



United Nations
Educational, Scientific and
Cultural Organization



Man and the Biosphere
Programme

Biosphere Reserves

TECHNICAL NOTES
2-2007

Dialogue

in
biosphere reserves

**REFERENCES,
PRACTICES and
EXPERIENCES**



DIALOGUE in BIOSPHERE RESERVES:
REFERENCES, PRACTICES and EXPERIENCES



The authors are responsible for the choice and presentation of the viewpoints and information contained in their articles, which in no way commit UNESCO. The designations employed and the presentation of data throughout this publication do not imply the expression of any opinion whatsoever on the part of UNESCO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Publication manager: Natarajan Ishwaran
Editor-in-Chief: Meriem Bouamrane
Graphic design: Ivette Fabbri and Mirian Querol
Cover photograph: Hubert de Foresta, IRD
Translation: Zoe Andreyev

This work is the follow-up of a training period undertaken by Matthieu Deldicque in the Division of Ecological and Earth Sciences, directed by Meriem Bouamrane and supervised by Jean-Eudes Beuret, ENSAR and was realized in cooperation with the French National Commission to UNESCO.

We would like to especially thank the following individuals for their cooperation and inputs in the making of this note: Salvatore Arico, Andrew Bell, Nicolas Bondil, Amadou Boureima, Catherine Cibien, Miguel Clüsener-Godt, Guillaume Couturier, Pete Frost, Stéphane Garnier, Malcolm Hadley, Mireille Jardin, Sami Mankoto, Didier Lecuyer, Valérie Meyer, Thomas Schaaf, Marja Spierenburg, Ken Reyna and Rodrigo Victor.

Proposed citation: Bouamrane, M. (ed). 2007

*Dialogue in biosphere reserves:
references, practices and experiences*
Biosphere Reserves – Technical Notes 2
UNESCO, Paris

Published in February 2008
By the MAB Programme, UNESCO
1, rue Miollis
75732 Paris Cedex 15, France
Tel: 33(0) 1 45 68 40 67
Fax : 33 (0) 45 68 58 04
E-mail : mab@unesco.org
www.unesco.org/mab

SC/EES/2007/PI/BR/ThNt/2

Printed by I.T.C.
Grigny
Printed in France

For over thirty years, and especially since the adoption by the UNESCO General Conference of the Seville Strategy and the Statutory Framework (UNESCO, 1996), the biosphere reserves of the World Network have encouraged and facilitated dialogue on resource use among stakeholders and institutions.

Dialogue plays a central role in the effort to reconcile conservation and development, in the understanding, management and prevention of conflicts and in the elaboration of rules for the use of and access to resources in biosphere reserves. Dialogue may be conducted either on a permanent or an ad hoc basis; it can concern an entire land or only a specific resource, ecosystem or area. Though the dialogue process is important during the entire life span of a biosphere reserve, there are certain key moments when it is crucial: at the time of its creation and during the periodic review.

In 2005, the Secretariat launched a research and training programme on Dialogue and Concertation in biosphere reserves. Its aims were:

- to determine the needs of biosphere reserves in terms of conflict management and prevention;
- to identify and involve national researchers working on these questions;
- to analyse existing practices in the field of dialogue and concertation with local stakeholders, in matters of compromise-seeking between biodiversity conservation and development;
- to analyse and publicize the experiences of certain biosphere reserves which can be shared within the World Network;
- to promote exchanges among biosphere reserves on this theme.

In 2006, case studies were conducted in eleven biosphere reserves on the experience and practice of dialogue, and a technical note entitled “Biodiversity and stakeholders: concertation itineraries” was published by the Secretariat in three languages.

The purpose of the present note is to provide a reference on the implementation of the recommendations of the Seville Strategy and the Statutory Framework in matters of dialogue and concertation. As a guide to carrying out effective and efficient dialogue, its aim is to promote the exchange among biosphere reserves of knowledge and experiences on the field so as to better share not only practices, but the wealth and diversity of knowledge and know-how to be found in various political, economic, social and cultural contexts as well. Four chapters are devoted to the four key moments in the life of a biosphere reserve, and a fifth discusses how the issues involved in knowledge and know-how sharing within the World Network can make biosphere reserves into genuine learning laboratories for the concrete application of sustainable development.

Natarajan Ishwaran
Secretary of the Man and the Biosphere (MAB) Programme
Director of the Division of Ecological and Earth Sciences

Table of contents

Foreword	3
Chapter 1	
Dialogue in the itinerary of biosphere reserve creation	5
When should the dialogue begin?	6
Who are the participants in the dialogue?	8
How to begin the dialogue?	14
The outputs of dialogue	20
Matthieu Deldicque	
Chapter 2	
The biosphere reserve, a forum for dialogue	23
Optimizing existing concertation mechanisms and creating forums for dialogue	24
Facilitating the participation of stakeholders	26
The link between conservation and development as a basis for dialogue and cooperation	32
Coordinating dialogue within the biosphere reserve	35
Matthieu Deldicque	
Chapter 3	
Dialogue in conflict analysis and management	37
Conflict analysis in biosphere reserves	38
Dialogue in conflict management	40
Matthieu Deldicque	
Chapter 4	
The Periodic Review: a key moment in the dialogue process	45
A Self-evaluation	46
Meriem Bouamrane	
An example of companion approach which could be used during the periodic review	53
Michel Etienne, Catherine Cibien, Jean Claude Génot	
Chapter 5	
The dialogue within the World Network of Biosphere Reserves	61
Meriem Bouamrane	
Annex 1: Dialogue in the Seville Strategy	66
Annex 2: Other practices in biosphere reserves	67
Selective bibliography	75
Acronyms	80

Chapter 1

Dialogue

in the itinerary of

biosphere reserve creation

When should the dialogue begin?

ART. 4 OF THE STATUTORY FRAMEWORK OF THE WORLD NETWORK:

GENERAL CRITERIA FOR AN AREA TO BE QUALIFIED FOR DESIGNATION AS A BIOSPHERE RESERVE

CRITERION 6: Organizational arrangements should be provided for the involvement and participation of a suitable range of *inter alia* public authorities, local communities and private interests in the design and carrying out of the functions of a biosphere reserve.

The dialogue begins prior to the creation of the biosphere reserve

The dialogue must begin as soon as possible (Beuret, 2006a; Borrini-Feyerabend et al., 2004), before any decisions are made concerning the creation of the biosphere reserve. It is important to ensure that all options remain open when the dialogue starts, and that the possible scenarios for the future of the land are not fixed in advance.

Opening the dialogue before the process starts ensures a maximum level of involvement and establishes trust between the different participants, at the same time enabling the latter to acquire a full understanding of the object of the dialogue.

The establishment of dialogue prior to the creation of a biosphere reserve meets two objectives (Borrini-Feyerabend et al, op. cit.):

The legitimization of a choice of development: sustainable development

The dialogue's objective is not to end up with a result that was decided beforehand by those who initiated the dialogue or those who support the biosphere reserve project. The aim is first and foremost to build together a project that will be significant for the future of the land. "The objectives of land, water and living resource management are a matter of societal choice" (Ecosystem Approach, Principle 1).

The construction of a common view must take place prior to the itinerary of the creation of a biosphere reserve, which represents only one facet of sustainable development.

The legitimization of the biosphere reserve

Once all the stakeholders have understood the importance of sustainable development and the benefits

they can garner from such a project for the land and the resources, they must raise the question of whether a biosphere reserve can meet these aims. What are the advantages of creating a biosphere reserve, given the targeted objectives¹? In what way is a biosphere reserve an effective instrument for the conservation of biodiversity and sustainable development? In what way is it different and what does it add to existing protected areas (national parks, natural reserves, ...)? The responses to these concerns must be the object of collective construction².

If successful, this dual legitimization should encourage strong involvement on the part of the biosphere reserve stakeholders, who will have learned and understood together first of all the tight link between environmental conservation and economically, socially and culturally sustainable development, and secondly, the fact that a biosphere reserve is a tool which can make it possible to achieve these aims.

This approach needs time (sometimes several years), but the time invested in this common learning process and in obtaining the trust of the stakeholders is the basis for the sustainable management of the site and for the implementation of a culture of dialogue among the stakeholders (Textbox n° 1).

Building dialogue on the way...

Moving towards the application of the Seville Strategy

Many biosphere reserves created before the Seville Strategy (1995) were not rooted in the participation or consultation of local and native communities. Very often, they were created as protected areas dedicated mainly to conservationist goals in areas with restricted access to land and resources. In such cases, initiative for the creation of a biosphere reserve usually comes from a state institution (top-down approach) and the basis for dialogue can be extremely fragile, due to past relationships between the state and local stakeholders. This is the "path-dependency" phenomenon. In order to initiate the process of sustainable management, the construction of dialogue must be oriented towards the local legitimization of the biosphere reserve (Textbox n°2).

1. See UNESCO. 2005. *Biosphere reserves – Advantages and Opportunities*. Sourd, C. 2004. *Explique-moi les réserves de biosphère*. Coll. A la découverte du monde. Ed UNESCO/Nouvelle Arche de Noé Editions..

2. A concern often expressed has to do with the word "reserve", which evokes such notions as "restrictions", "area reserved for wilderness", "exclusion of man", notions which are remote from the concept of biosphere reserve. Educational work is necessary to help stakeholders understand the concept of biosphere reserve.

Textbox n° 1

The creation of the Lac Saint-Pierre Biosphere Reserve (CANADA)


In the 1980s, an agricultural development project aimed to dam up the flood plain of the Lac Saint-Pierre. This event raised the ecological awareness of part of the population and led to a dialogue between the different local stakeholders (farmers, agronomists; biologists, environmentalist NGOs, ...). This local dialogue made it possible to build a project respecting the interests of the various parties, and several years later (in 1987), protected areas were created north and south of the Lac Saint-Pierre, thanks to the acquisition of land by local and North-American NGOs (e.g. the SARCEL NGO). Conservationist NGOs and hunters also launched several joint initiatives (many members of conservationist NGOs are hunters).

In 1990, a project for a national park, followed by a biosphere reserve, was considered. The project was abandoned a year and a half later due to opposition to the national park project, which would have led to the expropriation of several thousand people. However, the idea of a biosphere reserve was maintained and popularized by Normand Garriepy, member of an association

active on the western side of the lake, and a feasibility study was carried out by the Tourist Office. Local and regional authorities, as well as private actors (a steel-works factory, for example) were lobbied.

