

## Chapter 4 Management of Biosphere Reserves (BRs) and various types of designated areas



## Chapter 4

# Management of Biosphere Reserves (BRs) and various types of designated areas

### 4.1 Introduction - From environmental management to sustainable management

Since antiquity, human communities have developed customs and techniques to manage their relationships with the environment and the natural resources, usually as a set of unwritten rules and later as written laws. These aimed for safer, healthier and more productive use of natural resources and to manage daily needs in a way that would cause the least possible societal tension and protect human health and prosperity. Such rules were often about water extraction and sharing, logging for fuel or construction, the use of roads and tolls, waste disposal and sometimes about the preservation of areas (i.e forests) which held exceptional value for being sacred or culturally significant. Such activities comprise the prehistory of modern environmental management.

**Environmental Management** is not, as the phrase suggests, the management of the *environment* as such. Rather, it is the management of interactions human societies have with the environment. It comprises the applied economic, technological, institutional, social and empirical means necessary to reach the goal of protecting or improving the environment.

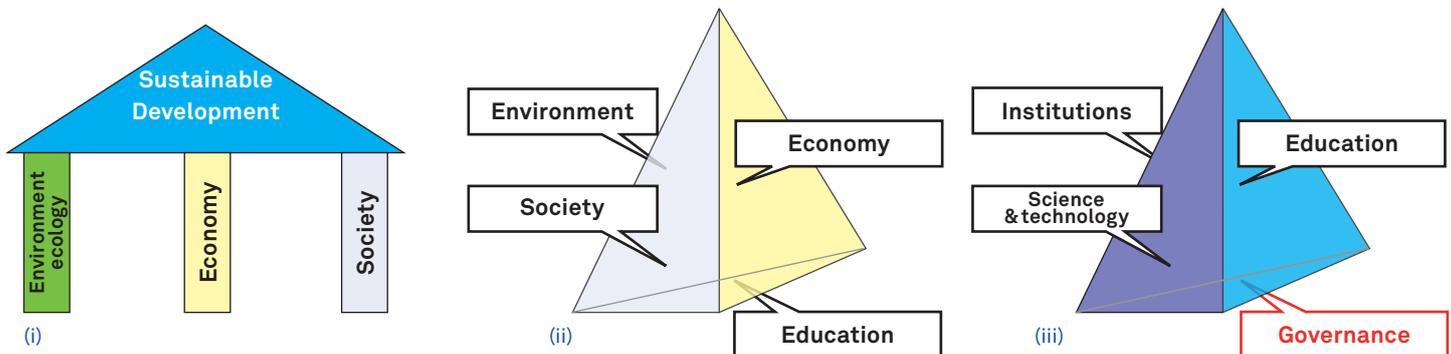
Since 1992 when the objective of sustainable development was formally introduced and recognized as a guiding principle, serious and systematic attempts have been made so that environmental management is combined and contributing to the achievement of sustainability.

**The goal of sustainable development is to meet the needs of the present generations without compromising the ability of future generations to meet their own.**

The aforementioned definition of sustainable development has been widely accepted.

It has also sparked discussions on how to define generational needs, particularly when looking at the needs imposed by the current model of western consumerism on one hand and the question of basic survival for billions of people living in deplorable conditions, on the other. In particular, sustainable development aims to:

- Manage and distribute resources wisely in favour of present generations without exhausting, diminishing or destroying them for future generations.
- Promote renewable, natural resources and new technologies so as to achieve similar results using fewer resources.
- Promote the gradual change in lifestyle models with a drastic restriction on excessive consumption.



To better understand the above mentioned relationships in a visually comprehensible way, Scoullos (2005) has suggested the replacement of the traditional temple-like model of sustainable development (i), to a tetrahedron (ii) the sides of which extend continuously, thus sustainable development is represented in

the space within the tetrahedron sides having governance as its base. Analysing further the concept of governance, results to another figure (iii) that reveals its tools, namely institutions, science-technology and ESD.

1. The *Camorchos pond*, *Cuenta Alta del Río Manzanares BR*, Spain  
© UNESCO/O. Brestin

2. Information panel, *Camorchos pond area*,  
© UNESCO/O. Brestin

3-4. Protected dispersal corridor and common water frog, *Camorchos pond area*, *Cuenta Alta del Río Manzanares BR*, Spain  
© UNESCO/O. Brestin

5. Biology class, *Ben Zakour School, Temara*, Morocco  
© UNESCO/ASPnet/  
Ahmed Outmani

6. *Arganeraie* Project Management, *Arganeraie BR*, South West of Morocco  
© MB of the  
*Arganeraie BR*

7. Biosphere Reserve residents, *Omayed BR*, Egypt  
© Thomas SchAAF

8. The mechanical harvesting of salt, *Aigues Mortes, Camargue BR*, France  
© UNESCO/O. Brestin

9-10. In vitro plant culture and greenhouse culture, *Grindavik*, Iceland  
© UNESCO/  
Ariane Bailey



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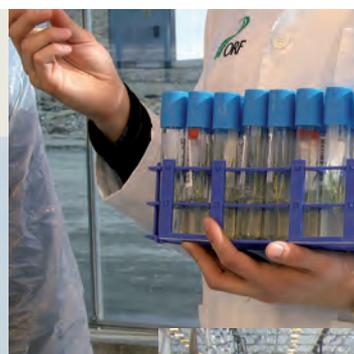
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11. Vokhtchi River, Kapan, Armenia  
©Olivier Brestin

The ultimate goal of environmental management is to protect the environment and to secure its ability to maintain its functions and characteristics, regenerate and self-regulate. The first step in this direction is to introduce and further institutionalize regulations on human activities which will allow ecosystems and their related natural mechanisms to continue to function smoothly (within their **carrying capacity**).

Environmental management should be examined through the prism of sustainable development, which is based on three pillars: environment, economy and society. If one of the parameters is lacking in relation to the others, sustainable development cannot progress. This is directly related to both the balance and equality between generations (inter-generation equity) but also within a community and between the community and the rest of the world. Obviously, balancing the three components does not mean equal contribution of each, but combinations appropriate to address the needs of the societies and areas in question. This balancing is in the very centre of management.

Finally, the entire foundation of sustainable development is based on the idea of good governance, where consensus and peace are both a goal and a means (peace not only in the sense of “the absence of war”, but also as social consensus, etc.). Internal or external conflicts put pressure on the vital environmental, economic and social resources of a society. Lack of sustainable development integration is an unfortunate fact, especially considering that, “already in 1997, it became a fundamental objective of the EU when it was included in the Treaty of Amsterdam as an overarching objective of EU policies.” (source: <http://ec.europa.eu>)



12. Tourists fishing and sunbathing at the dike, Marismas del Odiel BR, Spain  
© UNESCO / Olivier Brestin

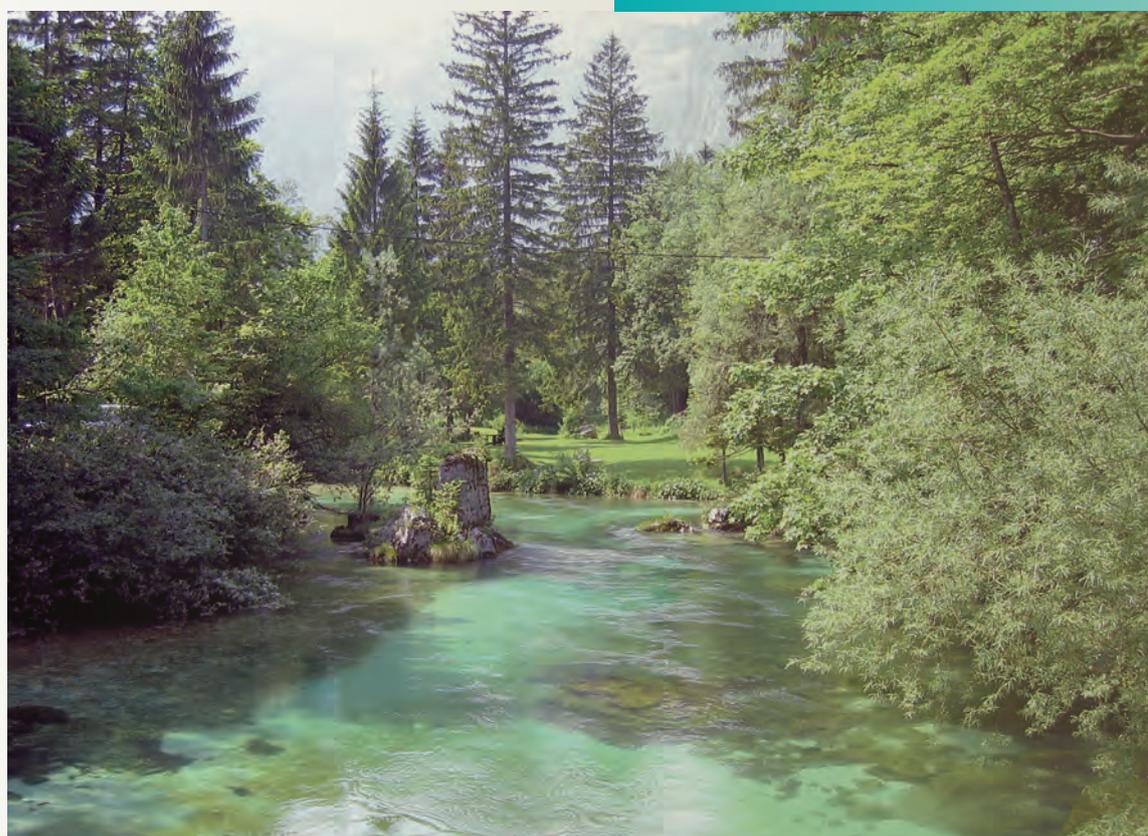
### Fragmentation: the most common problem of Environmental Governance:

