improving quality and resistance to disease and parasites, as well as increasing yield by withdrawing genes or adding genes that are not part of the original genetic structure. Through genetic engineering it is possible to produce useful plants which are resistant to herbicides. However, the growing of transgenic plants may lead to the dissemination of genes introduced by transgenesis to non-modified varieties of the same species or related species.

This dissemination of genes, which incidentally also takes place naturally between plants, is called 'gene flow'. The EU Directives 90/219 and 90/220 set the legal framework for Genetically modified organisms (GMOs). These Directives are still intensively debated within the EU, concrete proposals for amending the Directive 90/220 have recently failed (March 2000).

The potential effects of genetically modified crops on biodiversity in Europe should not be compared too closely with those in North America, since in many European countries crops are close to semi-natural habitats. Whilst the advantages of e.g. crops resistant to pests and other diseases appears as obvious, the risks for the nature and for human health still remain unexplored. Thus, an EC-Agricultural Action Plan on Biodiversity has to include extensive research, capacity building modules, clear labelling concepts related to the genetic modifications which eventually are being applied to crops and species, and strong stakeholder involvement.

**Biotechnology** techniques must be governed by the precautionary principle with regard to both food security and the release of such organisms in the environment.

As Dr Jorgen Schlundt, World Health Organization, explained during a hearing on food safety at the European Parliament (24 November 1999, Brussels), new and modern technologies can increase

- Agricultural production and the quantity of available food;
- Genetically modified plants or micro-organisms;
- Chemical growth promotion (antibiotics or hormones);
- Novel foods;
- And may have consequences for public health:
  - Decrease allergenicity or natural toxicity;
  - Change diversity, transfer traits, secondary effects, unforeseen effects.

As the EU Parliament's Committee on Agriculture and Rural Development states in the report regarding the draft proposal for a European Parliament and Council Directive amending Directive 90/220/EEC on the deliberate release into the environment of genetically modified organisms, "some believe that the development of biotechnology could further contribute to the impoverishment of genetic diversity, an already recognisable tendency in agriculture, by making it possible to confer the same gene to a whole range of species. This impoverishment of diversity is likely to make crops more vulnerable" (COM (98) 0085).

The FAO/CBD paper 'Biosafety issues related to biotechnology for sustainable agriculture and food security' (FAO, 1999b) as well as the CGRFA draft code of conduct (FAO, 1999a) are an important contribution to the adequate conservation and utilisation of genetic resources. A code of conduct on the proper use of natural resources has been requested by many environmental experts (Müller, 1999), in order to prevent the increasing amount of legal actions towards countries or parties which are not implementing in time the existing regulation on nature protection and biodiversity conservation. The biosafety component of the draft Code of Conduct was forwarded to the Executive Secretary of the CBD, at the request of the CGRFA, as an input to the biosafety protocol.

At the end of January 2000, the Biosafety Protocol was adopted in Montreal, marking a milestone in environmental liability concerns. "After five years of talks, ministers and senior officials from over 130 governments have finalized a legally binding agreement for protecting the environment from risks posed by the transboundary transport of living modified organisms (LMOs) created by modern biotechnology" (press release, CBD Secretariat, Montreal, 29.01.2000).

In order to assure a proper and safe management for our natural resources (including human health), the EU has to analyse carefully the relationship between biosafety and trade. The **proper labelling and certification** of the seeds, plants, animals and further agricultural products before, during and after leaving the production site (agricultural farm or small-scale agricultural site) accompanied by a substantial labelling strategy when processing and marketing the products towards consumption, is only at the very early stage, in Europe and elsewhere. To meet immediate needs, the Commission on 18 June 1997 adopted a new Directive (97/35/EC) amending an annex to Directive 90/220/EEC to introduce a labelling requirement for products composed of or containing GMOs.

### 3.6. Market opportunities: Involving producers and consumers

As environmental resources in general, and biodiversity in particular, are becoming an increasingly precious good, the need for regulation of markets increases, by including biodiversity conservation standards in the production and labelling processes, in particular in the leisure and food industries. This requires the active involvement of a large number of stakeholders.

Organic farming probably is the most widely known example of a farming system that maintains high environmental standards on the basis of higher market returns (although Government support promotes the conversion to, and maintenance of, organic farming in most EU countries). Organic farming is rapidly expanding, with growth rates of 25% per year in the EU. In the period 1993 to 1997 the area under organic production methods more than doubled from 889,919 ha to 2,209,866 ha (EU Conference 'Organic farming in the European Union - Perspectives for the 21<sup>st</sup> Century', May 1999). This increase is a market response to a changing consumer behaviour.

Labels play an important role in an attempt to improve consumer confidence and allow for recognition of the products. The increasing consumer demand for organic products has given incentive to higher prices relative to those received for non-organic produce. For biodiversity benefit, conservation standards need to be integrated into organic farming codes of production and labelling. As the United Kingdom government states, "there seems substantial potential for producers and retailers to provide consumers with a choice of produce which has been produced in a biodiversity friendly way" (UK Department of the Environment, Transport and the Regions, Internet site, 1999).

Both farm support from CAP, but also market support (from consumer preferences) could give incentives to more sustainable production methods - including organic farming - and subsequently contribute to enhancing the interaction between agriculture and biodiversity.

Labour income of organic dairy producers in the Netherlands is substantially above that of conventional dairy producers. This is largely due to the higher market price of organically produced milk. In addition, compensatory payments for entering a management agreement for organic farmers on average also are substantially higher than for conventional dairy producers. Such agreements may help to reduce the decline in plant species and hence promote the conservation of valuable botanical grassland (Heinen et al., 1997).

### 3.7. Wider socio-economic issues

*"Beyond its primary function of supplying food and fibre, agricultural activity can also shape the landscape, provide natural resources and the preservation of biodiversity, and contribute to the socio-economic viability of many rural areas."*

*OECD Declaration of Ministers Agricultural Committee March 1998*

Traditionally, the contribution of agriculture towards the society has been diverse; providing food, maintaining cultural heritage and creating employment are amongst the most important elements. Benefits of agricultural land use include also groundwater recharge, the accessibility, beauty and recreational potentials of rural landscapes.

The agricultural sector has been intensifying the production over the last decades. However, for many years the agricultural policies have been regarding almost solely food production functions, whilst trade offs with other functions have been largely neglected. The economic value of a natural good is always difficult to assess and specify. In poorer areas of our planet humankind had to see how after a natural disaster (e.g. a flood or an earthquake) imported agricultural species were not able to adapt to local circumstances and to provide the much required food security to the area. Agricultural policy has a substantial impact on rural regions and on Europe's biodiversity and socio-cultural diversity.

FAO identified several social and economic aspects that are related to agro-biological diversity (FAO, 1999):

- Developing and deploying tools for the economic valuation of genetic resources and conservation and utilization strategies;
- Regular studies on the interaction between environmental policies and commodity trade;
- Improving household food security and community nutrition.

Via the integrated rural development policy framework, the multi-functionality of farming is being acknowledged and supported. EU Member States had to include in their Rural Development Plans the socio-economic aspects, as well as the maintenance and improvement of the natural heritage. As an example, the Dutch Rural Development Plan clearly refers to the multifunctional character of the Dutch agriculture and forestry (Plattelandsontwikkelingsplan Nederland, 1999).

Socio-economic indicators should be integrated into assessing the impact of agriculture on landscape biodiversity monitoring programmes. One example is the project 'Husbandry systems and sustainable social/environmental quality in less favoured areas' that broadly aims to adjust primary production systems in LFA so that they can preserve landscape environments, become sustainable in terms of socio-economics and aid development of rural communities (Fisher & Abbadessa, 1996). Another tool that promotes sustainable agricultural production is the *groenfond*s (green funds market) in the Netherlands, a Dutch fiscal instrument that fosters sustainable agriculture. Farmers are financially stimulated to revise their production towards more sustainable production methods (Koobs, 1999).

Two important instruments are labelling, and ecological farming:

- Labelling: the aim is to develop a standard eco-label in the agricultural sector that improves the production methods of agriculture and to guide farmers towards sustainable agriculture;
- Ecological farming: the aim is to extensify agricultural production. Furthermore, environmental co-operatives play a key role in wildlife and landscape preservation. A substantial part of the co-operatives are developing new activities, including the provision of regional and recreational products.

As a EUROSTAT report (1999) demonstrates, depopulation of rural areas has been steadily increasing in the last five years within the EU, especially in peripheric regions. To prevent the continuation of this exodus from the countryside to urban areas, the agricultural policy has to secure a living to the farmers whilst remaining competitive within the world market. This is why the Agenda 2000 CAP reform focuses on support to rural development, aiming to ensure that agriculture can be maintained over the long term at the heart of a living countryside. The integrated rural development programmes are targeted not just at agricultural producers but also to the wider rural population, consumers and society as a whole.

Europe's socio-cultural diversity and biodiversity are directly linked. Given that in the next years several CEE countries are likely to become full EU member states, this new scenario makes it even more pressing to set up an EU Agricultural Action Plan on Biodiversity that guarantees that agricultural production is supporting Europe's socio-cultural diversity and biodiversity. Recent analysis shows that biodiversity maintenance must be integrated with agricultural practices towards a strategy that integrates multiple ecological and socio-economic benefits. The sustainable use of rich biological resources is critical for food production, health, and life-support systems. In this sense, the United Kingdom has launched a programme that supports off-farm rural development. The tourism and leisure sectors are profiting from a diverse landscape management and biodiversity, the profit likely to increase in the next years considerably (as shown by forecasts from the World Tourism Organisation). The OECD identifies several markets for the 'biodiversity product', including eco-tourism, fishery, forestry, and green investment funds (OECD, 1999c).

The Seed Information Exchange Unit of FAO distributed 575 seed samples, to help to identify local and adapted varieties to rehabilitate agricultural production, following disasters. As a short term strategy to enhance biodiversity in agriculture the focus of research and support should be on specific sectors, like organic farming, high nature value farming, set aside development schemes and a full coverage of all production types and sites is needed. Moreover, the development of agri-environmental measures should be included into integrated development schemes of rural areas. Environmental and societal benefits of agricultural options have to be linked to comprehensive assessments of regional development options. Regional and landscape specific assessments of biodiversity goals are needed, linked to a thorough analysis and modelling of the economics of agriculture and other land use options.

### 3.8. Evaluation of Agenda 2000 CAP reform

#### 3.8.1. Biodiversity and the Agenda 2000 CAP-reform

The Agenda 2000, adopted during the Berlin EU Council in spring 1999, sets out a framework for the CAP till 2006. It includes a ceiling on the agricultural budget, a further shift to direct payments, revisions to several important commodity regimes, a comprehensive rural development legislation and a new 'Common Rules' Regulation, introducing **cross-compliance** and **modulation**. Scarcely any growth in spending on measures under the Rural Development Regulation is allowed for. However, there still are opportunities for Member States to implement the package in ways that promote biodiversity objectives. The individual measures within the Agenda 2000 package need to be considered separately.

Agenda 2000 provides a relevant policy framework to integrate environmental considerations into agriculture, particularly via the EC-Regulation on Integrated Rural Development. However, while rural development measures are now widely regarded as an important part of a forward looking conservation policy, they will not suffice for halting the decline in wildlife value on most farmland. Biodiversity conservation targets are not mentioned in any of the Rural Development Regulations. The budgetary resources for different rural development and agri-environment measures have hardly increased for the 2000 - 2006 period.

## The main overall conclusions of the potential impacts for biodiversity in the framework of the Agenda 2000 policy are:

- The reform went considerably less far than first proposed by the European Commission. Several measures - such as the retention of the silage maize premium - **are negative for biodiversity**;
- The overall balance of the policy now gives **more weight to direct payments** (e.g. increased arable payments, higher beef headage payments, new dairy payments). Lower prices may be beneficial for the environment if they reduce input use - but this is far from certain. In theory, the use of agrochemicals and nutrients may fall, e.g. in the arable sector with lower cereal and oilseed prices. However, a study published by the European Fertiliser Manufacturers' Association expects that the use of inorganic fertilisers will remain stable during the lifetime of the Agenda 2000 reforms, even if **set-aside** remains at 10 per cent until at least 2004 (Agra Europe Journal, November 1999). More broadly, these inputs are still a relatively small proportion of most farms' costs. It is therefore likely that when cost savings are sought by farmers, cuts in labour and reinvestment in farm machinery and infrastructure are more likely to be targeted than a reduction in variable input use;
- The new **EC-Rural Development Regulation** introduces a more integrated approach, which is a welcome step forward. It is helpful that there is a new requirement for farmers to follow 'usual good farming practice'. Rural development support mechanisms are to contribute to sustainable rural development (Council Regulation 1750/1999). Rural Development Plans are to follow the principle of subsidiarity, this way allowing for the first time Member States to submit within the CAP their own Development Plans, based on their specific farming structures, rural development strategies and agricultural production. Rural Development Plans provide the basis for regional monitoring schemes that take into account the carrying capacity of the region, in line with the principle of sustainable development;
- **Agri-environmental measures** remain mandatory and are simplified. However, the limits of funding (Table 4) are such that there will be little scope for growth in agri-environmental expenditure in most Member States unless they introduce modulation. Indeed, the budget allows only for expansion at the rate of inflation to 2006. Agri-environmental measures have yet to cover a large proportion of high nature value agricultural land, especially in countries with a large share of marginal farming systems. The new 'Article 16' of the EC-Rural Development Regulation which allows compensation payments in Natura 2000 sites, for example, could be an alternative, but will also be constrained by the lack of funds. There is a need to integrate agri-environmental schemes with other policies, both to avoid conflict, which may occur with afforestation policies, for example, and to create complementary measures. It can be important to offer farmers aid for investment, as well as land management, and the new Rural Development Regulation offers positive opportunities in this respect.

**Table 4 EAGGF-Guarantee Fund Support for rural development, period 2000-2006, Allocations to Member States (European Commission, 1999)**

Member State	Financial allocation <sup>(1)</sup> annual average million Euro, 1999 prices	%
<i>Belgium</i>	50	1.2
<i>Denmark</i>	46	1.1
<i>Germany</i>	700	16.1
<i>Greece</i>	131	3.0
<i>Spain</i>	459	10.6
<i>France</i>	760	17.5
<i>Ireland</i>	315	7.3
<i>Italy</i>	595	13.7
<i>Luxembourg</i>	12	0.3
<i>Netherlands</i>	55	1.3
<i>Austria</i>	423	9.7
<i>Portugal</i>	200	4.6
<i>Finland</i>	290	6.7
<i>Sweden</i>	149	3.4
<i>United Kingdom</i>	154	3.5
<b>Total</b>	<b>4,339</b>	<b>100</b>

<sup>(1)</sup> In calculating the annual allocation by Member State for the period 2000-2006, the percentages in the table above shall be applied to the financial perspective ceilings per year set out in paragraph 23 of the Presidency Conclusions of the Berlin European Council.

Under Agenda 2000 there is now scope to link agri-environmental measures more closely to Rural Development Plans and to the Natura 2000 network. A stronger, more co-ordinated and more accountable common framework for action, however, would be vital (Lowe & Brouwer, 2000). The future implementation of agri-environmental measures under the Rural Development Regulation needs to focus more on high nature value farmland, and take more strongly into account the specific biodiversity conservation objectives such as the Natura 2000 network.

- The new **Arable Regulation** (European Commission, Regulation 1251/1999) includes a 'normal' rate of set-aside of ten per cent. While the evidence on biodiversity impacts is mixed, it is clear that a targeted and well-managed form of set-aside could deliver more benefits for wildlife. National governments will have opportunities to introduce appropriate management rules within CAP guidelines and this should be a priority. However, they are also constrained by restrictions at EU level. For example, these preclude set-aside strips of less than 10 metres in width although these would be advantageous as buffer strips to natural habitats or hedgerows. Furthermore, nature conservation organisations have a long-standing priority to allow extensive grazing on set-aside land, which would be beneficial from a biodiversity point of view, but is not permitted under CAP rules;

- **Monitoring schemes in rural development programmes** need still to be specified, in particular as regards biodiversity conservation criteria. The European Commission guidelines on the evaluation of rural development programmes for 2000-2006 (VI/8865/99-Rev.) are an important tool for evaluating the implementation of the integrated rural development plans. However, biodiversity is neither addressed when starting up the rural development plans and the ex-ante evaluation, nor in the subsequent mid-term and ex-post evaluation of the rural development programmes;
- There are several **changes to the commodity regimes**, some of them have biodiversity potential, subject to constraints set by the Agenda 2000 agreement. Member States have been given a new option to target a proportion of support in the beef and, by 2005, in the dairy sectors, in ways which suit their own domestic conditions. These can include environmental goals, including biodiversity. In particular, there are opportunities for changing extensive beef grazing on permanent pasture through area payments. This could, for example, assist grazing marshes. However, the rules for reallocation of payments are relatively constrained, and environmental aims will be compared to competing economic arguments. The potential scale of funds available is considerable, and almost equals current agri-environmental spending in some countries, but it increasingly appears that few benefits will be achieved through this route;
- A similar analysis also applies to the revised **extensification premium** for beef cattle. The Commission's intention was to promote real extensification by tying these payments in future to actual cattle numbers rather than 'paper' claims. However, the final agreement introduced new thresholds and levels of payment, which seem likely to considerably weaken this potential. Analysis of the effects of the 1992 extensification premium highlight the difficulties of using such a 'blunt instrument' to seek environmentally beneficial stocking across the diversity of EU farming systems. Much now depends on the policies introduced by national governments, mainly in light of the redesigning of the Extensification Premiums and the newly established 'national envelopes'. Such envelopes allow Member States flexibility to compensate for regional differences in production practices and agronomic conditions which might make restructuring difficult, and also aims to encourage extensive production. Some options for the national envelopes are recommended, including using them as area payments for permanent grassland or, alternatively, as headage payments for the most extensive farms, e.g. with stocking density below one Livestock Unit per hectare (Andersen et al., 2000);
- **Environmental cross-compliance** could become part of national agricultural policies. The 'Common Rules Regulation' puts an onus on Member States to take appropriate action, although the application of environmental conditions on direct payments (cross-compliance in the usual sense) is not itself obligatory. In principle, strict application of the obligation under the Common Rules Regulation 1259/1999 should lead many Member States to take action to address environmental problems caused by agriculture;

Biodiversity conservation is potentially one of the most important problems to be addressed. In theory, the measure implies identifying all the ways in which supported farm production is damaging the environment, and taking steps to prevent this through a combination of regulations, cross-compliance and/or agri-environmental incentives. However, there will be a disincentive for any country to take significant unilateral action that would affect the competitiveness of domestic production, relative to that in other EU countries. There are already significant variations between Member States in the extent to which farms face environmental legislation or cross-compliance conditions.

The effect of cross compliance measures will be to reduce damage rather than enhance biodiversity. However, the contribution could still be significant given the large area and width of farm types that could be affected.

Possible cross compliance measures could include:

- the reinforcement of environmental regulations, particularly in the areas of habitat and feature protection, and water pollution control;
- improved control of pesticides;
- new measures to protect and enhance habitat and landscape features on farms, such as the compulsory introduction of one to two-metre field margins around all cropped areas;
- control of overgrazing (as in the United Kingdom and Ireland).

The instrument of environmental cross-compliance may be important to the agricultural sector for three different reasons (Brouwer, 1999):

- By attaching environmental conditions to the market and price policy, justice can be done to the growing attention paid in society to expenditure of public funds. This makes it clear for society what contribution agriculture makes to landscape conservation;
- Environmental conditions for income support can also strengthen the position of producers in the international arena, as the programme lays down the conditions that must be met by a farmer with respect to environmental quality, nature and landscape. In the short term, cross-compliance will mean that the agricultural sector will incur costs, but benefits will be reaped in the long run;
- Social and political acceptance of income support will be a major factor at the next WTO round to prepare the ground for a new trade agreement. The discussions about income support and compensation payments are therefore likely to continue in the coming years. In the negotiations it will be necessary to link income support to the objectives set for environmental quality and nature and landscape conservation.

### **3.8.2. Agenda 2000 and EU enlargement**

Agenda 2000 marks an important step towards enhancing the positive linkages between Europe's biodiversity and its Agricultural Policy in accession countries. For accession countries, the target shall be to maintain biodiversity where it still occurs, support actively the environmental quality on farmland (even if poor in biodiversity), and concentrate on the preservation of endemic species. This can be attained with the support of adequate agri-environmental programmes, adequate environmental appraisal of rural development plans and policies towards sustainable development that include the active participation of farmers and retailers.

The Agenda 2000 package has done little to clarify the policies that would allow the adoption of sustainable agriculture in Central and Eastern Europe and how the EU will be supporting the multifunctional model of European agriculture in this region. There is no indication that funds will be available to make direct payments to farmers in these countries other than on a small scale. The EU has not been able to address the accession-related financing problems for the candidate countries in this round of pre-accession by creating additional funding instruments on biodiversity conservation linked to agricultural production (Lubbers & Wolters, 1999). By maintaining commodity prices at a level higher than first proposed by the Commission, the final agreement provides a strong incentive for Central and Eastern European governments to increase their own prices, thereby strengthening the argument for making compensation payments available in these countries. Instead of embarking on the backward-looking model of high prices and unproductive compensation, it would be far preferable

to introduce positive payments to farmers reflecting their environmental and social contribution, rather than only production data. The economic restructuring and privatisation process in the accession countries has affected agriculture profoundly. Most agricultural collectives have been dissolved, private farmers have re-established on small holdings, input prices have soared and agricultural output prices have decreased strongly. This has led to considerable rural unemployment and a strong decline in agricultural production and farming income. However, due to decreased livestock densities and much lower use of agro-chemicals, aquatic habitats and farmland species generally benefited from agricultural trends in CEE. In marginal coastal and mountain areas, however, the loss of grazing animals or even outright abandonment of land is a threat to remaining semi-natural grasslands and their associated high biodiversity.

As seen in several EU Member States, agri-environmental schemes could also be one way of improving the living conditions of marginal farm populations by rewarding the environmental services that they are providing. From a nature conservation perspective, agri-environmental programmes are strongly needed, principally for reversing the abandonment of valuable grassland habitats or ensuring their appropriate management, but also for maintaining the biodiversity value of other agricultural land. When agri-environmental experts from all CEE countries were consulted by IEEP in spring 1999 about their priorities for rural policy, they nominated the following objectives (Petersen, 1999):

- Support the farming population in marginal areas;
- Ensure the management of semi-natural grassland habitats;
- Introduce sustainable land use practices, in particular organic farming;
- Provide environmental education and training for farmers.

Although very few quantitative data are available, there is enough evidence to state that land abandonment is a serious problem in all of Central and Eastern Europe. In several countries concerns were also voiced regarding the ongoing or likely intensification of agricultural land use in more productive areas. In the light of the currently ongoing preparations for the enlargement of the European Union in the Mediterranean and Eastern Europe, it is appropriate to place the EC-Agricultural Action Plan on Biodiversity in a wider European context, not confined solely to current EU territory. Accession countries should be encouraged to include pilot agri-environmental schemes in their proposals, as a considerable number of them wish to do.

Agri-environmental measures are now in place in the region (Table 5). The most widespread scheme is support for organic farming, which is found in five countries with landscape based LFA measures. Traditional livestock breeds are also given considerable attention. Bulgaria, Latvia and Romania have not yet introduced agri-environmental schemes. Not reported in Table 5 are small or temporary schemes for grassland management in protected areas that are financed by the Ministry of the Environment or the National Environment Fund in Hungary, Poland and Slovakia.

**Table 5 Agri-environmental Measures in Central and Eastern Europe (Petersen, 1999)**

Country	Main Scheme Objectives	area or budget
CZ	Support for organic farming: Nature conservation management in protected areas:	62,000 ha <sup>(3)</sup> 0.8 MEuro <sup>(2)</sup>
EE	Semi-natural Grassland Management on RAMSAR site:	~3,500 ha <sup>(2)</sup>
HU	Support for organic farming: Traditional livestock breeds:	~15,000 ha <sup>(3)</sup> 400,000 Euro <sup>(3)</sup>
LI	Support for organic farming: Sustainable agriculture in Tatula area:	89,300 Euro <sup>(3)</sup> 0.9 MEuro <sup>(2)</sup>
PL	Support for organic farming: Traditional livestock breeds:	initiated in 1999 50 breeds covered
SI	Support for organic farming: Traditional livestock breeds: Management of alpine meadows:	359 ha <sup>(4)</sup> 380,700 Euro <sup>(4)</sup> 245 ha <sup>(2)</sup>
SL	Support for organic farming: Traditional livestock breeds:	50,000 ha <sup>(3)</sup> 6,000 Euro <sup>(3)</sup>

<sup>(2)</sup> data for 1997

<sup>(3)</sup> data for 1998

<sup>(4)</sup> data for 1999

Regarding support to agriculture in marginal areas, a core group of central European countries (Czech Republic, Hungary, Poland, Slovakia, Slovenia) provide considerable support to farming in marginal areas in the shape of LFA-style payments, especially to grassland-based systems. Among the three Baltic countries only Lithuania has established a similar programme to date. Bulgaria, Estonia, Latvia (and Romania) have not yet developed (substantial) LFA-type schemes. The Czech Republic ties its LFA support to a minimum livestock density of 0.1 (organic farming) or 0.25 (conventional farmers) livestock units per hectare to ensure basic grassland management.

The '**SAPARD**' aid programme (EU Regulation 1268/1999) is a key measure in this regard. The SAPARD funding would be the appropriate instrument for taking forward targets of the EC-Agricultural Action Plan on Biodiversity in the enlargement process. Agri-environmental measures could thus be an important agricultural policy instrument in all accession countries with regard to several conservation policy issues.

## Report from the European Workshop

The European Workshop: 'Identification and evaluation of building blocks for an EC-Agricultural Action Plan on Biodiversity' took place in Brussels on 20-21 January 2000. The aim of the Workshop was to discuss, together with representatives of stakeholder groups, draft proposals for building blocks for the EC-Agricultural Action Plan on Biodiversity. The Workshop was an independent event, organised by ECNC and its partner organizations.