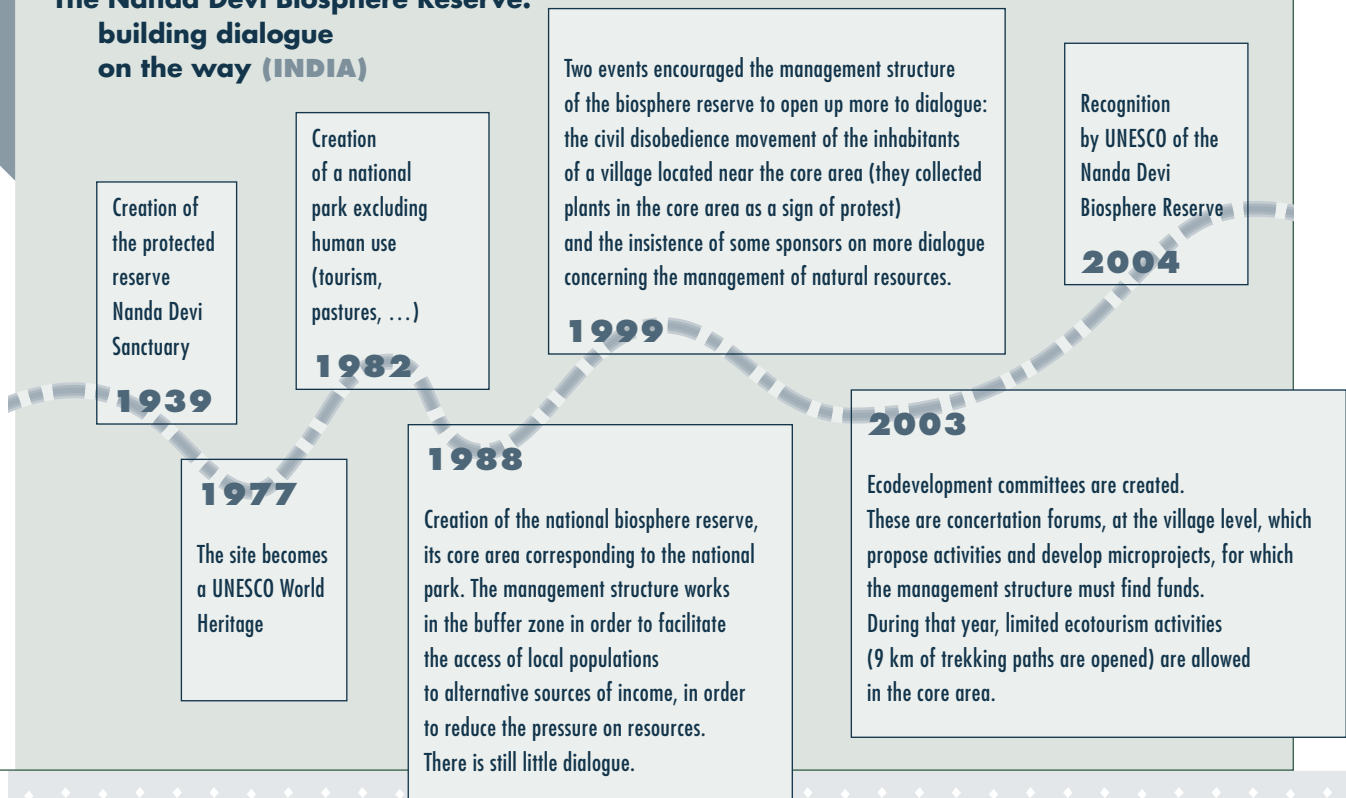
The project then won a competition for environmental projects organized by the Canadian government, which brought recognition and funds. This project brought together the various stakeholders who had been active in the Lac Saint-Pierre area since 1980 and was supported by four regional administrations.

Thanks to repeated public meetings and events, the project received the support of all the territorial institutions: 26 municipalities, the Regional County Municipalities, the Ministry of Agriculture, the Ministry of Fauna and the Defense Ministry. This concertation process, prior to the creation of the biosphere reserve made it possible to set up a genuine culture of dialogue in the site.

 **Other practices** in biosphere reserves (Annex 2): Cape West Coast (South Africa); São Paulo Green Belt (Brazil), Sierra Gorda (Mexico), Waterberg (South Africa).

Textbox n° 2

The Nanda Devi Biosphere Reserve: building dialogue on the way (INDIA)



Who are the participants in the dialogue?

EXCERPT FROM THE SEVILLE STRATEGY:

OBJECTIVE II.1.5: Survey the interests of the various stakeholders and fully involve them in planning and decision-making regarding the management and use of the biosphere reserve.

The difficulty of identifying the stakeholders of a biosphere reserve

“Any person whose actions affect a biosphere reserve, as a user of resources or the areas it covers, as a person making a claim on certain of the environmental resources it supports, or as an entity taking institutional action, is a stakeholder in this biosphere reserve.”¹

This definition shows the difficulty of “listing” the stakeholders of a biosphere reserve, the persons who will become the “partners” of a system of concerted and sustainable management of the area and its resources. The identification of stakeholders is closely linked to the

local context. Figure 1 shows the various stakeholders that can be found in a biosphere reserve.

Thus we see that when choosing stakeholders, there are many ways of describing those who can legitimately participate and of granting them weight and a role in the dialogue and decision-making processes. For example, stakeholders can be represented according to their degree of involvement in the management of the land and the resources².

- **co-managers:** these are the stakeholders actively involved in the management of the site, either because they work on the site itself (direct managers) or because they represent a political authority (elected representative, local chief, religious leader, ...) or because they represent economic power in the area.
- **“resource” stakeholders:** these are stakeholders who have knowledge and competence, whether scientific or local.
- **citizens:** these are stakeholders who carry a demand for a product or service. This demand may concern the protection of a resource or an ecosystem, such as access to and use of an area.

These three categories of stakeholders are not mutually exclusive. A farmer is a direct manager of his environment due to his activity, but he also possesses knowledge of the natural environment (e.g. quality of the soil, local water network), and he can also have certain demands linked to land management (e.g. the need for a road to go and sell his products, the protection of a natural area for leisure). An environmental NGO obviously represents the demand for environmental protection, but can also possess precious knowledge on the functioning of ecosystems and be involved in conservation actions, in partnership with the local population.

What is the dialogue’s spatial framework?

The spatial aspect of the dialogue is essential in a biosphere reserve. This space, composed of resources, is both the framework and the object of the dialogue. It is thus important to agree upon the limits of the dialogue’s

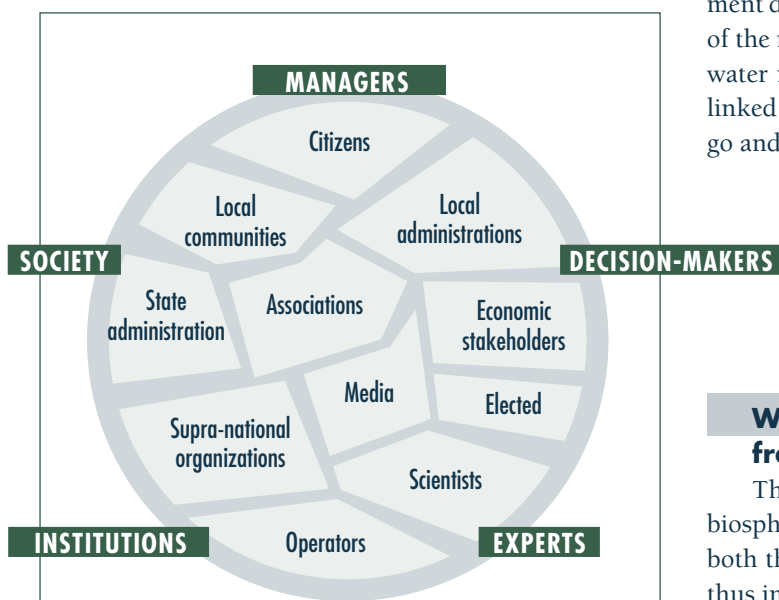


Figure 1: Stakeholders circle

Source: UNESCO. 2001. *Steps and tools towards integrated coastal area management. Methodological guide.*

1. Beuret, J.-E. 2006a). Dialogue and concertation in biosphere reserves: issues and challenges. Bouamrane, M. (ed.) 2006. *Biodiversity and stakeholders: concertation itineraries*. Biosphere reserves – Technical Notes 1. UNESCO, Paris.
2. Adapted from European Commission. 2003. *Common implementation Strategy for the Water Framework Directive*. (2000/60/EC). Guidance on Public Participation in relation to the Water Framework Directive. Guidance Document n°8.

The management structures of the Montseny Biosphere Reserve: an example of pluralism (SPAIN)

- Ideological pluralism represented by the administrative structure of the Montseny Natural Park, made up of local elected representatives, and which is responsible for decision-making as concerns the implementation of the management plan.
- Spatial pluralism represented by the coordination council of the biosphere reserve, made up of municipal elected officials and representatives of the different administrative scales in charge of maintaining the balance – in inter-administrative relations— between sovereignty and autonomy, unity and diversity, cooperation and competition.
- Pluralism of interests and customs, as represented by the advisory commission, made up of representatives of the different socio-economic and cultural sectors.

spatial framework, which is not always obvious in a biosphere reserve (Textbox n°3). For this reason, the site's coherence must be examined from all angles.

A biosphere reserve is a heterogeneous cluster of coherent socio-territorial units

A biosphere reserve is only rarely made up of a single, socially and culturally coherent geographical unit. It is important to identify and describe these different units in order to set up dialogue and implement resulting actions at the most relevant level.

The question of the transition area

The limits of the transition area are not always clearly defined. This makes it possible to change the borders of the biosphere reserve, and thus of the dialogue framework, depending on the nature of the issue under discussion. Furthermore, this area of the biosphere reserve can only receive informal recognition, so as not to frighten landowners, or the industrial sector, concerning access or resource use restrictions (Textbox n° 4).

The Sierra de Huautla Biosphere Reserve: the division of the transition area into three units (MEXICO)

The transition area of the Sierra de Huautla Biosphere Reserve was divided into three parts on the basis of the actions which could be achieved in each of them on the short, medium and long terms.

- **In the Morelos Transition Zone (TZ1)**, concrete actions can be considered on the short term thanks to a dialogue process under way with local stakeholders. A participatory planning process has been initiated with local communities and projects already jointly carried out with the municipalities indicate that there will be further participation of the area's stakeholders in the biodiversity conservation objectives in the near future.
- **The Guerrero Transition Zone (TZ2)** should become a core area/buffer zone on the medium term.

Protected areas with legal statuses must be created and a participatory process must be initiated with the communities.

- **The Puebla Transition Zone (TZ3)** is the part of the transition area where dialogue with administrations and local communities is least advanced. The long-term objective is to raise local stakeholders' awareness of the importance of the sustainable use of their natural resources.

Thus the spatial framework of the dialogue was developed in such a way as to adapt to the situation of each of the Transition Zones in the itinerary leading to the creation of the biosphere reserve.

Who are the primary stakeholders?

EXCERPT OF THE SEVILLE STRATEGY

OBJECTIVE IV.1.14: Ensure the participation of the local community in the planning and management of biosphere reserves.

The identification of legitimate participants in the dialogue process is strongly linked to the local context. However, certain categories of stakeholders must be considered as essential interested parties in the concerted management of the land: these are the stakeholders directly affected by the creation of a biosphere reserve or those who have or will have a direct influence on the site as co-managers.

These “primary” stakeholders can be identified thanks to the following criteria (adapted from Borrini-Feyerabend et al., op.cit.):

- Customary or legal rights to the land or the natural resource,
- A permanent relationship with the natural environment (e.g. permanent residents),
- Direct dependency on natural resources for subsistence,
- Historical or cultural links with the area and natural resources,
- Unique knowledge, competence or traditions concerning the management of natural resources,
- Social or economic dependence on natural resources,
- Losses or damage incurred due to territorial management,
- Demonstrated interest and efforts in managing the site.

For example, the native and local communities (sedentary or nomad) that have traditionally owned, occupied or used the land and resources present on the site. They entertain a permanent relationship with the environment, since they are directly dependent on local resources, have built historical and cultural links with their environment, and possess knowledge and know-how concerning the sustainable use of resources. Since they correspond to most, if not all the criteria, the local communities can logically be considered to be primary stakeholders.

The Seville Strategy emphasizes the involvement of the local populations in the management of biosphere reserves. Indeed, one of the key orientations forming the

basis of the Seville Strategy underlines the fact that a biosphere reserve must be considered “a ‘pact’ between the local community and society as a whole”.