In the majority of the Mediterranean countries Ministries of Environment are hardly dominant in coordinating environmental administration. However it is frequent that water issues are managed by Ministries of Water; Ministries of Mercantile Marine cover protection of the marine environment; Ministries of Health test bathing water quality and classify beaches; Ministries of Agriculture are responsible for protecting forests and/or monitoring rivers and Ministries of Transport monitor car emissions. This fragmentation may be overcome only if high level coordination is in place.

Transboundary waters are an example that demonstrates the various kinds of pressures that may rise between upstream and downstream countries or regions: upstream countries may cause problems for the downstream ones, for example, by holding large amounts of water (with dams) or by polluting it. Such disputes are economic or social in nature but they also cause serious environmental problems for the downstream regions because deltas and wetlands dry up or erode when water is depleted. To give another example, in times of war, from antiquity up until recently, warring sides hoping to destroy their enemy would turn against the natural resources by poisoning wells, cutting trees, etc.

Proper management not only contributes to environmental protection and to safeguarding the unhindered functioning of ecosystems, but also to economic prospects, social consensus and peace. In contrast, poor management leads to environmental degradation, distorted (or, absence of) development, conflict and dispute.

Cover of *Agenda 21*,  
Plan of action first adopted  
at the *Earth Summit*  
© United Nations



13. Bohinj River,  
Triglav BR, Slovenia  
© Giorgio Andrian

The management process has adopted fundamental principles such as providing **information** on environment and sustainable development for stakeholders and the general public, **integration** of environmental policy into other policies and its systematic **implementation** which requires technical infrastructure and the appropriate institutions, laws, administration, etc. Common tools of environmental management include looking at a system's **carrying capacity**, or creating alternative **scenarios** to predict the possible environmental consequences of a planned project in a given area. The conclusions are summarized in studies known as **Environmental Impact Assessments (EIAs)** which are extended to **Strategic Impact Assessment (SIA)** when referring to policies.

Environmental management can be designed and implemented separately (e.g. for a protected area alone) or at the same time on many levels -internationally, nationally, or locally (e.g. when a new provision stemming from an international Convention is implemented). Depending on the level, management tools, timeframes, specifications and requirements, management tools and methods can change.

Environmental and sustainable management must always take reality into consideration. Through its **management plan** it can certainly help to improve existing legislative measures, but it cannot nor should be expected to "turn the world up-side down" to deliver its designed measures. Social conditions and educational perspectives are also important mainly through information, consultation and consensus and through formal and non-formal ESD and the active participation of both citizens and citizen's organisations.

## 4.2 The evolution of environmental management from 1960's onwards

In essence environmental management has always existed in various forms since antiquity and was often institutionalized under a set of legal, religious or traditional regulations. Internationally, environmental management began to develop systematically between the late 1960's and early 1970's.

The initial approach, that of regulation and administrative controls as the basis management was developed within the scientific community and environmental NGOs. At that time, these groups were formed by concerned citizens inspired also by "**Limits to Growth**": This was the title of a report, published in 1972, commissioned by the Club of Rome at M.I.T. (Meadows et al., 1972). According to the report, the Earth should be seen as a spaceship with finite resources without any input of mass except for energy in the form of solar radiation. Therefore, natural resources - raw materials, food, and water- must be managed properly and effectively, as they are not infinite. The limits to growth are viewed, thus, as rigid, set by the limits of Earth itself, an entity that is self-regulated to a certain degree. Thus, logical first environmental management step is to moderate human intervention in order to allow nature to 'work' (functioning of natural, biogeochemical processes). In other words, this approach advocates for a management based on the principles of preservation-conservation and targets especially those factors that may inhibit nature's ability to self-clean (e.g. collection and neutralization of waste).

At the time **Agenda-21** was launched in 1992, a second report was published by the same researchers of M.I.T. (Meadows et al., 1992) under the title “**Beyond the Limits: Global Collapse or Sustainable Future**” that predicted the potential limits on development. Many of their original predictions were confirmed despite the fact that some calculations regarding available energy sources were quite flawed. The new study was an important improvement on the 1972 publication. The conclusions regarding the limits on development, as expressed through various models, remain almost unchanged. These conclusions and findings confirm that human society consumes the planet’s resources at a very fast rate while at the same time, produces pollution, emissions, and accumulates waste. Regardless of new clean technologies, of anti-pollution policies and a greater awareness of the environmental problems, “natural” limits have been exceeded. The study states that ongoing patterns of development cannot be sustained after 100 years; however, the report supports that these trends are reversible if economic, political and developmental programmes change drastically by looking to more sustainable alternatives.

Environmental management on pollution originally included what is now called “end of the pipe” and the “stick” approach. Both of these approaches do not look at prevention but they comprise post-damage ways to deal with the problem, attributing the cost of damage to the responsible party (or parties).

The **end of the pipe approach** begins by identifying the pollutant and its impact as problem; it goes on to introduce technology for treatment and elimination of the consequences and focuses on the reduction of the problem mainly by addressing its symptom (pollution). It does not address the production mechanism but intervenes only at the stage after the pollutant is generated but before the receiving environmental medium (i.e. air, land or water) is damaged, aiming to limit the negative impact. This approach is widely applied in cases such as in treating waste from production processes. However, in this way, the problem is only shifted in terms of time and space: *for example, an air pollutant when “washed” (i.e. by rain) becomes a liquid pollutant (e.g. in water), and upon precipitation it becomes sludge, a soil contaminant.* The **stick regulation approach** refers to restrictions and limits set on emissions for environmental, economic and technical reasons, along with the improved functioning of anti-pollution technology, attempting to safeguard the integrity of the end recipient. To a large degree, this approach is based on directives and laws (demand and control regulation) in order to avoid or limit pollution. Both monitoring and control are required in order for the approach to be effective, and in cases of inappropriate management penalties are imposed.

The use of penalties is linked also to the so called **3Ps: polluter pays principle**. This principle states that because the polluters are responsible for creating the pollution, it is them who must pay for the damages caused, not the community (taxpayers). The 3P principle is a financial and not a legal tool, and by no means should it work in the opposite direction: the ‘I will pollute and I

will pay’ way of thinking is socially and ethically unacceptable, but unfortunately exists to some degree.

The **zoning approach** refers to cases when a valuable site requires protection, or when there is a dispersal of pollutants instead of an identifiable fixed source of pollution (e.g. agricultural pollution, emissions from urban areas, etc.). This approach entrenches an area and restricts or even prohibits specific human activities within particular zones. In this context, the terrestrial and marine areas are categorised into different zones, such as industrial zone, green zone, and recreational zone. Also, important “core” areas are fully protected, separated by surrounding intermediate “buffer zones”, as is the model introduced by MAB BRs (see paragraph 4.3). The inhabitants of these areas can be conscientious and responsible by undertaking in social and economic activities that are compatible to sustainable development.

