



## How can we preserve biodiversity ?

Anne Teyssèdre for the European Environment Agency, February 2006

1. **Biodiversity conservation must involve societies** (see the texts below)
2. **Biodiversity conservation must involve research and monitoring** (see next page)
3. **Biodiversity must be taken in account in economics** (see page 3)
4. **Biodiversity conservation must involve collectivities and governments** (see pages 4-6)
5. **An integrated framework for conservation** (see page 7)

### 1. Biodiversity conservation must involve societies

Since the end of 1960s and the birth of the UNESCO's MAB program, many ecologists have understood that, since human societies depend on the exploitation of the numerous resources delivered by the ecosystems in which they live, the conservation of these resources and of the ecosystems themselves must involve their sustainable exploitation by humans.

More precisely, considering the potentially huge impact of human activities on biodiversity, conservation today implies the proactive and adaptive management of the ecosystems inhabited and exploited by humans, based on a multidisciplinary systemic approach involving ecological, economical and social variables. Such ecosystem approach is pruned by the CBD.

- **UNESCO's MAB program and the biosphere reserves** (-> see the text below)
- **CBD's ecosystem approach** : <http://www.biodiv.org/programmes/cross-cutting/ecosystem/default.asp>

**Selected reference :**

J-C. Génot and R. Barbault, 2004 : “What sort of conservation policy?”, pp. 134-159 in “Biodiversity and Global Change : social issues and scientific challenges”. ADPF, Paris. Published on line at <http://www.adpf.asso.fr/adpf-publi/folio/biodiversite/index2.html>

### ➔ UNESCO’s MAB program and the biosphere reserves

Recognising that all human societies depend on local or/and regional natural resources, the UNESCO has argued in the mid 1960s that the conservation of these resources requires, rather than their total protection in pristine habitats, their sustainable utilisation in human peopled areas. In this aim, it has launched in 1968 a worldwide program named “Man and the Biosphere” (MAB) which aims to extend a wide network of “biosphere reserves” allowing sustainable socioeconomic activities compatible with biodiversity conservation, among which multidisciplinary researches on the interaction between humans and their environment.

In their first conception, the biosphere reserves were composed of a core protected area surrounded by wider zones in which human activities promoting or compatible with the conservation of natural resources were maintained. Today, the presence of a core protected area is not required anymore (example : the French Fontainebleau biosphere reserve).

Web site of the MAB program : link to <http://www.unesco.org/mab/>

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## **2. Biodiversity conservation must involve research and monitoring**

Biodiversity conservation relies on a better understanding of the structure and functioning of the ecosystems, in relation with humans, and on the monitoring of their components. In its article 7, the CBD has called the Contracting Parties to identify and monitor the components of biodiversity important for its conservation, as well as the processes and categories of activities likely to have a significant impact on biodiversity, in order to maintain and organise them.

Among other important scientific programmes, data and tools, this requirement has led to the launching of the international programme Diversitas, to the development of integrated frameworks for conservation, among which the CBD framework for 2010 biodiversity target, and to a world inquiry on the state of the ecosystems (the “Millennium Ecosystem Assessment”).

- **Diversitas** -> see the text below
- **Integrated frameworks for conservation** -> see the text on page 6
- **CBD framework designed to achieve 2010 biodiversity target** -> see the text below
- **The Millennium Ecosystem Assessment** -> see page 8 in the “Why matter?” section

### ➔ **Diversitas**

The international programme Diversitas is a partnership of inter-governmental and non-governmental organisation formed to promote, facilitate and catalyse scientific research on biodiversity. Its goal is ”to provide accurate scientific information and predictive models of the status of biodiversity, to find ways to support a more sustainable use of the Earth’s biotic resources, and to build a world-wide capacity for biodiversity science.“ In so doing, Diversitas brings added value to national and regional biodiversity research projects.

Web site : <http://www.diversitas-international.org>

### ➔ **CBD framework to achieve 2010 global target**

In 2004, in its decision VII/30, the Conference of the Parties to the CBD adopted a framework designed “to facilitate the assessment of progresses towards the 2010 target and communication of this assessment, to promote coherence among the programmes of work of the Co and to provide a flexible framework within which national and regional targets may be set, and indicators identified.” This framework includes seven focal areas and a set of 21 immediate or possible indicators.

COP decision VII/30 : <http://www.biodiv.org/doc/decisions/COP-07-dec-en.pdf>

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### 3. Biodiversity must be taken in account in economics

As stressed by the Millennium Ecosystem Assessment, many ecosystems are currently over exploited because the ecological services they provide to societies are not taken in account in the economic transactions and balance sheets. A main aim of conservation is to fairly “internalise” the benefits and costs linked to the protection or degradation of these ecosystem services in the economic transactions. A wider objective is to valorise biodiversity, socially and economically, in order to maintain it. Socioeconomic valorisation of biodiversity may be reached through activities of either individuals, societies, collectivities and governments.