According to the previously mentioned criteria, if the local communities must be considered as essential stakeholders and for this reason must participate actively in the dialogue and decision-making processes, it is important to establish real partnership between all the stakeholders playing a role in the area in order to integrate the different needs, interests, expectations, and achieve a sustainable management of spaces and resources (Textbox n° 5).

What are the roles and powers of the stakeholders?

Just as there are “primary” and “secondary” stakeholders, a concerted management process is based on different roles and powers. The distribution of roles and powers between different stakeholders is very important since it determines the balance of powers among the different partners of the dialogue process.

Indeed, given the objectives (a sustainable and fair management of resources), the very possibility and effectiveness of the dialogue process depends on the balance of powers. “Dialogue implies equality”¹ (Edgar Morin).

On the contrary, if powers are not balanced, one observes that dialogue can have a contrary effect (Blondiaux, 2004), reinforcing inequalities and even leading to the exclusion of a stakeholder: groups more socially or culturally likely to get involved in this type of process can end up imposing their private interests on the others (Mormont, 2006).

Thus, in order to ensure the success of concertation itineraries it is essential to achieve a balanced distribution of roles and powers in the management of the site and to reinforce stakeholders’ capacity to participate.

An advisory role

Numerous biosphere reserves have an advisory committee which gives recommendations to the management authorities. It is generally made up of experts (scientific, NGO, territorial public administration) as well as representatives of different interest groups (local communities, industries, ...). This body may meet regularly or ad hoc for a specific question raised by a stakeholder of the reserve. This role is limited to a restricted number of participants (Textbox n°6).

The advisory role may also be played by a larger panel of stakeholders, thanks to the organization of advisory meetings. They may meet on a regular basis in order

1. UNESCO. 2004. Dialogue entre les civilisations, *Le nouveau Courrier*, janvier 2004, Numéro spécial, p. 8.

Analysis of the stakeholders of the Seaflower Biosphere Reserve (COLOMBIA)

In the framework of the elaboration of a management plan for the ground water of the San Andreas Island in the Seaflower Biosphere Reserve (2000-2009), an analysis of stakeholders was conducted, for the following purposes:

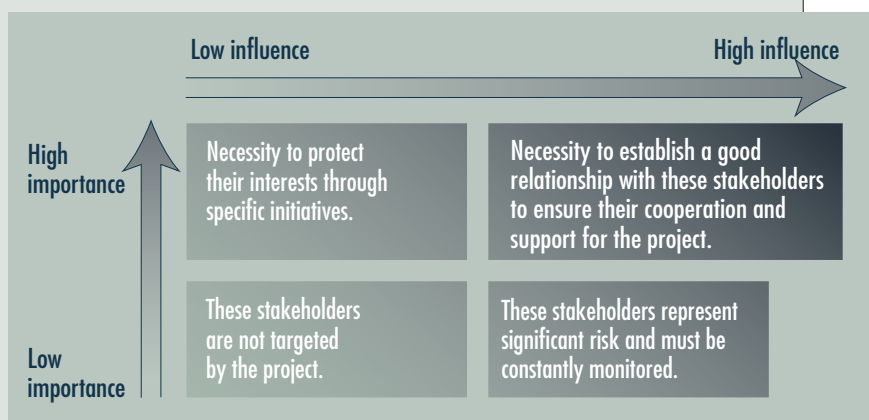
- Identification of the stakeholders and their characteristics;
- Analysis of the way stakeholders can be affected by the project or can have an impact on it;
- Understanding relationships among stakeholders, including analysis of actual and potential conflicts, expectations of the different groups of stakeholders;
- Analysis of the different stakeholders' ability to participate in the project.

- Identify the stakeholders' interests (economic, environmental, cultural ...) in the project;
- Draw up an "influence - importance" map:
Importance: priority given to satisfying the stakeholder's interests and involving him/her in the project.
Influence: the stakeholder's power over the project, in particular as concerns decision-making and the capacity to facilitate its implementation.

The analysis of stakeholders made it possible to understand the needs, abilities, roles and responsibilities of each and to identify the degree of participation of the different interest groups in the design, implementation and assessment of the management plan.

The methodology applied was the following:

- List all stakeholders concerned and describe how each can be affected by or can affect the project, whether positively or negatively;
- Classify the actors in three categories:
 1. Primary stakeholders, who can be affected by the project negatively or positively;
 2. Secondary stakeholders, who play an intermediary role and can be institutions or persons involved in the implementation of the project;
 3. Key stakeholders, who can influence the project in a significant way and are important for the project's success;



Other practices in biosphere reserves (Annex 2):

Men and women: perceptions and aspirations which can be different at times and which must be taken into account: the case of Nanda Devi (India)

to gather stakeholders' opinions on current management issues and obtain their recommendations for the future on specific subjects.

An important question regarding consultation is the integration of recommendations and opinions given in the decision-making process. The link between consultation and decision must be clearly defined and made known to all the stakeholders. Lack of transparency in this respect may lead to discouragement among consulted stakeholders if they feel their input is useless.

Responsibility and authority in the decision-making process:

Decision-making is an essential stage in the planning and management process on a given site. Two main questions must be addressed:

Who makes the decision?

This means determining the decision-making scale, that is, at what level of land management (local, national, regional) a given type of decision must be made. The subsidiarity principle, – the fact that the responsibility for a decision belongs to the lowest level possessing that competence, that is, as near as possible to the citizens – is thus very important. « *Management should be decentralized to the lowest appropriate level* » (Ecosystem Approach, principle 2).

However, a fundamental element of that principle is the coordination among the different decision-making levels. One sometimes speaks of *active subsidiarity*¹ to refer to the links between “bottom-up” and “top-down” approaches.

Next, the stakeholders who will be accountable in the decision-making process must be identified. This can be done through a detailed analysis of stakeholders. Those who have certain rights (property, access, use) over the land and resources are also key actors on this space, since they can either block or on the contrary facilitate and even promote the enforcement of a decision.

How is the decision made?

It is important to inform all stakeholders about the decision-making procedures. Is a decision made by a single stakeholder (local or national authority), through consensus, or through a vote?

The shift from the dialogue phase to the deliberation phase must be transparent, so that local stakeholders will not feel their participation has been purely symbolic and only serves to legitimize a decision already made beforehand (Blondiaux, op. cit.).

Finally, decision-makers must be accountable to the other stakeholders – who can be given powers to contest a decision – for actions launched.

How to select stakeholder's representatives?

The creation of a dense network of local dialogue forums should make it possible for actors to participate directly. However, and this is the case in particular in large biosphere reserves, it may be necessary to work through representatives. Furthermore, the representation of an interest group also makes it possible to legiti-

mize, for other stakeholders, the existence of this group and its opinions. Representatives can speak for their group to other stakeholders or at different levels of the dialogue scale. For example, the representative of a local community can be the spokesman to a public authority for a group of stakeholders' opinions, concerns, or complaints. This example raises several questions:

- Is the spokesman representative of the group? The group thus represented must be relatively homogeneous, share a common vision and common principles. Dialogue enables the expression of a diversity of cultures, convictions and feelings, whereas stakeholder representation risks smoothing down this diversity.
- Is the speaker legitimate within the group he represents? This refers to the spokesman's internal legitimacy.
- Is he legitimate for the other categories of stakeholders he is dealing with? This refers to the spokesman's external legitimacy.

These three questions should make it possible to verify the stakeholders' modes of representation. For example, sometimes an NGO will speak on behalf of a community. In this case, it is legitimate to question this representation (Borrini-Feyerabend et al, op. cit.).

The question of the size of the biosphere reserve is still tightly linked to representation problems. Indeed, the broader the framework of the dialogue, the more the representatives tend to be disconnected from their groups. It seems important to integrate local stakeholders into the representative bodies working on a global level and not to have local communities represented by stakeholders who are not from the community, even though they may be more knowledgeable about institutional functioning (Beuret, 2006 b).

Furthermore, the representative must always provide feedback to the stakeholders he represents concerning progress in the debates conducted on a higher level, in order for the group and its representative to move ahead in harmony.

Lastly, there are interest groups which are not organized and have no representatives. In this case it is important to see to it that legitimate representatives emerge from these groups in order to ensure that their opinions and expectations are heard (Textbox n° 7).

1. Brodhag, C. 2004. *Glossaire pour le développement durable*. Agora 21

A diversity of stakeholders in the advisory committee of the Menorca Biosphere Reserve (SPAIN)

The advisory committee of the Menorca Biosphere Reserve is a structure which makes it possible to “survey the interests of the various stakeholders and fully involve them in planning and decision-making regarding management and use of the reserve” (Objective II.1.5 of the Seville Strategy). It is made up of the main stakeholders of the land:

- **The local municipal authorities**, represented by the Mayors;
- **Local associations** for environmental protection and conservation of the island’s cultural heritage;
- **The agricultural sector**, represented by different organizations, such as landowners and farmers organizations;
- **The tourism sector**, represented by hotel owners associations;
- **The real estate construction sector**, including local and foreign investors (although their participation is limited in discussions concerning the biosphere reserve)
- **The political parties** represented on the island;
- **Civil society intellectuals** (scientists).

The problem of the “Absent third party”.

“Absent third parties’ are key stakeholders who do not take part in the concertation process, either because they do not wish to do so, or because they were excluded by other stakeholders who do not recognize their legitimacy, or because their hierarchical superiors did not give them leave to do so.” (Beuret 2006a, op. cit.).

Dialogue among the stakeholders makes it possible to legitimize a decision, the design of a project. If key stakeholders or persons entitled to certain rights are absent from the process, this may lead to the risk of legitimizing an inequitable situation or the implementation of an ineffective project in view of the objectives that have been set (conservation of biodiversity, benefits to the local population)

One also speaks of “absent third parties” concerning the representation of future generations, and even non-human living beings or the natural environment.

The creation of a representative body of the agro-tourist sector in the Bañados del Este Biosphere Reserve (URUGUAY)

The management structure of the Bañados del Este Biosphere Reserve supported the emergence of a representative body for the agro-tourism sector, which did not exist until then. The different stakeholders belonging to this sector were brought together during a seminar where concerns and proposals were shared. After several meetings of this kind, the Association of Agro- and Ecotourism of Rocha (ADEATUR) was cre-

ated. Its objectives are representation, communication and the proposal of combined tourist packages. The management structure of the biosphere reserve then reinforced this association through the organization of training programmes for nature guides and for the recognition of fauna and flora.

This body now legitimately represents this economic sector in various concertation forums.

How to begin the dialogue?

EXCERPTS FROM THE SEVILLE STRATEGY

OBJECTIVE II.2.4: Establish a local consultative framework in which the reserve's economic and social stakeholders are represented, including the full range of interests (e.g. agriculture, forestry, hunting and extracting, water and energy supply, fisheries, tourism, recreation, research).

Contact with the stakeholders

Explanation and debate concerning the dialogue process

An important stage preceding the beginning of the dialogue is the initiation of contact with the different stakeholders. They must be informed about:

- The aim of the dialogue process (e.g. the construction of a common vision of the land, planning the management of the biosphere reserve...),
- The main steps to be followed,
- The stakeholders involved,
- The methods used,
- The duration of the different stages of the process,
- And any other element likely to foster transparency.

After this stage of contact-making and information (with respect to form), it is important to gather comments of different stakeholders concerning the process itself. If the stakeholders do not agree on "the way of doing things", it will be all the more difficult for them to get involved in this process (Agossou et al, 1999).