The Workshop drew together some 45 participants, from Ministries of Agriculture and Biodiversity Conservation in EU-Member States, the Agriculture Ministries of two CEE countries, the European Commission (Directorate General for Agriculture; Directorate General for Environment), the European Parliament (Committee on the Environment, Public Health and Consumer Policy; Committee on Agriculture and Rural Development), associations specialised on genetic diversity and conservation programmes, a consumer protection bureau, international organisations, expert institutes and several environmental NGOs, from 13 countries (see **Annex 3**, Participants list).

Prior to the workshop, all participants received an extensive background paper (which comprised a draft version of the Chapters 1-3 of the current Final Report). A copy of the programme is available in **Annex 1** of this report, the available papers and presentations can be found in **Annex 2**. In this chapter, a summarized final workshop report is followed by an analysis of the discussions, which were the basis for the final recommendations and building blocks for the EC-Agricultural Action Plan on Biodiversity.

### 4.1. Opening and Introduction

The Workshop was opened by Dr Zbigniew Karpowicz, Deputy Director of the European Centre for Nature Conservation (ECNC). Dr Karpowicz welcomed the participants, stressed the independent character of the event and noted that the aim of the workshop is to jointly discuss the proposed building blocks for the EC-Agricultural Action Plan on Biodiversity. He said that the proposed building blocks will be revised after the workshop and will be put forward to the European Commission as suggested building blocks for the EC-Agricultural Action Plan on Biodiversity.

### 4.2. Presentation of the European Commission's preparations for the EC-Agricultural Action Plan on Biodiversity

Mr Carlos Martín-Novella, Principal Administrator from the Unit 'Development and Environment' at DG Environment, European Commission, presented the overall legal framework and current status of preparations for the different sectoral Action Plans under the EC-Biodiversity Strategy. He said that the development of the 'draft EC-Agricultural Action Plan on Biodiversity' is under way, and the inter-sessional consultations within the European Commission have started.

Mr Adelmo Moreale from the Rural Development Directorate at DG Agriculture, European Commission, presented the priorities, principles, legal instruments, and monitoring instruments of the applicable to any draft of the EC-Agricultural Action Plan on Biodiversity. Mr Moreale presented the main priorities for action identified by DG Agriculture. Following the priorities, Mr Moreale presented five principles for the development of the EC-Agricultural Action Plan on Biodiversity, six legal instruments and concluded by announcing that

priority is being given to the development of indicators. For the latter, 'special emphasis should be put on the development of appropriate agri-environmental indicators related to biodiversity' (see presentation in Annex 2). Asked about the role of the EC-Clearing-House Mechanism in the EC-Agricultural Action Plan on Biodiversity, Mr Moreale responded that some work was underway to respond in the EC-Agricultural Action Plan on Biodiversity to the mandate to use the EC-CHM, currently being developed by DG Environment and the European Environment Agency.

#### **4.3. A perspective from an EU Member State**

All Member States of the European Union are signatories of the Convention on Biological Diversity, and all Member States have national biodiversity strategies and action plans. The presentation from Mr Carlos Guerra, acting Chairman of the EU ad-hoc working group on biodiversity, focused on the case of Portugal as an example of the extensive agriculture that dominates large areas of the Mediterranean region. He focused his presentation on the strong linkage between traditional agriculture, cultural heritage and biodiversity in these areas. Thus, Mr Guerra made a plea for integrating the preservation of the cultural heritage into the EC-Agricultural Action Plan on Biodiversity. He felt that, as a consequence of currently insufficient support for the preservation of the cultural heritage, many rural regions in southern Europe suffer from land abandonment that often leads to biodiversity decline. He noted that 7.2 % of Portugal's area is designated as protected area, and 53 products have been certified in these areas as 'quality products'. Natura 2000 is not enough to protect all natural values. According to Mr Guerra, farmers need support so that they provide a service to the community, contributing to clean water, preventing erosion, protecting landscapes, fostering nature conservation, providing high quality products, and ensuring rural development.

#### **4.4. Evaluation of linkages between agricultural policy and biodiversity conservation in the European Union**

Following an analysis of past CAP reforms and their impact on biodiversity conservation, Mr David Baldock (Director of the Institute for European Environmental Policy, London) gave, on behalf of the project partners, a comprehensive evaluation and overview of the existing instruments in the framework of the Agenda 2000 CAP reform.

Mr Baldock suggested that the Commission should address a broad range of relevant CAP measures in the EC-Agricultural Action Plan on Biodiversity, including the market regimes and the accession agreements. An Environmental Impact Assessment (EIA) could be carried out on the impact of the CAP on the accession countries, in particular with regard to biodiversity conservation. Mr Baldock also stressed that, since agricultural policies have a substantial impact on rural development, measures in addition to agri-environmental schemes are needed and a sufficient budget must be available. One tool that could prove useful is modulation, which has been introduced in the United Kingdom and France. According to Mr Baldock, LFA reforms also have considerable environmental potential if implemented appropriately.

In the subsequent discussion, Mr Martin Scheele (European Commission, DG Agriculture) stressed the importance in the evaluation to reflect in existing agricultural and rural policies in the EU the positive aspects of various CAP measures, such as support to Less Favoured Areas (LFA). In many regions of the EU, the CAP probably had prevented negative land abandonment in extensive farming areas. Mr Kuijken from the Flemish Institute of Nature Conservation brought up the issue of reforming measures that have proven to be environmentally harmful, such as the continuing support for silage maize.

#### **4.5. Linking sustainable rural development and biodiversity conservation at EU and at national level**

Mrs Simone Matouch, biodiversity expert at the Austrian Network Environmental Research, presented Austria's model for a sustainable agriculture that promotes organic farming (12% of Austria's agriculture), integrated production methods and pastoralism. She backed the introduction of the subsidiarity principle for rural development plans in the new regulations for rural development and explained that in Austria, counties have the competence to integrate regional aspects. Some Austrian counties have introduced a new system based on a participatory process together with the farmers, that grants funding to farmers who take into account ecological criteria.

#### **4.6. Horizontal policy measures on agro-biodiversity**

Mr Jim Dixon (Senior Agricultural Officer, English Nature), presented the instrument of modulation as a promising tool to reallocate funds towards biodiversity conservation targets at national level. The modulation of direct CAP payments in England will enable the budget of existing agri-environment programmes to be increased significantly. This means, for example, that the Countryside Stewardship scheme will increase from £29 million in 1999/2000 to £126 million in 2006/07 and that support for organic farming will rise from £7 million to £23 million over the same period. Several representatives from Member States highlighted the role of training and exchange of information in the EU as important action point to be integrated into the EC-Agricultural Action Plan on Biodiversity.

#### **4.7. Research and Monitoring**

The complexity of the linkage between agriculture and biodiversity and of related decision-making processes requires targeted research, monitoring and evaluation instruments. Mr Dirk Wascher (ECNC Senior Programme Co-ordinator for Biodiversity and Landscapes) presented a number of relevant monitoring framework programmes on agriculture and nature conservation in the EU (such as the FADN system from DG AGRI, and the MARS monitoring programme from the JRC). Mr Wascher stated that data on landscapes and biodiversity are still scarce in the EU. He presented the ELISA (Environmental Indicators for Sustainable Agriculture) Indicator Conceptual Framework that takes into account three dimensions: environment, agriculture and society. He said that only with an improved information base at EU-level can the necessary actions and follow up be instigated.

#### **4.8. Market instruments - the example of organic agriculture**

Mr Bernward Geier (Director of the International Federation of Organic Agriculture Movements-IFOAM) welcomed the suggested building blocks on rural development policies and on marketing instruments, stressing that these blocks aim at concrete actions on the ground. According to Mr Geier, more action is needed in supporting marketing structures that integrate social, environmental and ethical aspects. He regarded the promotion of sustainable farming practices, such as organic farming, as a key action that would also favour the protection of biodiversity. Mr Geier recommended to foster more strongly the involvement of stakeholders and consumers. On several occasions during the seminar, participants welcomed the suggested building block for marketing instruments, in order to better link producers and consumers. In this context, communication between governmental actors and relevant stakeholders was also stressed as a key building block for the EC-Agricultural Action Plan on Biodiversity.

#### **4.9. Conservation and sustainable utilisation of genetic resources**

A report by the Commission to the Council and the European Parliament on the implementation of Council Regulation (EC) No 1467/94 of 20 June 1994 states that in order to encourage the sustainable utilisation of genetic resources and to define market opportunities, costs and benefits, the economic and business aspects of genetic resources need to be studied. Mr Bart Kiewiet, President of the Community Plant Variety Office, presented the efforts in the Community to promote professional plant breeding programmes and foster the genetic diversity in crops. In addition to domestic species, traditional varieties need to be maintained and used within plant breeding programmes. While the achievements of plant breeders were generally acknowledged, several participants pointed out the importance of preserving traditional varieties *in situ*.

#### **4.10. Workshop Conclusions**

The proposals for building blocks and concrete action points for the draft EC-Agricultural Action Plan on Biodiversity take as their starting point the themes agreed in the EC-Biodiversity Strategy. They also follow where possible the framework set by Agenda 2000 although many actions will require more long-term commitment and very concrete monitoring and evaluation measures. The workshop participants hoped that the suggested action points are a positive contribution to the work of the European Commission in elaborating the EC-Agricultural Action Plan on Biodiversity.

The EC-Biodiversity Strategy establishes the EC-Clearing-House Mechanism (CHM), as the prime vehicle in the EC for international information exchange on biodiversity. Action Plans and other measures should help to identify and review existing mechanisms to facilitate the exchange of relevant information through the Community Clearing-House Mechanism (Articles 21 and 22, EC-Biodiversity Strategy). Thus, one building block is being devoted to the Communication and CHM as primary tool for communication, information and monitoring.

There was clear consensus during the workshop that agriculture has an important role in determining the character, management and status of the semi-natural areas of Europe. A large number of common species rely on agricultural land, at least for a part of their lifecycles, as do many rare and threatened species. The development of modern agriculture and the associated trends towards intensification, specialisation, concentration and marginalization have resulted in increasing pressure on biodiversity in many parts of the EU and elsewhere in Europe.

A number of examples of habitat destruction and adverse changes in farm management were referred to during the workshop. At the same time, it was acknowledged that appropriate forms of agriculture had a central role to play in maintaining semi-natural habitats of critical importance for biodiversity, including large areas of high nature value farmland. The importance of preventing further damage and enhancing the biodiversity value of more intensively managed land was stressed alongside a consensus that the EU had a clear responsibility to maintain its special heritage of biologically-rich farmed habitats. Acquiring the necessary information and policy tools to support these objectives and the commitment of the relevant parties to deploy them were seen as central objectives for the EC-Agricultural Action Plan on Biodiversity.

It was concluded that the EC-Agricultural Action Plan on Biodiversity should pay particular attention to the range of policy instruments affecting agricultural management, acknowledging that the commitment to environmental integration and current debate about multi-functional agriculture provide a strong rationale for sharpening the focus of CAP policies in relation to biodiversity. The participants took note of the 'Environment for Europe' mandated preparations for a ministerial conference on Agriculture & Environment, the Riga Process, the negotiations for the Biosafety protocol (which was adopted a week after the workshop); and the continuing WTO negotiations. The participants also discussed the relation of the Action Plans to the Cardiff integration process and its subsequent Agriculture Council Strategy (adopted 16 November 1999).

The evaluation exercise prior to the workshop indicated that there had been considerable progress in analysing the relationship between agriculture, the environment and biodiversity in Europe, and noted important developments within the CAP, such as the obligation on all Member States to adopt agri-environmental schemes from 1993 onwards. Approximately 20 percent of the utilised agricultural area is now subject to agri-environment agreements in the 15 Member States.

The participants analysed the role of the European Commission and the Member States. According to the participants, it is essential that the European Commission encourages Member States to use existing opportunities to enhance biodiversity conservation and to provide appropriate support (in the form of guidance, monitoring and evaluation procedures, indicators, research, technical meetings) to enhance the national implementation of Community measures. The discussion of the CAP took as a starting point the framework set by Agenda 2000. There are major opportunities for the Member States to implement the measures agreed in the Berlin Council in such a way as to take greater account of biodiversity concerns. One clear priority is the basket of measures contained within the EC-Rural Development Regulation. However, there are others too, including cross compliance and modulation under the Common Rules Regulation, the new national envelopes in the livestock regimes and set-aside in the arable sector.

However, several weaknesses in the existing suite of policies were highlighted during the workshop discussions. For example, there is concern about the extent to which biodiversity objectives have been advanced under the agri-environment schemes now in place and whether there is an appropriate balance of implementation within the different regions of the EU. While agri-environment measures, support for farming in Less Favoured Areas (LFA) and other measures embodied in the EU-Rural Development Regulation provide useful mechanisms for maintaining biodiversity in many regions, participants agreed that there is insufficient funding over the period 2000-2006 to allow these to be implemented and evaluated on an adequate scale in the coming years. This is particularly serious in the light of the rapid changes occurring in important farming systems in many parts of the EU.

The participants pointed out the importance of the programme of reviews and preparation of major policy documents scheduled for the period between 2000 and 2006 where the Commission will have an opportunity to integrate biodiversity concerns into wider proposals. This is equally true of the negotiations with accession countries. Attention was drawn to the significance of biodiversity on farmland in Central and Eastern Europe and the necessity of including a section on enlargement in the EC-Agricultural Action Plan on Biodiversity. Changes in agricultural management and farm structure have been particularly swift and severe in many parts of Central and Eastern Europe and the EU has a responsibility to address biodiversity concerns alongside others in the enlargement negotiations, and in the assistance provided through funds such as SAPARD.

Many speakers and participants clearly expressed their support to have a special building block on market instruments. In addition to the need to develop existing EU policy and implement it in a way that is supportive to biodiversity, the analysis and evaluation carried out prior to the workshop indicated the importance of harnessing the market to support biodiversity objectives. The demands of consumers, retailers, processors and others in the food chain influence agricultural production, as well as the pattern of investment for the future. Participants also discussed the role of management tools such as 'Total Quality Management' (TQM) and 'Environmental Management and Audit Schemes' (EMAS), to further the integration of ecological criteria during the producing, processing and selling of the products.

There is growing consumer interest in organic production and other forms of sustainable agriculture and numerous local and regional initiatives to develop markets for high nature value farm products have been launched in recent years. Marketing initiatives, clearer links between local food products and the farming systems on which they depend, training and other support measures all have a role in focussing markets for agricultural produce more sharply on biodiversity concerns. The increasing demand for more sustainable tourism opportunities was also regarded as a welcome step to support sustainable agriculture.

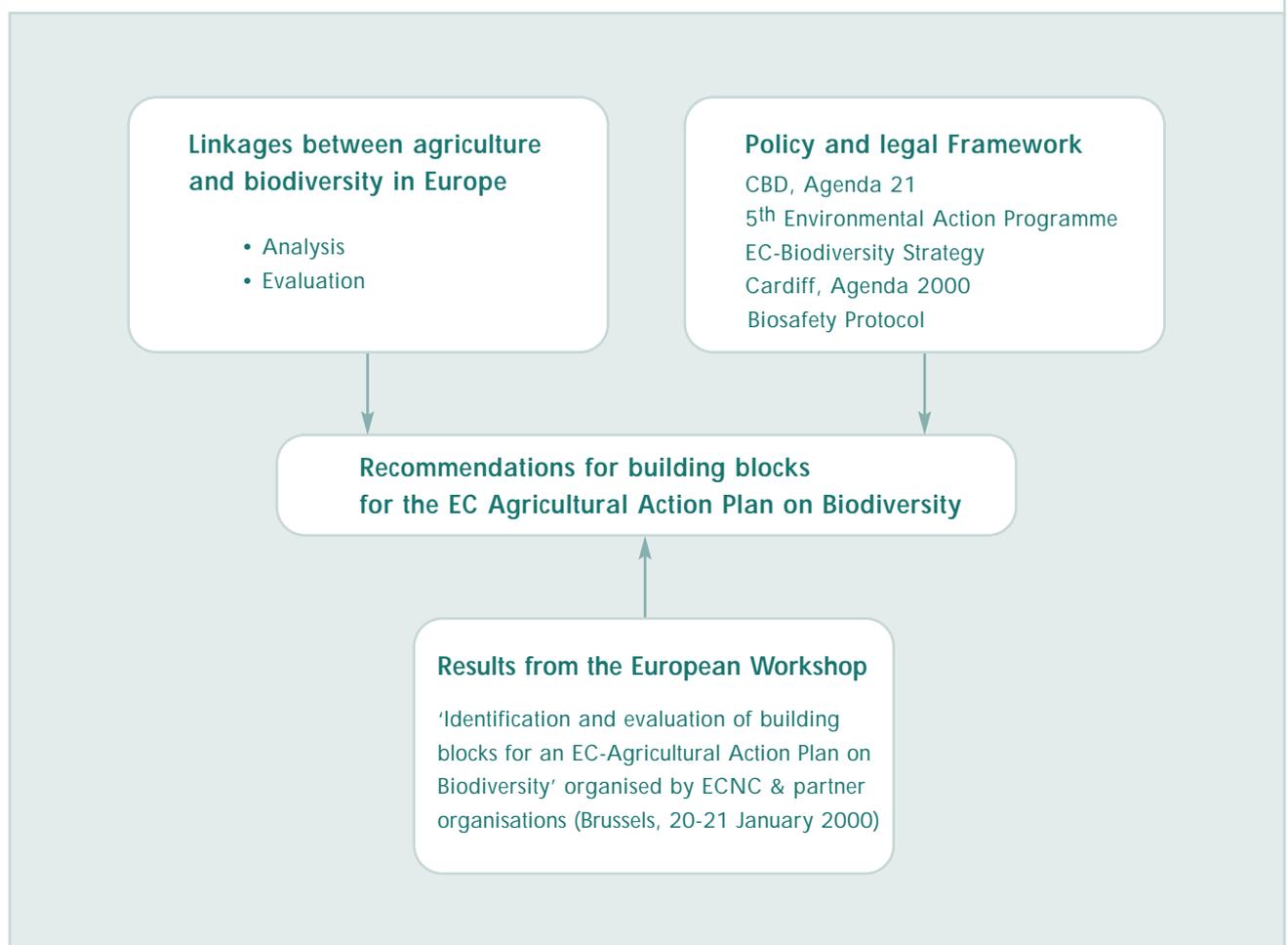
The role of communication within the EC-Agricultural Action Plan on Biodiversity was also discussed in detail. There was broad consensus during the workshop that the EC-Agricultural Action Plan on Biodiversity needs to contain a strong section on communication so that the broader objectives established at a European level can be debated and refined by the key actors on the ground and translated into effective action. It was suggested by the participants that partnerships and participation should be developed as a core theme in the EC-Agricultural Action Plan on Biodiversity itself and strategic policy initiatives will have limited impact without the active participation and commitment of stakeholders at all levels, including farmers in particular, but also local and regional authorities, consumers, seed companies, food retailers, and others. It was acknowledged that biodiversity goals cannot be achieved simply by regulation; they depend on positive engagement, enthusiasm and goodwill.

## Recommendations for building blocks for the EC-Agricultural Action Plan on Biodiversity

### 5.1. Sources for the recommended building blocks

The recommended building blocks have been drawn from three different key sources (Figure 3):

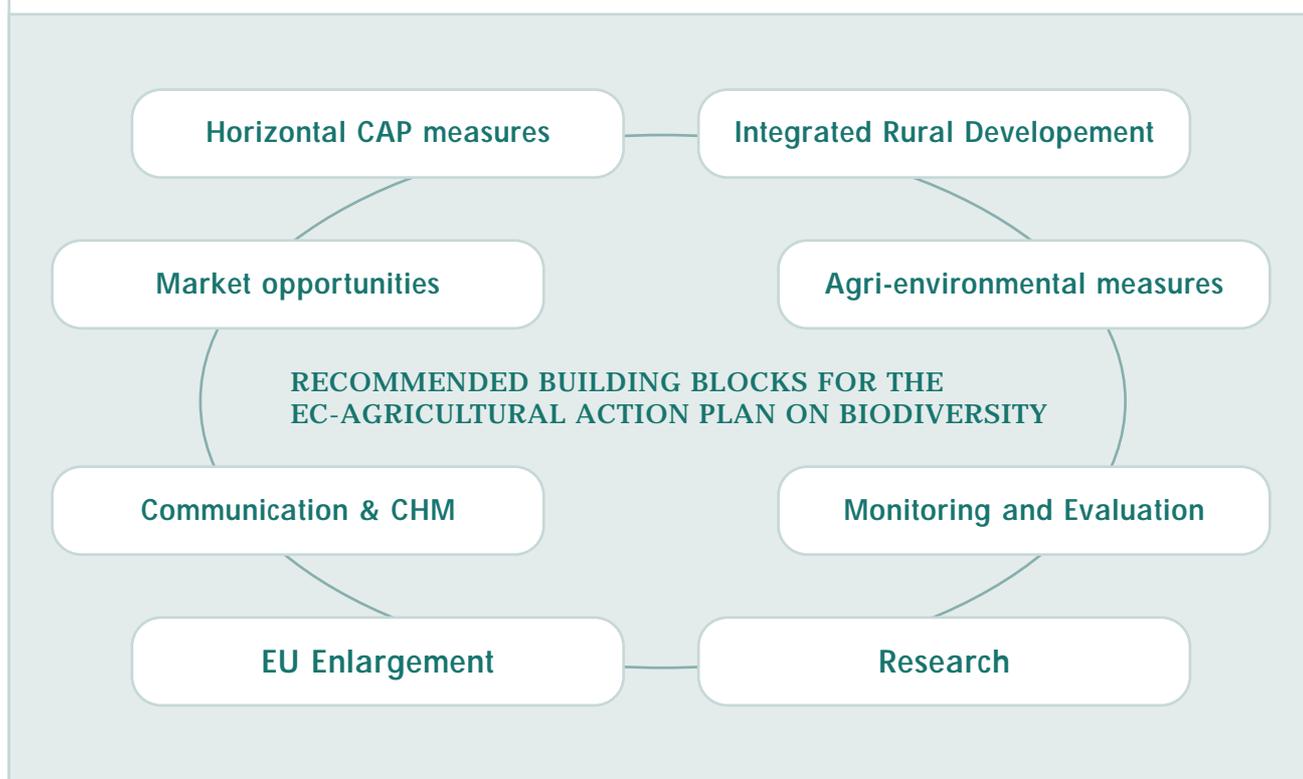
- 1) The analysis of the existing policy and legal framework covering agriculture and biodiversity;
- 2) The analysis and evaluation of the linkages between agriculture and biodiversity in Europe, and
- 3) The results based on discussions and suggestions at the European Workshop held in Brussels on January 20/21, 2000, amongst more than 40 participants from 13 countries.



**Figure 3** Sources for the recommended building blocks for the EC-Agricultural Action Plan on Biodiversity

## 5.2. Recommended building blocks and action points

Eight building blocks, each containing a number of action points, were identified in the workshop discussions. The workshop participants agreed that concrete action points, including the actors, the legal framework and a time frame should be specified where possible. Building blocks and action points are presented below; all blocks are interrelated and of equal importance (Fig. 4).



**Figure 4** Recommendations from the European Workshop on building blocks for the EC-Agricultural Action Plan on Biodiversity

### 1. Horizontal CAP measures

*Related EU Regulations and Programmes: 1258/1999, 1259/1999, 1750/1999, Agenda 2000*

It is recommended that:

- In developing an implementing regulation on the Common Rules Regulation (1259/1999), including the Cross-compliance mechanism provided in Article 3, the Commission ensures that effective mechanisms for biodiversity protection are provided for and that the Member States should pay particular attention to pressures on farmland biodiversity in meeting their obligations;
- The Member States work together to develop standards of good agricultural practice that provide safeguards for the biological diversity of farmed areas and support the objectives of biodiversity action plans. The Commission should ensure that EC obligations are met fully;

- DG AGRI establishes a task force or at least designate officials with particular responsibility for implementing, evaluating and monitoring the EC-Agricultural Action Plan on Biodiversity, alerting colleagues to biodiversity problems and potentials. That related to sectoral CAP instruments and maintaining adequate communication lines with relevant stakeholders and Commission units. Such a task force could be linked to the current 'Coherence Unit';
- The current funding available for implementing the Rural Development Regulation is inadequate to meet the goals set under Agenda 2000; hence, the Commission and the Member States should increase the budget. Measures to generate funds for agri-environmental and other biodiversity linked rural development initiatives can be taken by Member States through Modulation based on Article 4 of Regulation 1259/1999. This process could be aided by appropriate amendments to Regulation 1750/1999 and by organising an EU-wide seminar on the topic that enables governments to share relevant experience.

## 2. Integrated Rural Development

*Related EU Regulations and Programmes: 1259/1999, 1750/1999, 2603/1999, Evaluation guidelines VI/8865/99-Rev., evaluation of Regulation 950/97, EC-Biodiversity Strategy, Agenda 2000*

It is recommended that:

- The Commission amends its guidelines on the evaluation of rural development programmes (VI/8865/99-Rev.) to provide specific guidance on examining rural development plans presented at Member State or lower level for their contribution to national biodiversity action plan targets;
- DG AGRI and Member States develop emergency procedures for safeguarding valuable biodiversity assets (in case of biodiversity and landscape destruction);
- The European Commission co-ordinates an annual report on the effective integration of biodiversity action plan targets into national and regional rural development programmes. For this purpose, the European Commission should define an operational framework consisting of elements of the report, timetable, role of the report within the implementation of the EC-Biodiversity Strategy and involved agencies;
- The European Commission assesses the linkages between Natura 2000 sites and agriculture via the rural development plans, by involving e.g. the EU ad-hoc working group on biodiversity and the STAR Committee, and with the collaboration of nature conservation organisations;
- The European Commission funds and publishes periodically a review of best practice for biodiversity in rural development programmes in all 15 Member States, based on a standard format which includes information on funding sources, regional biodiversity targets, and, amongst others, the involvement of stakeholders. This could make use of the existing evaluations of LEADER projects and the evaluation scheme for rural development programmes for the period 2000-2006 (VI/8865/99);
- The Member States support the objectives of biodiversity action plans within the Rural Development Plans, by providing conservation targeted investment aid to farmers, capacity-building programmes on in-situ conservation methods and landscape management.