The management strategies of the 1970’s and the 1980’s were analysed, criticised, reviewed and revisited several times. The “Limits to growth” was considered as pessimistic and a barrier to development. The Commission chaired by Gro Harlem Brundtland delivered the “**Our Common Future**” report (1987) introducing the notion of Sustainable Development and the Rio Summit (1992) adopted the Agenda-21 further introducing the “prevention” and the “precautionary” principles as management concepts, and the “participatory” and “integrated” planning approaches as major tools.

The **prevention approach** is applied by trying to remove or moderate the sources or root causes of emerging problems. The **precautionary principle** states that decisions and actions whose results are uncertain and therefore possibly harmful should not be undertaken until proven to be safe by the intending actors. The precautionary principle supports social and environmental responsibility because actions whose results are uncertain or have inconclusive/lacking data are not taken in order to protect and preserve the environment (or the public, or health, etc). *To give an example, the importance of a particular site for migrating birds in the absence of another important site cannot be always proved.*

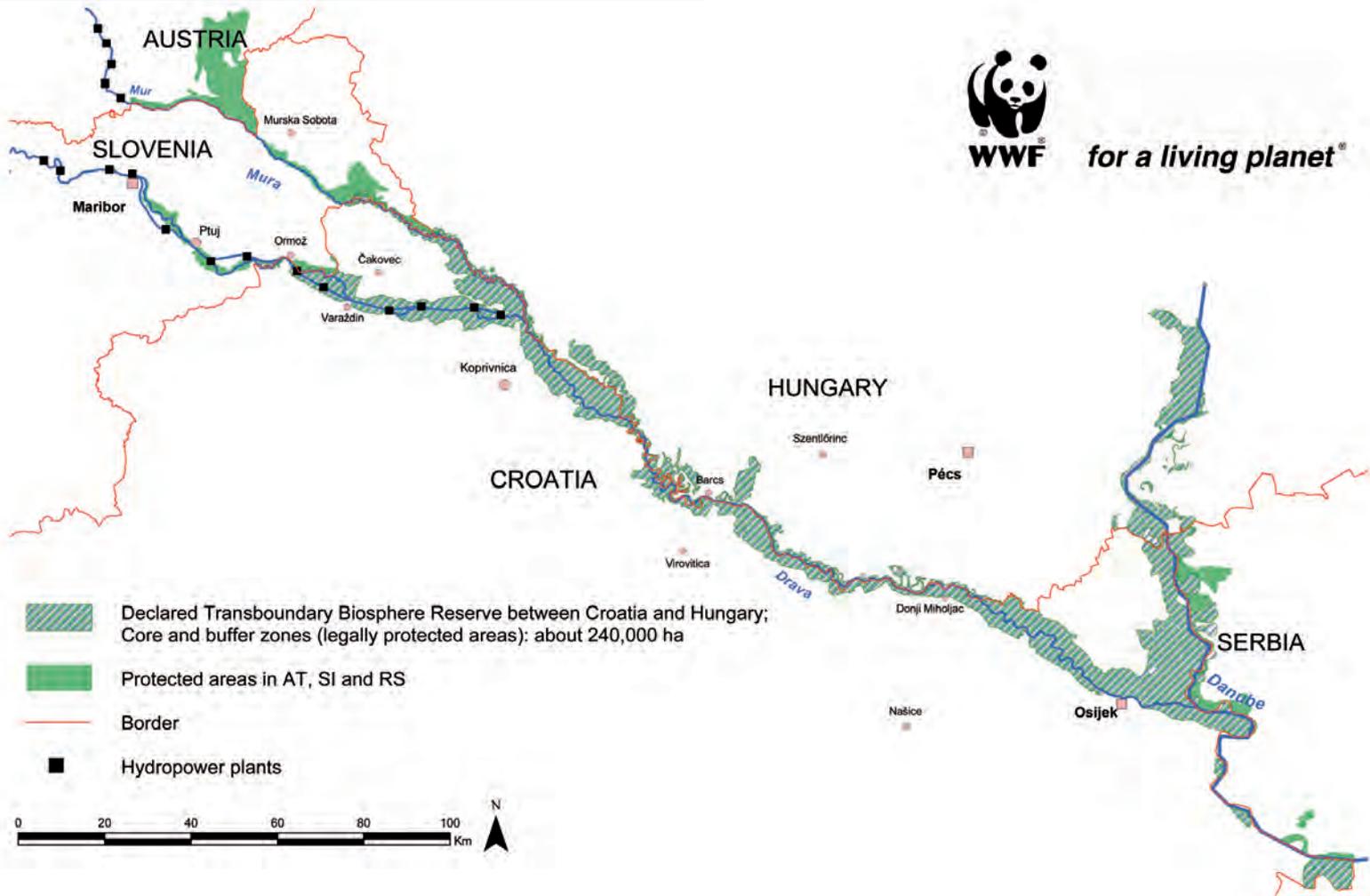
In the new millennium management becomes more and more integrated, focusing more on the social and economic roots of most of the environmental issues. The WSSD in Johannesburg (2002) initiated a series of initiatives, many of which are non-binding, voluntary commitments. The previous approaches are inter-connected with the promotion of **new, alternative management methods**, targeting, mainly:

- the production, encouraging green processes that reduce pressures i.e. limiting source emissions and toxic by-products,
- the design of alternative green products i.e. refrigerators without halogenated freezing liquid, plastic water bottles and bags made from recyclable materials, etc.
- the development of or protection of alternative substitute habitats.



14. Pranitis, Zuvintas Lake outlet, Zuvintas BR, Lithuania © UNESCO / VyA

Figure 16 Transboundary river system of the Mura, Drava and Danube



### 4.3 The scope for management within a Biosphere Reserve

Based on the concepts mentioned in the previous paragraphs, UNESCO believes that utilization and conservation of land and water resources should go hand in hand, and that an interdisciplinary approach and long term vision are keys. **Biosphere Reserves (BRs)** are much like laboratories where new and optimal practices to manage natural processes and human activities are tested and demonstrated. They outpace traditional confined conservation zones, combining core protected areas with zones where sustainable development is fostered by local dwellers and enterprises. Their governance systems are often highly innovative. In some cases, new legislation can be introduced.

Biosphere Reserves have three inter-connected functions:

- **Conservation:** landscapes, ecosystems, species and genetic variation
  - **Development:** economic and human and culturally adapted
  - **Logistic support:** research, monitoring, environmental education and training
- They generate knowledge and experience which can be used elsewhere in the wider land and seascape. They are tools to help countries implement the results of the WSSD and in particular the Convention on Biological Diversity and its **Ecosystem Approach**. They are also «learning sites» for the UN Decade on Education for Sustainable Development.

#### Ecosystem Approach

The Ecosystem Approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It has been adopted by the Conference of the Parties of the Convention on Biological Diversity (CBD) as the primary framework for action under the Convention. The perspective, objectives and actions associated with the Ecosystem Approach have many shared concerns with the Biosphere Reserve concept promoted by UNESCO through the MAB Programme and its World Network of Biosphere Reserves. (Solving the Puzzle: The Ecosystem Approach and Biosphere Reserves, [www.unesdoc.unesco.org](http://www.unesdoc.unesco.org)).

Twelve principles of management have been proposed for the Ecosystem Approach, which are complementary and interlinked. In order to provide practical assistance in applying the Ecosystem Approach in the field, the IUCN Commission on Ecosystem Management (CEM) has proposed to organize the twelve principles into five steps, each step involving a range of actions.

-Step A: Determining the main stakeholders, defining the ecosystem area, and developing the relationship between them

-Step B: Characterizing the structure and function of the ecosystem, and setting in place mechanisms to manage and monitor it

-Step C: Identifying the important economic issues that will affect the ecosystem and its inhabitants

-Step D: Determining the likely impact of the ecosystem on adjacent ecosystems

-Step E: Deciding on long-term goals, and flexible ways of reaching them

The CEM underlines that Step A involves the most difficult issues for applying the Ecosystem Approach and reminds that previous attempts at the management of biodiversity have tried to fit stakeholders to a chosen area without considering the broader implications of the Ecosystem Approach, which stresses societal choice. To this end, the CEM recommends to work simultaneously on defining the ecosystem area and determining the stakeholders who will support the selection and management of that area. The seventh meeting of the Conference of the Parties of the CBD agreed that the priority should be on facilitating implementation of the Ecosystem Approach and welcomed additional guidelines to this effect ([www.cbd.int/](http://www.cbd.int/)).