Ensuring the participation of stakeholders

This phase of contact is designed to ensure the stakeholders' willingness to engage in dialogue. This contact can be made through interviews with different categories of stakeholders. These preliminary interviews have three aims (Barret, 2003):

- To find out how each party perceives the situation;
- To guarantee the commitment of the stakeholders to dialogue;
- To discuss how the dialogue will be carried out.

It often happens that one or more stakeholders refuse to dialogue, most often due to the presence in the process of another stakeholder to whom he is strongly opposed (Agossou et al, op. cit.). This should not block the concertation process. On the other hand, those stakeholders who have decided to withdraw from the process must be kept informed of the developments and their reactions must be taken into account (Barret, op. cit.); their involvement must be encouraged. The idea is to "keep the door ajar" (Beuret, 2006b, op. cit.).

Furthermore, some stakeholders may have constraints that make it difficult for them to remain involved. It is not always easy to interrupt one's activity to attend a meeting or workshop, or to travel a long distance to get to a meeting. These financial and/or logistical difficulties must be taken into account and the organization of the dialogue process adapted in consequence (Textbox n° 8).

The invitation, an essential communication tool

Inviting a stakeholder or announcing a dialogue sequence is an important step, which must not be taken lightly. The absence of numerous stakeholders at a meeting may sometimes be due simply to lack of communication. There are many ways of communicating about an event, and the chosen mode must be adapted to the public that needs to be targeted (invitation letter, e-mail, posters, signs, oral announcements at the market or during a social event, press, radio, ...). Information must be easily accessible by stakeholders and the mode of communication must be adapted to the type of information. Indeed, choosing a form of communication habitually used by awareness campaigns or non neutral organizations when one wishes to inform about a public consultation or exchange of ideas can create ambiguity (Beuret, 2006b, op. cit.).

The first stage: a shared diagnosis

The first stage in a dialogue whose aim is the joint construction of the future of a biosphere reserve is shared diagnosis. This is a crucial stage: the stakeholders' mutual understanding and their joint learning process begins at this point.

- Learning together. During this stage, participants learn to know each other better, learn more about each other's perceptions and expectations. This exchange process should make it possible for them to build together a common vision of the present state of the land (resources, stakeholders), deepen their

Textbox n° 8

Taking into account the local socio-cultural context in the organization of dialogue: the case of the North Mananara Biosphere Reserve (MADAGASCAR)

In the North Mananara Biosphere Reserve, the organization of meetings with the local population is subject to constraints linked to the socio-cultural context. A meeting can only be held with the approval of the village notables, who have a strong influence on the population's mobilization. If they are not convinced that the subject is worthwhile, it is likely that turnout will be low. In addition, awareness raising actions must be organized on one of the three days when work in the rice cultures is forbidden, that is, on *fady* days.

knowledge of the land and identify future issues. The future of the land must bring the stakeholders closer together.

- The diagnosis, which must answer four essential questions (Etienne, 2006):
 - What are the resources and what do we know about these resources to ensure their sustainable use?
 - Who are the stakeholders who play a role in the management of the site (direct/indirect) and what are the interactions among stakeholders?
 - What are the ecological dynamics at play and how do the stakeholders intervene in these processes?
 - How does each stakeholder use the resources he wishes to obtain?

Numerous tools can be used during this phase of shared diagnosis, either in the context of conference sessions (participatory cartography, modeling such as Actors Resources Dynamics and Interactions approach (ARDI, see chapter 4 of this work), or in the field (transects, visits of farms or companies, ...). The field phases are essential because they enable stakeholders to learn about concrete situations, to discuss them in a non-formal situation, and to find out about the activity of other stakeholders with whom they are in conflict (Textbox n°9).

Textbox n° 9

A shared diagnosis in the Sierra Nevada de Santa Marta Biosphere Reserve (COLOMBIA)

The Pro-Sierra Nevada de Santa Marta Foundation (FPSNSM) is an NGO which was founded in 1986, 7 years after the creation of the biosphere reserve, with a view to finding alternative solutions to the increasing deterioration of the environment and to improving the living conditions of the local populations. The Foundation has developed an innovative model for working with local populations (the Kogui, Wiwa and Arhuaco), the rural communities, as well as with local and national authorities and other stakeholders.

In the early 1990s, following the initial recommendations of the scientific committee linked to the foundation, a diagnosis of the Sierra was commissioned. Initially designed as a simple inventory of natural resources, it

soon became more important to understand the socio-economic situation as well as the underlying dynamics and interactions existing in the present situation of the Sierra Nevada. The involvement of various stakeholders in the construction of this diagnosis was also considered crucial. After a long dialogue process with the local communities and the different stakeholders involved, a plan for the sustainable development of the Sierra Nevada de Santa Marta was finalized in 1997. This plan outlines five main themes of actions: the conservation of ecosystems and water resources, the strengthening of the cultural identity of Indian populations, the preservation of rural communities, the reinforcement of basic rights, and the modernization of public administration.

Dialogue among stakeholders, from consultation to concertation

There are different degrees of stakeholder involvement in the management of an area and its natural resources¹.

Consultation: the foundation

Consultation is the first level of true population participation. Consultation alone does not make for the concerted management of a land where stakeholders build their future together, but it does represent the basis for dialogue. It is also the form of dialogue most often used in biosphere reserves. However, beyond this initial stage of participation it is the whole culture of dialogue that must be instilled within the biosphere reserve if we want to ensure that the interests and expectations of all stakeholders are genuinely accounted for.

Consultation means the gathering – by the management structure or the persons working on a biosphere reserve project – of the opinions, knowledge, experience and ideas of the stakeholders. Beuret (2006a, op.cit.) has identified three types of consultations implemented in biosphere reserves:

- Information consultations, which consist simply of information exchanges,
- Contributive consultations, which aims at collecting stakeholders' opinions and proposals,
- Interactive consultation, which includes a debate and is a more sophisticated type of consultation. Interactions between the participants and the organizers of the consultation aim at a partial, collective construction of proposals.

The quality of a consultation operation depends on several parameters:

- **The clarity of intentions and objectives**, as perceived by those consulted. As in all the different stages of a concertation process, the aim of the consultation must be clear for all stakeholders. A consultation must not turn into communications operation, which would make its purpose seem ambiguous to stakeholders and create confusion;
- **A commitment to taking into account all the ideas expressed**;
- **The issue must be clearly formulated**, if the purpose of the consultation is to respond to a specific problem; otherwise, the participants must be free to define the issues;

- **The means**: a consultation will be all the more effective if carried out with a small, relatively homogeneous group (in order to facilitate self-expression among stakeholders who are not used to this form of participation) and over a sufficiently long period of time. These three conditions require significant means;
- **The level of information of the stakeholders**: it is important to provide clear information to the stakeholders, in a format and language that is adapted to the aim of the consultation, and to give them enough time to take stock of this information. Moreover, if the consultation is part of a process and not an ad hoc operation, stakeholders will be better informed and all the more interested.

Taking into account views, opinions or proposals during a consultation

This is the key point of a consultation. In a consultation phase, there is no formal guarantee that the opinions collected will be taken into account in the elaboration of the final decision. However, the management of all the opinions and comments which emerge from a consultation is essential. There are three stages in this process;

- **Collection of opinions**: the comments resulting from the consultation must be recorded. This can be done through audio or video recording. One or several rapporteurs may also write a report. Whatever the method used, it is important that comments be collected objectively in order to preserve the diversity of views;
- **The distribution of a consultation report** to a wide public. Stakeholders must have easy access to understandable information. It is important to take into account the different languages that exist (official and native languages) and adapt the material to the targeted audience (e.g. oral diffusion by radio or during information meetings for persons who cannot read);
- **The right to justify**: When a decision has been made after a consultation process, the body that has made the decision must be able to justify its choices before the stakeholders that were consulted (Textbox n° 10).

Towards a concertation itinerary

The dialogue process within a biosphere reserve takes place over a period of time. The aim is to evolve from ad hoc exchanges to a shared itinerary. The objective is the collective construction of questions, visions, objectives and common projects, based on a strong and dynamic dialogue among stakeholders. Time constraints and the obligation to reach a result determined from the

1. Bouamrane, M. (ed.). 2006. *Biodiversity and stakeholders: concertation itineraries*. Biosphere Reserves – Technical Note 1. UNESCO, Paris.

Textbox n° 10

A consultation to identify the priorities of the local communities in the Mananara Nord Biosphere Reserve (MADAGASCAR)

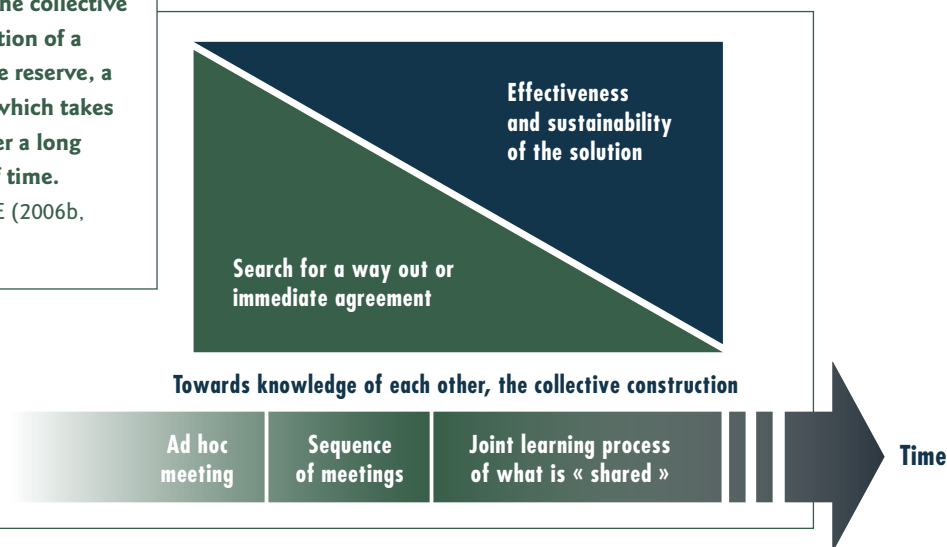
In 1999, roundtables were organized in the 35 *fokontany* (local management level) of the Mananara Nord Biosphere Reserve, in order to identify and prioritize the expectations of the local communities. This study shows that education is the priority issue for the populations, followed by themes linked to agricultural production (food self-sufficiency, diversification of cultures, marketing). In reality, conservation problems were practically absent from the listed priorities, which demonstrates the importance of linking conservation and development in the activities of the biosphere reserve. For example, the reforestation of villages, an issue considered important by the local communities, provides a wood resource (firewood or for construction purposes) while contributing to the preservation of natural forests.

outset of the dialogue process may hamper the elaboration of an effective and efficient solution. Disagreement is often preferable to a “false agreement”, especially when it triggers more dialogue.

The question of time

A culture of dialogue cannot be created within a span of several days or weeks, but how much time is necessary to set up a “dialoguing environment”?¹ The question deserves to be raised. Based on various experiences, setting up a genuine concertation process in a biosphere reserve usually takes several years. It is true that dialogue is incompatible with urgency; but dialogue also makes it possible to anticipate problems, develop sustainable and fair solutions. This is why dialogue constitutes the very foundation of a biosphere reserve (Figure n° 2).

Fig. 2 : The collective construction of a biosphere reserve, a process which takes place over a long period of time.
Beuret, J-E (2006b, op. cit.)



1. Term used by Normand Garriepy, leader of the Lac Saint-Pierre Biosphere Reserve (quoted by Beuret, J.-E. 2006 b op. cit.).