## 3. Agri-environmental measures

*Related EU Regulations and Programmes: 1257/1999, 1750/1999*

It is recommended that:

- The future implementation of agri-environmental measures under the EC-Rural Development Regulation need to focus on biodiversity-rich farming types such as high-nature value farmland. Appropriate financial and techni-

- cal support needs to be provided to those Member States with a large percentage of such agricultural systems;
- The European Commission encourages and provides guidance on developing agri-environment schemes to include specific biodiversity conservation objectives. This guidance would cover training to farmers and support for the involvement of environmental NGOs;
  - Member States and the European Commission report bi-annually on the achievement of biodiversity action plan targets in specific terms through agri-environment schemes;
  - As part of the protection of genetic diversity, the European Commission provides guidance and supports technologies and programmes that foster the protection of traditional plant and animal varieties through agri-environmental measures.

#### 4. Market opportunities

*Related EU Regulations and Programmes: 1476/94, 1257/1999, 1750/99, 90/220/CEC, 2092/91, EC-Biodiversity Strategy, Biosafety Protocol*

**It is recommended that:**

- The European Commission encourages the Member States to support the introduction of conservation standards into marketing schemes for regional products, food quality assurance schemes and rural tourism programmes. Gained know-how on the marketability of these products needs to be regularly assessed and shared by stakeholders, research institutes and public authorities;
- Where possible, Member States support economic activities that enhance biodiversity conservation, such as e.g. tourism eco-labels that integrate biodiversity conservation targets. The linkages between biodiversity conservation, the support of products with biodiversity criteria and the tourism sector should be regularly evaluated, with the results being published (for instance, by means of best practices databases on the Internet);
- Member States promote the marketing of local traditional varieties and products. It has also been suggested that the European Commission supports these national programmes by publishing regularly and on a wide basis the production criteria, the marketing efforts (use of labels, certification procedures, etc.) and the sales development for those products;
- Section 7 of Regulation 1750/99 on rural development programmes needs to be more specific when talking about market assessment and capacities. The market analysis should include an assessment of environmentally friendly production criteria as well as certification and labelling mechanisms;
- The measures described in Regulation 1750/99 should include the promotion of marketing of products and/or linked economic activities (such as tourism) which take into account biodiversity protection targets in the region;
- Regarding the use and especially the trade with GMOs and LMOs, the EC-Agricultural Action Plan on Biodiversity should strongly take into account the current negotiations within the Biosafety Protocol as well as current research and reports carried out within Regulation 1476/94. The recommendation is also in line with the suggestion of the Agriculture Council Strategy, 'The precautionary principle shall be applied for adoption processes of genetically modified organisms (GMOs)';
- The European Commission ensures the introduction of biodiversity conservation standards into production guidelines for organic farming when amending Regulation 2092/91 as well as in future revisions of Regulation 1804/1999 or other organic farming standards.

## 5. Communication & Clearing-House Mechanism (CHM)

*Related EU Regulations and Programmes: EC-Biodiversity Strategy, EU-Directive 90/313*

It is recommended that:

- Following the mandate of Article 22 of the EC-Biodiversity Strategy, all measures and programmes of this EC-Agricultural Action Plan on Biodiversity are made available as part of the Agro-biodiversity section in the EC Clearing-House Mechanism;
- The European Commission integrates a dedicated website on agro-biodiversity into the EC Clearing-House Mechanism. As the EC CHM is set up following the structure of the EC-Biodiversity Strategy, it provides the ideal information platform to include, inter alia, information on the link between agriculture and biodiversity, updates on relevant current research, practical wildlife conservation advice for farm managers, the results of the farm wildlife awards, and details about the implementation of the EC-Agricultural Action Plan on Biodiversity. The EC CHM links the Member States information input to the EU level and vice versa. It will be accessible publicly in May 2000. Development of subsets for each Action Theme of the EC-Biodiversity Strategy is foreseen for 2001 and later;
- The communication of biodiversity targets and of the links between agriculture and biological diversity needs to become a core section of the EC-Agricultural Action Plan on Biodiversity;
- The European Commission strengthens existing possibilities for exchange of information and debate between stakeholders, such as farmers unions and environmental organisations, and policy makers at Commission and Member State level;
- The Member States establish farm wildlife awards to reward positive actions of farmers for biodiversity on their farms and communicate the possibilities for wildlife action to their fellow farm managers. These awards should cover various categories, such as biological pest control, habitat management or restoration action, and be provided with core funding by the EU.

## 6. EU-Enlargement

*Related EU Regulations and Programmes: 1266/1999, 1268/1999, EC-Biodiversity Strategy, Agenda 2000, national accession agreements*

It is recommended that:

- The European Commission, after approval by the European Council, develops an overall strategy for the integration of environmental concerns into the agricultural aspects of enlargement. In this strategy, which should orientate towards a future CAP for a EU of 25 (28) Member States, special attention should be paid to:
  - 1) maintaining biodiversity on farmland in CEE;
  - 2) maintaining the overall high environmental quality of farmland in CEE;
  - 3) paying due attention to the effects of the integration of markets (new competition situation) both in EU as in CEE countries, via transition periods, accompanying measures, resources for agri-environmental programmes;
  - 4) developing a common view for mainstream agricultural development in CEE;
  - 5) developing a common view for restoring collapsed livestock farming in abandoned/marginalized and HNV areas in CEE;

- In particular, the European Commission, and the accession countries, should explore within the current Agenda 2000 policy framework options for achieving the necessary implementation of nature conservation legislation, such as the Birds and Habitats Directives as the accession countries develop their agricultural policy and move towards full implementation of the CAP;
- Although abandonment could give room to restoration of natural processes, including grazing by e.g. dedomesticated animals, for the EU 15 (+13) as a whole the best option to maintain valuable semi-natural areas is still maintaining or restoring (nature-friendly forms of) agriculture. This type of agriculture should be actively fostered by the European Commission, encouraging accession countries to include pilot agri-environmental schemes in their proposals and provide adequate funds for them to do so, using the available pre-accession funds such as SAPARD (Regulation 1268/1999);
- The European Commission fosters the exchange of information and visits between agricultural biodiversity experts, policy makers, extension officers and practitioners to promote best practice for wildlife protection in Eastern and Western Europe.

## 7. Research

*Related EU Regulations and Programmes: EC-Biodiversity Strategy, 5<sup>th</sup> Framework Research Programme, Biosafety Protocol*

**It is recommended that:**

- The Member States allocate resources for baseline studies of important biodiversity indicator species on agricultural land in the EU. Without adequate baseline data it is not possible to assess the biodiversity impacts of specific CAP policies;
- The European Commission fosters research on appropriate support mechanisms for HNV farming systems and further extensive production types as well as on the impact of current support mechanisms on these farming systems;
- Regarding the regulation on the conservation, characterization, collection and utilization of genetic resources in agriculture and the commerce with GMOs and LMOs, the EC-Agricultural Action Plan on Biodiversity should expressively support research programmes to make the impact of GMOs and LMOs on nature and human health fully accountable;
- Research that supports the objectives of the EC-Biodiversity Strategy and investigates the importance of agro-biodiversity as a critical life support system in agricultural areas should be supported under the EU 5<sup>th</sup> Framework Research Programme.

## 8. Monitoring and Evaluation

*Related EU Regulations and Programmes: EC-Biodiversity Strategy, EU Fifth Framework Research Programme, Evaluation programme 2000-2006 for Rural Development Programmes*

It is recommended that:

- The European Commission carries out and strengthens strategic environmental assessments for all CAP policy proposals with regard to biodiversity action plan targets (building on the 'green star system');
- As agriculture is the dominant land use system in Europe, indicators on agro-biodiversity should be gathered on the basis of a site-referenced monitoring network. It is important to address biodiversity as a whole, also at the ecosystem level; a focus on only bird species must be considered as being too partial. The proposal is hence to include other species groups and also the level of semi-natural habitats;
- In order to receive data, it is proposed to establish a monitoring system that describes the state and changes of agricultural ecosystems in a representative and state-of-the-art way. Existing sectoral monitoring activities such as the Farm Accountancy Data Network Network (FADN) or JRC's MARS site monitoring components could serve as a basis to expand upon in order to include biodiversity components;
- DG AGRI and DG ENV should develop a close co-operation with the EEA to link general environmental information coming from EIONET (e.g. CORINE-LAND COVER) to agri-environmental information coming from own monitoring networks and from Member States. Technical guidelines should be provided to Member States, to improve the format and frequency of their reporting on the implementation of agri-environmental policies;
- DG AGRI, in collaboration with EEA, provides agri-environmental reports on the implementation of agri-environmental measures and the state of the environment (including biodiversity) on a periodic basis. Reports should provide objective reference on the scope, success and failures of measures. These reports are based on geo-referenced data that allow to access and manage external data provided by the Member States and/or by other institutions responsible of the implementation of agri-environmental policies. The data collection should be part of the implementation of agri-environmental measures by the Member States. Coordination and guidance should be provided by an expert institute or a unit at DG AGRI;
- Agro-biodiversity reporting is part of the implementation process of Agenda 2000. Examples are the provision with funding for less-favoured areas, the payment of agri-environmental measures and cross-compliance, but also the rural development schemes. Agro-biodiversity reports should become a major reference for decision making for DG AGRI and for reviewing actual Member States actions;
- The European Commission and the Member States fund studies of the full biodiversity impact of the sectoral policies of the CAP (arable crops, dairy, olive regime etc);
- In the reform of Common Market Regimes, such as the olive regime in 2001, the biodiversity effects of different options need to be carefully evaluated and communicated to the public;
- The Member States and the EU together establish a format for monitoring the impact of rural development programmes on biodiversity conservation targets specified in national biodiversity action plans, in order to be able to compile comparable data. All data should be made accessible via the EC-CHM.

### 5.3. Relation of the recommended building blocks to the EC-Biodiversity Strategy

The EC-Biodiversity Strategy analyses for the agricultural sector some framework conditions and later sets concrete objectives for certain targets. Table 6 illustrates how the objectives set in the EC-Biodiversity Strategy for the Action Plan on agriculture relate to the recommended building blocks.

An analysis of this relation shows that the building blocks are very close to the objectives set in the EC-Biodiversity Strategy. However, the recommended building blocks primarily focus on the evaluation of recent policies and instruments on agriculture and biodiversity conservation in the EU. The European Workshop participants discussed whether the title for the Action Plan should be changed into 'Good rural practices for biodiversity'.

Agenda 2000 provides a clear policy framework in favour of a major enlargement of the European Union, particularly towards the CEE countries. When drafting the evaluation and analysis of linkages between agriculture and biodiversity, a separate building block on enlargement has been considered to be redundant since the ecological conditions between Western Europe and CEE are comparable. However, during the Workshop the participants stressed the need for a separate building block on 'enlargement', in order to suggest more concrete actions towards biodiversity conservation for (pre-)accession countries.

Agenda 2000, and, in particular, the 2nd CAP-reform constitute the core framework for the recommended building blocks for the draft EC-Agricultural Action Plan on Biodiversity. In particular, four building blocks take very much in account the CAP and the enlargement process: horizontal CAP measures, integrated rural development, agri-environmental schemes and EU enlargement.

**Table 6 Objectives for the agriculture sector as mentioned in the EC-Biodiversity Strategy, compared with the recommended building blocks**

Agriculture sector, EC-Biodiversity Strategy	Building blocks and actions
<p>In addition, the factors behind the decline of biodiversity can be understood by considering the incentives and disincentives facing a country or an individual farmer with regard to <b>sustainable use of genetic resources</b> (6).</p>	<ul style="list-style-type: none"> <li>• <b>Research:</b> Regarding the regulation on the conservation, characterization and utilization of genetic resources in agriculture and the commerce with GMOs and LMOs, the EC-Agricultural Action Plan on Biodiversity should expressively support research programmes to make the impact of GMOs and LMOs on nature and human health fully accountable.</li> <li>• <b>Market opportunities:</b> Regarding the use and especially the trade with GMOs and LMOs, the EC-Agricultural Action Plan on Biodiversity should strongly take into account the current negotiations within the Biosafety Protocol as well as current research and reports carried out within Regulation 1476/94. This aim is also in line with the suggestion of the Agriculture Council Strategy, 'The precautionary principle shall be applied for adoption processes of genetically modified organisms (GMOs)'.</li> </ul>
<p>There has been an increasing awareness among farmers on the gains to be made by adopting <b>environmentally sound agricultural practices</b>, which have been underpinned by rapid advances in 'green technologies'. However, such practices will not be adopted to the extent necessary unless agricultural and environmental policies give farmers complementary signals (8).</p>	<ul style="list-style-type: none"> <li>• <b>Horizontal CAP measures:</b> The Member States work together to develop standards of good agricultural practice that provide safeguards for the biological diversity of farmed areas and support the objectives of biodiversity action plans. The Commission shall ensure that EC obligations are met fully.</li> <li>• <b>Integrated rural development:</b> The European Commission funds and publishes periodically a review of best practice for biodiversity in rural development programmes in all 15 Member States.</li> </ul>
<p>Firstly, in-situ conservation of local species, varieties and domestic animal breeds requires an adequate system of economic and social incentives, combined with increased consumers awareness (10).</p> <p><b>OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>• To formulate policy measures, programmes and projects which promote the implementation of the Global Plan of Action for the conservation and sustainable use of plant genetic resources for food and agriculture.</li> <li>• To promote the development of technologies assessing levels of diversity in genetic resources.</li> <li>• To reinforce the policy of conservation -in situ and ex situ- of genetic resources of actual or potential value for food and agriculture.</li> <li>• To promote the development of adequate gene-banks useful for the conservation in situ and ex situ of genetic resources for food and agriculture so that they will be available for use.</li> <li>• To endeavour to ensure that legislation does not obstruct the conservation of genetic resources.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Market opportunities:</b> The European Commission encourages the Member States to support the introduction of conservation standards into marketing schemes for regional products, food quality assurance schemes and rural tourism programmes. Gained know-how on the marketability of these products needs to be regularly assessed and shared by stakeholders, research institutes and public authorities.</li> <li>• <b>Integrated rural development:</b> The Member States support the objectives of biodiversity action plans within the Rural Development Plans, by providing conservation targeted investment aid to farmers, capacity-building programmes on in-situ conservation methods and landscape management etc.</li> <li>• <b>Agri-environmental measures:</b> As part of the protection of genetic diversity, the European Commission provides guidance and supports technologies and programmes that foster the protection of traditional plant and animal varieties through agri-environmental measures.</li> </ul>

**EC-Biodiversity Strategy:  
Agriculture sector (extracts)**

**Building blocks and actions**

Secondly, the **conservation and sustainable use of agro-ecosystems and their interface with other ecosystems**. Agriculture is an important element of the ecosystems where it takes place. Agriculture has played and continues to play a major role in the diversity of ecosystems and in the creation and maintenance of semi-natural ecosystems. Therefore the conservation and sustainable use of agro-ecosystems require:(11)

taking into consideration the positive role of non-intensive agricultural systems for wildlife and wild plants habitats; and **optimising the positive impacts of agricultural practices and production systems on the conservation and sustainable use of biodiversity (a)**.

- **Monitoring and evaluation:** In order to receive data, it is proposed to establish a monitoring system that describes the state and changes of agricultural ecosystems in a representative and state-of-the-art way. Existing sectoral monitoring activities such as the Farm Accountancy Data Network Network (FADN) or JRC's MARS site monitoring components could serve as a basis to expand upon in order to include biodiversity components.
- **Monitoring and Evaluation:** DG AGRI, in collaboration with EEA, provides agri-environmental reports on the implementation of agri-environmental measures and the state of the environment (including biodiversity) on a periodic basis. Reports should provide objective reference on the scope, success and failures of measures. These reports are based on geo-referenced data that allow to access and manage external data provided by the Member States and/or by other institutions responsible of the implementation of agri-environmental policies. The data collection should be part of the implementation of agri-environmental measures by the Member States. Coordination and guidance should be provided by an expert institute or a unit at DG AGRI.

In this context, the Action Plan on agriculture should build upon the existing policies and those foreseen in Agenda 2000 and complement them so that they contribute to biodiversity (12.)

- **Horizontal CAP measures:** The current funding available for implementing the Rural Development Regulation is inadequate to meet the goals set under Agenda 2000; hence, the Commission and the Member States should increase the budget. Measures to generate funds for agri-environmental and other biodiversity linked rural development initiatives can be taken by Member States through Modulation based on Article 4 of Regulation 1259/1999. This process could be aided by appropriate amendments to Regulation 1750/1999 and by organising an EU-wide seminar on the topic that enables governments to share relevant experience.
- **Monitoring and evaluation:** Agro-biodiversity reporting is part of the implementation process of Agenda 2000. Examples are the provision with funding for less-favoured areas, the payment of agri-environmental measures and cross-compliance, but also the rural development schemes. Agro-biodiversity reports should become a major reference for decision making for DG AGRI and for reviewing actual Member States actions.
- **Enlargement:** In particular, the European Commission, together with the accession countries, explores within the current Agenda 2000 policy framework options for achieving the necessary implementation of nature conservation legislation, such as the Birds and Habitats Directives as they develop their agricultural policy and move towards implementation of the CAP.

EC-Biodiversity Strategy: Agriculture sector (extracts)	Building blocks and actions
<p><b>OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>• To encourage the ecological function of rural areas.</li> <li>• To integrate biodiversity objectives into the relevant instruments of the CAP.</li> <li>• To promote farming methods enhancing biodiversity, by linking agricultural support to environmental conditions where appropriate.</li> <li>• To promote good agricultural practice standards with a view to reducing the risk of pollution and of further damage to biodiversity.</li> <li>• To increase awareness among all producers of the polluting potential of specific agricultural practices both short and long term and the need for all producers to be protectors of both environment and biodiversity. This includes the development of an integrated strategy for the sustainable use of pesticides.</li> <li>• To promote and ensure the viability of those crop species and varieties and domestic animal races which have to be farmed to conserve the ecosystems of priority wild species.</li> <li>• To promote and support low-intensive agricultural systems especially in high natural value areas.</li> <li>• To further develop the agri-environment measures to optimise benefits on biodiversity by: <ul style="list-style-type: none"> <li>1. reinforcing targeted agri-environment measures</li> <li>2. assessing its performance against a specific set of biodiversity indicators</li> <li>3. increasing the relevant budget and resources, as proposed in Agenda 2000 (13).</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <i>Horizontal CAP measures:</i> In developing an implementing regulation on the Common Rules Regulation (1259/1999), including the Cross-compliance mechanism provided in Article 3, the Commission ensures that effective mechanisms for biodiversity protection are provided for and that the Member States should pay particular attention to pressures on farmland biodiversity in meeting their obligations.</li> <li>• <i>Integrated rural development:</i> The Member States support the objectives of biodiversity action plans within the Rural Development Plans, by providing conservation targeted investment aid to farmers, capacity-building programmes on in-situ conservation methods and landscape management etc.</li> <li>• <i>Agri-environmental measures:</i> The future implementation of agri-environmental measures under the Rural Development Regulation needs to focus on biodiversity-rich farming types such as high-nature value farmland. Appropriate financial and technical support needs to be provided to Member States with a large percentage of such agricultural systems.</li> <li>• <i>Research:</i> Without adequate baseline data it is not possible to assess the biodiversity impacts of specific CAP policies. It has been suggested that the Member States allocate resources for baseline studies of important biodiversity indicator species on agricultural land in the EU.</li> <li>• <i>Monitoring and evaluation:</i> As agriculture is the dominant land use system in Europe, indicators on agro-biodiversity should be gathered on the basis of a site-referenced monitoring network.</li> </ul>
<p>Together with changes in the pattern of trade, changes in global and regional patterns of agricultural production are likely to entail displacement or abandonment of some long-established local production systems, or lead to their intensification to maintain competitiveness, or to supply new markets (14).</p>	<ul style="list-style-type: none"> <li>• <i>Enlargement:</i> Although abandonment could give room to restoration of natural processes, including grazing by e.g. domesticated animals, for the EU 15 (+13) as a whole the best option to maintain valuable semi-natural areas is still maintaining or restoring (nature-friendly forms of) agriculture.</li> </ul>
<p>In this field legislation on quality labels can also contribute to biodiversity (15).</p>	<ul style="list-style-type: none"> <li>• <i>Market opportunities:</i> Section 7 of Regulation 1750/99 on rural development programmes needs to be more specific when talking about market assessment and capacities. The market analysis should include an assessment of environmental-friendly production criteria as well as certification and labelling mechanisms.</li> </ul>

**ANNEX 1**      **WORKSHOP PROGRAMME**

**ANNEX 2**      **PAPERS AND PRESENTATIONS**

**ANNEX 3**      **PARTICIPANTS LIST**

**EUROPEAN WORKSHOP**

IDENTIFICATION AND EVALUATION OF BUILDING BLOCKS  
FOR AN EC-AGRICULTURAL ACTION PLAN ON BIODIVERSITY

## ANNEX 1 WORKSHOP PROGRAMME

### European Workshop 'Identification and evaluation of building blocks for an EC-agricultural Action Plan on Biodiversity'

Day 1 20 January 2000

OPENING SESSION:	<b>POLICY FRAMEWORK</b>
Chairperson:	<i>Dr Zbigniew Karpowicz, Deputy Director, European Centre for Nature Conservation (ECNC), Tilburg, The Netherlands</i>
10.30h -10.35h	<b>Introduction to the project 'Towards building blocks for an EC action plan for the relationship between agriculture and biodiversity'</b> , by <i>Dr Zbigniew Karpowicz, Deputy Director, European Centre for Nature Conservation (ECNC), Tilburg, The Netherlands</i>
10.35h -10.50h	<b>The importance of integration between agriculture and biodiversity</b> , by <i>Mr Carlos Martín-Novella, Programme Administrator, Unit Development and Environment, European Commission, DG Environment, Brussels, Belgium</i>
10.50h -11.05h	<b>Towards the agricultural Action Plan on biodiversity</b> , by <i>Mr Adelmo Moreale, Directorate of Rural Development, Unit Forestry and Environment, European Commission, DG Agriculture, Brussels, Belgium</i>
11.05h -11.20h	<b>Linking agriculture and biodiversity conservation in the European Union - a vision from a Member State</b> , by <i>Mr Carlos Guerra, President of the Ad Hoc Group working group on biodiversity, Lisboa, Portugal</i>
11.20h -11.35h	Discussion
<b>EVALUATION OF LINKAGES BETWEEN AGRICULTURAL POLICIES AND BIODIVERSITY CONSERVATION</b>	
11.35h -12.00h	<b>Evaluation of policies, instruments and new strategies for the linkage between agriculture and biodiversity in the EU: Presentation of project results</b> , by <i>Mr David Baldock, Director of the Institute of European Environmental Policies, London, United Kingdom</i>
12.00h -12.30h	Discussion
12.30h -14.00h	Lunch break
PLENARY SESSION	<b>TOWARDS BUILDING BLOCKS (I)</b>
Chairperson	<i>Dr María Dolores Fernández Guillén, Deputy Director of CIAM, Spain</i>
14.00h -14.15h	<b>Presentation of the Building blocks proposed from the ECNC project partners</b> , by <i>Mrs Laura Buguñá Hoffmann, Senior Programme Co-ordinator Economy &amp; Ecology, European Centre for Nature Conservation (ECNC), Tilburg, The Netherlands</i>
14.15h -14.30h	<b>Linking Sustainable Rural development and biodiversity conservation</b> , by <i>Mrs Simone Matouch, ARGE Naturschutzforschung, Vienna, Austria</i>
14.30h -14.45h	<b>Horizontal policy measures on agrobiodiversity</b> , by <i>Mr Jim Dixon, Senior Officer, English Nature, Peterborough, United Kingdom</i>
14.45h -15.15h	Coffee break
15.15h -16.30h	Discussion - moderated by <i>Mr Hans Sprangers, Alterra, Wageningen, The Netherlands</i>

**Day 2** 21 January 2000

PLENARY SESSION	TOWARDS BUILDING BLOCKS (II)
Chairperson:	<i>Mrs Emmy Bolsius, Senior Officer, Dutch Ministry for Housing, Physical Planning and the Environment, The Hague, The Netherlands</i>
9.30h - 9.45h	<b>Agro-biodiversity indicators</b> , by <i>Dirk Wascher, Senior Programme Coordinator Biodiversity and Landscapes, European Centre for Nature Conservation (ECNC), Tilburg, The Netherlands</i>
9.45h - 10.00h	<b>The relationship between nature conservation, biodiversity and organic agriculture</b> , by <i>Mr Bernward Geier, Director, IFOAM, Germany</i>
10.00h - 10.15h	<b>Interaction between intellectual property rights and biodiversity</b> , by <i>Mr Bart Kiewiet, President of the Community Plant Variety Office (CPVO), Angers</i>
10.15h - 11.00h	<i>Discussion - moderated by Mr Floor Brouwer, LEI-DLO, The Hague, The Netherlands</i>
11.00h - 11.30h	Coffee break
CLOSING SESSION	
Chairperson:	<i>Mr Hans Sprangers, Alterra, Wageningen, The Netherlands</i>
11.30h - 12.00h	<b>Outlook: Conclusions on the evaluation and building blocks for the draft EC agro-biodiversity action plan</b> , by <i>Mr Jim Dixon, Senior Officer, English Nature, Peterborough, United Kingdom</i>
12.00h - 12.40h	<i>Moderated discussion</i>
12.40h - 12.45h	<i>Closing of the Workshop, by Dr Zbigniew Karpowicz, Deputy Director, European Centre for Nature Conservation (ECNC), Tilburg, The Netherlands</i>

## ANNEX 2 PAPERS AND PRESENTATIONS AT THE EUROPEAN WORKSHOP

*(2 of the 13 presented papers are not included in this Annex, since they were not available. However, a short summary can be found in Chapters 4.2. and 4.3.)*

### Opening and Introduction

**Dr Zbigniew Karpowicz**

*Deputy Director*

*European Centre for Nature Conservation (ECNC)*

*Tilburg, The Netherlands*

Ladies and gentlemen, welcome to the 'ECNC European Workshop on the identification and evaluation of building blocks for an EC Agricultural Action Plan on Biodiversity'. My name is Zbigniew Karpowicz and I will be chairing this morning session.