### 4.4 Management plans

UNESCO MAB BRs or other types of designated areas are subject to certain management practices including zoning, restrictions and specifications concerning certain uses, various governance schemes, etc. They must function within the wider national policies of development and natural resource management set by each country which, in turn, are influenced by various viewpoints for economy, society, and culture. Designating an area is only the first step, as effective environmental management practices must be put in place.

Specifically, the management of a designated area concerns a set of comprehensive measures essential for its protection, organization and function and aims to encompass all its values (environmental, aesthetic, historic, cultural, economic, developmental, etc.) without neglecting the overall goals of protection and sustainable development.

In many Mediterranean countries designated areas are governed by multi-stakeholder boards, on the basis of a **management plan**. Such a plan, being in line with national and international legislation, outlines the general vision and priorities for an area, the measures and actions necessary for its protection and effective management and specifies how its **Management Body (MB)** will operate. Each management plan has a specific timeframe and is considered an ongoing process encompassing all steps of preparation, implementation, monitoring, evaluation and reform. The quality of each management plan depends very much on previous experiences and the degree to which it was implemented and it is judged on whether its goals were actually achieved.

15. Information panel on dune stabilization, Cuesta de Maneli, Doñana BR, Spain ©UNESCO/O. Brestin

16. Plant cover for dune stabilization, Cuesta de Maneli, Doñana BR, Spain ©UNESCO/O. Brestin



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19. Cork transportation to storage place, Castillo de Monfragüe, Monfragüe BR, Spain ©UNESCO/O. Brestin

20-21. Working with local stakeholders, potential Strandja Mountain BR site, Bulgaria © Andriana Andreeva, Bulgarian Biodiversity Foundation

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Table 5  
Biodiversity management in a 7-Step-Process

Adaptive management is a systematic and iterative process. It implies interactive management organized following seven steps:

• **1<sup>st</sup> Step: Phase of identification of the issues involved**

The process begins with an overview of the corpus of existing knowledge. Assessments reveal whether the knowledge is up to date, and complete, and if not, defines the gaps. This is also an opportunity to develop a theoretical model of the system to obtain estimates of what alternative methods of management could do. Different management scenarios are thus developed.

• **2<sup>nd</sup> Step: The selection of indicators**

The development of a management scheme and a monitoring program is accompanied by the choice of indicators, which depend on the objectives and time scale taken into account: short, medium or long term. If knowledge gaps had been identified during the first phase, Step 2 is useful to try to fill them. Studies or specific updates are necessary in this case.

• **3<sup>rd</sup> Step: Implementation**

The management methods chosen are implemented.

• **4<sup>th</sup> Step: Monitoring indicators**

The information is collected in real time.

• **5<sup>th</sup> Step: Assessment**

Comparing the results and the indicators for different scenarios can lead to the development of new hypotheses on the dynamic management of the ecosystem.

• **6<sup>th</sup> Step: Adjustment management plan and experimentation**

Depending on the results of the evaluation, the management goals, procedures and predictive models can be revised.

• **7<sup>th</sup> Step: Use of the results**

The last phase is the use of the experimental results to better understand the “cause and effect” relationship of the selected management practices. These practices will then be adapted depending on the evolution of the ecosystem and the management objectives. Finally, and in conclusion, returning to Step 1 can pursue improvement in knowledge and management practices. (MAB Notes, 2008)

## About adaptive management

### Local decisions

“[...] Owing to the risk of it being unsuccessful, adaptive management must not be imposed but rather developed in conjunction with the local stakeholders. This is particularly important for the processes taking place in areas outside the reserve.

In the lower plains of the river Aude in the south of France, for example, the organisation in charge of preserving the natural heritage and water management has developed an approach of joint management with the key players of the wetland. Rigorous monitoring of environmental variables – water levels, salinity, area covered by reedbeds – and a highly responsive decision-making mechanism allowed water management to be adjusted according to the needs of the local stakeholders, the ecosystem requirements and the hydrological variations. This co-management strengthened and enhanced the responsiveness of local management. It brought together the knowledge of scientists and laymen, arising from experience in the field, with established rules of usage that had been validated collectively. It also led to the replacement of informal management by a management plan and an ad hoc decision committee.

Adaptive management is a process of learning “as-you-go”. It makes an effort to reduce the social and environmental costs of management experiments by increasing knowledge about the system. It seeks to facilitate social learning by setting in train a combination of evaluation, modeling and experiment to identify uncertainties and test hypotheses to explore questions asked by managers and scientists.”

(BR Technical Notes 3-2008, Man and Nature, Making the relationship last, [www.unesco.org/mab](http://www.unesco.org/mab))

22. Tablas de Daimiel marshes, Mancha Humeda BR, Spain  
© UNESCO/O. Brestin

23. Southern skimmer (*Orthetrum brunneum*), Cuenta Alta del Río Manzanares BR, Spain  
© UNESCO/O. Brestin

24. Grey heron (*Ardea cinerea*), Méjane, Camargue BR  
© UNESCO/O. Brestin

25. Common reed (*Phragmites australis*), La Fiélose, Camargue BR  
© UNESCO/O. Brestin

26. Common kingfisher (*Alcedo atthis*), Méjane, Camargue BR  
© UNESCO/O. Brestin



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In order for a management plan to be effective and enforceable, it must be governed by some basic guiding principles:

- To aim not only for the protection and conservation of the natural environment and cultural heritage but also for a viable social and economic development of the area.
  - To take into account the needs and priorities of the local community and encourage its participation in the management process.
  - To give serious consideration not only to the assessment of the area's biological, ecological and scientific value but also to its social, educational and cultural value.
  - To recommend measures that promote not only protection and conservation but also restoration, where necessary.
  - To regard an ecosystem's value on an international level (i.e. Mediterranean) as a natural resource and cultural inheritance for the local and also for the international community.
  - To recommend measures with a short-term, intermediate and long-term impact taking into consideration national and international strategies and action plans that will also allow for amendments and reforms in case of changing conditions.
  - To propose possible national and international funding sources of the recommended management measures.
- In some cases, an experienced institution is commis-

sioned to prepare the draft management plan. The plan preparation involves the compilation, recording and analysis of data that usually concern the area's geographical boundaries, administrative authorities and current managerial status; abiotic parameters (e.g. climate, geomorphology, hydrology, terrain, oceanographic data, etc.); biological features (e.g. land and marine flora and fauna, habitats, vegetation); impacts of human interventions on ecosystems and species (e.g. of fisheries, agriculture and tourism); cultural and social background (e.g. history, archaeology, landscape, etc.); economic activities and trends (e.g. forest production, agriculture, animal breeding, fisheries, industry and trade, tourism, etc.); relationship with surrounding areas within the country or in neighbouring ones and opportunities to connect several sites within networks or "corridors", etc.

After cross-check and evaluation of these data, the long-term objectives for the area are identified, the specific problems, opportunities and threats are recognized, possible goals and scenarios are all incorporated in the draft plan. Open consultation is the next important phase that involves presenting the draft management plan to the local community and key-players and revising parts of it, if needed. The revised draft is then submitted to the relevant authorities for final approval, and from then on, implementation begins.

## Indicative management measures applied for certain uses

For the **production sector** of a designated area, there are several indicative measures that may be included in its management plan. These vary in each production sector, but collectively, include the following:

- **Agriculture:** Creating and conserving natural field borders (e.g. stone walls), keeping lands of natural growth free from outside chemicals, training and supporting appropriate agricultural practices.
- **Animal Farming:** Identifying pasture units to be used on a rotation system; adjusting grazing during periods critical to the conservation of some plant or animal species; setting the maximum number of cattle at a given time in a given area.
- **Fishing (protected areas):** Establishing systems of periodic prohibition and/or systems of fishing permits to allow fish stocks to repopulate; compensatory measures for fishermen; instructions on the use of fishing equipment (depth of nets, size of boats, etc); market rationalisation measures for trade of fishing products.
- **Forestry:** Managing of resin collection, prohibiting logging around nesting trees, restricting public use of agricultural roads, controlled grazing to control undergrowth.
- **Tourism:** Given the internationally accepted significance of tourism in designated areas, and the pressure put by this sector in Mediterranean countries, the sustainable tourism model is one of the most important objectives in a management plan. The development of alternative forms of tourism, such as ecotourism, agrotourism, cultural-tourism, etc. allows for the potential increase of income of locals as well as for the socio-economic development of the wider region (i.e. through handicrafts, products and services). Such areas can support also mainstream tourism if well planned. Proposed measures for the development of sustainable tourism include creating -or modifying- infrastructures that respect the scale and character of the area, are energy and water efficient; implementing environmental interpretation projects.