Fostering dynamic and user-friendly exchange formats

The effective participation of the stakeholders in land management can be ensured thanks to a variety of user-friendly tools which stimulate participation. The stakeholders, and mainly those who are not used to this type of activity are often bored by series of meetings that repeat a standardized format. Dialogue must be made attractive and creative so that all categories of stakeholders can be mobilized and express their points of view and knowledge (Textbox n°11).

Textbox n° 11

Friendly dialogue forums: the “kitchen table group” experience in the South Nova Biosphere Reserve (CANADA)

In order to promote dialogue among the population on the local level, the Southwest Nova Biosphere Reserve decided to set up “focus groups”, i.e. thematic discussion groups with limited participation. Due to lack of participation, the biosphere reserve decided to reduce the format to a very small scale. The groups thus became “kitchen table groups”, informal meetings among neighbours with no specific theme, agenda or short-term objective. Participants discuss local issues with a view to improving the quality of life in the community and on the site.

These initiatives have been very successful in terms of participation and have made it possible for the management structure of the biosphere reserve to learn about and understand local concerns, and to find out about each person’s ideas. This sort of dialogue has also made it possible to share knowledge among new and older residents and to break down certain barriers that may have existed among stakeholders, for example between scientists and residents.

Friendliness and proximity with the population has enabled stakeholders to grow significantly closer.

Inter-institutional dialogue: for the local and national legitimization of the reserve

The complexity of area management

We may consider that a site and its resources is doubly fragmented due to the presence of a number of institutions. On one hand it is fragmented in space, since the different institutions manage different fractions of the site. This is known as “mosaic management” (Beuret, 2006a, op. cit.). On the other hand, it is fragmented due to a thematic type of management, a “sector management” which “isolates the different problems or resources and causes them to be treated independently of one another by specialized entities” (Barouch, 1989).

This double fragmentation of space management causes problems for the integrated and sustainable management of resources: it is therefore absolutely necessary to organize these institutions in a network that will ensure the coordination of their various competences and activities regarding the site and its resources.

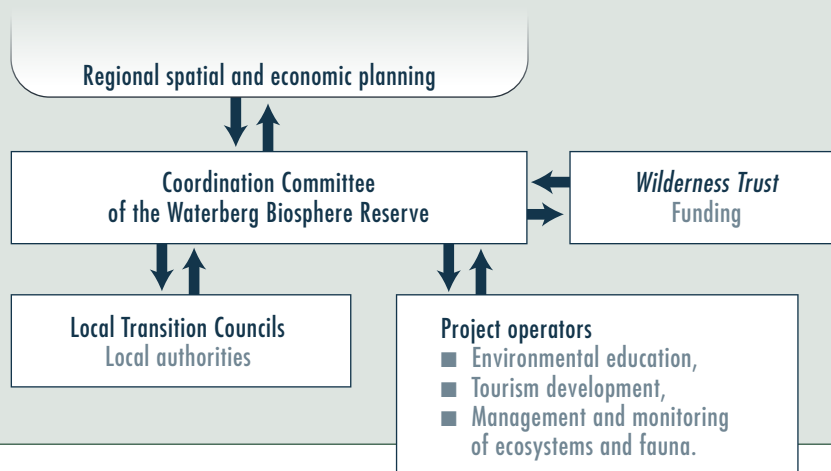
A biosphere reserve is a geographic area also belonging to other management levels (national, regional). Its integration into the management policies or plans of these various administrations is an important asset: it legitimizes its existence and can be a source of support (moral, financial, logistical), facilitating the implementation of its objectives. Biosphere reserves are all the more efficient as management and planning tools if they are integrated into regional, national or supranational strategies for the sustainable use of resources and biodiversity conservation (Textbox n° 12 and 13).

Textbox n° 12

The Waterberg Biosphere Reserve: co-management by stakeholders belonging to different levels (SOUTH AFRICA)

The management of the Waterberg Biosphere Reserve is structured in several layers. The Waterberg Biosphere Reserve Committee (WBRC) is made up of key stakeholders and is in charge of coordination. It also defines management objectives and makes the decisions concerning their enforcement. The biosphere reserve is covered by several regional economic and spatial plans.

The local transition councils, which are public management agencies on a smaller scale, implement the objectives, for example through the definition of land uses. The project operators also play an essential role in the carrying out of the biosphere reserve's various functions.



Textbox n° 13

A model of bioregional institutional cooperation in the Southern Appalachian Biosphere Reserve (UNITED STATES OF AMERICA)

The Southern Appalachian Biosphere Reserve is an ecosystem of temperate deciduous forest covering 250,000 hectares spread over 6 states. It is considered a coherent bioregion from an ecological, climatic, geological and cultural point of view. It thus seemed particularly appropriate to apply a model of cooperation among the different institutions involved, as well as with the private sector, on a bioregional scale. The structure created in 1988 consists of:

- the SAMAB cooperative (Southern Appalachian Man and Biosphere), bringing together the different states and Federal Agencies (US Fish and Wildlife Service, US Department of Agriculture-Forest Service) concerned.
- the SAMAB foundation, a non-profit organization, representing the private sector (companies, NGOs), as well as regional universities.

The task of this bioregional institutional structure is to improve cooperation among its members as concerns the planning and management of projects tied to the use of natural resources, thanks to:

- a collective learning process for the members;
- the joint search for solutions to common issues in the framework of an interdisciplinary structure;
- the sharing of responsibilities and the coordination of actions for regional projects.

It also plays a role in the communication of scientific and technical information to the private sector and the local population, thanks to contacts with a regional network of universities.

The outputs of dialogue in the creation of a biosphere reserve

Bringing stakeholders closer within the biosphere reserve

This initial phase of dialogue must enable the stakeholders to mutually recognize the legitimacy of each other's actions on the site. The path covered together should enable them to know each other better, to understand each other better, and to facilitate both their activities and their common actions.

Within the network of stakeholders working together in a collective process involving common visions, knowledge, objectives, and actions, dialogue makes it possible to bring together stakeholders thanks to:

- A wider view of the shared vision of what can be done.
- Increased capacity for dialogue and creativity.
- Better knowledge concerning the ecological, social, cultural and economic functioning of the site, thanks to the sharing of knowledge (Textbox n°14).

Towards the elaboration of management tools for the biosphere reserve

Elaboration of management plans

The creation of a biosphere reserve implies a zonation as well as a management plan or policy. These two tools make it possible to elaborate rules of access and use of the natural spaces and resources in a spatial framework. If these rules are developed using dialogue,

they will be adapted to the local context and thus help stakeholders fulfill their needs and expectations. They will also have greater legitimacy and for this reason will be more readily obeyed. Dialogue can then make it possible to reconcile development (cultural, social, and economic) and the preservation of the environment (Textbox n° 15 and 16).

The setting up of a management committee bringing together the different stakeholders of the biosphere reserve

Numerous biosphere reserves have management committees bringing together different stakeholders of the biosphere reserve. The management committee is a forum for dialogue and an essential instrument for the coordination of the different actions conducted in the biosphere reserve. This committee may be responsible for decision-making as concerns the design and implementation of management plans. Its composition is strongly linked to the local context.

Stakeholder “contracts”

The “contractual” approach, or charter between the stakeholders of a biosphere reserve is a very adequate tool for the management of a biosphere reserve since it is generated by dialogue and makes it possible to integrate conservation and development objectives. These contracts may concern a particular sector (forest industry, tour operators), the users of a natural site (e.g. trekkers' charter), or can be linked to a geographical area. This agreement ensures the respect of ecologically sustainable practices or behaviours while making it possible for the

Textbox n° 14

A dialogue bringing together stakeholders around the principles of the MAB Programme in the Cévennes Biosphere Reserve (FRANCE)

In 1990, in the Galeizon valley, a small watershed of the Cévennes Biosphere Reserve, a concertation process, aiming to “promote the MAB concept” in the area made it possible to elaborate a plan of action for conservation and development, and to create an inter-municipal structure for implementing this plan. This dialogue process involved local elected representatives, valley associations and representatives of the concerned administrations and bodies and the local population.

Ten years later, the construction of a dam was planned in order to create a leisure area (lake, real-estate project). The population reacted strongly (demonstrations, creation of associations), asserting that the project did not correspond to the biosphere reserve project to which they had adhered. This mobilization revealed the population's sense of attachment to their land and underscores the wide-ranging impact of the participatory approach launched ten years earlier. The dam project was finally abandoned.

Textbox n° 15

An integrated development framework based on a participatory process in the Cape West Coast Biosphere Reserve (SOUTH AFRICA)

The public consultation process conducted during the creation of the biosphere reserve led to the creation of an “integrated development framework” based on the objectives put forth by the local communities. For example, this framework includes the following elements:

- insist on environmental restoration and protection through sustainability;
- for the disadvantaged rural communities, an effective reappraisal of their traditional culture, knowledge, and know-how with respect for sustainable lifestyles;
- sustainable outlets thanks to “proximity” tourism (e.g. local produce, services based on traditional knowledge and know-how, outlets for arts and crafts ...);
- the creation of jobs and income linked to the rehabilitation and conservation of the environment;
- tourism operations jointly organized by the local communities and biosphere reserve authorities (e.g. bed and breakfast).

contracting parties, those adhering to the charter, to give added value to their product thanks to a label.

In addition, the stakeholders who have adhered to the same charter represent a new dialogue participant (Textbox n°17).

A biosphere reserve can begin to exist once the concept has been appropriated by the different stakeholders on different levels. The early emergence of a dialogue involving a large number of stakeholders will facilitate this learning process. Furthermore, it is important that this collective learning process be included in an itinerary, and given all the time it needs.

This learning process must make it possible to build closeness within the network of stakeholders, before launching together into the construction of a model of sustainable development and biodiversity conservation, planning objectives, timetables, and management tools. Dialogue will then ensure the dynamism and adaptability of the model of sustainable development represented by the biosphere reserve.



Textbox n° 16

The creation of a dialogue forum on eco-tourism by the management structure of the Lac Saint-Pierre Biosphere Reserve (CANADA)

The management structure of the biosphere reserve (the solidarity cooperative) was created to meet the need for a dialogue forum on eco-tourism. It brings together the different stakeholders of the area. An eco-tourism development plan was thus implemented for the Lac Saint-Pierre Biosphere Reserve thanks to a concertation process which lasted three years. Dialogue was made possible on the one hand between public service agents, tour operators (development committees, tourism bureaus, ...) within the solidarity cooperative, and with the public, NGOs and elected representatives, during public meetings, on the other hand.

The construction of a charter for businesses in the Mont Ventoux Biosphere Reserve (FRANCE)

Discussions on the possibility of setting up a business charter began in 1995 (the biosphere reserve was created in 1990). The main objective of this charter is to give added value to the products and services provided on the Mont Ventoux site thanks to the creation of a label for enterprises respectful of the environment. This charter brought together enterprises from all sectors: farmers, tour operators, artisans, and industrialists.

After several meetings and studies conducted with these enterprises, it turned out that they were not ready to commit themselves to a new, restrictive system based on controls and audits. It was therefore decided to include the charter into the existing framework of certifications (Organic Agriculture, ISO 14001, ...).

The collective construction of the charter began in 2007 following this more flexible approach:

- Individual interviews were conducted with the different economic stakeholders of the biosphere reserve;


- Identification of the “identity clashes” among the stakeholders during this diagnostic phase: the aim was to foster the emergence of the biosphere reserve’s identity on the basis of the proximity between the different local identities;
- Elaboration of the first draft of the enterprise charter on the basis of this synthesis of stakeholders’ representations and the site’s transversal issues as brought out by the scientists;
- Collective discussion among all stakeholders concerning the draft charter;
- Elaboration of specific action plans for each “micro-site” based on the biosphere reserve’s charter of enterprises.