I would like to start by saying a few words on the context of this workshop and the discussions that it will foster. This event is an independent initiative to contribute to the follow-up of the European Community Strategy on Biodiversity. It follows and contributes to a process of integrating different perspectives and material coming from a broad range of stakeholders, including environmental NGOs.

This Workshop is taking place in DG AGRI premises. We are sincerely grateful to DG AGRI for the use of this meeting room and for their assistance in a variety of ways towards the preparations. However, having said that, I wish to point out that this workshop is the sole initiative of ECNC and as such any kind of opinion, proposal or contribution resulting from this event does not commit DG AGRI.

Now, the purpose of the workshop is to elaborate 'building blocks'. These building blocks then may be a possible contribution which may be assessed by DG AGRI and may be considered within the EC AGRICULTURAL ACTION PLAN ON BIODIVERSITY. However, again I must stress that the draft Action Plan itself is not being discussed at this workshop.

I am pleased to make reference to these very important points at the start of this important workshop. I hope that the presentations and discussions that we will have over the next day and a half will provide the basis of a suitable and helpful contribution to the further discussions on the topic.

This morning the Opening Session deals with the policy framework. We will be dealing with a set of introductory speeches by representatives of DG Environment, DG Agriculture and a speaker from one of the Member States. The context of this morning's presentations will be informative, factual, providing the necessary background to the basis of the project 'IDENTIFICATION AND EVALUATION OF BUILDING BLOCKS FOR AN EC AGRICULTURAL ACTION PLAN ON BIODIVERSITY'. After this we move into the heart of the workshop, looking at the evaluation of linkages between agriculture policies and biodiversity conservation with a presentation of the results of an extensive analysis, presented by Mr Baldock.

## Some ideas for a draft Action Plan of the Agricultural Sector on Biodiversity

**Mr Adelmo Moreale**

*Directorate of Rural Development, Unit Forestry and Environment  
European Commission, DG AGRI  
Brussels, Belgium*

*(Notice: This text does not necessarily reflect the views of the European Commission and in no way commits the Commission to its future position in this field)*

Mr. Chairman, Ladies and Gentlemen,

With this presentation, our intention is to try to bring together the main elements of our current thinking in the relationship between biodiversity and the agricultural sector and for the preparation of a draft action plan. The development of this draft action plan is under way and we are not in a position today to go into details because the document as it stands is not consolidated yet. More internal and external consultation is still needed and we consider the discussions which will take place during this workshop as a good opportunity for helping the Commission services involved in this process.

### **1. Background**

The draft Action Plan will largely follow the approach developed by the Communication from the Commission, 'Directions towards sustainable agriculture' (COM n° 22) in January 1999. Its main orientations were confirmed by the Agenda 2000 decisions taken in March of last year.

The 2000 Agenda, throughout the promotion of economic, social and ecological sustainability in the Common Agricultural Policy (CAP) and in particular the provisions concerning Rural Development, constitutes now the adequate framework for the integration of environmental considerations in the agricultural policy.

Biological diversity is an essential and predominant element in this integration process.

### **2. Information sources**

Some Community documentation and information sources have been used which give an additional useful input on the knowledge of interactions between agriculture and biological diversity. The main information sources are:

- The already mentioned document COM n° 22 and obviously all the legislative texts which have translated the 2000 Agenda decisions into regulations.
- The European Commission Report 'Agriculture, Environment, Rural Development: facts and figures', prepared by Eurostat in co-operation with DG AGRI and DG ENV.
- The 1999 Environmental Assessment Report prepared by the European Environment Agency (EEA).

- The evaluation report of regulation 2078/92, which is a working document published in 1998 on the implementation of the so-called agri-environmental measures.
- The brochure 'Agriculture-Environment' produced by DG AGRI in 1997.
- Reports and research prepared by external stakeholders. In this context, DG AGRI is very interested in learning from the ECNC's initiative.
- And finally, the results of a consultation DG ENV organised in December last year with experts from Member States on the development of the sectoral action plans under the Community Biodiversity Strategy.

### 3. Priorities for biodiversity conservation

From all these reports and the related assessments, it was possible to identify some priorities for action:

#### 1. To ensure a **reasoned intensification level** in agricultural practices: this can be achieved through:

- The development of good agricultural practices, for instance the **diversification of production types and varieties** as well as all the elements relating to **crop rotation**;
- Less intensive use of inputs;
- The promotion of environmentally friendly production systems, such as organic farming;
- The promotion of extensive production systems, in particular in the stock farming sector;
- A balanced management of natural resources, water in particular.

**2. To keep agricultural activities** economically and socially sustainable, especially in biodiversity-rich areas, where these activities are often weakened. The idea of an overall protection of biological diversity, setting aside any human activity, is completely obsolete: conservation must be enhanced through sustainable human use and activity.

#### 3. To ensure an **ecological infrastructure at the level of the whole territory**, through e. g.

- The strengthening of Natura 2000 Network at Community level.
- The maintenance and development of linear features such as hedgerows, field margins etc., associated to isolated areas of variable size (extensive grazing, old orchards, isolated trees, small water ponds, ...).
- The maintenance of open space, essential for the preservation of wild biodiversity.

**4. To support actions for the enhancement of genetic diversity throughout the sustainable use of local, traditional varieties** and in connection with this action, to ensure the marketing of local varieties not present in the lists of commercial seeds, but more adapted to the local and specific conditions.

#### 4. Main principles

The experience gained in particular under the agri-environmental measures makes it possible to identify a number of **essential principles or guidelines** for the development of an action plan.

- Biodiversity conservation mainly depends on production methods. Agriculture benefit maintaining local crop varieties and domestic animal breeds;
- Global action must be taken throughout the whole territory, while different targeted intervention methods or tools should be applied in relation with specificities of local areas;
- The subsidiarity nature of the agri-environmental measures should be underlined: the measures are developed at Member State level and this will contribute to put forward well-tailored schemes for the very local biodiversity challenges.
- The approach must be systemic and co-ordinated with the coherent coexistence of measures coming from the various sources of financing.
- Biodiversity conservation objectives can fully be achieved only if market policies are completed by the rural development policy.

#### 5. Legal instruments

Agenda 2000 in its agri-environmental strategy provides a full set of instruments encouraging the conservation and sustainable use of biodiversity. Furthermore, the programmes and plans foreseen by the rural regulation, given the nature of their measures and their geographic coverage, should be considered as essential tools for the elaboration of the Action Plan.

The main **legal tools** of the agri-environmental strategy are:

- The so-called '**horizontal**' regulation, which stipulates in its art. 3 the requirements as regards environmental protection and which can potentially contribute to biodiversity conservation purposes.
- In most Member States, agri-environment measures have already been implemented under Regulation No 2078/92 to preserve biodiversity, for example, by reducing the use of fertilisers and pesticides or the maintenance of rotational practices. Examples include the introduction of organic farming, integrated crop management, set aside of field margins, rearing of threatened farm animal species, etc. They consist of commitments by the producers to respect of series of undertakings going beyond the Good Agricultural Practice for a certain period of time and in return for a premium.
- **Other rural development measures** making it possible to promote biodiversity (in particular Less Favoured Areas); The compensatory allowance is, in this respect, the most significant one of these support plans. The maintenance of an agricultural activity adapted to the local conditions and applying good farming practices constitutes the condition essential for the safeguarding of the economic and environmental potential (in particular, landscapes and biodiversity).

**Compensatory payments could also be granted in areas facing particular environmental requirements on land use, arising from the Community legislation. Member States have with this instrument the possibility to include the implementation of Natura 2000.**

- **Environmental issues in Common Market Organisations (CMOs);**  
The mechanism of the **compulsory set-aside of land** gives an interesting potential to develop actions to the profit of biodiversity. The appropriate management of these set-aside lands must meet environmental protection requirements taking into account specific environmental situations (field margins, small plots, river banks, etc.).  
**The Common Market Organisation in the beef sector provides incentives and additional payments for extensification purposes which can benefit the objectives of biodiversity. Producers have to meet strict requirements, in particular as regards livestock density. The extensive management of the pastures showed its interest in the maintenance of flora, fauna and micro-fauna diversity.**  
Under the Common Market Organisation in the **dairy sector**, additional payments can be granted by the Member States according to conditions taking into consideration the incidence on the environment of this type of production and the environmental sensitivity of the land concerned.
- The regulation 1467/94 on **genetic resources** in agriculture plays an important role in the conservation of breeds of farm animals and agricultural plants. The ex-situ conservation for instance allowed the safeguard of varieties neglected by the farmers and thanks to research and selection carried out by the institutions responsible for the conservation of genetic material, the characteristics of local varieties have been improved.
- The **market instruments of the Community Quality Policy** plays also a sensitive indirect role in biodiversity enhancement which should not be underestimated. By limiting the use of certain quality indications to a limited number of products prepared with local and traditional resources, the policies relating to quality contribute towards the conservation of biodiversity.

## 6. Development of indicators

Finally, special emphasis should be put on the development of **appropriated agri-environmental indicators** related to biodiversity. Such agri-environmental indicators must make it possible to assess the effectiveness of the strategy followed. The development of indicators calls for a modulated approach reflecting the regional diversity of economic structures and natural conditions. They do provide a first stage in the identification and greater understanding of the measures implemented within the Member States to develop and safeguard biodiversity. A set of indicators is being developed within the OECD and through the impetus given by Eurostat, the Joint Research Centre, the European Environment Agency and Community research projects.

## Overheads

### AGRI/F13 INFORMATION SOURCES

- *Communication from the Commission (COM n° 22, January 1999).*
- *Legislative texts translating the 2000 Agenda decisions.*
- *Commission Report 'Agriculture, Environment, Rural Development: facts and figures' (1999, Eurostat in co-operation with DG AGRI and DG ENV).*
- *1999 Environmental Assessment Report prepared by the European Environment Agency (EEA).*
- *Evaluation report of regulation 2078/92 (1998).*
- *Brochure 'Agriculture-Environment' (1997, DG AGRI).*
- *Reports and research prepared by external stakeholders.*
- *Results of a consultation with experts from Member States (December 1999, DG ENV) .*

*(N.B. Most of the information sources mentioned here are available at the web site of DG AGRI).*

### AGRI/F13 PRIORITIES FOR ACTION

- *To ensure a **reasonable intensification level** in agricultural practices.*
- *To **keep agricultural activities** economically and socially sustainable.*
- *To ensure an **ecological infrastructure at the level of the whole territory.***
- *To support actions for the sustainable **use of local, traditional varieties.***

### AGRI/F13 MAIN PRINCIPLES

- *Biodiversity conservation mainly depends on production methods.*
- *Global action must be taken throughout the whole territory.*
- *Different targeted intervention methods or tools should be applied in relation with specificities of local areas.*
- *Subsidiarity nature of the agri-environmental measures.*
- *Approach must be systemic and co-ordinated with the coherent coexistence of measures coming from the various sources of financing.*
- *Market policies to be completed by the Rural Development policy.*

**AGRI/F13** LEGAL INSTRUMENTS**TO ACHIEVE BIODIVERSITY CONSERVATION OBJECTIVES**

- *'Horizontal' regulation (1259/99) which stipulates the requirements as regards environmental protection.*
- *Agri-environmental measures for rural development (Regulation 1257/99)*
- *Other rural development measures (in particular Less Favoured Areas)*
- *Environmental issues in Common Market Organisations*
  - *set-aside of land;*
  - *beef sector;*
  - *dairy sector.*
- *Regulation 1467/94 on genetic resources in agriculture.*
- *Market instruments of the Community Quality Policy .*

## Evaluation of Policies, Instruments and Strategies to link Agriculture and Biodiversity

**Mr David Baldock**

*Director*

*Institute for European Environmental Policy (IEEP)*

London, United Kingdom

### **Structure of the Presentation (overheads):**

- The link between agriculture and biodiversity.
- The role of policy.
- EU agricultural policy reform.
- Opportunities for biodiversity conservation in agriculture.

## AGRICULTURE AND BIODIVERSITY

- *Agriculture - a dominant user of land in most European countries.*
- *majority of European habitats are semi-natural.*
- *many species adapted to open or semi-open landscapes.*
- *agricultural practice has provided continuity of management and landscape variation.*

## POLICY INSTRUMENTS UNDER THE CAP

- *Border protection.*
- *Price support for certain commodities.*
- *Direct payments.*
- *Investment aid.*
- *Support payments in less favoured areas and for young farmers.*
- *Incentive schemes.*
- *Rural development measures and forestry.*
- *Hygiene regulations, product standards.*

## THE 1992 CAP REFORM

- *Price reductions for cereals and livestock.*
- *Introduction of direct compensatory payment in the arable sector.*
- *Set-aside.*
- *Obligatory agri-environment measures (Regulation 2078/92).*

## AGENDA 2000

- *Price reductions for cereals, oilseeds, beef and later, milk.*
- *Increased compensatory payments, adjustments to rules.*
- *10 % set aside in 'normal' years.*
- *'National envelopes' for beef and dairy sectors.*
- *'Horizontal' measures - modulation and cross-compliance.*
- *New Rural Development Regulation.*
- *Continuation of silage maize premium.*

## CHANGES TO COMMODITY REGIMES

- *Cotton regime proposals.*
- *Further reform of olive oil regime - 2001.*
- *Review of CAP expenditure 2002.*
- *Cereals price review 2002/2003.*
- *Oilseeds markets review by 2002.*
- *Mid-term review of milk regime in 2003.*
- *Enlargement negotiations - starting 2000.*

## RURAL DEVELOPMENT REGULATION

- *Investment aid.*
- *Less favoured areas.*
- *Assistance for young farmers.*
- *Agri-environment programmes.*
- *Rural Development - Article 33.*
- *Training.*
- *Early retirement.*
- *Forestry.*
- *Processing and marketing.*

## HIGH NATURE VALUE AREAS

- *Predominantly low intensity farmland, including grassland, areas of arable, mixed farming and permanent crops.*
- *Agricultural habitats associated with particular species, e.g. wet grassland for geese, waders.*
- *But most farmland of biodiversity value.*

## AGRICULTURE POLICY IMPACTS

- *Boundaries of the market.*
- *Overall level and pattern of production.*
- *Balance between crops, products etc.*
- *Shaping of certain production systems.*
- *Direct impact on land use e.g. set-aside.*
- *Direct and indirect support for investment e.g. drainage, land consolidation, organic markets.*
- *Land prices (impacts on conservation, alternatives).*
- *Management incentives.*
- *Regulation (hygiene, animal health, organic, seed varieties etc.).*

## PERSPECTIVES ON EU ENLARGEMENT

- *Increase in agricultural area by 50 per cent.*
- *Agricultural labour force to double.*
- *Low agricultural productivity and high rural unemployment in CEE.*
- *Central and Eastern Europe very important for preserving Europe's biological diversity.*
- *Increasing threat of intensification and abandonment.*
- *Sustainable rural development essential for maintaining rural communities in Central and Eastern Europe.*
- *Agri-environment measures as key instrument in this strategy.*
- *Need for appropriate funding and EU support.*

## POLICY WEAKNESSES

- *Limited funding for Rural Development Regulation.*
- *Time pressure restricting scope for greater integration in Rural Development Plans.*
- *Specific RDP problems e.g. LFA area payments.*
- *Specific CMO problems e.g. silage maize.*
- *Need for greater biodiversity benefits from agri-environment schemes (regional distribution/scheme design).*
- *Insufficient priority given to monitoring, evaluation and research.*
- *GMOs and genetic diversity.*
- *Ineffective implementation of environmental policy.*

## OPPORTUNITIES FOR NEW POLICIES AND INSTRUMENTS

- *Using new options under Agenda 2000.*
- *Commission and Member States.*
- *Greater biodiversity focus in rural development plans and strategies.*
- *Better focus in incentive schemes.*
- *Harness market forces to promote environmentally friendly production methods.*
- *Environmental monitoring and evaluation.*
- *Research.*
- *Effective implementation of environmental regulation.*

## Linking Biodiversity conservation with Integrated Rural development in Austria

Mrs Simone Matouch  
ARGE Naturschutzforschung  
Vienna, Austria

### Contents

Austria's Programme for an environmentally friendly agriculture (ÖPUL)	90
Biological Farming	93
NATURA 2000	93
Self-Evaluation of the Implementation of Austria's Strategy for the Conservation of the Biological Diversity	93
Austria's programme for the development of rural areas (VO 1257/99)	93
Austria's Cultural Landscape Types	94

### Austria's Programme for an environmentally friendly agriculture (ÖPUL)

Austria's Programme for an Environmentally Friendly Agriculture was firstly implemented in 1995 after Austria had joined the EU. Its main aim was to involve a huge amount of farmers so that ÖPUL could function as one important pillar for the maintenance of agriculture all over the country and to make Austria's agriculture more environmentally friendly. More than 90% of Austria's surface are characterised by agricultural (45% respectively 3,4 Mio. hectares) and forest activities (46,2% respectively 3,8 Mio hectares): ÖPUL is based on hectare funds offered for a huge amount of different activities. Apart from some fundamental subsidies offered to every farmer farmers are free to choose out of these different measures and to combine measures according to a rather complicated system. Grants are offered for a period of five years then contracts have to be renewed. During this period of five years farmers have to guarantee to carry out all the activities they have signed for. Changes are not easily accepted and if a farmer is no longer able to carry out at least one or some of the measures he signed for, what can easily happen in the case of death of one of the family members or due to generation flow, he will have to pay back all the money he had received until then. That's a reason why many farmers decided not to take part in öPUL at all and not to receive any subsidies.

Nevertheless generally spoken the implementation of ÖPUL improved the situation for many farmers although some very important aspects which have been proven to be important also for biodiversity aspects got lost. Before Austria joined the EU there have been undertaken several attempts by some of Austria's countries to implement new forms of agricultural funding systems also taking into account environmental aspects as biodiversity. So, for example, the Carinthian Cultural Landscape Programme which was also a pioneer project in the sense of good cooperation between agriculture and nature conservation.

To tackle the most positive aspects in a biodiversity-linked context I have to point out the following main characteristics of that programme:

- The regional context. Taking into account the regional context is a crucial point with regard to the safeguard of biological diversity. Measures undertaken within that Carinthian programme were not only seen as bits and pieces one can receive more or less money for but could be seen for the forsake of the whole region. That is an important point which got lost with the implementation of ÖPUL which replaced some of the former existing regional programmes. Farmers now just choose between different measures but a more holistic approach which also tries to deal with the development of a whole region is lost. Although in at least some of Austria's countries there are also offered regional programmes now.
- The principle of participation. Participation is undoubtedly necessary if we intend to promote a process of real sustainability.

The following table (Table 1) gives a survey about the main (not all of them) measures offered by ÖPUL 1995 and gives an insight about the acceptance of measures<sup>1</sup>.

**Table 1** ÖPUL 1995 - acceptance

Measures	ha	% ha	Farms
<i>Elementary subsidy</i>	<i>2,300,617</i>	<i>67.67</i>	<i>167,378</i>
<i>Promotion of organic farming</i>	<i>198,581</i>	<i>5.84</i>	<i>15,862</i>
<i>Disclaim / reduction of artificial fertilisers, fungicides etc.</i>	<i>310,581</i>	<i>9.13</i>	<i>37,783</i>
<i>Integrated production methods (viculture, fruit production, ornamental plants)</i>	<i>53,407</i>	<i>1.57</i>	<i>19,304</i>
<i>Extensive forms of grass-land management in traditional areas</i>	<i>114,242</i>	<i>3.36</i>	<i>11,090</i>
<i>Mowing of steep and high meadows (Bergmähder)</i>	<i>232,852</i>	<i>6.85</i>	<i>58,359</i>
<i>Promotion of pastoralism</i>	<i>272,185</i>	<i>8.01</i>	<i>8,684</i>
<i>Crop rotation</i>	<i>908,554</i>	<i>26.72</i>	<i>54,083</i>
<i>Protection against erosion (tillage, viculture, fruit growing)</i>	<i>10,128</i>	<i>0.30</i>	<i>5,424</i>
<i>Maintenance of areas and elements of high ecological value</i>	<i>35,682</i>	<i>1.05</i>	<i>41,687</i>
<i>Biotope development etc.</i>	<i>5,303</i>	<i>0.16</i>	<i>2,817</i>
<b>All together</b>	<b>2,141,515</b>	<b>62.99</b>	

<sup>1</sup> Köchl, A et al. (1996: Ökologische Evaluierung des Umweltprogramms (ÖPUL), Band 2. Bericht des Bundesministeriums für Land- und Forstwirtschaft und die Europäischen Kommission

We can see that measures (see Figure 1) with probably a very direct positive impact on biological diversity of species, habitats and landscapes were carried out on a rather small amount of arable land.

#### ÖPUL 2000 WILL NOW OFFER MEASURES WITHIN THE FOLLOWING FIELDS:

- Promotion of organic farming;
- Disclaim / reduction of artificial fertilisers, fungicides etc.;
- Integrated production methods;
- Crop rotation;
- Extensive forms of grass-land management in traditional areas;
- Mowing of steep and high meadows (Bergmäher);
- Promotion of pastoralism;
- Conservation & protection of traditional land races;
- Protection against erosion;
- Maintenance of areas and elements of high ecological value.

**Figure 1**      *ÖPUL 2000 - measures*

To improve the acceptance and also to more intensively launch positive effects for biodiversity ÖPUL 1995 has been evaluated and the following improvements have been worked out which should be implemented in ÖPUL 2000 (Figure 2) which will be part of Austria's new programme for rural development (VO 1257/99).

#### ÖPUL 2000 - IMPROVEMENTS

- Regional aspects should be forced;
- Better acceptance of measures promoting extensive agricultural practices;
- Entrance minimum, easier combination of measures what means that it's not simply enough to receive the elementary subsidy, farmers will have to carry out at least two further measures offered in the programme;
- Harmonisation of ÖPUL with other relevant politics (NATURA 2000, water protection) especially on the county level;
- Avoidance of negative interactions between different measures;
- Information and training;
- Better promotion of biological farming;
- Max 2 GVE/ha, at least 2 GVE per farm;
- Protection against erosion;
- Maintenance of areas and elements of high ecological value (increase the fees).

**Figure 2**      *ÖPUL 2000 - improvements*

### **Biological Farming**

The amount of organic farmers in Austria has enormously risen since 1991 but especially since the entrance of Austria in the EU in 1995. In 1998 nearly 10% of Austria's farmers are cultivating the land according to organic criteria, 8,9% are organic farmers<sup>2</sup>. This strong increase took place mainly in the western part of Austria, an area which is predominated by grassland farming systems and milk production. Quite a number of these regions are furthermore characterised by rather traditional and thus extensive farming techniques. That is why conversion to biological farming is not really a big challenge for these farmers, it is much more difficult to implement biological farming in crop producing areas. Also from a biological point of view as regards the input of organic farming for biodiversity we have to realise that the impact in grassland areas is much less than in crop areas although of course there may be regional differences. That is mainly because there is not too much change in agricultural practises when extensive, traditional farmers convert to organic farming. There is a need to further promote biological farming activities in general, a point which has been taken into account by the new ÖPUL 2000, but also to better promote organic farming especially in crop areas. What is still missing until now is linking organic farming production criteria with criteria regarding cultural landscape protection.

### **NATURA 2000**

About 16% of Austria's surface were nominated in April 1999 as NATURA 2000 sites. 48% of these areas are forests, more than 28% are alpine regions, only about 15% (~200.000 ha) is agricultural land. There don't exist any management plans for these sites until now and it is one point of criticism towards the new programme for rural development that there are no measures foreseen which would be able to promote NATURA 2000. It has been said several times and we are still convinced that NATURA 2000 is a big chance for nature conservation in Austria<sup>3</sup> but until now there is no concrete plan how we will be able to manage implementation and management of these sites.

### **Self-Evaluation of the Implementation of Austria's Strategy for the Conservation of the Biological Diversity**

Apart from the annual national evaluation reports about progress in the process of implementation of the national strategy for the conservation of biological diversity Austria decided to elaborate a national self-evaluation not only about what has been reached until now but also to elaborate some main weak and strong points within the strategy itself. This process is carried out by a consortium of representatives of all different kinds of NGOs, scientists and representatives of administrative and political institutions which are involved in biodiversity aspects, e.g. also representatives from the Federal Ministries of Agriculture, Economics or Social Affairs. This consortium has already proven to be an important body during the process of elaborating the national biodiversity strategy in so far as decisions which could have been reached are then fully represented by all of these institutions. Of course, there are some compromises within the strategy but on the other hand it is a document which is realistic to be put into practise. The strategy to bring people 'from different worlds' together, to create discussion fora is an important point to be mentioned in that context.

### **Austria's programme for the development of rural areas (VO 1257/99)**

Austria's programme for the development of rural areas that is in discussion at the moment is also seen as a big chance for nature conservation and biological diversity aspects. At the moment I'm in charge of a study ordered by WWF Austria to elaborate an Ex-ante evaluation of the programme with special regard to nature conservation aspects. Existing evaluation methods like the ECOTEC method proposed by the commission have turned out not to be appropriate enough to the special needs for an evaluation of nature conservation aspects.

The WWF-study has not been finished yet but what has turned out rather quickly is that there is a need for regionalising measures. Especially in a country like Austria, which is extremely rich in landscape and ecological diversity, it is important to assess the possible impact of measures with regard to the region where these measures are going to be implemented. That is why a study about cultural landscape types in Austria is one of my most important elements in that evaluation study.