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### The Union of Women's cooperatives in the Arganeraie Biosphere Reserve, Morocco

The argan tree (*Argania spinosa*), endemic to SW Morocco, is one of the mainstays of the socioeconomic and cultural system of the Berber population in the BR. However, serious droughts and overdevelopment have threatened this resource, which is essential for the Berber communities (3 million people base their income on argan and its products). The decrease in the number of argan trees in the BR has also had significant negative consequences on ground water resources, land erosion and biological diversity.

Given this state of affairs, sustainable strategies for the development of the argan were set up in partnership with the local population (with the support of the GTZ). Thus, the Union of Women's Cooperatives was created for the production and marketing of organic argan oil and other agricultural products. This union brings together 13 cooperatives and aims at improving the market potential of the products, both on the domestic and international markets. The products, sold mainly to Germany and France, bear the label "Products of the Arganeraie BR". (BR Technical Notes 2-2007)

**AMIGHA**  
Association Marocaine de l'Indication Géographique de l'Huile d'Argane  
الجمعية المغربية للمؤشر الجغرافي لزيت أركان

**Lettre d'information n°3 - Avril 2010**

**LA CERTIFICATION IGP EST OPÉRATIONNELLE**

**Sommaire :**

- IGP Argane, publication au bulletin officiel et inscription au registre de l'OMPIC
- Une bande dessinée pour vulgariser les techniques de l'IGP Argane
- Un kit Système Qualité pour les opérateurs de l'IGP Argane
- La certification IGP/Bio par l'organisme de contrôle agréé NORMACERT
- L'Union Européenne soutient financièrement la mise en place du programme d'accompagnement des coopératives et entreprises.
- Fiche technique pour les opérateurs.
- La protection de l'IGP Argane avec l'OMPIC
- Nouvelles de la filière

**Un kit «Système Qualité»**

**Système Qualité IGP**

**INDICATION GÉOGRAPHIQUE PROTÉGÉE Maroc**

**Newsletter n°3, Association Marocaine de l'Indication Géographique d'Huile d'Argane, © AMIGHA**

27. Land uses on the Biosphere Reserve, Arganaie BR, Morocco  
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28. Cereal crops, Arganaie BR, Morocco  
© MB of the Arganaie BR

29. Arganaie Project Research Workshop, Arganaie BR, Morocco  
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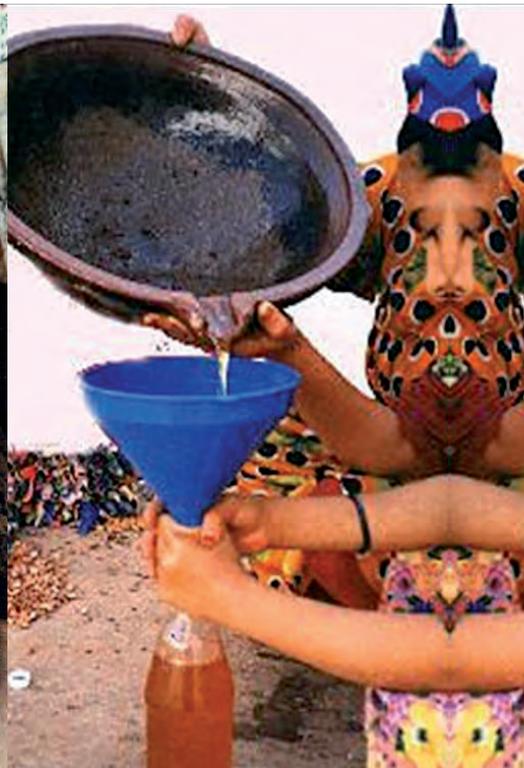
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30-31-32. Argan oil production, Arganaie BR, Morocco  
© MB of the Arganaie BR

33. Argan oil sale point, Arganaie BR, Morocco  
© MB of the Arganaie BR

34. Argan oil final products, Arganaie BR, Morocco  
© MB of the Arganaie BR

For the **management** of natural resources in a designated area, indicative measures of a management plan include the following:

- For water resources, measures may include creating management systems for surface runoffs, eclectic collection and use of rainwater, particularly natural recharge of ground waters, determining the land use (cattle-raising, bonus to low water-demanding crops, tourism development, etc.) based on the water capacity of the area.
- Areas with severe soil degradation (overgrazing, over-irrigation etc.) require management measures to prevent erosion and desertification of land.
- Measures for conserving, reconstructing and rehabilitating specific habitat types may be appropriate.

Other measures may refer to specific important species to control their number (e.g. increase, decrease or maintenance of existing populations) or to reintroduce species to areas where they naturally thrive but have, for various reasons, become extinct.

**Monitoring** a designated area is an important aspect, in terms of:

- Patrolling which is necessary to ensure rules and restrictions outlined in the legal framework for its operation are followed. Indicative measures include cooperation protocols for stakeholders (port officers, rangers, municipalities etc.), reporting offences, prosecuting offenders and imposing fines.
- Informing people who use the area (fishermen, farmers, visitors, etc.) of the restrictions, zones boundaries, etc. is another important aspect aiming to prevent illegal activities within.
- Scientific research programmes, that may include ecological research (e.g. on species societies, evolution of populations etc.), identification of sensitive areas in need of specific management measures; identifying and evaluating emerging new threats studying the environmental and socioeconomic conditions to evaluate the effectiveness of the management measures applied; documenting visitors' views to draft future communication strategies, etc.

One of the managing body's responsibilities is to sensitise the population and visitors. The specific component of **communication, information and education** should be incorporated into the wider management plan.

- The development of ESD schemes and environmental interpretation schemes is more than welcome.
- Through well-planned projects, eventually an environmental positive shift in attitude, opinion and behaviour of students and other social groups can be achieved. Part II of the current publication is all about such projects.

**Infrastructure** measures are another important parameter in any management plan for a designated area that needs professional planning:

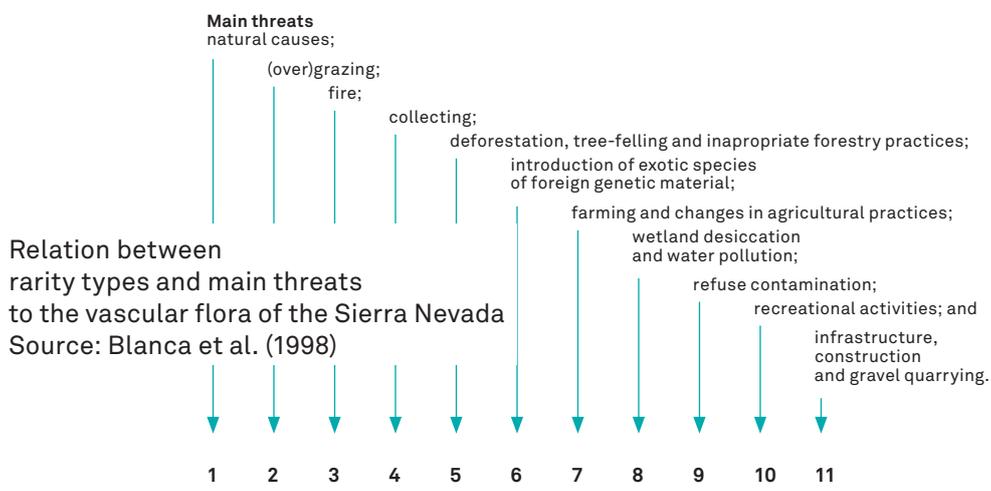
- Indicative measures may include paths restoration, improving agricultural road networks with minimal aesthetic/ecological disruption to the environment, small scale dams and dikes to retain rainwater, etc.
- With particular regard to environmental interpretation, indicative infrastructure may include the planning and creation of recreational areas, information centres and museums, and 'softer' measures such as informative signs and posts, marking boundaries, maps, special routes, discovery paths, etc.
- Provide long-term sustainable funding for conservation, typically through species conservation, and/or small grants to local communities and NGOs for carrying out conservation projects. The funds typically operate at the national level and function primarily as grant-making institutions.
- Tourism Related Operations: it is widely accepted that tourism can be a useful and effective tool for conservation and management in designated areas. If well managed tourism may provide the financial and the political support to ensure that sustainability principles are met in designated areas.