In addition to adding value to the products and services of the biosphere reserve, the draft charter aims to create a network of economic stakeholders based namely on the “sharing of competences”.



Chapter 2

The biosphere reserve, a forum for dialogue



The biosphere reserve's management structure can maintain and improve dialogue within the site in three important ways, corresponding to three dimensions of dialogue. First of all, it creates a forum for dialogue. This forum is the context (e.g. the concertation table of forestry industrialists) or the scale (local, regional) within which the dialogue will take place. The second important element is the participant in the dialogue. The management structure can have an influence on stakeholders by training them to dialogue, facilitating the circulation of knowledge within the site and helping certain categories of stakeholders to become involved. The last dimension of dialogue is the issue to be discussed by the stakeholders. The management authority can provide material for dialogue that interests the stakeholders and that meets the objectives of biodiversity conservation and sustainable development. Last, the management authority coordinates the dialogue between the different stakeholders and the different scales.

Optimizing existing concertation mechanisms and creating forums for dialogue

The creation of true concertation systems requires the setting up of a dense network of dialogue forums. On the other hand, it is essential to create mechanisms linking together these different forums and instilling life into the network.

Fostering dialogue within existing organizations

Before creating new forums for dialogue, it is important to first verify whether those already in existence are functional, and if not, to reinforce them. One should avoid creating new forums unnecessarily, since they may turn out to be superfluous and may even weaken the dialogue process. Rather than on numerous concertation forums, dialogue must be based on recognized discussion spaces which actively participate in a debate and are creative in terms of proposals. Once again, the networking of different organizations is a determining factor.

According to Beuret (2006b, op cit.), institutional creation in a biosphere reserve must be preceded by:

- The identification of existing forums for dialogue, whether formal or informal;
- The identification of existing coordination mechanisms (spatial planning, impact studies);
- The assessment of these mechanisms: are they working satisfactorily? Is their functioning linked to the

dialogue forums? How can these mechanisms be optimized?

- The identification of needs in terms of coordination and dialogue: which mechanisms and forums should be improved and how can it be done? How can links be established between these mechanisms and forums?

Institutional rearrangement with a view to activating dialogue forums

One way of activating or optimizing institutions is for example to redistribute territorial competences. Handing over specific competences to local stakeholders and enabling them to draw benefits from them can trigger a genuine local impetus and improve dialogue within the site (Textbox n°18).

Trigger the emergence of dialogue forums on different scales

The management structure can work towards facilitating the emergence of concertation forums at different levels:

- on the local level: the authority can facilitate the creation of dialogue on a very local level by providing references and tools. A new concertation itinerary can then emerge (Textbox n° 19).
- On the level of the biosphere reserve, through the creation of a concertation table involving stakeholders representing an authority (public or traditional) on the area (Textbox n° 20).
- On the level of a sector or resource: a concertation forum brings together the different representatives of a single sector or the different managers of a single resource (tourism, forestry, managers of the “water” resources) (Textbox n° 21).

Publicize the advantages and benefits to be drawn from dialogue

One way of encouraging stakeholders to engage in dialogue is to share successful concertation experiences in the biosphere reserve or elsewhere (thanks to exchanges, visits ...). If the stakeholders can see for themselves that dialogue has made it possible to deal successfully with a conflict or to reach an agreement concerning area and resource management that meets their expectations, they will be more likely to engage in the process. This has been called the “snowball effect” and is a form of social learning — vicarious learning¹ – or learning by imitation.

1. Bandura, A. 1995. *L'apprentissage social*, Ed. Mardaga, Bruxelles.

From the restriction of uses to participatory management: a change in forest policy of the Sinharaja Biosphere Reserve (SRI LANKA)

In the 1980s, the state forest authorities forbade the unauthorized gathering of forest products and all activities other than conservation, research, education and leisure. At that time, the local communities were not very willing to cooperate.

In the early 1990s, awareness of the need to obtain the support of the local population in order to reach conservation objectives led the government to accept a more participatory approach to forest management, allowing the local communities to play a more important role in the management and conservation of the Sinharaja rain forest. In 1993, the management plan for the conservation of Sinharaja admitted that a total ban on the use of forest resources was counter-productive for forest and biodiversity conservation.

In 1995, this change of position was written into a new forest policy, which states that:

- the “traditional rights, cultural values and religious beliefs of the populations living within and around the forest zones are to be recognized and respected”;
- even though the natural forest is first and foremost devoted to conservation, “whenever appropriate, the state will create partnerships with the local population, rural communities and other stakeholders, along with appropriate land use arrangements”.

In the framework of a Sinharaja rain forest conservation project (financed by the GEF/UNDP), a model of participatory management was set up in several pilot

zones of the buffer zone of the biosphere reserve. The aim is to foster opportunities for the local communities to play a significant role in forest conservation and management.

The creation of community associations, the “friends of Sinharaja”, has made it possible to strengthen the organizational framework. These new bodies have enabled the state forest authorities to:

- establish a dialogue with the local communities and a climate of trust in which to establish rules;
- identify the underlying causes of bad practices in the forest and better know the needs of local population;
- involve the community in forest conservation measures;
- identify needs to improve one’s standard of living in the buffer zones, with a view to lessening bad practices.

The participatory management of the forest should thus make it possible to improve the communities’ income, increase to the productivity of small existing farms, provide logistical and technical support to community activities and a better involvement of the local population in the decision-making process for forest management.

At the time of the periodic review of the biosphere reserve in 2003, 90% of the persons interviewed largely or totally agreed with the fact that local communities now have their “say” in the management of the forest.

The creation of a local dialogue forum in the Bañados del Este Biosphere Reserve (URUGUAY)

The Laguna Rocha is a National Protected Area of the Bañados del Este Biosphere Reserve. In order to facilitate the management of this protected area, the management structure of the biosphere reserve (PROBIDES) supported the creation of a commission representing the different interests that exist in this geographical area. Although provided for in the 2000 law on protected areas, the commission emerged before the enforcement of the application decree. Its aim is to:

- establish a zoning plan for Laguna de Rocha;
- elaborate a management plan;
- integrate the different categories of use of the protected area.

It is made up of:

- The municipality of Rocha,
- Civil society, represented by a local group originating in the church, and which aims to support the poorer populations, in particular fishermen,

- The fishermen's association,
- Representatives of other users of the site (the Laguna and the buffer zone),
- A group of hotel owners who are conducting a pilot experience of raising shrimp in the Laguna,
- The management structure of the biosphere reserve,
- Public administrations: Department of the Environment, Department of Water Resources, Department of Agriculture.
- Agents of the Prefecture,

Today the group is managed by the municipality, after being under the supervision of the management structure. This local mechanism for dialogue is now established and part of a real concertation itinerary dealing with the management of Laguna de Rocha.

Concertation table of the elected representatives of the Lac Saint-Pierre Biosphere Reserve (CANADA)

Following the creation of the Lac Saint-Pierre Biosphere Reserve in 2000, the advocates of the biosphere reserve wanted to work with the elected representatives and encouraged them to set up a concertation table. This dialogue forum has now become one of the mainstays of the biosphere reserve and works closely with the management structure. The concertation table of elected officials allows the Lac Saint-Pierre Biosphere Reserve to be considered a management unit in its own right, which can therefore coordinate the actions of the municipalities. In addition, the table represents a very important intermediary link between the management structure and the national or provincial public authorities. The concertation table is therefore an essential figure in the Lac Saint-Pierre Biosphere Reserve area of management and dialogue.

Facilitating the participation of stakeholders

Through knowledge sharing

"The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices." (The Ecosystem Approach, principle 11)

Mobilizing, providing access to and circulating information

A *sine qua non* condition for the success of the dialogue process in terms of the sustainable and fair management objectives required of a biosphere reserve is that all stakeholders have a similar level of access to information. The fair sharing of information empowers the stakeholders and thus influences the balance of forces, another necessary condition for a successful concertation process. The new knowledge thus acquired should enable stakeholders to "improve their analytical abilities" concerning complex subjects and provide them with "new keys to understanding their environment".

The union of women's cooperatives in the Arganeraie Biosphere Reserve (MOROCCO)

The argan tree (*Argania spinosa*), endemic to southwestern Morocco, is one of the mainstays of the socioeconomic and cultural system of the Berber population in the biosphere reserve. However, serious droughts as well as overdevelopment linked to poverty have threatened this resource, which is essential for the Berber communities (3 million people live on the income from the argan and its traditional products). The decrease in the number of argan trees in the biosphere reserve has also had significant 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, German Technical Cooperation for Development). Thus was created the Union of women's cooperatives for the production and marketing of organic argan oil and other agricultural products (UFCA). This union brings together 13 cooperatives and aims to improve the market potential of the products, both on the domestic and international markets. The products, sold mainly in Germany and France, bear the label "Products of the Arganeraie Biosphere Reserve".

First, it is necessary to mobilize and collect the information. This can be done by consulting different categories of stakeholders, by performing a shared diagnosis of the site, and through additional studies or reports, conducted either by the local communities, scientists, or on a participatory basis.

The second step is to provide the concerned stakeholders with access to the collected information. Collecting information raises several questions:

- To which ecological dynamics and human activities is the new information linked?
- What is the purpose of this information from the perspective of sustainable development and the conservation of biodiversity?
- Which stakeholders should benefit from this information, and who has priority?

The answers must make it possible to identify the framework or context in which the information must be spread, as well as the targeted recipients.

Very often, in a biosphere reserve, any new piece of information will concern a large number of stakeholders belonging to different categories. As a result, their ability to understand the information varies, since they do not always speak the same language or dialect, are used to means of communication specific to their cultural context (oral/written), and are not all equally equipped with information and communication technologies.

In short, the content of the information (level of detail, of vulgarization) must be adapted, as well as its format, so that every concerned stakeholder can grasp and absorb the information.

The management structure can play an important role in this process of translation and communication of information. A broad range of means of communication, both modern and traditional, should be used. The management structure can also support the creation of information channels such as community radios, which provide an access for the local communities to the so-called "mass media".

Integrating scientific research in the management of the biosphere reserve

In a biosphere reserve, scientific research must respond to the objectives of conservation, biodiversity and sustainable economic and human development, from a sociocultural and ecological viewpoint, and this entails a maximum of interdisciplinarity between the life sciences (ecology, genetics, geography,...) and the social sciences (economics, sociology). We must have a science that is "committed" to action (Barbault, 2003).

A biosphere reserve is a perfect meeting place for scientists and all the co-managers of the site.

Science must be confronted with the realities of the field so as to better take into account the needs of stakeholders and understand the constraints tied to management and political action. Managers in turn must be open to working with scientists in order to integrate research findings into the process of elaboration of action and management plans.

"A genuine integration of research as a function in biosphere reserves" (Cibien, 2006) is necessary, and can only happen through dialogue. In fact, dialogue between researchers and managers must make it possible on the one hand to elaborate a strategy of research in relationship with the site's project, and on the other hand, to improve the stakeholders', and in particular the decision-makers' capacity for analysis, in view of ensuring the enlightened and adaptive management of the natural area and resources.

Dialogue should also be extended to all citizens, who must be included in the debate on the orientations of scientific research (Textbox n° 22).

Towards a partnership between researchers and citizens

In addition to integrating scientific research into the management framework of the biosphere reserve, it is essential that the citizens be involved in the work of the scientists. This meeting point between researchers and citizens must lead to the exchange of knowledge. The aim of such an exchange is a joint learning process and collective construction of a new understanding of reality.