### **Austria's Cultural Landscape Types**

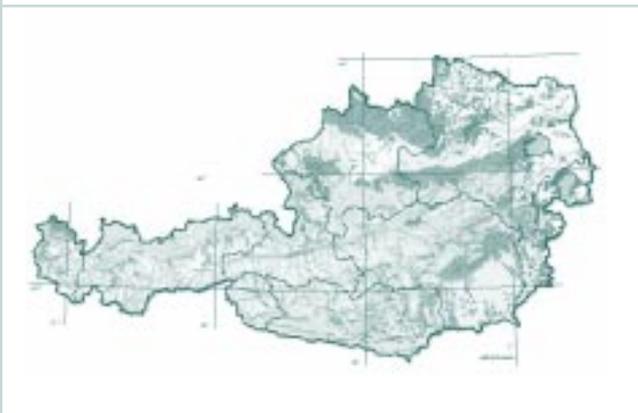
Austrian cultural landscape types have been intensively studied during a three years research project called 'Spatial 'Top-Down' Planning Indicators: Study of Structural Features of Landscape Ecology as Indicators for Sustainable Land Use' (Wrbka et al., 1997, 1998, 1999). You can find more information about that project on these two homepages:

<http://www.pph.univie.ac.at/intwo/htm/klnat/klnatbed.htm>,

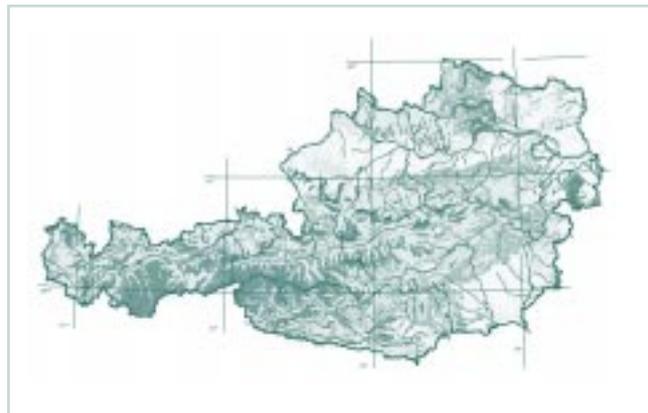
[http://www.iinform.oeaw.ac.at/~mile/landscape\\_ecol.html](http://www.iinform.oeaw.ac.at/~mile/landscape_ecol.html)

What is very special about this research project is that it brings together different kinds of information which have been until now only be regarded separately, as e.g. ecological, climatological, physical landscape information (Figure 3) as well as data about agricultural practises and landscape structuring by elements of high ecological value like hedges, trees etc.

Another aspect which has to be pointed out is the fact that this research project offers data covering all the surface of Austria and does not only give data about special areas. For that it is also possible to create maps (see Figure 4) showing those areas in Austria which are most, very or just important for the safeguard of biodiversity.



**Figure 3** Cultural landscape types derived from visual Interpretation of satellite images



**Figure 4** Relevance of Austrian landscapes to safeguard biodiversity

**Presentation of the Building blocks proposed by ECNC and the project partners**

**Mrs Laura Buguñá Hoffmann**

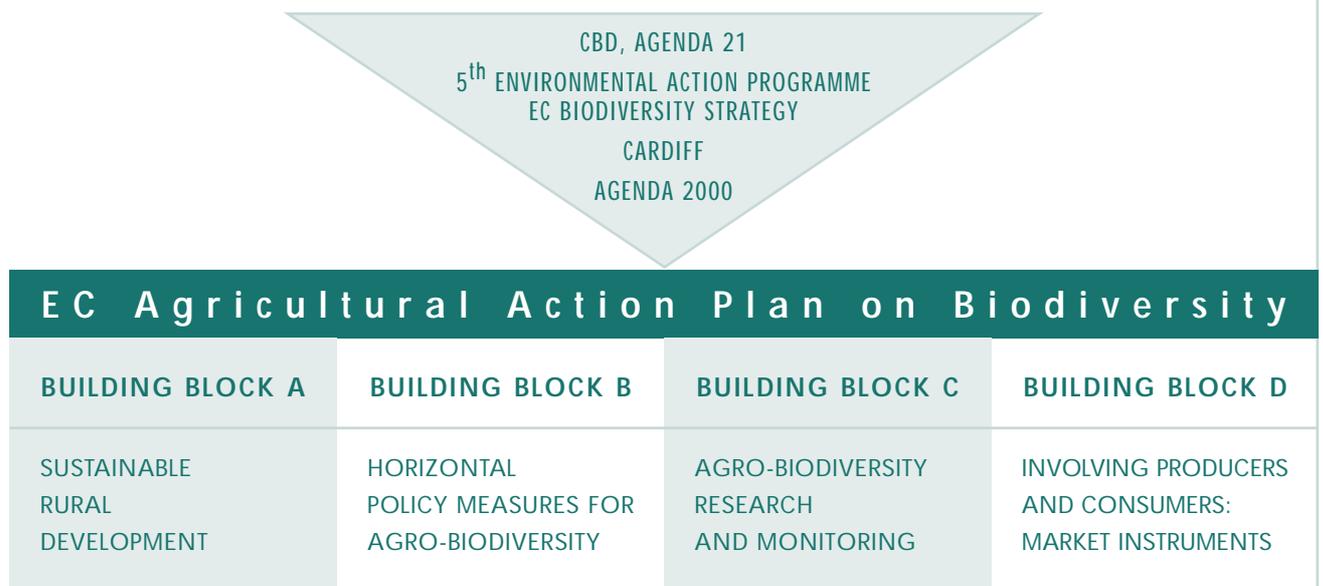
Senior Programme Co-ordinator - Economy and Ecology  
 European Centre for Nature Conservation (ECNC)  
 Tilburg, The Netherlands

**The EC Biodiversity Strategy: the mandate for sectoral Action Plans**

The European Commission adopted the EC Biodiversity Strategy on 4th February 1998 (COM(1998)42). Following the mandate of the EC Biodiversity Strategy, the Commission undertook to prepare Action Plans for the integration of biodiversity into a variety of policy sectors, including agriculture. The EC Biodiversity Strategy establishes the key requisites for the calendar, the role and the main elements of the sectoral Action Plans.

**Independent evaluation**

In the framework of the project ‘Towards building blocks for an EC action plan for the relationship between agriculture and biodiversity’, an independent evaluation of the linkages between agricultural policy and biological diversity in the EU has been carried out. Out of this analysis and evaluation, four building blocks for the EC Agricultural Action Plan on Biodiversity have been proposed. Important aspects of the EU-policy framework for the analysis and the evaluation of the linkages between agriculture and biodiversity include a number of milestones (Figure 1). In addition, the WTO negotiations and the EU enlargement negotiations are a cornerstone for the near future policy and action framework in this field.



**Figure 1** Policy framework and building blocks for the EC Agricultural Action Plan on Biodiversity

## **The four building blocks**

Based on the above mentioned evaluation of the policy framework as well as on the concrete mandate from the EC Biodiversity Strategy, four building blocks have been identified by the project partners as proposed building blocks to be integrated into the EC agricultural Action Plan on biodiversity. The evaluation helped especially to analyse the latest policy framework, which has a direct impact on Europe's agriculture and Europe's biodiversity conservation policies, such as the Agenda 2000 CAP reform and the follow up to the EU Council meeting in Cardiff.

The proposed building blocks consist of the following four thematic blocks:

### **1. Sustainable rural development**

In this building block, the focus of activities and measures is put on the linkage between integrated rural development plans, which constitutes the second pillar of the CAP reform, and biodiversity programmes at the regional level.

### **2. Horizontal policy measures for agrobiodiversity**

Many EU Member States have already defined and started to implement programmes to integrate biodiversity conservation measures and agricultural activities. The proposed building block presents a number of actions and measures in order to improve the co-ordination between these national activities and the EU level.

### **3. Agro-biodiversity research and monitoring**

An Action Plan on biodiversity needs background information on the linkages and measures regarding the concrete economic activity, in order to be able to monitor and evaluate whether the existing policies and the legal framework do guarantee to meet the targets, at national and at EU level. Genetic conservation and sustainable utilisation of genetic diversity is a key point in this building block. This building block also identifies a clear linkage between socio-economic factors and agro-biodiversity.

### **4. Involving producers and consumers: market instruments**

The involvement of stakeholders is substantial to guarantee the necessary awareness and participation. It is only by this means and clear EU support that the necessary market mechanisms can be developed to create a market for Europe's agro-biodiversity. The role of consumers' health is a key issue within this building block.

The EC Biodiversity Strategy establishes clear goals and proposes a number of tools to set up and implement the sectoral Action Plans, including concrete suggestions for the agricultural sector. These tools and mechanisms described in the EC Biodiversity Strategy are closely linked with the proposed building blocks (Table 1); however, Table 1 does not go into the sectoral objectives described in the EC-Biodiversity Strategy for the agriculture sector. A detailed comparison of the sectoral aims as described in the EC-Biodiversity Strategy and the final set of building blocks will be carried out after the workshop.

**Table 1 Comparative analysis between the EC Biodiversity Strategy and the proposed building blocks**

EC Biodiversity Strategy: paragraphs	Relevant text for the development and implementation of sectoral Action Plans within the Strategy	Building Blocks
I / 6	<i>The CBD specifically requests each party to ‘integrate as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.’</i>	
I / 10	<i>Many Member States have established a national biodiversity co-ordinating body, assembly or committee. All have integrated, or intend to integrate, conservation and sustainable use of biodiversity into relevant sectoral or cross-sectoral plans.</i>	
I / 11	<i>Successful implementation of the CBD requires co-operation both within Member States and at Community level.</i>	Horizontal policy measures for agrobiodiversity
I / 16	<i>The implementation of the CBD by the Community calls for a two-step process. The adoption of this strategy containing the general policy orientation is the first step. The second is the development and implementation of Action Plans and other measures by the Commission through its services responsible for the policy areas concerned. This second step will enable to translate into concrete actions the objectives derived from the Convention.</i>	Sustainable Rural development
I / 17	<i>The Action Plans and other measures will develop further the links between the objectives under each theme and the objectives in each policy area. By establishing a mechanism to ensure the integration of biodiversity concerns into other policy areas and instruments the strategy contributes to fill a gap in existing Community conservation policy.</i>	Sustainable rural development
I / 18	<i>Action Plans and other measures to achieve the objectives should build on and complement existing policies and planned initiatives. The development of Action Plans will need to take into account the objectives and actions envisaged by Member States strategies to ensure real value added, consistency and complementarity. How this can best be done will only be clear once all Member States strategies are available.</i>	Horizontal policy measures for agrobiodiversity
I / 20	<i>Progress in the implementation of the strategy and the performance of the Action Plans and other measures will be monitored and assessed using biodiversity indicators and measurable targets in order to measure the effectiveness of actions taken and to provide guidance as to further actions needed. The process of further development, implementation and monitoring is described in section IV.</i>	Agro-biodiversity research and monitoring
II / 5	<i>Also, while biotechnology in general presents a number of potential benefits to society, the introduction of genetically modified organisms into the environment can have negative impacts on biodiversity.</i>	Involving producers and consumers: market instruments
II / 7	<i>The Community therefore should develop appropriate methods and techniques to enable stakeholders to participate in assessment procedures and in the implementation of remedial and preventive actions.</i>	Involving producers and consumers: market instruments

EC Biodiversity Strategy: paragraphs	Relevant text for the development and implementation of sectoral Action Plans within the Strategy	Building Blocks
II / 8	<i>The Community encourages methods to promote that well-informed consumers can take as much as possible individual decisions benefiting the conservation and sustainable use of biodiversity. Eco-labelling schemes based on life cycle analysis for products whose production, distribution, use or disposal could affect biodiversity.</i>	<i>Involving producers and consumers: market instruments</i>
II / 9	<i>Contributing to the social and economic viability of systems supporting biodiversity.</i>	<i>Sustainable rural development</i>
II / 10	<i>The sharing of benefits arising out of the utilisation of genetic resources relates to the Implementation of the CBD in a number of aspects, i.a. access to genetic resources and distribution of the benefits of biotechnology including research and commercial partnerships between providers and users of genetic resources; transfer of technology; technical and scientific co-operation; knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles.</i>	<i>Agro-biodiversity research and monitoring; Involving producers and consumers: market instruments</i>
II / 15	<i>Tasks and targets identified in the Action Plan and other measures in this area should be incorporated in the activities within the Framework Community Programme on Research and Development. The importance of data held by the NGO community, Member States, their agencies and private collections should be taken into account.</i>	<i>Agro-biodiversity research and monitoring</i>
II / 18	<i>As the monitoring and continuous assessment of all the components of biodiversity in the Community, as well as of the pressures and threats that may affect them would be impractical, it is proposed to promote the development of a system of indicators based on a species and eco-systems approach.</i>	<i>Agro-biodiversity research and monitoring</i>
II / 19	<i>The identification of these indicators and the monitoring of their evolution is an essential element of this strategy because it will provide the required information to assess the performance and impact of the Action Plans and other measures. They should therefore include:</i> <ul style="list-style-type: none"> <li><i>• the identification of a set of indicators to assess how components of biodiversity are affected by the sector and assess progress on the implementation of the strategy;</i></li> <li><i>• the mechanisms for monitoring the evolution of the indicators having regard, inter alia, to activities causing habitat degradation, unsustainable harvesting, emission of pollutants and release or spread into the environment of alien species and genetically or living modified organisms.</i></li> </ul>	<i>Agro-biodiversity research and monitoring</i>
II / 20	<i>The strengthening of cross-border co-ordination in between Member States as well as with other Parties to the CBD, on a bilateral or regional basis, is therefore an important objective.</i>	<i>Horizontal policy measures for agrobiodiversity</i>
II / 23	<i>Consequently Action Plans and other measures should help to :</i> <ul style="list-style-type: none"> <li><i>• identify and review existing mechanisms to facilitate the exchange of relevant information through the Community Clearing House Mechanism;</i></li> <li><i>• establish or strengthen systems for the exchange of information at national and international level and make existing knowledge of biodiversity available and useful to the public and decision-makers.</i></li> </ul>	<i>Horizontal policy measures for agrobiodiversity; Agro-biodiversity research and monitoring; Involving producers and consumers</i>

EC Biodiversity Strategy: paragraphs	Relevant text for the development and implementation of sectoral Action Plans within the Strategy	Building Blocks
II / 26	<p>The Community should therefore encourage the development of:</p> <ul style="list-style-type: none"> <li>• programmes for public information, education and awareness raising on conservation and sustainable use of biodiversity;</li> <li>• programmes to ensure the training required for the human resources involved in the implementation of this strategy at Community, National and local levels;</li> <li>• capacity building to monitor, assess and report on the impact of Community strategies, plans, programmes, policies and projects on biodiversity in third countries.</li> </ul>	Horizontal policy measures for agrobiodiversity, Agro-biodiversity research and monitoring; Involving producers and consumers
III / 8	<p>Farming communities have an intrinsic interest in ensuring that land use practices are sustainable and contribute to the conservation and sustainable use of biodiversity. Some semi-natural habitats can be preserved only if appropriate farming activities are continued. In many situations where agriculture production is a key element of sustainable ecosystems, abandonment of agriculture would lead to the irreversible degradation of different habitats.</p>	Sustainable rural development
III / 9	<p>Because of the interaction of sustainable agriculture and rural development, with the conservation and sustainable use of biodiversity and the need for integrated land-use planning as mentioned in Agenda 21, the conservation and sustainable use of agro-biodiversity should be based on the combination of two mutually coherent approaches.</p>	Sustainable rural development
III / 11a)	<p>The maintenance and further development of farming with a view to optimising its positive impact on the conservation and sustainable use of biodiversity; recognising and supporting the role of farming communities in the creation and maintenance of semi-natural habitats; taking into consideration the positive role of non-intensive agricultural systems for wildlife and wild plants habitats; and optimising the positive impacts of agricultural practices and production systems on the conservation and sustainable use of biodiversity.</p>	Sustainable rural development
III / 11b)	<p>The mitigation of negative impacts of agricultural activities on biodiversity. In particular, certain land use practices, the use of agro-chemicals, the overgrazing and pollution consequences of excessive livestock intensity, monoculture, the elimination of wetlands and hedgerows, and the use of heavy machinery, has serious effects for biodiversity. Pesticides, for example, can have a negative effect on the conservation of biodiversity not only in the place where they are applied but also in other ecosystems (i.e. by pesticide run-off).</p>	Sustainable rural development
III / 12	<p>In this context, the Action Plan on agriculture should build upon the existing policies and those foreseen in Agenda 2000 and complement them so that they contribute to biodiversity.</p>	

EC Biodiversity Strategy: paragraphs	Relevant text for the development and implementation of sectoral Action Plans within the Strategy	Building Blocks
<i>III / 13</i>	<i>Objectives: to encourage the ecological function of rural areas.</i>	<i>Sustainable rural development</i>
<i>III / 14</i>	<i>The impact of trade policies on agricultural commodity production and land use is particularly relevant for biodiversity conservation. Direct investment by producers should be a strong force in promoting sustainable development and biodiversity. Implementation of global, regional and bi-lateral trade agreements is certain to have effects on land use in many countries.</i>	<i>Sustainable rural development</i>
<i>III / 15</i>	<i>In this field legislation on quality labels can also contribute to biodiversity. Protection of geographical indications and designations of origin and specific characters for agricultural products and foodstuffs is also important and can contribute to the conservation of special agro-eco-systems enhancing biodiversity.</i>	<i>Involving producers and consumers: market instruments</i>
<i>IV / 3</i>	<i>These Action Plans should be practical tools to achieve the integration of biodiversity into sectoral and cross-sectoral policy areas and instruments relevant to the conservation and sustainable use of biodiversity within the Community. Taking into account Article 3 of the CBD, the Action Plans should also ensure that Community policies and instruments do not cause damage to the environment of third countries or of areas beyond the limits of national jurisdiction and help third countries in their efforts to achieve conservation and sustainable use of biodiversity.</i>	
<i>IV / 4</i>	<i>Taking into account the assets that some of the associated countries of the Community in Central and Eastern Europe have with respect to biodiversity it should be ensured that Action Plans and other measures include a specific focus on enlargement issues.</i>	
<i>IV / 8</i>	<i>Action Plans should enhance collaboration and partnerships as well as a more efficient use of available resources. Interest groups such as industry associations and NGOs will be associated in the development and implementation of the Action Plans.</i>	<i>Involving producers and consumers: market instruments</i>

## The link between the CAP and EU and National Biodiversity Strategies

**Mr Jim Dixon**

*Senior Agriculture Officer*

*English Nature*

Peterborough, United Kingdom

### Summary

The Common Agricultural Policy is one of the most important EU policies for biodiversity. The agriculture sector is both the greatest threat to European biodiversity but it is also the sector which can most actively protect and enhance biodiversity. Sustainable farming necessarily protects biodiversity. The CAP is evolving towards a policy that reflects a wider range of objectives for agriculture. It is important to society at large that as policy reform occurs that it is clear that these new objectives are actually being delivered. Thus, the CAP is no longer solely about agricultural output but it must also be focused on and measured against environmental outputs. Biodiversity planning is a local, regional, national, EU and global-level process that draws on biological expertise and sets clear objectives for wildlife conservation. It ensures that priority issues are addressed, that all stakeholders are involved and that clear targets which illustrate the degree of success are determined. The biodiversity sector has much to do to develop further robust targets and present these in understandable and consistent. Policy-makers must do more to measure the outputs of policy reform rather than processes.

### 1. Why the CAP must be linked to Biodiversity Strategies

The CAP must be linked to biodiversity strategies from three perspectives:

- Wildlife and the environment;
- Farmers, and the agri-food industry;
- The public.

From the **wildlife perspective** it is essential that all economic sectors which influence land use consider the impacts on biodiversity. Implicit in nature conservation is managing the trade-off between human endeavour (sectors) and biological resources. Fundamentally, therefore biodiversity conservation requires integration within economic sectors and the policies which guide them. Agricultural land use is one of the most important sector for biodiversity in Europe. The EU 5th Action Programme on the Environment<sup>1</sup> set measurable targets for better integration of environmental objectives into sectors. This has been developed further in a number of publications and initiatives including the Commission's Communication on Sustainable Agriculture<sup>2</sup> and the Commission Working Document reporting on Environmental and Integration Indicators to the Helsinki Summit<sup>3</sup>. From the perspective of farmers, the agri-food trade and agriculture policy-makers it is also essential that environmental objectives are integrated into policy. These groups now recognise that historically agriculture policy did not take sufficient account of environmental matters and conservation. Policies were focussed on the one objective of increasing production by promoting uptake of technology and more efficient farm structures. Now it is widely recognised that policy must reflect a wider range of objectives. Farming is no longer solely about farming for food but it is also about farming the land. The concept of multifunctionality is an important one in terms of

<sup>1</sup> *Towards Sustainability: the Fifth Action Programme on the Environment (1994) OJ C 138, 7.2, 13.*

<sup>2</sup> *European Commission (1999) Directions towards sustainable agriculture. Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions. COM (1999) 22 final.*

<sup>3</sup> *SEC (1999) 1942 November 1999*

creating policy instruments that protect or reward those farms who deliver most on the wider range of objectives for farming. Multifunctional land management must ensure a wide range of food, fibre, energy, mineral, recreational, cultural, social and environmental products are generated from farming and land management. European farming must occupy a middle ground between wilderness and badly farmed land. It must be well farmed and farmed in a sustainable way. If wildlife is not thriving it cannot be sustainable. From the perspective of the public - who purchase the products of farming and pay additionally through subsidies - there has to be a clearer contract between farmers and society at large. We want to say 'farmers are the best people to manage the land for wildlife'. We want to help them in doing this by paying them, giving them protection in international trade negotiations and in supporting the economy in rural areas. To the traders, farmers outside of Europe, the consumer and the taxpayer we need to make our contract transparent. Sustainable agriculture is complex, esoteric and difficult to appreciate for many people. But wildlife is easier for people (including farmers) to understand: it is all around us, it is visible and popular and so it is a good indicator to the public of how sustainable our farming is in Europe. The CAP is an evolving policy. Over time it is moving away from a policy of direct intervention in markets to one which achieves a competitive agriculture which produces good quality food in sufficient quantities and in a sustainable way. The biodiversity planning process offers one clear way of setting objectives, measuring progress, justifying government action and making policy accessible to the public.

## 2. Biodiversity and Agriculture

Biodiversity is the diversity of life. In Europe our biodiversity is found on land and in our seas and waterbodies.

The most important habitats include:

- Steppe, pseudo-steppe and other natural and semi-natural grasslands.
- Heathland, macquis and other short scrub vegetation.
- Boreal, temperate and Mediterranean woodland.
- Tundra, upland montane and sub-montane and moorland.
- Rivers, lakes, wetlands, coastal zones and marine environment.
- Farmland including arable land, permanent or temporary grass, perennial crops.

**All** of these habitats are affected by agriculture to a greater or lesser degree. 40% Natura 2000 sites affected by agriculture in the UK, 70% in Spain and 70% in Sweden. Habitats and species may be linked to agriculture in the following positive and negative ways:

- Continued grazing, cutting, burning or other vegetation management may be essential.
- Cultivation and the cycle of crop management may be necessary.
- Water-bodies may be subject to run-off by agri-chemicals, nutrients or siltation.
- Habitats may be reclaimed for agricultural use.
- Traditional landscape features (such as hedges or trees) may be integral to farming or may now be redundant.
- Water quantity management may threaten or sustain wetland sites.

Key habitats in Europe which are intimately linked to agriculture and which are threatened by both intensification and abandonment are:

- Atlantic, Baltic and Mediterranean grazing marshes and meadows.
- Alpine calcareous meadows.
- Steppe, pseudosteppe and other grasslands.
- Mediterranean forests/montado/dehesa.
- Mixed arable/grassland with hedgerows (bocage), arable and pastoral ecosystems.
- Rice farming.

Some analysis has been done drawing the links between agricultural habitats and biodiversity<sup>4</sup> but much work remains yet to be done, to define robustly the

- a) Nature, typology and extent of habitats;
- b) Specific interrelationships with farming practices and biodiversity;
- c) Objectives for management of habitats; and
- d) Economically-sustainable systems for achieving management objectives.

Nature conservation objectives can be summarised as to:

- Manage special wildlife sites to reach favourable condition.
- Protect, restore and re-create wildlife habitats out of designated sites.
- Provide wildlife-friendly field conditions.
- Ensure careful use of chemical inputs to avoid damage to wildlife.
- Achieve sustainable use of water, soil, energy and other resources on farms.

However, it is important to move from general objectives to specific objectives that administrators, farmers and the public can grasp. The remainder of this paper draws on UK experience of using the biodiversity action planning process to do this.

### 3. Case study: the UK Biodiversity Plan

In January 1994 the UK Government published 'Biodiversity: The UK Action Plan' which set out how it would implement the Convention on Biological Diversity. This acknowledges that the biggest threat to biodiversity has been agricultural change. The agriculture sector must play a key role in delivering many Species and Habitat Action Plan targets under the UK Biodiversity Action Plan. Several such plans include actions to encourage the uptake of schemes or extend agri-environment schemes under the Rural Development Regulation such as Environmentally Sensitive Areas and Countryside Stewardship in England, Tir Gofal in Wales and Countryside Premium Scheme in Scotland.

<sup>4</sup> See e.g. Pain, D. J. & Pienkowski, M. W. 1977 *Farming and Birds in Europe*. Academic Press, Black, D., Clark, J., & Beauty, G., (1994) *The Nature of Farming*, European Commission (1999) *Agriculture, environment, rural development: Facts and Figures: A Challenge for agriculture*. Joint Publication of DGVI/XI/Eurostat.

Examples include:

- The management of wetlands and watersides for the marsh warbler (*Acrocephalus palustris*);
- Hedgerow management for the dormouse (*Muscardinus avellanarius*) under Countryside Stewardship Scheme;
- Arable and farmland management for the management of habitats for eyebrights (*Euphrasia* spp.), early gentian (*Gentiana anglica*), creeping marshwort (*Apium repens*), western ramping-fumitory (*Fumaria occidentalis*), fen orchid (*Liparis loeselii*);
- The establishment and management of cereal field margins, lowland heathland and fens.