- **What are ecosystemic services ?** -> link to subsection **L3**
- **Selected references on the socio-economical valorisation of biodiversity** -> see the short list below
- **Video on Conservation and Bio-economics** (from “Nature en STOC” movie)

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#### ➔ Selected references on the socio-economical valorisation of biodiversity

- G.F. Heal, 2000 : “Nature and the Market Place”, Island Press, Washington D.C.
  - G.C. Daily & K. Ellison, 2002 : “The New Economy of Nature”. Island Press, Washington D.C.
  - Norton B.G., 2005 : “Sustainability : a Philosophy of Adaptive Ecosystem Management”. University of Chicago Press, Chicago.
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### 4. Biodiversity conservation must involve collectivities and governments

Due to the complexity of the interactions between human societies and biodiversity, and due to the different time scales between ecological and economic processes, most ecosystems and the ecological services they provide are doomed to be over exploited in any poorly managed economy, and noteworthy in a totally free market economy. That is why, in its article 6, the CBD called the Contracting Parties to develop national strategies, plans and programmes which shall reflect the measures set out in this Convention and to integrate, as far as

appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies”.

Since 1992, the Contracting Parts to the CBD and the European Union have adopted ambitious strategies, targets, policies and conventions to reduce biodiversity loss on Earth.

- **Governments must use market instruments to integrate biodiversity issues in economics**-> see the text below
- **Collectivities must clearly precise access rights to biodiversity** -> see the text below
- **Sectoral, cross-sectoral and cross boundaries integration** -> see page 5
- **World and European 2010 Biodiversity Targets** -> see page 6
- **Main global and European strategies, conventions and policies** -> link to <http://biodiversity-chm.eea.europa.eu/convention>

**→ Governments must use market instruments to integrate biodiversity issues into economics**

Ecological processes are generally much slower than economical changes. For this reason, farmers, industrials, fishers and other professionals whose activities impact nature and biodiversity do not spontaneously take in account the delayed cost of ecosystem degradation – or the cost of ecosystem renewal - in their economical transactions. The internalisation of many ecological services can only be reached through the means of taxes, incentives or tradable permits to pollute imposed by collectivities or governments.

**Selected reference :**

G. Heal, 2001 : “Nature and the Market Place”, Island Press, Washington D.C.

**→ Collectivities must clearly precise access rights to biodiversity**

Free access limited resources are doomed to exhaustion as soon as their harvesting rate upsets their renewal rate. Collectivities must clearly precise the access rights to any valorised resource, by the mean of tradable licences for instance, in order to sustainably exploit them. More over, goverments and collectivities should avoide promote the overexploitation of an harvested resource through financial incentives.

**Selected reference :**

J. Weber, 2002 : “Economic and social issues in sustainable development”, pp. 13-44 in “Johannesburg World Summit 2002 : What is at stake ? The contribution of scientists to the debate” ADPF, Paris. [http://www.adpf.asso.fr/adpf-publi/folio/textes/johannesburg\\_gb.pdf](http://www.adpf.asso.fr/adpf-publi/folio/textes/johannesburg_gb.pdf)

**→ Sectoral, cross sectoral and cross boundaries policy integration**

Biodiversity is impacted at different space scales by numerous economic activities, such as agriculture, forestry, fisheries, transport, tourism, etc. Thus, an environmental priority for the governments and collectivities is not only to integrate biological issues in these different sectors of activities, but also to harmonise and co-ordinate the different measures in integrated environmental policies...

**Selected Reference for Europe :**

EEA State of the Environment Report 2005, Part A, section V : Integration (pp.216-248).  
[http://reports.eea.eu.int/state\\_of\\_environment\\_report\\_2005\\_1/en/SOER2005\\_Part\\_A.pdf](http://reports.eea.eu.int/state_of_environment_report_2005_1/en/SOER2005_Part_A.pdf)

**→ World and European 2010 biodiversity targets**

In 2001, recognising that biodiversity was still declining at high rate due to human activities, the European Commission has adopted in its 6<sup>th</sup> Environmental Action Programme the ambitious target to halt biodiversity loss by 2010 in Europe.

In 2002, the Conference of the Parties to the CBD adopted a Strategic Plan (decision VI/26) in which the Parties committed themselves to “achieve by 2010 a significant reduction of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth”. This target was subsequently endorsed by the World Summit on Sustainable Development.

- European 2010 Biodiversity Target : <http://biodiversity-chm.eea.eu.int/convention/F1117799202>

- 6<sup>th</sup> Environment Action Program : <http://europa.eu.int/comm/environment/newprg/>

- World 2010 Biodiversity Target : <http://www.biodiv.org/2010-target/default.asp>

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## 5. An integrated framework for conservation

To be efficient, biodiversity conservation should include the following steps :

1. Evaluate and monitor the state and trends of biodiversity, at different spatial scales, by the mean of well designed indicators ;
2. Identify and hierarchise the pressures on biodiversity, *i.e.* the causes of its erosion ;
3. Analyse the socio-economic and ecological processes involved in these pressures ;
4. Elaborate environmental responses and strategies designed to reduce the identified pressures (and build up environmental scenarios) from this multidisciplinary analysis;
5. Help decision-makers, managers and users apply these strategies and take other environmental measures and actions coherent with these ;
6. Verify the (positive) effect of the undertaken measures and actions on the state of the natural resources (back to step 1).

This approach can be summarised and illustrated using a Pressure-State-Response (PSR) model like that developed by the OCDE in 1989, or the Drivers-Pressures-State-Impact-Response (DPSIR) model developed in 1993 by the EEA.

- **More on these models** : <http://lead.virtualcentre.org/en/dec/toolbox/Refer/EnvIndi.htm>

- **More on indicators** : <http://biodiversity-chm.eea.europa.eu/information/indicator>