An example of this partnership is the involvement of citizens in the collection of scientific data. Citizens represent a large work force for research. Due to their number, they can collect in a short time a large quantity of data on various phenomena: the quality of air, biodiversity, phenology, ... In return, scientists share their knowledge and the findings that stem from this participatory and collective approach to science (Textbox 23 and 24).



Textbox n° 22

Research a “service” to help decision-making in the Rhön Biosphere Reserve (GERMANY)

The administration of the Rhön Biosphere Reserve considers research a “service” to support decision-making processes in environmental management and policy-making. The biosphere reserve, in turn, considers itself to be a partner for scientists in search of areas adapted to their scientific research activities. The relationship is therefore based on “supply and demand”, on a win-win basis. A description of potential projects linked to the issues that are important in the area under study have been posted on line (<http://www.biosphaerenreservat-rhoen.de/>) for the purpose of giving the scientific community ideas for potential research topics.

In 1996, the three administrations of the reserve also drew up a framework plan for scientific research,

which lists the different research issues linked to the land of the biosphere reserve. The “research concept” calls for interdisciplinary research and project coordination. To this date, students and scientists from thirty universities, two research institutes and several foreign universities have conducted projects in the Rhön Biosphere Reserve.

The administrations of the biosphere reserve coordinate and follow up certain research activities, and use scientific findings, the Geographic Information Systems (GIS) for example, as a basis for adapting the management of the biosphere reserve.

Textbox n° 23

**“Citizen science”
in the Fontainebleau Biosphere Reserve (FRANCE)**

The National Museum of Natural History (MNHN, France) has launched a programme of participatory monitoring of biodiversity. This programme, entitled *Vigie Nature (Nature Vigie)* has been implemented in the Fontainebleau Biosphere Reserve. It aims to monitor the evolution of biodiversity thanks to the collection of data carried out by a network of “observers-stakeholders”. This network is made up of amateur naturalists and general public, depending on the type of activity. For example, thanks to a network of over a thousand amateur ornithologists, one programme consists in the time monitoring of common birds

(STOC programme). In 2006 the “garden butterfly observatory” was created (with the association *Noé Conservation*). This programme invites the public to participate by identifying and counting the butterflies in their gardens. Analysis of the data thus collected should make it possible to monitor the evolutions of populations and ecological dynamics, in relation, for example, with climate change or, on a more local level, in connection with gardening practices. A report on observations is periodically transmitted to the members of the network.

Textbox n° 24

**The monitoring of the Long Point Biosphere Reserve
(CANADA) by the local communities**

Since 1995, the World Biosphere Reserve Foundation of Long Point has engaged in a biodiversity monitoring programme in regional forests, with a view to monitoring and analyzing environmental changes in Norfolk County (Ontario). Volunteers and students are in charge of coordination and follow-up in the field. Other regional organizations (public conservation services, environmental NGOs) also participate in this data collection. The opportunity to integrate these already existing activities within the biosphere reserve and to broaden them was the starting point for the development of a monitoring programme conducted by the local communities.

The project generates data for a periodic report on the environment of the Long Point Biosphere Reserve. The management structure is in charge of facilitating publication of the report, of financing the monitoring,

developing partnerships and communicating results. A workshop that groups together the different regional partners has also made it possible to raise a number of questions concerning the implementation of a monitoring project by the local communities.

The first monitoring project, aided by an advisory committee, focused mainly on the environmental dimension of the biosphere reserve. It is now widening its scope of study in order to include social, cultural and economic aspects. The advisory committee is also establishing contacts with other organizations involved in environmental monitoring approaches such as the Niagara Escarpment Biosphere Reserve, nature conservation departments or national parks.

The environmental report is a communication tool which is essential for raising the awareness of the local communities and encouraging their involvement.

Through education, awareness campaigns and training

EXTRACT FROM SEVILLE STRATEGY

OBJECTIVE III.3: Improve education, public awareness and involvement

5. Encourage involvement of local communities, school children and other stakeholders in education and training programmes and in research and monitoring activities within biosphere reserves.

Education, awareness campaigns and training for the environment and sustainable development

Environmental education should enable the concerned stakeholders to better understand their environment (water, forests, fauna, ...) so that they may learn to

value and respect it. These awareness campaigns aim to preserve biological diversity and natural resources.

Education for sustainable development establishes links between this environment and human activity. The aim is to explain how our lifestyles (production, consumption) are in direct relation with nature on one hand, and with the cultural and social values of our societies on the other. The aim is to promote behaviour that fosters the sustainable use of land and natural resources.

One pedagogical method in the aim of sustainable development is to study together the behaviours and personal lifestyles of stakeholders in order to assess whether they are sustainable from an environmental (e.g. the ecological footprint), economic, social and cultural point of view. Once stakeholders have gained awareness of these issues, they should be shown how they can modify their behaviour so as to be in compliance with the aims of sustainable development.

Stakeholders who have become aware of these issues are more likely to engage in dialogue on environmental issues; they are able and willing to spread the information they have acquired. A child who has learned about the value of the water resource will transmit this message to his parents.

Education and awareness of environmental and sustainable development issues concern all the stakeholders of a biosphere reserve, in particular the political officials, often neglected by these activities even though it is they who have the power to promote strong environmental policies (Textbox n° 25 and 26).

Dialogue training

The creation of a dialogue-based system requires significant human resources in terms of leadership, mediation or translation (Textbox n° 27). These different functions are performed by what we will call a “facilitator”, even though these functions may be performed at different stages in the process and by different people. A facilitator needs many skills: some may be learned during a training programme or through experience, while others are more tied to a given personality.

The following table draws a non exhaustive list of the facilitator's skills (they are not all indispensable of course).

Textbox n° 25

An environmental education diploma for teachers in the Sierra Gorda Biosphere Reserve (MEXICO)

For the past twenty years, Sierra Gorda has devoted a great deal of effort to environmental education. These activities are the centerpiece of the biosphere reserve, created in 1997 (and designated by UNESCO in 2001). Many activities for sensitizing and educating children on environmental matters have been set up in schools and in the communities. For example, the creation of “protected school areas”: these are areas reserved for tree planting by the schoolchildren, who will also monitor these “children's forests” during their time in school.

In 2006, the Earth Center, an environmental training and education centre was created. Among the numerous activities proposed by this centre, a training programme for elementary schoolteachers was set up in order to provide them with educational tools for environmental education. Once they have completed this training programme, trainees receive a “diploma in community environmental education”.

1. This is a major concern for UNESCO which is the leading UN agency for the United Nations Decade of Education for Sustainable Development (2005-2014)

Identification of the target stakeholders of awareness campaigns in the Mananara Nord Biosphere Reserve (MADAGASCAR)

The North Mananara Biosphere Reserve has worked on the identification of target stakeholders for environmental awareness campaigns and actions to be implemented, according to the category of stakeholder.

The following table presents the different target stakeholders selected for environmental education actions, with the educational objectives linked to each category of stakeholder:

Target stakeholders	Environmental education objectives
Villagers	It is a “way of securing the conservation of forest resources”.
School children	They represent “the future of the area” and will further, “in the future, the predominant ideas for the region”.
School teachers and parents	They must “become aware so as to be able to communicate with the children”.
Project officers in the biosphere reserve	“(…) as bearers of conservationist ideas among the population, they must receive basic training.
Tourists	The idea is to “recall the rules to be followed and provide logistical information (…)”

The training of forest wardens in community participation techniques in the Sinharaja Biosphere Reserve (SRI LANKA)

In the framework of the Sinharaja rain forest conservation project (funded by the UNPD/GEF), the project agents and the agents of the state authorities were trained in community participation techniques. The following training programmes were offered:

- Biodiversity conservation and participatory management;
- Social mobilization, leadership and community development;
- Forest management and social mobilization;
- Tools and techniques for Participatory Rural Appraisal;
- Communication techniques, tools and principles.

This list can help in the process of recruiting and training facilitators (Cf. Beuret, 2006a, op. cit.):

- Ability to create a climate of cooperation in which the stakeholders feel secure:
 - Openness and impartiality
 - Ability to perceive the other's sensitive spots
 - Be credible
- Ability to listen actively:
 - Stimulate expression and production of information
 - Stimulate mutual listening
 - Ability to reformulate and keep the exchange focused
 - Knowledge of the methods and instruments, tools of dialogue
- Ability to understand and analyze information:
 - Knowledge of the subject
 - Openness to the “language” of the others
 - Ability to analyze information in the light of the context
 - Ability to synthesize
- Ability to conduct group discussions;
- Ability to stimulate the group and its creativity (energetic attitude);
- Availability, personal commitment and patience.

The link between conservation and development as a basis for dialogue and cooperation

EXCERPT OF THE SEVILLE STRATEGY

OBJECTIVE II.1: Secure the support and involvement of local people

7. Evaluate the natural products and services of the reserve, and use these evaluations to promote environmentally sound and economically sustainable income opportunities for local people.
8. Develop incentives for the conservation and sustainable use of natural resources, and develop alternative means of livelihood for local populations (...).
9. Ensure that the benefits derived from the use of natural resources are equitably shared with the stakeholders (...)

Fostering dialogue through sustainable development principles and bases for compromise

The management structure may for example propose the creation of a label which gives added value and recognition to a product or service, thanks to a process of submitting attribution of the label to certain practices (charter, code of good behaviour, ...) which respect the environment, the rights of the local population (e.g. "fair trade"), or other associated cultural values.

These eco-labels can be linked to a specific sector of activity; for example, this is the case for tourism, where it is necessary to develop the practice of "green", "fair" or "solidary" tourism; or also the case of the Good Practices charters in the forestry industry.

These eco-labels can also be linked to the fact of belonging to the biosphere reserve. In this case the "Biosphere Reserve Charter" can differ according to the various sectors of activity. This labeling process encourages stakeholders to commit themselves to sustainable development by adding value to their activity while at the same time promoting the biosphere reserve thanks to labeled products and services.

For this reason, it is important to ensure that the stakeholders discuss and negotiate the contents of the charter or good behaviour code linked to the label. If the rules are unclear or not respected, the action loses all credibility.

Similarly, the fair sharing of the income resulting from the biosphere reserve's activities is an essential focus of dialogue, one in which the local and native populations show great interest.

Overall, establishing dialogue on subjects that combine the objectives of both conservation and development should lead to a better involvement of stakeholders and ensure that appropriate actions are carried out (Textbox n° 28 and 29).


The active cooperation of stakeholders in the management of the biosphere reserve

This represents an additional stage in the partnership between the biosphere reserve's management committee and the local stakeholders. The active cooperation of local stakeholders involves participation in biodiversity conservation actions in exchange for benefits which can be financial, or tied to improved access to natural areas

Textbox n° 28

The link between conservation and development in the Xishuangbanna Biosphere Reserve (CHINA)

From 1993 to 2003, the biosphere reserve supported the installation in villages of 1,200 wood furnaces with increased efficiency, the improvement of 1,500 wood furnaces and the installation of 50 biogas furnaces (gas produced through the decay of natural waste). Thanks to this effort, firewood gathering has considerably decreased. On the one hand this represents a significant labor savings for the local communities and on the other hand an action in favor of the conservation of the forest and its biodiversity.