The Government's 'headline' indicators of the quality of life, Sustainability Counts, illustrate the catastrophic declines in farmland bird populations many of which are also subject to Biodiversity Action Plans (BAP). For birds associated with lowland farmland, 15 out of 18 species for which good national monitoring data are available declined between 1968 and 1991 and seven of these declined by over 50%. Out of 28 farmland birds, 24 experienced a contraction in their breeding range between the first and new breeding atlases (i.e. between the periods 1968-72 and 1989-91). Eleven underwent declines of more than 10%. In recent years, there have been an increasing number of cases of local extinction in once common and widespread species, such as the Tree Sparrow (*Passer montanus*) and the Corn Bunting (*Miliaria calandra*). Other species such as Cirl Bunting (*Emberiza cirlus*), Stone Curlew (*Burhinus oedicephalus*), Red-backed Shrike (*Lanius collurio*) and Corncrake (*Crex crex*) have become extinct in England or are now confined to a fraction of their former range. Action Plans follow a set format: they review the biological status, including reasons for decline and vulnerability of species and habitats. They outline numerical targets, for example relating to the area of habitat which needs to be maintained, restored or re-created. Actions, defined by who will be responsible, are prepared for all key species and habitats and are detailed objectives specifying who will lead the action, who else is involved and over what timescale the action will be delivered.

So far, the UK Biodiversity Group has achieved:

- First steering group report (including tranche 1 plans) 1994;
- Tranche 2 plans published 1997-99;
- 100 local biodiversity initiatives;
- A National Biodiversity Network and Biodiversity Research Group;
- Costings for action plans;
- Reporting procedure developed for the impending 'Millennium' report.

There are several hundred species and habitat plans and many thousands of actions. Many of these relate to agriculture. Some are very specific and some more general. In general terms, key agriculture objectives of BAPs are:

- Increasing the resources allocated to agri-environment incentives under the EU Rural Development Regulation.
- Prevent further damage to habitats by further agriculture encroachment.
- Support or promote extensive livestock grazing or re-introduce it to areas where it has been abandoned.
- Reduce the harmful indirect effects of pesticides on non-target species.
- Promote management of water levels to achieve wetland conservation objectives.
- Accommodate coastal re-alignment.
- Promote mixed arable/pastoral landscapes.
- Protect and manage field boundaries and margins, especially banks, walls, hedges, cereal field margins and watercourses.

Of these, the priority for English Nature has been seeking increased resources for BAP actions.

#### 4. Funding biodiversity actions in the UK: Targets for the New CAP

Table 1 illustrates the scale of resources required for priority agricultural habitats within the UK BAP covering all habitat management costs within the costed plans. A proportion of this could be met by agri-environment schemes. The UK BAP identifies spending requirements for priority habitats as a whole at £ 94.6m pa for 1999-2003, rising to £ 166.3 pa 2004-2008. Only a proportion of this will require to be delivered by agri-environment spending in England and this will vary between habitat types. Overall, we assess this as a minimum of £ 16m pa for the period 1999-2003, rising to £ 32m pa 2004-2008 above current resources. English Nature estimates that restoration management of grasslands between 1999/00 and 04 will be £ 40.83m for all grassland types. This would include £ 9.07m between 1999/00 and 2004 above and beyond current annual agri-environment spend of £ 3.29m and an additional £ 31.75m over the period 2004-2014. Expansion of the grassland resource over this time would cost an additional £ 5.5m.

Management of arable land, mixed farms, hedges and cereal field margins to reverse the declines in farmland wildlife would require £ 350m pa for arable land, £ 120m for boundary features on mixed farms and £ 150m for boundary features in arable areas. It has been estimated that, to meet current demand for organic conversion £ 30m per annum would be required for conversion payments alone.

**Table 1** *Examples of Priority habitats associated with agriculture and their costed actions above and beyond existing commitments*<sup>5</sup>.

BAP Habitat	Costs pa 1999-2004 (£ 000)	Costs pa 2004-2010 (£ 000)
Lowland meadows	443	655
Upland hay meadows	65	79
Lowland dry acid grass	570	1,178
Lowland calcareous	1,234	1,395
Heathland <sup>6</sup>	4,300	5,900
Wood pasture & parks	674	429
Blanket bog	13,973	45,614
Upland calcareous grass	402	452
Upland heath	9,353	18,652

<sup>5</sup> Source: UK Biodiversity Group (1998) *Tranche 2 Action Plans Vol II Terrestrial and Freshwater Habitats*. English Nature and UK Biodiversity Group (1999) *Tranche 2 Action Plans Vol VI Terrestrial and freshwater species and habitats*. English Nature

<sup>6</sup> Figures are high estimate of costs per annum for 2000 and 2010.

The main mechanism for funding and delivering the UK Biodiversity Action Plan in farmed areas will be agri-environment schemes under the Rural Development Regulation (see table 2). Other, smaller, sources used in the UK are EU LIFE funds, management payments and agreements made by UK statutory conservation agencies (such as English Nature's Wildlife Enhancement Scheme) and funds from the lottery National Heritage Memorial Fund. All sources are identified within Biodiversity Action Plans.

**Table 2** *Financial support for England agri-environment schemes 1996-1999 in £ m*  
(Source: Hansard, 11 October 1999)

Scheme	1996-1997	1997-98	1998-99	1999-00 (forecast)
ESAs	27.59	32.98	36.38	41.00
Organic	0.48	0.70	1.32	8.00
Countryside Stewardship	10.93	15.08	19.90	26.30
TOTAL	39.00	48.76	57.60	75.30

Different schemes operate within the other 3 countries of the UK but their funding levels were similarly small. Resources were far outstripped by demand. However, the UK Government has recently announced plans for a substantial increase in resources (table 3, see next page). This will allow a dramatic increase in quantity of spending. Our concerns are that such spending should be matched by an increased quality of schemes.

**Table 3** *England rural development plan 2000-2006*

1. EXPENDITURE								
Financial Year (£ million)	1999/2000	2000/01	2001/02	2003/04	2004/05	2005/06	2005/06	2006/07
<b>EXISTING: <math>\Sigma</math> Agri-environment</b>	86	95	119	136	152	167	182	197
Countryside Stewardship	29	35	51	66	81	96	111	126
ESAs	43	46	48	48	48	48	48	48
Organic Farming	7	10	18	20	22	23	23	23
NSAs	6	4	3	2	1	0	0	0
Farm Woodlands	8	8	9	10	11	12	13	14
Increase in Woodland Grant Scheme	0	0	0	4	4	4	5	5
Less Favoured Areas	43	35	27	37	27	27	27	27
<b>NEW</b>								
Article 33	0	0	8	12	24	36	36	36
Processing of Marketing	0	0	4	8	8	8	8	8
Training	0	1	2	3	4	4	4	4
Energy Crops	0	0	4	5	5	5	5	5
Young farmers; early retirement; capital grants	0	0	0	0	0	0	0	0
<b>Total planned expenditure</b>	<b>136</b>	<b>139</b>	<b>173</b>	<b>205</b>	<b>236</b>	<b>263</b>	<b>279</b>	<b>295</b>
2. SOURCES OF FUNDING								
EU Receipts	42	50	50	50	50	50	50	50
MAFF CSR	85	88	91	91	91	91	92	94
<b>Funds without modulation</b>	<b>127</b>	<b>138</b>	<b>141</b>	<b>141</b>	<b>141</b>	<b>141</b>	<b>141</b>	<b>144</b>
Modulation receipts	0	0	22	45	50	54	62	70
Exchequer match funding	0	0	22	45	50	54	62	70
<b>Funds from modulation</b>								
100% match funding	0	0	44	90	100	108	124	140
<b>Total Funds with modulation + 100% match funding*</b>	<b>127</b>	<b>138</b>	<b>185</b>	<b>232</b>	<b>241</b>	<b>249</b>	<b>265</b>	<b>281</b>

\*Deficits in some years can be funded by carrying over surplus modulation receipts in others

Until recently, budgets for agri-environment schemes in England were very small and support for organic farming very modest (table 4).

**Table 4** *Priorities within Agri-environment Schemes 1999-2007*

Scheme	1999-2000	2000-2001	2001-2002	2002-2003	2006-2007
<i>Countryside Stewardship</i>	29.00	35.00	53.00	68.00	129.00
<i>CS BAP</i>	10.00 <sup>7</sup>	24.00	26.00	30.00	45.00
<i>CS Extensive farm scheme</i>	1.00	1.50	5.00	10.00	30.00
<i>CS Other habitat</i>	18.00	10.00	22.00	28.00	53.00
<i>ESAs</i>	43.00	46.00	48.00	48.00	48.00
<i>Tier 1 maintenance</i>	27.00	25.00	23.00	20.00	15.00
<i>Tiers 2 &amp; 3 enhancement</i>	16.00	21.00	25.00	28.00	33.00
<i>Organic Farming Scheme</i>	7.00	10.00	16.00	18.00	21.00

## 5. Improving the quality of Agri-environment schemes

Priorities are:

- emphasis in targets towards Biodiversity Action Plan targets.
- measuring outputs not process objectives.
- linking biodiversity outcomes to defined management systems.
- improved review, evaluation and feedback.
- strengthen biodiversity expertise amongst farmers, advisers, researchers.

## 6. Useful Websites

[www.jncc.gov.uk/ukbg](http://www.jncc.gov.uk/ukbg): UK Biodiversity Group website.

[www.english-nature.org.uk](http://www.english-nature.org.uk): English Nature's homepage includes summary of the UK Biodiversity Action Plan and details of the UK Heathland Plan as a featured biodiversity plan.

[www.snh.org.uk](http://www.snh.org.uk): Scottish Natural Heritage home page.

[www.ccw.gov.uk](http://www.ccw.gov.uk): Countryside Council for Wales homepage.

[www.wildlife-countryside.detr.gov.uk/ewd/ewd07.htm](http://www.wildlife-countryside.detr.gov.uk/ewd/ewd07.htm): Department of the Environment, Transport and Regions site explaining the importance of the BAP to UK wildlife.

[www.maff.gov.uk/enviro/envindx.htm](http://www.maff.gov.uk/enviro/envindx.htm): Ministry of Agriculture, Fisheries and Food site explaining the agri-environmental policies including schemes with biodiversity targets.

[www.nbn.org.uk](http://www.nbn.org.uk): Sources of biodiversity data within the UK National Biodiversity Network

<sup>7</sup> Assuming current CS spending on BAP as £10 mio pa.

## The Role of Agro-Biodiversity Indicators

**Mr Dirk Wascher**

*Senior Programme Co-ordinator - Biodiversity and Landscapes*

*European Centre for Nature Conservation (ECNC)*

*Tilburg, The Netherlands*

### Contents of presentation (overheads)

- (1) Policy events relevant for indicators
- (2) Scope of Indicators related to agro-biodiversity
- (3) The ELISA (Environmental Indicators for Sustainable Agriculture) Project
- (4) Agro-biodiversity as part of a larger picture

### (1) Policy events relevant for indicators

- 1993** *European Community ratified Convention on Biological Diversity*  
**Article 7:** *monitor through sampling and other techniques, components of biodiversity.*
- 1995** *Pan-European Biological and Landscape Diversity Strategy, Sofia*  
**Action Theme 2:** *Integration into Sectors.*
- EEA Project on Biodiversity Assessment.*
- 1997** *EU Concerted Action Workshop on Environmental Indicators and Agricultural Policy, Wageningen.*
- 1998** *EC adopted Biodiversity Strategy*  
*Objectives (13): biodiversity indicators*  
*EU Concerted Action project*  
*Environmental Indicators for Sustainable Agriculture (ELISA), Workshop in Tilburg*  
*OECD Workshop on Agri-Environmental Indicators, DG.AGRI taking lead on Landscape Indicators (York Workshop)*  
*EC release 'Evaluation of Agri-environment Programmes'.*
- 1999** *Launch of EC Clearing House Mechanism*  
*(DG3, DG.ENV and EEA with biodiversity contractors led by ECNC)*  
*PEBLDS AT4 Workshop 'Landscape Assessment and Sustainability' (Strasbourg, CoE, ECNC, CA)*  
*DG.AGRI communication 'Indicators for the Integration of Environmental Concerns into the Common Agricultural Policy'*  
*Finalisation of ELISA Project, Budapest Workshop.*

## (2.1) Scope of Agro-Biodiversity Indicators - Ecosystem level: candidate indicators

### 1) Land use, landscape and habitats:

- Percentage area of important biotopes / total area.
- Size of selected (threatened) ecosystems.
- Fragmentation of arable land (indicator in a positive sense).
- Total length of hedgerows and walls.
- Percentage environmentally managed land/ total agricultural land.
- Percentage area with intensive cropping / total agricultural land.
- Changes in area of heathland, fallowland and hedgerows.

### 2) Population indicators:

- Fluctuations of populations.
- Population levels of key species across their range.
- Fluctuation in bird populations.
- Selected birds: number and trends.
- Point counts of migrating birds.
- Changes in mammal populations.
- State and trends of mammals/ reptiles/ amphibians.

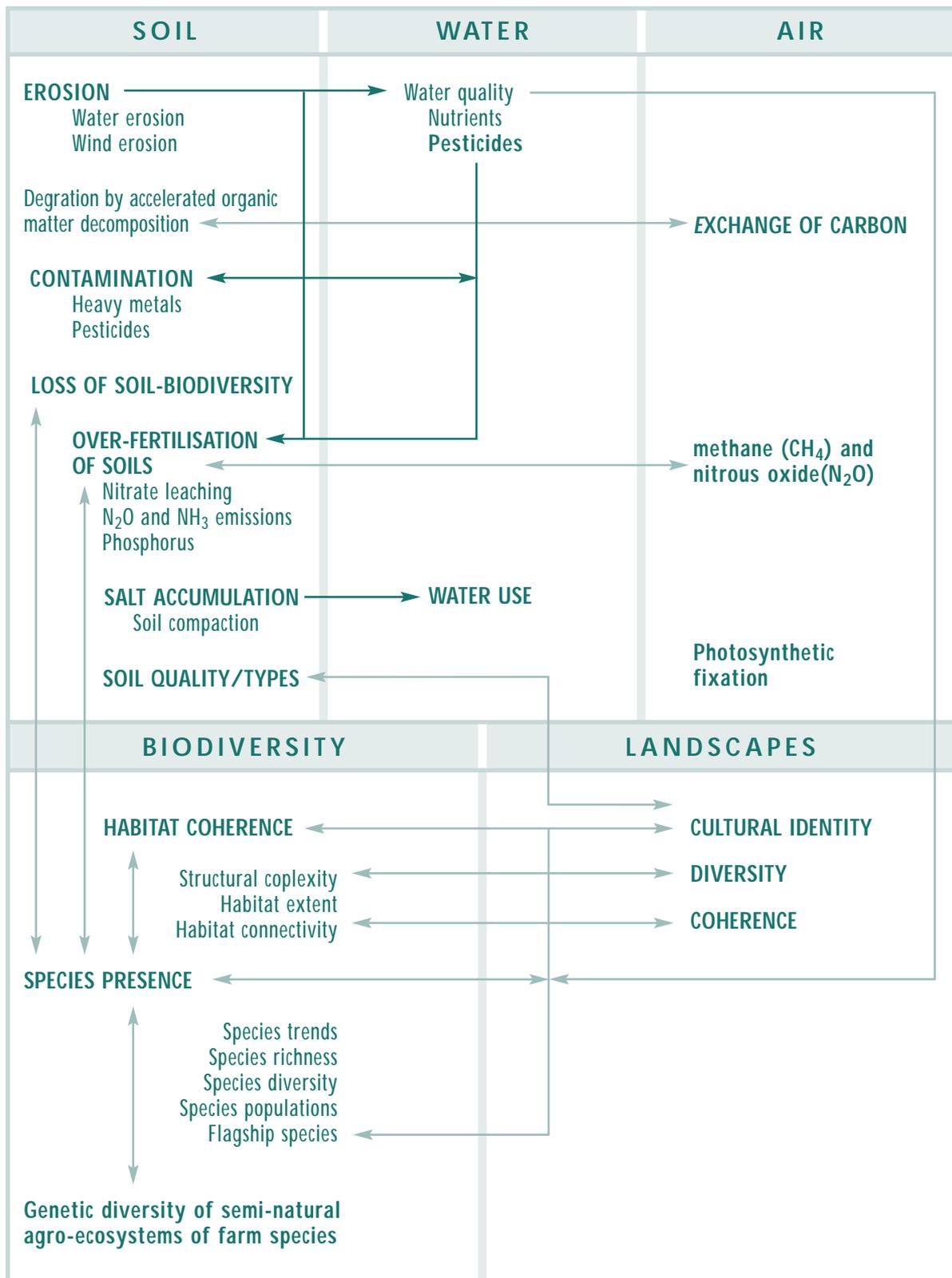
### 3) Species:

- Presence of key indicators species moths and beetles.
- Number of dragonfly and butterfly species changing in distribution.
- Mean number of plant species per plot (hedgerows, grasslands).
- Number/ percentage of threatened species.

### 4) Genetic Diversity

- Change in sum of all recognised varieties of domestic livestock and plants over time.
- Production per head of breed of species over time.

(2.2) Scope of Agro-Biodiversity Indicators - inter-relations between media and systems  
 (source: ELISA project, Wascher et al, 2000)



### (3.1) The ELISA Project - Introduction

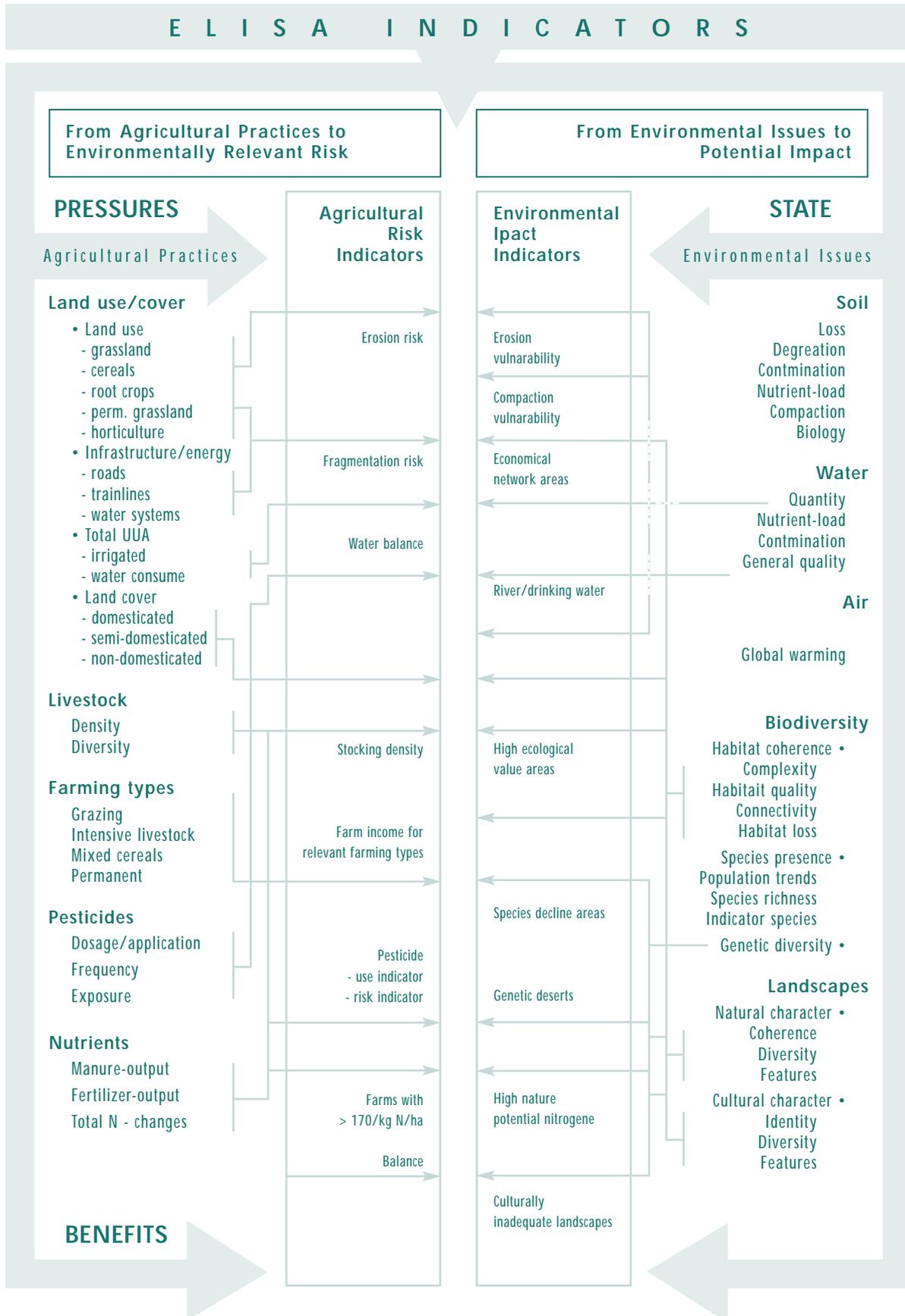
#### **General Project Aims:**

- Practical - though comprehensive and consistent - agri-environmental indicators as information tools;
- Analysis of hypothetical or actual (causal) relationships between farming and environmental qualities;
- Communication and comparisons on potentials, problems and perspectives in an international, in particular European, context;
- Basis for impact assessment of policies, in particular European agricultural and agri-environmental policies, at national and regional level.

#### **Project activities:**

- Identification and illustrations of policy relevant agri-environmental issues;
- Selection of indicator core sets according to environmental media and systems ;
- Elaboration of the conceptional framework;
- Conceptual development of so-called agri-environmental risk indicators;
- Testing a series of the proposed indicators with concrete national and European data for illustrating future assessment procedures (pilot studies);
- Drafting an operational framework.

(3.2) The ELISA Project - ELISA Indicators (ELISA project, Wascher (ed), 2000)



**(4.1) Agri-biodiversity as part of a larger picture - examples of biodiversity monitoring**

Focus	Initiative	Organisation
Species	<i>Intern. Waterbird census</i> <i>Important Bird Areas of Europe</i> <i>Internat. Phenological Gardens</i> <i>Breeding Birds</i>	<i>Wellands International</i> <i>BirdLife International</i> <i>Humboldt University, Berlin</i> <i>SOVON, NL</i>
Ecosystems	<i>Biosphere Reserves</i> <i>ICP Forests</i> <i>Ecological Area Sampling</i> <i>Biological Diversity Monitoring</i> <i>Coastal Monitoring Programme</i> <i>Terrestrial Ecosystems</i>	<i>EuroMAB</i> <i>UNECE / BFH</i> <i>StaBA, BfN Germany</i> <i>BUWAL, Switzerland</i> <i>NIVAS, Norway</i> <i>NINA, Norway</i>
Environment	<i>EUROAIRNET</i> <i>EUROWATER</i> <i>Farm Structure Survey</i>	<i>ETC Air Quality</i> <i>ETC Inland Water</i> <i>LEI-DLO, NL</i>

**(4.2) Agri-biodiversity as part of a larger picture - agro-biodiversity policy context****1. Agri-environmental measures (Reg.2078/92)**

- Reduction of production x environmental goals.
- Environmental aid schemes.
- Set-aside programme.
- Agricultural income support.
- Zonal programmes for regional diversity.
- Education.

**2. Early retirement (Reg.2979.82)****3. Forestry measures (Reg. 2080/92)**

- Includes contribution to nature management.

#### 4. EC Nitrates Directive (91/676)

Member States to designate Nitrate Vulnerability Zones for Action Programmes  
+ livestock manure of limits of < 210 kg N/ha, later 170 kg N/ha. Area types:

- surface freshwater pollution exceeding Dir. 75/440;
- groundwater > 50 mg/l nitrate;
- freshwater + marine waters prone to eutrophication.

#### 5. Structural Funds (Reg. 2843/94)

#### 6. Less Favoured Areas (LFA, Dir. 75/268/EEC)

### (4.3) Agri-biodiversity as part of a larger picture - Policy analysis

DG VI Commission Working Document (7655/98):

#### 'Evaluation of Agri-Environment Programmes'

- 900.000 farms / 27 mill. ha, 1998: ECU 1.7 billion
  
- **Evaluation process:**
  - measuring impacts presents difficulties, region- and issue specific indicators needed;
  - monetary evaluation remains imprecise;
  - cause - effect (driving forces) not always clear.
  
- **Impact of measures:**
  - difficulties of gathering nature data;
  - maintenance of traditional systems notes failures;
  - 'landscape system' shows advantages.

### (4.4) Agri-biodiversity as part of a larger picture - Conclusions

#### 1. Region- and issue specific indicators:

- **Key focus:** identification of area typologies as reference base for future agri-environmental assessments.
- **Important:** issue-oriented area typologies needed (e.g. habitat types, soil sensitivity types, landscape types).
- **Application:** area typologies provide reference for defining appropriateness of environmental measures and for success control.
- **Data source:** mix of remote sensing and inventory data.

## 2. cause-effect (driving force) relations:

- **Key focus:** more precise interpretation of impacts resulting from agricultural processes affecting environmental state.
- **Important:** region-specific approach providing higher geographic detail on cause-effect relation.
- **Application:** more precise prediction about likely impacts due to risk indicators, validation on the base of site assessments.
- **Data source:** mix of remote sensing and inventory/statistical data.

## 3. landscape concept as over-arching principle:

- **Key focus:** relate all environmental media and biodiversity to the landscape level.
- **Important:** establish agreed-upon landscape typology as top-hierarchical system.
- **Application:** gather natural data and run site-specific assessments on the base of landscapes.
- **Data source:** mix of remote sensing and (new) inventory data.

## The Relationship between Nature Conservation, Biodiversity and Organic Agriculture

**Bernward Geier<sup>1</sup>,**  
*Executive Director*  
 IFOAM (International Federation of Organic Agriculture Movements)  
 Tholey-Tholey, Germany

### Introduction

Although conservationists have long tacitly accepted the importance of reflecting nature conservation values within agricultural systems, this was generally taken as second priority as regards the conservation of 'natural' areas. Furthermore, the conservation movement has often overlooked the potential of the various organic farming methods to contribute to nature conservation.

To raise the profile of organic farming within the international conservation movement, IFOAM submitted a motion to the World Conservation Congress of IUCN in Montreal, Canada in October 1996. This motion was the only one of the 125 submitted that focused on agriculture. Although it was challenged by a number of IUCN members, especially from the governmental sector, and attempts were made to widen its scope to include integrated pest and crop management, negotiations during the congress led to a final compromise, and the General Assembly approved the motion.