Within the framework of **promoting and conserving the cultural heritage** of a designated area there is a series of potential programmes involving historical, archaeological, traditional, cultural and natural features of the tangible and intangible heritage monuments (read more in paragraph 4.6).



35. Farmer holding an *Atriplex halimus* plant, Syria  
©Hélène Gille

Figure 17  
**Using Biosphere Reserve for making inventories of flora and identifying threatened and endangered species:**  
 here the vascular flora of *Sierra Nevada*,  
*Sierra Nevada Biosphere Reserve*, Spain  
 (from BR Technical Notes 3-2008)



|   |           |           |           |           |           |          |          |           |          |           |           |
|---|-----------|-----------|-----------|-----------|-----------|----------|----------|-----------|----------|-----------|-----------|
| <b>Rarity type</b><br>(no species) <sup>a</sup> |           |           |           |           |           |          |          |           |          |           |           |
| WBL (3)   | -         | 2         | 2         | -         | 2         | -        | -        | -         | -        | -         | -         |
| WBS (16)  | 12        | 11        | 6         | 2         | 6         | 1        | 1        | -         | -        | 1         | 1         |
| WRL (9)   | -         | 9         | -         | -         | -         | -        | -        | 6         | -        | 1         | -         |
| WRS (39)  | 31        | 22        | 5         | 6         | 8         | -        | -        | 17        | 3        | 2         | 4         |
| NBL (4)   | 1         | 3         | 1         | -         | 1         | 1        | -        | -         | -        | 1         | -         |
| NBS (12)  | 10        | 7         | 1         | 1         | 1         | -        | 1        | -         | 1        | -         | 3         |
| NRL (9)   | 1         | 9         | -         | 1         | -         | -        | -        | 8         | -        | 1         | -         |
| NRS (24)  | 21        | 20        | -         | 6         | 3         | -        | -        | 6         | 1        | 5         | 2         |
| <b>Total</b>                                    | <b>76</b> | <b>83</b> | <b>15</b> | <b>16</b> | <b>21</b> | <b>2</b> | <b>2</b> | <b>37</b> | <b>5</b> | <b>11</b> | <b>10</b> |

a. Geographic distribution (W=wide. N=narrow):  
 habitat specificity (B=broad. R=restricted): and  
 local population size (L=somewhere large. S=everywhere small)

**Comments on threats to the Sierra Nevada flora**

**Threat 2** (grazing, usually overgrazing) is unquestionably the main threat factor being faced by the flora of the Sierra Nevada. It not only affects those species with restricted habitat specificity and ‘everywhere small’ local population size, but also has a negative impact on species with broad habitat specificity (i.e. it affects 11 of the 16 species classified as being of WBS-type rarity), and taxa with ‘somewhere large’ population size (the nine classified as WRL-type, and the nine classified as NRL-type).

It was to be expected that **Threat 1** (natural causes) would be among the main threat factors, given the geographical isolation of the Sierra Nevada and the climatic changes that have occurred in the past, not only as a result of the Quaternary glaciations, but also more recent and even current changes which have led to two of the key mechanisms for the loss of biodiversity: habitat loss and the fragmentation of populations.

**Threat 8** (wetland desiccation and water pollution) affects many species that live in damp places (WRL, WRS, NRL and NRS-type of rarity). Such conditions are invariably microclimatic in the Sierra Nevada, as the summer – the only season when the highest peaks are free of snow – coincides with a prolonged period of drought (three months or more).

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### Tips for Planning Educational or Awareness paths in a forest

(adapted from ETHIAGE N°37, 2009)

It is essential that visitors of a forested area are able to explore it on foot, rather than by car or motorbike, based on a network of well designed paths. Hiking offers the visitor the opportunity to feel and be immersed in the beauty of the region while doing some physical exercise.

While designing such paths several principles need to be followed:

- The signing of the paths must be dense and informative: It should include information such as distances to certain spots (i.e. to a village, a refuge, etc.) in km as well as estimated walking time, the provided services in the area (i.e. fountains, toilets, etc.), etc.
- The parts of the path that are suitable also for persons with walking disabilities, should be clearly signed.
- The course of such paths should include as many particular characteristics of the natural environment as possible, without endangering its ecosystems.
- The course of such paths should also include points of special interest (i.e. gorges, information centres, toilets, etc).
- Their width usually ranges from 0.5m to 1 m. If needed to “build” certain parts of it, natural elements from the area should be used, i.e. trunks of fallen trees, existing stones and rocks, etc.
- In slippery or dangerous parts gunwales must be added.
- The incline of the paths should be low, to the extent possible: Steep slopes and abrupt changes in altitude should be avoided.
- Paths need to be linked with each other, forming a network, rather than being single routed.
- The course of the paths should include as much forested area (under shadow) as possible, and cultivated areas should be avoided.
- In certain open air places, preferably near a fountain or spring, mild interventions may take place to create dining facilities (i.e. wooden tables and benches, waste bins, toilets, etc).
- Certain places of panoramic view should be rendered. Mild interventions may be carried out there, such as built benches, gunwales, field glasses, etc., to offer the visitor the opportunity to have a rest and enjoy the scenery.
- Creating the path is not the end, it is the beginning of the process: Paths require constant maintenance works.

36. Cycling in the Biosphere Reserve,  
*Durmitor and Tara River Basin BR*, Montenegro  
© Jean-Bernard Renier



37. Wooden footpath for dune conservation,  
*Cuesta de Maneli, Doñana BR*, Spain  
©UNESCO/Olivier Brestin



## 4.5 Fund-raising for Biosphere Reserves and other designated areas

According to international experience and practice, effective environmental protection requires ongoing financing that may come from national budget or international funding source. Furthermore, self-financing options may contribute to the operational budget of a management plan. Examples of such alternative finance sources include the following:

- **Tourism:** During summer, a great number of visitors arrive in the Mediterranean. Promoting tourism in designated areas (instead of other destinations) can provide reciprocal benefits to the environment, the local community and the area itself. By developing sustainable tourism activities such as diving, hiking, photography as well as the promotion of culturally or religiously significant destinations new jobs and additional income for the local community are created - a percentage of which can finance the management body for the benefit of the protected area. Imposing entrance fees to cultural and archaeological monuments located within the protected area is another option. Creating environmental campsites for students and youth meets both the aims of ESD and contributes to fund raising.

- **Research – education:** Protected areas are rich, unique ecosystems that provide great opportunity for research and educational activities. The management body of such areas can take advantage of basic infrastructure and equipment including research boats, monitoring sta-

tions, imposing fees for research and educational permits or “leasing” out the use of research facilities. The information, public awareness and training centres for visitors, apart from playing a special educational role, can also be a source of funding.

- **Taxes:** By creating an appropriate legislative framework, a portion of taxes from various direct and indirect sources (e.g. gas for cars and boats, heating petrol, etc.), from the wider region around can be directed to it.

- **Sponsorship:** Within the framework of corporate responsibility, corporations, companies and the private sector in general, can be approached to support specific activities in a designated area. In addition, ‘adoption’ programmes for protected species can be developed (such as the Mediterranean Seal and Sea Turtle).

- **Associations & NGOs:** On a local or national scale, associations of ‘friends,’ and supporters of specific regions (or species) may contribute by their membership subscriptions, small annual fees, and voluntary donations, as well as by vocalizing support and organizing events to spread awareness and assistance. International NGOs may raise funds also from international donor agencies and foundations.

- **Brand name products & souvenirs:** The Management Body may sell items (t-shirts, postcards, mugs, etc.) to actual visitors or through the Internet to support its activities.

- **Collecting fines:** Fines imposed for illegal activities in or around a designated area can also be an additional source of income for the area. For this, to become possible, special legislative provisions should be developed.

38. Cyclists in the Biosphere Reserve,  
*Cuenta Alta del Río Manzanares BR, Spain*  
©UNESCO/Olivier Brestin



39. Fire notice in the Biosphere Reserve,  
*Cuenta Alta del Río Manzanares BR, Spain*  
©UNESCO/Olivier Brestin





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40. Solar panels,  
Casatejada,  
Monfragüe BR, Spain  
© UNESCO/O. Brestin

41. The ornithological  
collection  
of La Tour Saint-Louis,  
Port-Saint-Louis-  
du-Rhône,  
Camargue BR, France  
© UNESCO/O. Brestin



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- **Fundraising events:** These are usually planned for a specific cause or campaign, they have a specific target in terms of budget, and when well planned they can be a very effective tool.