Since then, the World Conservation Congress, IFOAM and IUCN have been working towards the implementation of the motion - in particular the need for an international workshop on the linkages between organic agriculture and nature conservation. The workshop in May 1999 in Vignola, Italy, was a key event in moving towards this objective. The workshop also provided the opportunity for IUCN and IFOAM to draw up the joint Vignola Declaration and Action Plan, which recognises the role of organic agriculture in conserving biodiversity and suggests a number of policy options for achieving these aims.

<sup>1</sup> Co-authors of the presentation: Jeff McNeeley and Sue Stolton (Proceedings of the Vignola International Workshop)

## **Biodiversity under threat**

In the minds of most people, agricultural practice is closely linked to countryside preservation. Many countries have a mosaic landscape of various cultural usages and, particularly in countries with high populations, few large areas of 'wilderness' remain. Much of the biodiversity in these 'cultural landscapes' is influenced, and to some extent maintained, by traditional forms of agriculture. However, over the last century, agriculture has moved from being an integral part of the cultural landscape to being a far less benign influence, typically imposing a single agricultural model onto a wide range of ecosystems. Increases in productivity have been gained at the price of threatening many ecosystems. From creating or maintaining a system which encourages biodiversity, agriculture has, at its most extreme, now become a system that aims to produce one or two species, a monoculture, whilst managing (i.e. trying to eliminate) all other species. Thus it modifies landscapes and destroys biodiversity. As a result, agriculture and the landscape within which it operates have, in many cases, become alienated - to the detriment of biodiversity. As agricultural production has become more intensive, there has been a decline in those species traditionally associated with agricultural land. For example, a survey by Birdlife International found that farmland habitats account for nearly 60 per cent of bird species of European Conservation concern, the largest of any habitat (Tucker et al., 1994). This decline is important; in many countries agriculture is the largest form of land use, so maintenance of biodiversity within agricultural land is an urgent priority.

In most of Europe, the agricultural landscapes, formed over many centuries, have been seriously degraded by the intensification of agriculture in the latter half of the 20th century. In the UK for example, agricultural changes since 1945 have resulted in the loss of 95 per cent of flower-rich meadows, 30-50 per cent of ancient lowland woods, 50-60 per cent of lowland heathland, 192,000 kilometres of hedgerows and over 50 per cent of lowland fens, valley, and basin mires (Ratcliff, 1984).

The global market for food has also resulted in significant land changes. For instance, cattle ranching has been a major factor in the deforestation of Central America and Amazonia. Much of the more than a quarter of all Central American forests that have been destroyed in the past thirty years were converted to ranches to earn foreign exchange by producing beef for the United States (Ehrlich et al., 1981).

Livestock grazing also has a major impact on the world's surviving grassland habitats. In the past, grasslands covered approximately 40 per cent of the earth's surface. Today, estimates of the amount of grassland remaining vary from a low of 16 per cent to a high of 23 per cent. The reduction of the US Midwest oak savanna is typical, with only 0.02 per cent of its the more than 12 million hectares remaining in around 100 scattered remnants (Breining, 1993).

Freshwater ecosystems have also suffered as excess nutrients enter surface and ground waters and inefficient irrigation systems deplete water sources. Cotton, a crop associated with very high rates of external inputs, has been linked to the contamination of drinking supplies by pesticides, declining freshwater biodiversity and, most dramatically, to the 60 per cent reduction of water in the Aral Sea over the last 30 years due to the change in river flows caused by large scale irrigation projects (Myers and Stolton, 1999).

Indeed, repeated surveys find agriculture to be the single greatest threat to biodiversity in many ecosystems. Analysis of key biodiversity areas, such as the IUCN Centres of Plant Diversity, Birdlife International's Endemic Bird Areas and WWF's Global 200 Ecoregions, for example, all show agricultural encroachment, agricultural

pollution and agricultural intensification to be the top threat listed by experts in the areas involved. Until recently, attempts to address this have focused on reducing land under agriculture and indeed agricultural intensification has been seen as one way of reducing impacts. However, the importance of maintaining a proportion of biodiversity within agricultural areas has recently come to be accepted as a high priority, as part of balanced land use. Whilst increasing efficiency - and in many cases more importantly greater equity in land tenure - could help reduce the amount of land under agriculture, agriculture will continue to dominate land-use in many parts of the world and reducing its environmental impact is therefore a top priority.

### Organic agriculture and nature conservation

The world cannot stop producing food and, arguably, the world can little afford to lose more of its biological diversity. The challenge, therefore, is to find a system of agriculture that will produce food in a sustainable manner that enhances biodiversity rather than depleting it. Organic agriculture relies largely on locally available resources and is dependent upon maintaining ecological balances and developing biological processes to their optimum. The protection of soil and the environment is fundamental to organic farmers and not something that is 'tacked on' as an afterthought if profits allow. Organic agriculture encompasses agricultural systems that promote environmentally, socially and economically sound production. These systems take local soil fertility as a key to successful production. By respecting the natural capacity of plants, animals and the landscape, organic agriculture aims to optimise quality in all aspects of agriculture and the environment. It dramatically reduces external inputs by refraining from the use of synthetic chemical fertilisers, pesticides and pharmaceuticals. Instead, it manages nature to determine agricultural yields and disease resistance.

The principal aims of organic agriculture are summarised in the *IFOAM Basic Standards for Organic Agriculture and Food Processing*:

- to produce food of high nutritional quality in sufficient quantity;
- to interact in a constructive and life enhancing way with all natural systems and cycles;
- to encourage and enhance biological cycles within the farming system, involving micro-organisms, soil flora and fauna, plants and animals;
- to maintain and increase long-term fertility of soils;
- to use, as far as possible, renewable resources in locally organised agricultural systems;
- to work, as far as possible, within a closed system with regard to organic matter and nutrient elements;
- to work, as far as possible, with materials and substances which can be reused or recycled, either on the farm or elsewhere;
- to give all livestock life conditions which allow them to perform the basic aspects of their innate behaviour;
- to minimise all forms of pollution that may result from agricultural practice;
- to maintain the genetic diversity of the agricultural system and its surroundings, including the protection of plant and wildlife habitats;
- to allow agricultural producers a life according to the UN human rights, to cover their basic needs and obtain an adequate return and satisfaction from their work, including a safe working environment;
- to consider the wider social and ecological impact of the farming system.

The IFOAM Basic Standards have provided a framework for almost all the national regulations and for the international WHO/FAO Codex alimentarius on organic agriculture and are used by organic farmer organisations all over the world as a common platform. The translation of the Standards into 19 languages (including Thai and Kiswahili) is testimony to their significance. Organic agriculture is however a developing production system and as a result the standards are constantly being revised by the IFOAM Standards Committee. To facilitate international recognition of certification programmes, IFOAM has established the IFOAM International Organic Accreditation Services Inc. (the IOAS). IFOAM membership requirements alone do not provide any mechanism for establishing compliance with the Basic Standards or criteria for accreditation. The IOAS aims to ensure that certification programmes meet accreditation criteria in addition to IFOAM Basic Standards, thus ensuring global consistency and compatibility. The IOAS is a voluntary system open to all private or state certification bodies, whether or not they are IFOAM members.

### **Organic agriculture and biodiversity**

Organic agriculture is also committed to the conservation of biodiversity within agricultural systems, both from a philosophical perspective and from the practical viewpoint of maintaining productivity. Biological pest control on organic farms, for example, relies on maintaining healthy populations of pest predators. Using a system crop rotation, in time (through three to four-year rotations) or in space (through intercropping or growing several crops in the same season in different fields), the build up of harmful pests and diseases can be reduced and biodiversity increased. One of the most important elements in conversion to organic systems has proved to be the time needed to restore a natural ecological balance with respect to pest-predator populations.

Some organic certifying bodies have gone further, by identifying specific conservation aims in addition to the standards that symbol holders have to meet. For example, the UK Soil Association developed conservation standards as long ago as 1989, in collaboration with a range of conservation bodies, and published a separate Guidelines for Conservation document to explain these to farmers (Soil Association, 1990).

Over the past decade, long-term research projects have accumulated evidence organic systems are beneficial to biodiversity. A study by the British Trust for Ornithology, funded by the UK Ministry of Agriculture, Fisheries and Food, found higher densities of all bird species studied on organic farms, and populations of skylarks (a species known to have declined because of agricultural changes) were double that of non-organic farms. Research by Oxford University found that the mean number of non-pest butterfly species on organic farms was twice that of similar non-organic farms. The Institute for Organic Agriculture at the University of Bonn found that average plant species also virtually doubled on organic farms, with some endangered species only being present in organic systems. A Swiss study also found dramatic increases in soil biota on organic farms (Stolton, 1996).

This has a number of implications. It shows that modern and efficient agricultural practices exist that can help maintain that proportion of biodiversity that has become associated, over a long period of time, with cultural landscapes. It also means that organic agriculture offers a fresh alternative in areas where biodiversity preservation is a priority, for example in protected areas or in places where biodiversity preservation is given high priority. An organic symbol can also help provide additional income to people living around protected areas - this option is for example being actively developed within the MesoAmerican Biological Corridor and could be an important element in the ecoregional approaches to conservation being advocated by WWF. Organic agriculture can also be linked to ecotourism initiatives. In many rural areas natural ecosystems and the maintenance of thriving local communities, expressed in artistic heritage, craftsmanship, gastronomic traditions, etc. are encouraged by organic systems.

### Policies for sustainability

The need to conserve biological diversity - or biodiversity - (i.e. the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; including diversity within species, between species and of ecosystems) was enshrined in the UN's Convention on Biological Diversity (CBD). The Conference of Parties of the CBD has adopted a detailed workplan on agricultural biodiversity, so the issue is clearly on the international agenda. And the eighth session of the Commission on Sustainable Development (CSD-8) in 2000 will focus attention on Agriculture and Land Resources. The United Nations General Assembly Special Session (UNGASS) in June 1997 called on CSD-8 in 2000 to examine the economic sector of agriculture. In doing so, UNGASS asked governments to 'formulate policies that promote sustainable agriculture as well as productivity and profitability'. UNGASS recognised that the 'challenge for agricultural research is to increase yields on all farmlands while protecting and conserving the natural resource base'. The CSD-8 meeting will provide an important opportunity to implement many of the points raised in the Action Plan drawn up in Vignola (WWW: <http://www.ifoam.org/press/vignolad.html>).

### References

**Breining, G. (1993);** The Case of the Missing Ecosystem, *Nature Conservancy*, November-December 1993.

**Myers, D. and Stolton, S. eds. (1999);** Organic Cotton: *From Field to Final Product*, Intermediate Technology Publications, UK.

**Ratcliff, D (1984);** *Nature Conservation Review of Great Britain*, Nature Conservancy Council, Peterborough, UK.

**Soil Association (1990)** *Guidelines for Conservation*, Soil Association, UK.

**Stolton, S. (1996);** Biodiversity on Organic Farms: Recent Comparative Research in Europe, *Ecology & Farming*, 13, IFOAM, Germany.

**Tucker, G. and Heath M. (1994);** *Birds in Europe: Their Conservation Status*, Birdlife International, UK.

## Interaction between intellectual property rights and biodiversity



**Bart P. Kiewiet, President,**  
*Community Plant Variety Office (CPVO)*  
Angers, France

Reading the comprehensive paper, which forms the basis of our discussions during these two days, it surprised me that the plant breeding industry is not mentioned as a relevant factor in respect of biodiversity. Almost all farmers in Western and Central Europe, but also most of the commercial farmers, including organic farmers, in other important agricultural production areas, make use of propagating material, mostly seed, developed by professional public or private breeders. This means that the output of the breeding industry has a direct impact on the biodiversity of the very large areas in the world under the control of commercial farmers. A relevant fact, I would say, when developing a policy in respect of biological diversity. The selection of plant varieties adapted to farmers' use is as old as agriculture. In this -originally empirical- selection process, biodiversity was reduced. Of the many thousands of species available, relatively small number proved to be useful for domestication. At the end of the last century, plant breeding became more and more an activity of specialised farmers and state institutions. The involvement of the state in plant breeding in most European countries, but also elsewhere, for example in the U.S. and Brazil, illustrates the importance that governments attach to the availability of high performance propagating material for their farmers, for instance in relation to yield and resistance to pests and diseases. Although the private breeding industry in many countries has taken over the role of public breeding, governments still have a keen interest in this aspect of agriculture and horticulture. As far as the European community is concerned, the compulsory system of variety registration, based on the so-called seed directives, is illustrative in this regard. The effects of modern breeding on crop yields is enormous. The per-hectare yield of some of the important crops has increased by more than 400% since the beginning of this century. Without the availability of the new varieties, the world food shortage would be even more serious than it is. In order to be able to feed the growing world population, the further development of new, high performance varieties is a necessity. The introduction of new varieties has not resulted in a further decrease in biodiversity in cultivated areas. On the contrary, case studies show that the genetic diversity in the important crops such as wheat and maize has increased since the start of modern breeding. In this respect it should be underlined that land races are not by definition more diverse than their modern replacements. The development of new varieties is a step by step process. It is time consuming and costly. Private breeders are not philanthropic institutions. In order to safeguard the continuity of their enterprises, they need a fair return on their investment. The introduction of plant breeders', or plant variety, rights systems (intellectual property rights tailor made for new varieties of plants), has created a sound financial basis for the breeding industry. The relevance of such protection for plant varieties is reflected in the adoption of the International Convention for the Protection of New Varieties of Plants (UPOV convention). At present more than 40 countries have acceded to this convention. In the European Union, an UPOV-type plant variety protection system has been operational since April 1995. The system, managed by the Community Plant Variety Office based in Angers (France), is very successful. More than 10.000 applications for rights have been made and Community Plant Variety Rights have been granted in respect of more than 5000 new plant varieties. These statistics make this system the biggest of its kind in the world.

In principle, the patent system offers a useful instrument for the protection of plant inventions not related to one or a number of specific plant varieties. Directive 98/44/EC of the European Parliament and the Council on the legal protection of biological inventions (the biotech directive) is aimed at harmonising national patent legislation in this respect. Professional plant breeding is a crucial factor in respect of biodiversity in cultivated agricultural areas. Intellectual property rights related to plant varieties and plants or plant material not in the fixed form of a variety are indispensable for private breeders to be able to recover their investments and continue their activities. If I combine these two facts, the conclusion is that there is an interaction between intellectual property rights and biodiversity. The importance of this interaction should not be underestimated and should be taken into account in policies aimed at the conservation of biodiversity.

**The question is, how? I have some suggestions:**

- Plant breeding should not be considered as an activity that by definition leads to a decrease in biodiversity.
- To be able to improve the genetic structure of varieties, the availability to breeders of all relevant genetic resources is a necessity. Access to germ plasm present in nature, genebanks and other collections - under strict conditions- must be assured. The so called breeders' exemption, which gives breeders the possibility to use germplasm of other breeders even if protected by a plant variety right, should not be frustrated by a restrictive interpretation of the research exemption as defined in the biotech directive in relation to patented plant material.

## Closing of the Workshop

**Dr Zbigniew Karpowicz,**  
*Deputy Director*  
*European Centre for Nature Conservation (ECNC)*  
Tilburg, The Netherlands

The title of these concluding words could be: 'Towards a Good Rural Practice for Biodiversity'. This workshop has been on the identification and evaluation of building blocks for an EC - Agricultural Action Plan on Biodiversity. It has attempted to tackle the complex and detailed subject of the relationship of biodiversity and the Common Agricultural Policy. It has done this within the remit at the CBD and in particular as a contribution to the EC Biodiversity Strategy. As was neatly described by our Chairperson this morning we have attempted to 'link the diversity to the general' - always a challenge. Within the text of the EC Biodiversity Strategy under the sector 'integration on agriculture' there are three listed objectives. One of these is Agenda 2000. And indeed our discussions did focus on the comprehensive range of existing policies. However, in our discussions we managed to isolate a number of key issues and in some cases add flesh to the bones. We have begun to 'identify targets linked to policy and set actions at the most appropriate level of policy application'. This event has revealed the possibility of gathering a broad range of contributors and it has revealed the possibility of approaching a level of consensus on the key policy issues which could contribute to future building blocks for the EC Agrobiodiversity Action Plan. Yet, we also recognised that this process is not amenable to solving in one and a half days in a meeting ensconced in Brussels, all the puzzles. As a result of this Workshop, the next steps are clearer, the possibility of contributing to the Commission's preparation of the Action Plan is clearer. Perhaps the value of this workshop is that we have managed to chart a course through this complex and highly politically sensitive subject, we have timed our action absolutely at the right moment, and now, here, today and yesterday we have made a good solid start. I stress it is a start. Further comments and input are very welcome and indeed essential. So, please contact us at ECNC. We now go from this place with a mission and a message. The mission is to ensure that we use the opportunity we have created for the benefit of biodiversity in Europe to deliver a positive and helpful contribution to the sectoral Action Plan. The message is that it is possible and necessary to work out a 'good rural practice for biodiversity'. On behalf of ECNC, I would like to record our gratitude to DG AGRI for their practical and intellectual assistance and equally to DG ENV for providing the financial support to match this work at all possible and to their advice. I would like to thank the co-ordinator and her assistant and ECNC Partners who have worked on this project and who will continue to work towards a sound conclusion. I would thank very much all the Chairpersons and the moderators. And finally I would like to thank all of you for your spirited and knowledgeable input for the presentations and lively discussions. I wish you a safe journey home and ECNC looks forward to working co-operatively with you all in the future. Thank you and now I close the Workshop.

## ANNEX 3 FINAL PARTICIPANTS LIST

*European Workshop 'Identification and evaluation of building blocks for an EC-agricultural Action Plan on Biodiversity'*

No	Category	Organisation	Title	First name	Last name	Function/Country
1	FUNDERS Dutch Govt.	Dutch Ministry of Housing, Spatial Planning and the Environment	Ms	Emmy	Bolsius	Senior Officer
2	English Govt.	English Nature	Mr	Jim	Dixon	Senior Officer
3	Europ. Comm.	European Commission, DG ENV	Mr	Carlos	Martín-Novella	Programme Administrator
4		European Commission, DG ENV	Mr	Luis	Carazo Jimenéz	
5		European Commission, DG Agriculture	Mr	Martin	Scheele	
6		European Commission, DG Agriculture	Mr	Adelmo	Moreale	
7		European Commission, DG Agriculture	Mr	Camillo	Catarci	
8	PROJECT PARTNERS	CIAM/UCM	Dr	María Dolores	F. Guillén	Deputy Director
9		CIAM/UCM	Mr	Pablo	Sastre Olmos	Research Assistant
10		IEEP	Mr	David	Baldock	Director
11		IEEP	Mr	Jan-Erik	Petersen	
12		ZALF	Ms	Claudia	Latus	
13		LEI-DLO	Dr	Floor	Brouwer	
14		Alterra	Dr	Hans	Sprangers	
15	CO-ORDINATION	ECNC	Dr	Zbigniew	Karpowicz	Deputy Director
16		ECNC	Ms	Laura	Buguñá	Senior Progr.Co-ordinator
17		ECNC	Mr	Martijn	Koobs	Project Assistant
18		ECNC	Mr	Graham	Drucker	Senior Progr.Co-ordinator
19		ECNC	Mr	Dirk	Wascher	Senior Progr.Co-ordinator
20	EUROPEAN PARLIAMENT	European Parliament, Committee on the Environment, Public Health and Consumer Policy	Mr	Jules	Maalen	MEP
21		European Parliament, Committee on Agriculture and Rural Development	Mr	Hannes	Lorenzen	MEP
22		European Parliament, Committee on Agriculture and Rural Development	Mr	Oliver	Emmes	
23	NATIONAL EXPERTS	Ad hoc working group of experts on biodiversity: invitation to all members	Mr	Carlos	Guerra	Portugal, Acting Chairman
24			Mrs	Simone	Matouch	Austria
25			Mr	Joseph	Racapé	France
26			Ms	Els	Martens	Flemish Ministry
27			Mr	Eckhart	Kuijken	Flemish Institute for Nature Conservation
28		Experts of agriculture and rural development	Mr	Luc	Uytendewilligen	Belgium
29			Ms	Elina	Nikkola	Finnish Ministry of Agriculture and Forestry
30			Mr	Martin	Farrell	Ireland
31			Mr	Goran	Boberg	Sweden
32			Mr	Gerard	van Dijk	The Netherlands
33		National experts from CEE region	Ms	Anna	Liro	Polish Ministry of Agriculture
34			Mr	Ferenc	Tar	Hungarian Ministry of Agriculture
35	EXPERTS	European Landowners' Organisation	Mrs	Nathalie	de Chabot	
36		BEUC (European Consumers Organisation)	Mrs	Charlotte	DeRoo	
37		COPA (European Farmers Organisation)	Mr	Jesús	Sánchez	personal status
38		Community Plant Variety Office	Mr	Bart	Kiewiet	President
39		Community Plant Variety Office	Mr	Dirk	Theobald	Head of Technical Unit
40		European Association for Animal Production, FAO	Mr	Louis	Ollivier	
41		IFOAM	Mr	Bernward	Geier	Director
42		IFOAM	Mr	Neil	Sorensen	
43	ENV. NGOs	European Environment Bureau, and Netherlands Society for Nature and Environment	Mr	Gijs	Kuneman	
44		Wetlands International	Mr	Henk	Zingstra	Co-ord. European Programmes

## List of abbreviations and acronyms

---

<b>ANF</b>	<i>Ministry of Agriculture, Nature Management and Fisheries, The Netherlands</i>
<b>CAP</b>	<i>Common Agricultural Policy (of the European Union)</i>
<b>CBD</b>	<i>Convention on Biological Diversity</i>
<b>CEC</b>	<i>Commission of the European Communities</i>
<b>CEE</b>	<i>Central and Eastern Europe</i>
<b>CGRFA</b>	<i>Commission on Genetic Resources for Food and Agriculture, FAO</i>
<b>CHM</b>	<i>Clearing-House Mechanism of the European Union</i>
<b>CNV</b>	<i>Common Nature Value (-farming)</i>
<b>COM</b>	<i>Communication (of European Union)</i>
<b>COP</b>	<i>Conference of Parties (to the Convention on Biological Diversity)</i>
<b>CORINE</b>	<i>Information System on the Co-ordination of Information on the Environment</i>
<b>DG</b>	<i>Directorate General (of European Commission)</i>
<b>DG ENV</b>	<i>Directorate General for Environment</i>
<b>DG AGRI</b>	<i>Directorate General for Agriculture</i>
<b>DPSIR</b>	<i>Driving Force - Pressure - State - Impact - Response framework</i>
<b>EAGGF</b>	<i>European Agricultural Guidance and Guarantee Fund</i>
<b>EC</b>	<i>European Community</i>
<b>ECNC</b>	<i>European Centre for Nature Conservation</i>
<b>EEA</b>	<i>European Environmental Agency</i>
<b>EIONET</b>	<i>European Environment Information and Observation NETWORK</i>
<b>ELISA</b>	<i>Environmental Indicators for Sustainable Agriculture</i>
<b>EMAS</b>	<i>Environmental Management and Audit Schemes</i>
<b>EU</b>	<i>European Union</i>
<b>ESA</b>	<i>Environmentally Sensitive Area</i>
<b>FADN</b>	<i>Farm Accountancy Data Network Network</i>
<b>FAO</b>	<i>Food and Agriculture Organisation</i>
<b>GMOs</b>	<i>Genetically Modified Organisms</i>
<b>GPA</b>	<i>Global Plan of Action for the Conservation and Sustainable Utilisation of Plant Genetic Resources for Food and Agriculture (FAO)</i>

<b>IBA</b>	<i>Important Bird Area</i>
<b>IEEP</b>	<i>Institute for European Environmental Policy</i>
<b>IFOAM</b>	<i>International Federation of Organic Agriculture Movements</i>
<b>HNV</b>	<i>High Nature Value (-farming)</i>
<b>JRC</b>	<i>Joint Research Centre</i>
<b>LEADER</b>	<i>A Community initiative for rural development under the Structural Funds</i>
<b>LFA</b>	<i>Less Favoured Area</i>
<b>LIFE</b>	<i>L'Instrument Financier pour l'Environnement</i>
<b>LMO</b>	<i>Living Modified Organisms</i>
<b>MAFF</b>	<i>Ministry of Agriculture, Fisheries and Forestry, United Kingdom</i>
<b>MARS</b>	<i>Monitoring Agriculture with Remote Sensing Techniques</i>
<b>OECD</b>	<i>Organisation for Economic Co-operation and Development</i>
<b>PEBLDS</b>	<i>Pan-European Biological and Landscape Diversity Strategy</i>
<b>RAMSAR</b>	<i>Convention on Wetlands of International Importance (signed in Ramsar, Iran, 1971)</i>
<b>RDR</b>	<i>Rural Development Regulation</i>
<b>REFORGEN</b>	<i>Global Information System on Forest Genetic Resources</i>
<b>SAPARD</b>	<i>Special Accession Programme for Agriculture and Rural Development</i>
<b>SBSTTA</b>	<i>Subsidiary Body on Scientific, Technical and Technological Advice</i>
<b>SINGER</b>	<i>System-Wide Information Network on Genetic Resources</i>
<b>SRU</b>	<i>German Environmental Advisory Council (Rat von Sachverständigen für Umweltfragen)</i>
<b>STAR</b>	<i>Committee on Agricultural Structures and Rural Development (led by the European Commission)</i>
<b>TQM</b>	<i>Total Quality Management</i>
<b>UAA</b>	<i>Utilised Agricultural Area</i>
<b>UK</b>	<i>United Kingdom</i>
<b>UNEP</b>	<i>United Nations Environment Programme</i>
<b>WTO</b>	<i>World Trade Organisation</i>
<b>WWF</b>	<i>World Wide Fund for Nature</i>

## References

---

- Alders, H., 1999.** *Cultivating our Futures - Report of the Chairman FAO/Netherlands Conference on the Multifunctional Character of Agriculture and Land.* 12-17 September 1999, Maastricht, The Netherlands.
- Aldington, T.J., 1998.** *Multifunctional agriculture: a brief review from developed and developing country perspectives.* FAO, Rome.
- Amsing, S., 1996.** *European agricultural structural policy in the new member states Finland, Sweden and Austria.* Ministry of Agriculture, Nature Management and Fisheries, The Hague, The Netherlands.
- Andersen, E., Rutherford A. & Winter, M., 2000.** *The beef regime.* In: F. Brouwer & P. Lowe (eds.). *CAP regimes and the European countryside. Prospects for integration between agricultural, regional and environmental policies.* CAB International, Wallingford, The Hague (in press).
- Baldock, D., 1990.** *Agriculture and Habitat Loss in Europe.* Report for World Wide Fund for Nature, Gland.
- Baldock, D., Beaufoy, G., Bennet, D. & Clark, J., 1993.** *Nature Conservation and new directions in the EC Common Agricultural Policy.* IEEP, London.
- Baldock, D. (ed.) 1994.** *The Nature of Farming - Low Intensity Farming Systems in Nine European Countries.* IEEP/WWF/JNCC, London.
- Baldock, D., Beaufoy, G., Brouwer, F. & Godeschalk, F., 1996.** *Farming at the Margins: abandonment or redeployment of agricultural land in Europe.* IEEP, London / LEI-DLO, The Hague.
- Barr, C., Bunce, R., Clark, R., Fuller, R., Furse, M., Gillespie, M., Groom, G., Hallam, C., Horning, M., Howard, D. & Ness, M., 1993.** *Countryside Survey 1990: Main Report.* Department of the Environment, London.
- Beaufoy, G., Baldock, D., & Clark, J., 1994.** *The Nature of Farming: Low intensity farming systems in nine European countries.* Institute for European Environmental Policy (IEEP), London.
- Benstead, P.J., José, P.V., Joyce, C.B. & Wade, P.M., 1999.** *European Wet Grassland. Guidelines for management and restoration.* RSPB, Sandy.
- Berg, E., Davies, S. & Majewski, E., 1999.** *Einkommenswirkungen unterschiedlicher agrarpolitischer Szenarien auf landwirtschaftliche Betriebe in ausgewählten MOE- und EU-Ländern.* Agrarwirtschaft, Heft 48.
- Signal, E.M. & McCracken, D.I., 1996.** *Low-intensity farming systems in the conservation of the countryside.* Journal of Applied Ecology, 33:413-424.
- Brouwer, F. & van Berkum, S., 1996.** *CAP and Environment in the European Union: Analysis of the effects of the CAP on the environment and assessment of existing environmental conditions in policy.* Wageningen Pers, Wageningen.