*The following possible sources of funding are adapted from Spergel & Moye, 2004 whose work refers mainly to funding for biodiversity conservation projects of marine and coastal environments. However, some of these ideas can be implemented in any type of designated area.*

- **Foundations:** In several countries, foundations contribute significant funds each year to support various projects. Most foundation support comes in the form of small- to medium-sized grants to NGOs or academic institutions for limited-term specific activities. For example, for biodiversity conservation in particular there exist the Conservatoire du Littoral in France, the Federparchi in Italy, and the Fundación Biodiversidad in Spain.

- **Private Sector:** Private companies generally make contributions through their local branches although in some cases corporate foundations have been created to manage corporate giving programs.

- **Environmental Trust Funds:** Over the last decades, environmental funds have been established in many countries. Most of these trust funds own and operate visitor concessions such as lodges, restaurants, and stores inside designated areas. Since most park managers are civil servants and scientists rather than business people, they may lack the skills to run commercial operations or be constrained by political pressures. In this case, it may make sense to lease concessions out to private operators.

- **Passenger Fees & Taxes:** Some countries require all foreign tourists (and not only park visitors) to pay a small conservation fee when entering or leave the country. Passenger head tax is a suggested measure to help mitigate environmental impacts of cruises.

The Conservatoire du Littoral is a public administrative body in France that is charged with protecting outstanding natural areas on the coast, banks of lakes, and stretches of water of 1000 hectares or more.

Since it was created in 1975, the Conservatoire has acquired 66,597 hectares of land at 495 sites along 861 kilometers of shoreline, including sites along the North Sea, the Channel, the Atlantic Coast in Brittany, the Mediterranean, Corsica and shorelines in French territories in the Americas and the Indian Ocean.

The Conservatoire primarily acquires land by private agreement, although it may expropriate land for public interest reasons. Conservatoire sites are primarily managed by local authorities, with the participation of conservation organizations in certain cases. As soon as a site is acquired, an ecological audit is performed, followed by restoration work to stabilize dunes, restore forests, prepare trails and manage water, etc. Public access is kept within limits compatible with species and site conservation.

Since 1996, the Conservatoire has benefited from donations of land in lieu of death duties. Individual donations to the Conservatoire are tax deductible, in France, up to a limit of 50% of the total donation, with a limit of 6% of taxable income.

([www.conservatoire-du-littoral.fr](http://www.conservatoire-du-littoral.fr))



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**42. The Chalet Reynard,**  
Mont Ventoux BR,  
France  
© UNESCO/O. Brestin

**43. Accommodation facilities,**  
Mujib BR, Jordan  
© RSCN

**44. Accommodation facilities,**  
Dana BR, Jordan  
© Thomas Schaaf



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- **Hotel Taxes:** Hotel tax charged by government authorities is a common policy in many countries. In some cases, a portion of these revenues has been allocated to environmental or conservation projects. On a voluntary basis, hotel companies may also donate funds through surcharges collected on hotel bills, or provided in-kind contributions.

- **Voluntary Contributions from Tourists:** Private donations related to tourism are generally paid by tourism operators directly, collected by tourism operators or by charitable organizations in areas where tourists visit. Tourism operators often recognize the business value of preserving the natural environment that is the basis for their business. Normally, tourists are more likely to contribute if they perceive that the funds collected will be managed in a transparent way, and dedicated to the area they have visited.

- **Purchases or Donations of Land:** Purchasing private land (or Underwater Property) can sometimes be an expensive or politically controversial option, particularly if current residents or businesses need to be relocated and compensated. Yet, often, it can be relatively cost effective, particularly in areas where land prices are low, where funding is available from donors, and where there is strong local support for protecting the resource by restricting its use or access.

- **Conservation Easements:** This is another technique for conserving biodiversity on private lands. A conservation easement is a voluntary agreement that allows a property owner to limit the type or amount of development (e.g. logging, mining, construction, commercial fishing, etc.) that can occur on his property in perpetuity, without giv-

ing up private ownership or current uses of the property. Conservation easements can be used as a way of conserving terrestrial or even marine biodiversity.

- **Real Estate Tax Surcharges:** Land along the seacoast is often much more expensive than land elsewhere, and is often owned by wealthy individuals or tourism-related businesses. Consequently, adding even a small fraction of 1% to existing real estate taxes has the potential to generate large amounts for conservation and/or the acquisition and protection of remaining open spaces.

- **Royalties from Mining:** Using natural resource "rent" to finance designated areas has a powerful logic: It compensates for the extraction of one type of natural resource by conserving another.

- **Fees for Pipelines and Cables:** Some countries require telecommunications and energy companies to pay millions for the right-of-way to construct and maintain electric power transmission lines, telephone lines, broadcasting towers, or natural gas pipelines inside designated areas.

- **Biodiversity Prospecting:** The growing interest by pharmaceutical companies in prospecting for natural substances with medicinal potential provides new incentives for conserving biodiversity. Through bioprospecting agreements, international pharmaceutical companies compensate developing countries for the intellectual property rights contained in the country's biodiversity in return for exclusive rights to screen the biodiversity for pharmaceutical compounds. If such screening leads to the development of a major drug, the agreement provides the host country with a share of the profits, which may be (but is not always) used for biodiversity conservation.

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**45. Mount Athos, Greece**  
Mixed site, UNESCO World Heritage  
© UNESCO/  
Lazaros Kolonas

**47. Rila Monastery, Bulgaria**  
Cultural site, UNESCO World Heritage  
© UNESCO/  
Nenko Lazarov

**46. Fresco (detail), Mount Athos Monastery, Greece**  
Mixed site, UNESCO World Heritage  
© UNESCO/  
Lazaros Kolonas

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48. Meteora, Greece  
Mixed site,  
UNESCO World  
Heritage  
© UNESCO/  
B. Doucin & L. Lalait

49. Historic Center  
of Chorá with  
the Monastery  
of Saint John,  
Pátmos Island,  
Greece  
Cultural site, UNESCO  
World Heritage  
© Sacred Sites,  
Martin Gray

50. Mosaic,  
Archaeological  
site of Delos,  
Delos Island, Greece  
Cultural site, UNESCO  
World Heritage  
© UNESCO/  
Nomination File



51. Amalfi Coast, Italy

Cultural site, UNESCO World Heritage

© Our Place, the World Heritage Collection

## 4.6 The cultural dimension of designated areas

Designated areas are distinctly unique, often containing exceptional natural beauty with rich biodiversity, habitats of endangered species, remarkable geology (caves, fossil forests, geosites, etc.) or biological features (perennial forests, etc.).

Though perceptions of what is and not important, valuable or rare, are various and have evolved throughout history, many places that are currently designated were considered as worthy of protection also in the past.

In antiquity, there existed various sacred places for gods, nymphs and demons, whose worship was closely linked to annual reproductive lifecycles. [Examples include sacred sites for the worship of Pan, Diana or Astarti, Dionysius or Bacchus, Apollo with the Muses, Adonis, Osiris of Egypt -with all its followers and its more than one hundred names- Serapis of the Hellenistic, Egyptian and Roman antiquity, etc.](#) Ancient sanctuaries are often found in such unique locations. Or, at least, they were once built in such places that, with time, lost their splendor due to construction, changes in land use or the loss of some of their significant features ([e.g. a well or a spring that dried up](#)). In this context, the variety of sanctuary types makes up what may be the earliest form of environmental protection.

In numerous instances, these ancient sites of worship evolved; they were “sanctified” or re-established by new religions, especially Christianity. Monasteries, temples, churches, chapels, cloisters, sanctuaries, every type of pilgrimage found in and around designated areas testify not only man’s historical passage through these regions,

but also document, directly and indirectly, the admiration and reverence of past generations. In these areas, it was always easier for man to meditate and approach the supernatural, the transcendental and the divine.

Today, such sanctuaries continue to constitute an extensive yet mostly “informal” network of habitats around the world. Some of these sites represent successful examples of environmental protection; others are threatened by their own reputation as attractive destinations (traffic, air pollution, road construction, controversy over land use) and others by the general indifference to their intrinsic value (Haggins-Zogib, 2008).

In practice, the **“spiritual” dimensions** of designated areas (religious customs, indigenous knowledge, traditions, etc.) remain to a large degree underdeveloped, with the exception of cases where they exist simply as folkloric remnants. At international level, the new approaches support the idea of incorporating natural characteristics with cultural diversity to preserve and promote both. This is exceptionally difficult to achieve, if not impossible. From the moment a living cultural element is “developed”, there is a danger that, sooner or later, its authenticity and true character will be commercialized. In the best case scenario, it is integrated through a museum-like context. This is the subject of current international discussion and perhaps the answer to this challenge lies in the substantial engagement and participation of the local populations.

A complementary aspect of designated areas, are **archaeological sites** which comprise some of the earliest legally regulated protected sites of recent history. In several countries (e.g. Greece, Italy, etc.) legislation on



52. *Stari Grad Plain, Croatia*  
Cultural site, UNESCO World Heritage  
©UNESCO / Ivo Pervan



53. *Stari Grad Plain (detail), Croatia*  
Cultural site, UNESCO World Heritage  
©UNESCO / Ivo Pervan

antiquities had put the question of distinguishing these areas from the wider environment, so as to protect and preserve them but also to promote the country's archaeological sites and individual monuments. In this way, the preservation of the monuments' natural and aesthetic conditions and parts of the surrounding landscape were guaranteed at a time when the concept of environmental protection did not exist.

### Sacred Mountains in the Mediterranean

Since ancient times the Mediterranean mountains and their environmental features (such as forest stands) have included sacred places. These areas have been of particular value for nature conservation, as people have traditionally protected them because of the spiritual values they symbolise. In specific cases, as in many mountain areas of North Africa and the Middle East, sacred mountain forests are nowadays the last remnants of the primeval forests and are of extraordinary ecological value, in addition to their social and cultural value. This is the case of the North African *khaloas*, shrines with the remains of honoured local figures located in forest groves. Devotees visiting these areas have traditionally respected their natural vegetation, in accordance with pre-Islamic and pre-Christian traditions. The mountains of Northern Morocco harbour numerous *khaloas*, which in most cases form scattered forest islands with the last remnants of the original forest cover still in quite pristine condition.

(Regato & Rami, 2008)

The most substantial and comprehensive expression of the interrelation between natural (bio-geological) and cultural elements derives from the concept of **cultural landscapes**. To fully understand this term, one should remember that the third type of biodiversity pertains to landscapes. The term does not refer to the biodiversity of a prestige or untouched site that has resulted only from natural evolution (it is questionable if such places exist around the Mediterranean nowadays); but it is a diversity resulting from mild human intervention on nature over centuries or millenia of co-existence. This diversity interacts and eventually shapes the lifestyles of people, types of professions and the profile of the wider region. In order to maintain the diversity of these combined works of nature and humankind, to protect practices and traditions that remain alive and preserve the traces of those that have been lost, specific sites representative of the different regions of the world are declared as "cultural landscapes" by UNESCO **World Heritage Convention**.

Despite the fact that the concept of "cultural landscapes" and the more recent one of "cultural paths" (in space and in time) may have slightly different meanings for different countries or different schools of thought, essentially they all provide for the protection of natural and cultural elements. When the latter are visible (e.g. monuments, stone walls, terraces, channels, etc.), making the connection is relatively easy. If, however, the cultural elements are intangible (e.g. myths, legends, songs, trade activities, etc.), the connection is not always obvious. For example, the Tembi valley praised by poets is not only a beautiful valley but the scene where "...Olympus and Kissavos, the two mountains fought..."

**Cultural landscapes** embrace a diversity of manifestations of the interaction between humankind and its natural environment. They often reflect specific techniques of sustainable land-use, considering the characteristics and limits of their natural environment and a specific spiritual relation to nature. Their protection can contribute to modern techniques of sustainable land-use and can maintain or enhance natural values in the landscape.

To date (2009), 66 entries of the World Heritage List are included as cultural landscapes. Out of them 16 come from the Mediterranean region:

- Stari Grad Plain (Croatia)
- Jurisdiction of Saint-Emilion - Pyrénées - Mont Perdu - The Loire Valley between Sully-sur-Loire and Chalonnes 2 (France)
- Incense Route - Desert Cities in the Negev (Israel)
- Sacri Monti of Piedmont and Lombardy - Cilento and Vallo di Diano National Park with the Archeological sites of Paestum and Velia, and the Certosa di Padula - Costiera Amalfitana - Portovenere, Cinque Terre, and the Islands (Palmaria, Tino and Tinetto) - Rhaetian Railway in the Albula / Bernina Landscapes - Val d'Orcia (Italy)
- Ouadi Qadisha (the Holy Valley) and the Forest of the Cedars of God (Horsh Arz el-Rab) (Lebanon)
- Alto Douro Wine Region - Cultural Landscape of Sintra - Landscape of the Pico Island Vineyard Culture (Portugal)
- Aranjuez Cultural Landscape - Pyrénées - Mont Perdu (Spain).



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The term “cultural landscapes” was included in the context of the **World Heritage Convention** (1972) referring to works carried out by man, or a combination of works carried out by man and works of nature, as well as entire areas that include monuments of outstanding historical, aesthetic, ethnological and anthropological value. This Convention was the result of UNESCO’s longstanding efforts for the protection of exceptional cultural monuments. At the same period, and in view of the preparations for the “Intergovernmental UN Conference on the Human Environment” (Stockholm, 1972), the IUCN and other environmental institutions, sought to establish alternatives for the protection of important national parks and reserves (Batisse, 2001).

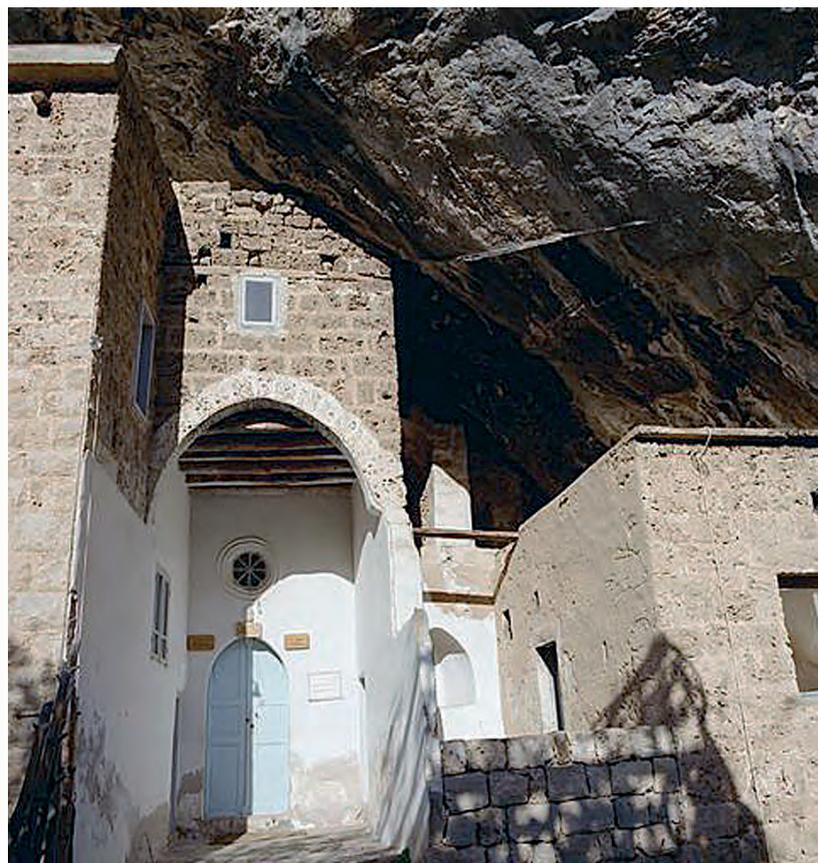
Today, there are a great variety of cultural landscapes in the World Heritage List that correspond to the diversity of different regions of the world. The current sites meet preset criteria proving their outstanding universal value: Cultivated terraces on lofty mountains, gardens, sacred places; all testify to the creative genius, social development and the imaginative and spiritual vitality of humanity. They are part of our collective identity. UNESCO, as lead agency for the Convention aims to protect them from all damage and destruction so that future generations will inherit them.

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54. Specimen in the Forest of the Cedars of God, Ouadi Qadisha, Lebanon  
© World Heritage Center, UNESCO and ICOMOS

55. The Tempi Valley, Greece  
Engraving by Dutch cartographer Ortelius, 16<sup>th</sup> century  
Michael Scoullou Collection

56. Ouadi Qadisha and the Forest of the Cedars of God, Lebanon  
Cultural site, UNESCO World Heritage  
© UNESCO / Yvon Fruneau



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