- Brouwer, F., 1999.** *Options for cross-compliance in the Netherlands.* Agricultural Economics Research Institute (LEI), The Hague (mimeographed).
- Buckwell, A., 1989.** *Economic Signals, Farmers' Response and Environmental Change.* Journal of Rural Studies, 5 (2).
- Convention on Biological Diversity, 1997.** *Review of ongoing activities on agricultural biological diversity.* UNEP/CBD/SBSTTA/3/6, Montreal.
- Council of Europe, UNEP & ECNC, 1996.** *Pan-European Biological and Landscape Diversity Strategy - a vision for Europe's natural heritage.* Council of Europe, United Nations Environment Programme, European Centre for Nature Conservation. Amsterdam.
- Delbaere, B.C.W. (ed.), 1998.** *Facts & Figures on Europe's biodiversity 1998- 1999.* European Centre for Nature Conservation, Tilburg.
- Diaz Pineda, F. Casado, M.A. & De Miguel, J.M. (eds.), 2000.** *La diversidad biológica en Hispanoamerica. Vol. IV. España.* CYTED, Mexico (in press).
- Dixon, J., 1999.** *Sector Analysis: Agriculture.* Internal Report, English Nature, Peterborough.
- Eigner, J., 1978.** *Die Knicklandschaft in Schleswig-Holstein und ihre heutigen Probleme.* Berichte der Deutschen Sektion des Internationalen Rates für Vogelschutz, 18.
- European Landowners Organisation, 1998.** *Agenda 2000: Environmental measures - A discussion paper.* EPG 57/98. European Landowners Organisation, Brussels.
- English Nature, 1999.** *Inquiry into Agreement on Agenda 2000: CAP Reform.* English Nature, Peterborough.
- English Nature, Scottish Natural Heritage, Joint Nature Conservation Committee, Countryside Commission & Countryside Council for Wales (EN - SNH - JNCC - CC - CCW), 1998.** *Agenda 2000 - CAP draft regulations 1998.* United Kingdom.
- European Commission, 1995.** *Progress Report on implementation of the European Community Programme of Policy and Action in relation to the environment and sustainable development.* COM(95) 624. Brussels.
- European Commission, 1998a.** *Communication of the European Commission to the Council and to the Parliament on a European Community Biodiversity Strategy.* COM(1998)42. Brussels.
- European Commission, 1998b.** *Agriculture and sustainability. Principles and recommendations from the European Consultative Forum on the Environment and Sustainable Development.* Brussels.
- European Commission, 1998c.** *Special Accession Programme for Agriculture and Rural Development. Fact sheet, DG Agriculture,* Brussels.

**European Commission, 1998d.** *Towards a greening of the Common Agricultural Policy. Fact sheet, DG Agriculture, Brussels.*

**European Commission, 1998e,** *Evaluation of Agri-Environment Programmes, DG VI Commission Working Document. Brussels.*

**European Commission, 1999a.** *Directions towards sustainable agriculture. COM (1999) 22. Brussels.*

**European Commission, 1999b.** *Europe's Agenda 2000 - Strengthening and widening the European Union. Commission information brochure 31.8, Brussels.*

**European Commission, 1999c.** *Priorities for the new CAP: the Commissioner replies. Newsletter, DG Agriculture, Brussels.*

**European Commission, 1999d.** *Evaluation guidelines VI/8865/99-Rev., Integrated rural development. DG Agriculture, Brussels.*

**European Commission, 1999e.** *Political agreement on CAP reform. Newsletter, DG Agriculture, Brussels.*

**European Commission, 1999f.** *The CAP reform - A policy for the future. European Commission, Brussels.*

**European Commission, 1999g.** *From Cardiff to Helsinki and beyond: Report to the European Council on integrating environmental concerns and sustainable development into Community policies. Working document, SEC (1999) 1941. European Commission, Brussels.*

**European Commission 1999h.** *Report on Environment and Integration Indicators to Helsinki Summit. Working document, SEC (1999) 1942. European Commission, Brussels.*

**European Commission, 2000.** *Indicators for the Integration of Environmental Concerns into the Common Agricultural Policy. COM (2000) 20. Brussels.*

**European Council Regulation, 1999a.** *Establishing a support system for producers of certain arable crops. (EC) No 1251/1999. Brussels.*

**European Council, 1999b.** *Strategy on the environment integration and sustainable development in common agriculture policy. Agriculture Council, 13078/99. Brussels.*

**European Parliament, 1998.** *Report regarding the proposal for a European Parliament and Council Directive amending Directive 90/220/EEC on the deliberate release into the environment of genetically modified organisms. COM(98)0085 - C4-0129/98 - 98/0072(COD). Brussels.*

**European Parliament, 1999a.** *Dangers to food safety. Hearing report. Committee on the Environment, Public Health and Consumer Policy. November 1999. Brussels.*

**European Parliament, 1999b.** *The structural funds and their co-ordination with the cohesion fund- guidelines for programmes in the period 2000-2006. Draft Opinion on the communication from the Commission. Brussels.*

- EUROSTAT, 1999.** *Regional depopulation to be the norm.* News release 66/99, Eurostat Press Office, Luxembourg.
- FAO, 1995.** *Conservation and sustainable utilization of plant genetic resources in Europe.* International technical conference report. Slovakia.
- FAO, 1996.** *Conservation and Sustainable Utilization of Plant Genetic Resources in Europe.* Sub regional Synthesis Report, International Technical Conference on Plant Genetic Resources. Rome.
- FAO, 1999a.** *Draft Code of Conduct on Biotechnology as it relates to Genetic Resources for Food and Agriculture.* (CGRFA). Rome.
- FAO, 1999b.** *Biosafety issues related to biotechnology for sustainable agriculture and food security.* Agricultural Trade Fact Sheet. Rome.
- FAO, 1999c.** *Report from FAO on its Policies, Programmes and Activities on Agricultural Biological Diversity: (1) Sectoral Matters and (2) Cross-sectorial Matters.* Commission on Genetic Resources for Food and Agriculture, Rome.
- Fillat, F., 2000 .** *La cultura pastoril española, Instituto Pirenaico de Ecología.* Jaca, (in press).
- Fisher, G.E. & Abbadessa, V., 1996.** *Sustainable social and environmental quality in Less Favoured Areas. In: Mountain Livestock Farming and EU Policy Development, Proceedings of the Fifth European Forum on Nature Conservation and Pastoralism (18-21 September 1996, Cogne, Valle d'Aosta, Italy).* EFNCP, Argyll, United Kingdom.
- Goss, S., Bignal, E., Beaufoy, G. & Bannister, N., 1997.** *Possible options for the better integration of environmental concerns into various systems of support for animal products.* Volume 1 and 2. CEAS Consultants/EFNCP, United Kingdom.
- Hagemeijer, W. & Bibby, C., 1999.** *The Status of Birds in Europe and the impact of the EU Birds Directive.* SOVON, The Netherlands.
- Heinen, J., Dijk van, G. & Nieuwenhuize, J., 1997.** *Netherlands: Experiences with nature policies regarding farmland. Country case studies of the Helsinki Seminar on environmental benefits from agriculture. Organisation for Economic Co-operation and Development, COM/AGR/CA/ENV/EPOC (97) 29,* Paris.
- Hellegers, P.J.G.J. and Godeschalk, F.E., 1998.** *Farming in High Nature Value Regions: the role of agricultural policy in maintaining HNV farming systems in Europe.* Onderzoekverslag 165, Agricultural Economics Research Institute (LEI-DLO). The Hague.
- Hidde van der, A. & Feenstra, V., 1999.** *Biodiversity in Agriculture, an overview of Agri-biodiversity policies in seven European countries.* ECNC, Tilburg.
- Kieft, H., 1999.** *Agricultural Sustainability in Central and Eastern Europe: Rural Production and Environment.* ETC Ecoculture, Leusden, The Netherlands.
- Klink, E. van, 1998.** *OECD Workshop on Agri-Environmental Indicators breakout session group 2, Agriculture and Biodiversity.* Report. OECD, Paris.

- Koobs, M., 1999.** *Does Money Grow on Trees? An Evaluation of the Dutch Green Fund Market.* Tilburg University, Tilburg.
- Lowe, P. & Brouwer, F., 2000.** *Agenda 2000: A wasted opportunity?* In: F. Brouwer & P. Lowe (eds.). CAP regimes and the European countryside. Prospects for integration between agricultural, regional and environmental policies. CAB International, Wallingford, The Hague (in press).
- Lubbers, R.F.M. & Wolters, A. R., 1999.** *New relationship between economy and nature in Europe.* European Nature 3: 5-7.
- Miguel, J.M. de, Gómez Sal, A., 2000.** *Diversidad y funcionalidad de los paisajes agrarios tradicionales en España.* Madrid (in press).
- Ministry of Environment and Energy & Danish Forest and Nature Agency, 1996.** *Biological Diversity in Denmark - Status and Strategy.* Danish Forest and Nature Agency, Copenhagen.
- Ministry of Agriculture, Forestry and Fisheries, 1999.** *MAFF's role in implementing the biodiversity Action Plans.* MAFF, London.
- Ministry of Agriculture, Nature Management and Fisheries, 1999a.** *Final Report on the first preparatory committee meeting for the Joint European meeting preparing for the fifth Conference of the Parties to the Convention on Biological Diversity.* Working document. The Hague.
- Ministry of Agriculture, Nature Management and Fisheries, 1999b.** *Plattelands-ontwikkelingsplan Nederland.* The Hague.
- Mitchell, K., Hart, L., Baldock, D. & Partridge, K., 1997.** *Agriculture and Nature Conservation in Central and Eastern European Countries.* Proceedings of a seminar held at Debe, Poland, 12-14 May 1996. IEEP, London.
- Mitchell, K., (ed.), 1999.** *EU Structural Funds 2000-2006, Conserving Nature, Creating Jobs: Netherlands Information dossier.* IEEP, London.
- Müller, E., 1999.** *Herausforderung Naturschutz.* Fachsymposium, October 1999. Bonn.
- Nature Conservancy Council, 1977.** *Nature Conservation and Agriculture.* Report by the Nature Conservancy Council. London.
- Nature Conservancy Council, 1984.** *A Nature Conservation Strategy for Great Britain.* Report by the Nature Conservancy Council. London.
- Nature Conservancy Council, 1991.** *Nature Conservation and Agricultural Change.* Report by the Nature Conservancy Council. Peterborough.
- Nowicki, P.L., 1997.** *Environmental Benefits of Agriculture: European OECD countries: 55-80.* In: OECD (ed.) *Environmental Benefits from Agriculture, Issues and Policies, The Helsinki Seminar.* OECD, Paris.
- Nowicki, P.L., Potter, C., Reed, T., Dydich-Falniowska, A., Fulton, R. & Poudevigne, I., 1999.** *Background study for the development of an IUCN policy on Agriculture and Biodiversity.* Consultation draft. IUCN-European Regional Office, Tilburg.

- OECD, 1996.** *Helsinki Seminar on environmental benefits from agriculture - Country case studies.* OECD, Paris.
- OECD, 1998.** *OECD work on Sustainable Agriculture and the Environment.* OECD, Paris.
- OECD, 1999a.** *Environmental Indicators for Agriculture. The York workshop.* OECD, Paris.
- OECD, 1999b.** *Agricultural Policies in OECD Countries - Monitoring and Evaluation.* OECD, Paris.
- OECD, 1999c.** *Draft detailed outline for the study on the creation of markets for biodiversity products and services.* OECD Environment Directorate, Paris.
- OECD, 1999d.** *Environmental Indicators for Agriculture: Methods and Results-The Stocktaking report Greenhouse gases, Biodiversity, Wildlife habitats.* OECD Environment Directorate, Paris.
- Pagiola, S. & Kellenberg, J., with Vidaeus, L. & Srivastava, J., 1997.** *Mainstreaming Biodiversity in Agricultural Development, towards Good Practice.* Global Overlays Program, The World Bank, Washington, D.C.
- Pain, D.J. & Pienkowski, M., 1997.** *Farming and Birds in Europe: The Common Agricultural Policy and its Implications for Bird Conservation.* Academic Press Ltd., London.
- PEBLDS, 1998.** *The integration of Biological and landscape diversity objectives into sectoral policies.* STRA-CO(98) 8 rev, UNEP/Council of Europe, Strasbourg.
- PEBLDS, 1999a.** *Analysis of initiatives on agriculture and environment in other forums, for a possible Conference on Agriculture and Biodiversity.* STRA -CO (99) 6. UNEP/Council of Europe, Strasbourg
- PEBLDS, 1999b.** *Working Group on Agriculture and Environment.* STRA-CO (99) 25. UNEP/Council of Europe, Strasbourg.
- PEBLDS, 1999c.** *Work programme and Action Plan for 2001-2005. Draft,* STRA -CO (99) 29. UNEP/Council of Europe, Strasbourg
- Petersen, J-E., 1998.** *Agri-environment Schemes in Europe - Lessons for future rural policy.* Report from the conference in Konstanz, 25-27 February 1998. IEEP, London.
- Petersen, J-E., 1999.** *Countryside Support Schemes in Central and Eastern Europe.* Rural Areas Newslink: 4.
- Pienkowski, M.W. & Jones, D.G.L., 1999.** *Managing High-Nature Conservation- Value Farmland: Policies, Processes and Practices.* Proceedings of the sixth European Forum on Nature Conservation and Pastoralism, 6-10 June 1998, Luhacovice, Bile Karpaty, Czech Republic. EFNCP, Argyll, United Kingdom.
- Poole, A., Pienkowski, M., McCracken, D.I., Petretti, F., Brédy, C. & Deffeyes, C., (eds.) 1998.** *Mountain Livestock Farming and EU Policy Development.* Proceedings of the fifth European forum on nature conservation and pastoralism 18-21 September 1996 Cogne- Valle D'Aosta- Italy. EFNCP, Argyll, United Kingdom.

**Potter, C., 1997.** *Europe's changing farm landscapes.* In: Pain, D.J. & Pienkowski, M. (eds.). *Farming and Birds in Europe: The Common Agricultural Policy and its Implications for Bird Conservation: 25-42.* Academic Press Ltd, London.

**Potts, G.R., 1986.** *The Partridge: Pesticides, Predation and Conservation.* Collins, London.

**Putter, J. de, 1995.** *The greening of Europe's agricultural policy: the agri-environmental regulation of the MacSharry reform.* Ministry of Agriculture, Nature Management and Fisheries, The Hague.

**Rural Advancement Foundation International, 1997.** *Human Nature: Agricultural Biodiversity and Farm-based Food Security.* Rural Advancement Foundation International (RAFI), Ottawa.

**RSPB, 1997.** *Crops and biodiversity- A proposal for an arable incentive scheme.* RSPB Communication Services, Bedfordshire.

**Slangen, L.H.G. & Polman, N.B.P., 1999.** *Environmental co-operatives: a new institutional arrangement for farmers.* Paper presented at the 64th Seminar of the European Association of Agricultural Economists: 'Co-operative strategies to cope with agri-environmental problems', October 27-29, 1999, Berlin.

**SRU, 1985.** *Umweltprobleme der Landwirtschaft. Sondergutachten des Rates von Sachverständigen für Umweltfragen.* Verlag W. Kohlhammer, Stuttgart.

**SRU, 1994.** *Umweltgutachten 1994. Für eine dauerhaft-umweltgerechte Entwicklung. Der Rat von Sachverständigen für Umweltfragen (SRU).* Verlag Metzler-Poeschel, Stuttgart.

**Stolton, S., Geier, B. & Mc Neely, J.A. (eds.), 2000.** *The relationship between nature conservation, biodiversity and organic agriculture.* Proceedings from the International Workshop held in Vignola (May 1999). IFOAM, Germany.

**Suárez, F., Naveso, M.A. & de Juana, E., 1997.** *Farming in the drylands of Spain: birds of the pseudosteppes: 297-330.* In: Pain, D.J. & Pienkowski, M. (eds.). *Farming and Birds in Europe: The Common Agricultural Policy and its Implications for Bird Conservation.* Academic Press Ltd, London.

**Tucker, G. & Evans, M.I., 1997.** *Habitats for Birds in Europe: a Conservation Strategy for the wider environment.* United Kingdom.

**United Nations, 1992.** *Agenda 21.* Chapters 10, 11, 12, 13, 14, 15 and 16. United Nations, New York.

**United Nations, Environment Programme 1995.** *The UNEP Biodiversity Programme and Implementation Strategy A framework for Global Conservation and Sustainable use of Biodiversity.* UNEP.

**United Nations Commission on Sustainable Development, 1997.** *Overall progress achieved since the United Nations Conference on Environment and Development.* United Nations, New York.

**United Nations Environment Programme Regional Office for Europe, 1999.** *Workshop on Legal Aspects of Implementing Biodiversity-related Conventions.* 7-11 June 1999 Kokshetau, Kazakhstan. UNEP, New York.

---

**Varela-Ortega, C. & Sumpsi, J.M., 2000.** *Política agraria y medio ambiente en la Comunidad Europea: el caso de España.* Departamento de Economía Agraria, Universidad Politécnica, Madrid, (in press).

**Wageningen Agricultural University (ed.), 1997.** *Towards operationalisation of the effects of CAP on Environment, Landscape and Nature: Exploration of Indicator needs.* Abstracts of the Workshop, Part two, Wageningen University, Wageningen.

**Wascher, D.M. & von Meyer, H., 1999.** *Area typologies for agri-environmental indicators.* Paper written in contribution to the development of a conceptual framework for the EU Concerted Action project Environmental Indicators for Sustainable Agriculture in the EU. ECNC, Tilburg (in press).

**Wascher, D.M. (ed.), 2000.** *ELISA-Environmental Indicators for Sustainable Agriculture. Final Project Report.* ECNC, Tilburg (in press).

**Whitby, M (ed.), 1996.** *The European Environment and CAP reform - Policies and Prospects for Conservation.* CAB International, Wallingford.

**Wohlmeyer, H. & Schütz, O., 1999.** *EU Eastern Enlargement, Agriculture and Environmental policy, in the view of Austria.* Austrian Association for Agricultural Research, Vienna.

**World Resources Institute, United Nations Environment Programme, United Nations Development Programme, World Bank, 1998.** *World Resources 1998-99, A guide to the global environment.* Oxford University Press, New York.

# Internet references

---

**Website of Agra-Europe:**

<http://www.agra-europe.com/>

**Website of CBD:**

<http://www.biodiv.org> and <http://www.biodiv.org/agro/>

- 'Agricultural Biodiversity'
- 'FAO: Sustaining Agricultural Biodiversity and Agro- Ecosystem functions'.

**The CBD-ClearingHouse Mechanism:**

<http://www.biodiv.org/chm/index.html>

**Website of EIONET:**

<http://www.eionet.eu.int/>

**Website of the European Centre for Nature Conservation:**

<http://www.ecnc.nl/doc/projects/elisa.html>

**Website of the European Community Clearing-House Mechanism:**

<http://eea.eionet.eu.int/ec-chm/>

**Website of European Commission DG Agriculture:**

<http://europa.eu.int/comm/dg06/envir/report/en/index.htm>

- 'Agriculture, Environment, Rural Development: Facts and Figures - A Challenge for Agriculture'.

<http://europa.eu.int/en/comm/dg06/com/htmlfiles/welcome.htm>

- 'Sustainable Agriculture and Rural development: How Agenda 2000 will contribute to Nature Protection, by Franz Fischler'

[http://www.europa.eu.int/comm/dg06/envir/report/en/n2000\\_en/report\\_en.htm](http://www.europa.eu.int/comm/dg06/envir/report/en/n2000_en/report_en.htm)

- *Relationship between Natura 2000 and agriculture*

**Website of European Commission, DG Environment:**

<http://europa.eu.int/comm/environment/actionpr.htm>

- *Fifth Environmental Action Programme*

<http://europa.eu.int/comm/environment/news/enlarg/index.htm>

- 'Enlarging the Environment'

<http://europa.eu.int/comm/environment/nature/home.htm>

- *DG ENV Nature protection home page*

**Website of EUR-LEX:**

[http://europa.eu.int/eur-lex/en/lif/dat/1998/en\\_398L0095](http://europa.eu.int/eur-lex/en/lif/dat/1998/en_398L0095)

- 'Community legislation in force'

**Website of European Commission RAPID:**

<http://europa.eu.int/rapid/start>

**Website of EFNCP:**

<http://www.efnecp.org/agenda2000.html>

- 'Chapter 9: Rural development and nature conservation with special attention to LFAs'

**Website of EU Conference ‘Organic Farming in the European Union Perspectives for the 21st Century’:**

<http://www.eurotech.co.at/html/engl/intro.htm>

**Website of MARS:**

<http://mars.aris.sai.jrc.it/>

**Website of IUCN Economics Unit:**

<http://economics.iucn.org>

- *‘An Essay on Biodiversity and Globalisation by Frank Vorhies’*
- *‘Financial Innovations for Biodiversity, Report: A workshop at the 10th Global Biodiversity Forum, Bratislava, Slovakia’*

**Website of OECD:**

<http://www.oecd.org>

**Website of the PEBLDS:**

<http://www.strategyguide.org/>

**Website of the UK Department of the Environment, Transport and the Regions on Biodiversity and agriculture:**

<http://www.environment.detr.gov.uk/sustainable/biodiversity/consult/happen.htm#agric>

**Website of the UK Department of the Environment, Transport and the Regions:**

<http://www.environment.detr.gov.uk>

- *‘Sustainable Development: Opportunities for change making biodiversity happen’*

<http://www.environment.detr.gov.uk/acre/wildlife/index.htm>

- *Discussion paper ‘Commercial use of Genetically Modified Crops in the United Kingdom: the potential wider impact on farmland wildlife’*

**Website of Union of International Associations:**

<http://www.uia.org/projects>

- *‘Information Context for Biodiversity Conservation’*

**Website of World Resources Institute:**

<http://www.world.igc/wri/wri/wri/sustag/lba-toc>

- *‘Sustainable agriculture’*

**Website of the World Tourism Organisation:**

<http://www.world-tourism.org/index2.htm>

**Website of World Trade Organisation, Uruguay Agreement on Agriculture:**

[http://www.wto.org/wto/minist1/07ag\\_e.htm](http://www.wto.org/wto/minist1/07ag_e.htm)

**Website of Worldwatch Institute:**

<http://www.worldwatch.org>

- *‘Worldwatch News release ‘Plant Losses Threaten Future Food Supplies and Health Care’*

---

This publication was made possible through the financial support of the European Commission, Directorate General for Environment, the National Physical Planning Agency of the Ministry of Housing, Spatial Planning and the Environment (The Netherlands) and English Nature (United Kingdom).

**CIP: Stimulating positive linkages between agriculture and biodiversity**  
**Recommendations for building blocks for the EC-Agricultural Action Plan on Biodiversity**

Laura Buguña Hoffmann (ed.), Tilburg: European Centre for Nature Conservation, 2000  
(ECNC Technical report series), April 2000  
ISBN: 90-76762-03-1

2000 © ECNC: No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of ECNC. The views expressed by the contributors do not necessarily constitute ECNC policy.

Disclaimer: The views expressed in this publication are those of the authors and do not necessarily reflect the views or opinions of the funders.

**European Centre for Nature Conservation - Tilburg**

PO Box 1352 / 5004 BJ Tilburg / The Netherlands

Tel.: + 31 13 466 32 40 / fax: + 31 13 466 32 50

WWW: [www.ecnc.nl](http://www.ecnc.nl)

E-mail: [ecnc@ecnc.nl](mailto:ecnc@ecnc.nl)

**European Centre for Nature Conservation**

Central and Eastern European Regional Unit

Budapest 1121 Költő Utca 21 / Hungary

Tel./Fax: + 36 1 355 36 99

WWW: [www.ecnc.nl](http://www.ecnc.nl)

E-mail: [ecnc.bp@pronet.hu](mailto:ecnc.bp@pronet.hu)