 **Other practices in biosphere reserves (Annex 2):** the search for "mixed" technologies for forestry in the Manicouagan-Uapishka Biosphere Reserve (Canada)

Conservation for the benefit of the local populations in Sierra Gorda Biosphere Reserve (MEXICO)

“ If habitat is valued, everyone will make an effort to preserve it.”¹ 97% of the biosphere reserve belongs to small landowners. For this reason, the sustainable use of resources and biodiversity conservation can only happen through awareness and responsibility on the part of the local population. The latter can only take on responsibility if they draw some advantage from the actions that are carried out. There are three types of advantages:

- services directly rendered by the ecosystem to the inhabitants (natural resources, landscape,...)
- benefits tied to the services rendered by the ecosystem. For example, a preserved environment makes it possible to develop ecotourism. Sierra Gorda Eco-tours is a company linked to the association Grupo Ecologica Sierra Gorda and offers ecotourism excursions accompanied by guides who belong to the local population.
- the remuneration of services rendered by the inhabitants to the ecosystem. In order to curb deforestation, which has significant consequences on water resources and soil erosion, a programme was

launched in 2003 to remunerate (thanks to funds from the Government Forest Commission) the land-owners who participate in actions to limit pasturing and deforestation, thus ensuring the viability and quality of watersheds. This programme makes it possible to protect mountain forest environments, reduce the risk of flooding, and provide adequate water supply to the cities located downstream. In order to ensure the stability of this income, which strongly depends on the political situation, studies have been carried out (with the support of the University of Queretaro) to assess the financial benefits brought by water management in the biosphere reserve to the companies located downstream (hydroelectricity, mining and forest development). The aim is to convince enterprises to invest in the conservation of the biosphere reserve. In addition, an agreement remunerating the biosphere reserve for the sequestration of 5,500 tons of carbon has been signed with the United Nations Foundation.

1. Martha Ruiz Corzo (Director of the Sierra Gorda Biosphere Reserve and founder of the Grupo Ecologica Sierra Gorda).

and resources (attribution of property rights, user or access rights) or to the respect for cultural values.

This cooperation must lead to mutual benefit. On the one hand, the involvement of local populations should improve the effectiveness of biodiversity protection or monitoring actions; on the other, the contract must aim to improve the living conditions of the local populations (Textbox n° 30 and 31).

Textbox n° 30

The “protecting families” of the forest in the Can Gio Mangrove Biosphere Reserve (VIETNAM)

In 1990, the Vietnamese government proposed that new residents come to live in the forest in exchange for a plot of land, a settlement grant (for building a house, buying a boat,...), monthly subsidies and additional income opportunities linked to activities governed by resource use rules. The families willing to settle pledged to protect, manage and use the forest according to rules determined by a forest environment management committee (the future management structure of the biosphere reserve). Ten “protecting families” settled in the forest in 1990. One year later, 157 of the 400 families living in the forest or in surrounding areas also

became “protecting families”. The integration of these families into the monitoring and management system of the forest made it possible to reduce the illegal activities linked to the use of resources and thus conserve biodiversity while providing the families with alternative sources of income. This system also made it possible to engage in dialogue with poachers, which the forest wardens had been unable to do. *“Problems must be solved through dialogue. We bring [the poachers] home and we talk. We can talk to them whereas with the wardens, there was no discussion”* (according to “protecting family” member).

Textbox n° 31

From building the organizational capacities of the populations to the community-based management of natural resources in the Mananara-Nord Biosphere Reserve (MADAGASCAR)

The results of phase I (1989-1992) of the management of the North Mananara Biosphere Reserve (MNRB) showed the necessity of increasing the involvement of the local population in the biosphere’s activities; indeed, programme officials felt that the only way to ensure the conservation function of the MNRB was through community management of resources. Considerable effort has thus gone into building up the organizational capacities of local communities:

- village community storage rooms, collective rice storage facilities, to offset seasonal price variations;
- the Savings and Credit mutual funds (MEC), created to ensure self-development and the sustainability of community storage facilities. The MECs, which had about 100 members in 1999, one year after the

project was launched, had reached a membership of nearly 500 by 2001.

In the framework of the community capacity-building project and in compliance with the 1996 law on the Contract-based Management of Forests, a transfer of competences was performed in order to transfer the management of the forest resources to the community. The local communities are organized in forest management committees, and are in charge of managing user rights, commercializing forest products and the conservation of the resource. The transfer of competences is based on a contract between the state, which owns the land, and the community; specific guidelines are given and the limits of the area to be managed are precisely determined.

Management structure of the Manicouagan-Uapishka Biosphere Reserve (CANADA): a network knot

Having established ties with the stakeholders, the biosphere reserve now represents a node in the network of stakeholders, a bridge between the private sector and the environmental sector, thus reinforcing the unity of the concertation system. For example, the Ministry of the Environment contacts the structure in order to raise a specific question addressed to an enterprise.

Management structure of the Long Point Biosphere Reserve (CANADA): an association open to all

During the first public meetings after the designation of the biosphere reserve in 1986, which aimed to explain the biosphere reserve concept and its application in the case of Long Point, the local communities clearly expressed their wish to participate. From 1985 to 1990, several attempts were made to plan an organization of the biosphere reserve which would include the various interests of the actors present on the site. The format developed in 1989 was that of a nonprofit association open to all persons wishing to become members, with an executive committee made up of 15 members elected for a term of three years and renewed by a third every year. The members of the executive committee come from various backgrounds: business owners, farmers, forest wardens, biologists, engineers, teachers, writers.

They participate in their own name and not as representatives of their sector of activity. Today, over 50 persons belonging to the local population have sat on the committee. One of the main roles of the association, which has been recognized as such, is to promote dialogue and cooperation within horizontal networks.

Coordinating dialogue within the biosphere reserve

Visibility of the management structure

Sometimes the local population is unaware of the existence of the biosphere reserve as are many visitors. It is important to communicate with the public at large on the subject of the reserve, its objectives and activities. Communication can take place by distributing brochures in public and neutral places (public libraries, markets, tourist information bureaus, ...), posting information signs in the biosphere reserve.

Coordinating the network

The coordination and organization of dialogue forums is a key factor of success in the participation processes and requires the implementation of a genuine “infrastructure of participation” (Bishop, 2005).

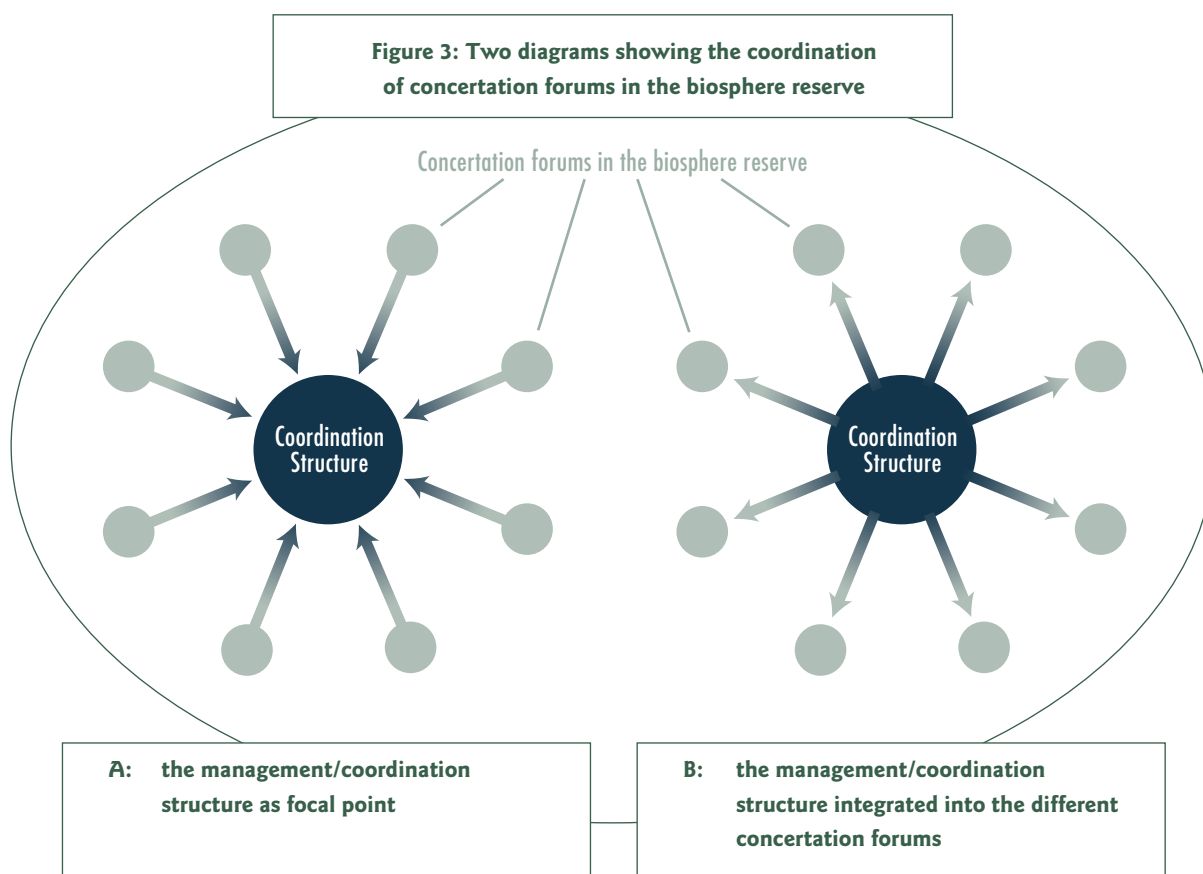
We can imagine territorial dialogue as a net in which the knots represent concertation areas. In order for the entire net to be functional, the strings connecting the knots, which represent dialogue itineraries, must be interconnected and organized. The role of the management or coordination structure is to supervise the functioning of the network. For instance, it can create a hub of networks to ensure the coordination of different stakeholders, or of different levels, and it can fill the gaps of the dialogue system.

Two approaches can be used to coordinate the network, generally in combination:

- a management (or coordination) committee representing the stakeholders of the area as a focal point of dialogue (figure 3.A)
- the participation of management committee members in the different concertation forums in the area (figure 3.B)

A biosphere reserve is a space in which living dialogue, expressing various emotions, interests and expectations must make it possible to build a model of sustainable area and resource management. In order to ensure that this dialogue is effective and efficient, the

management structure can support the exchange of values and knowledge by enhancing the infrastructure within which the dialogue occurs, by facilitating the circulation of information, reinforcing the capacity of stakeholders to participate in decision-making and management processes and offering opportunities for exchange and action which are common to all the stakeholders. Finally, the management structure of a biosphere reserve, representing a sort of passageway between the different stakeholders active in the area (scientists, local communities, public institutions, ...) must coordinate the joint actions in order to ensure the effectiveness of the concerted management of the biosphere reserve. ■■■



Chapter 3

Dialogue

in conflict analysis and management

EXTRACT FROM SEVILLE STRATEGY

OBJECTIVE IV.1.5: Prepare guidance on management issues at biosphere reserve sites, including, *inter alia*, methods to ensure local participation, case studies of various management options, and techniques of conflict resolution.

The existence of dialogue among stakeholders should make it possible to anticipate the emergence of conflicts and thus set up preventive conflict management on the basis of what we identified earlier (mutual recognition, understanding of the other, ...). However, a biosphere reserve is a changing space: transformations in environmental dynamics linked to external factors such as global warming, to changes in the positions of stakeholders or the emergence of new stakeholders, to changes in the legal framework on resource use, all these elements are sources of change and potential conflict. How should a conflict be understood, how does one identify the different participants and objects, and how can this conflict be managed through concertation? This chapter will provide a few pointers concerning these various questions.

Conflict analysis in biosphere reserves

The analysis of conflicts is an essential stage of the management process, which aims at reaching agreement.

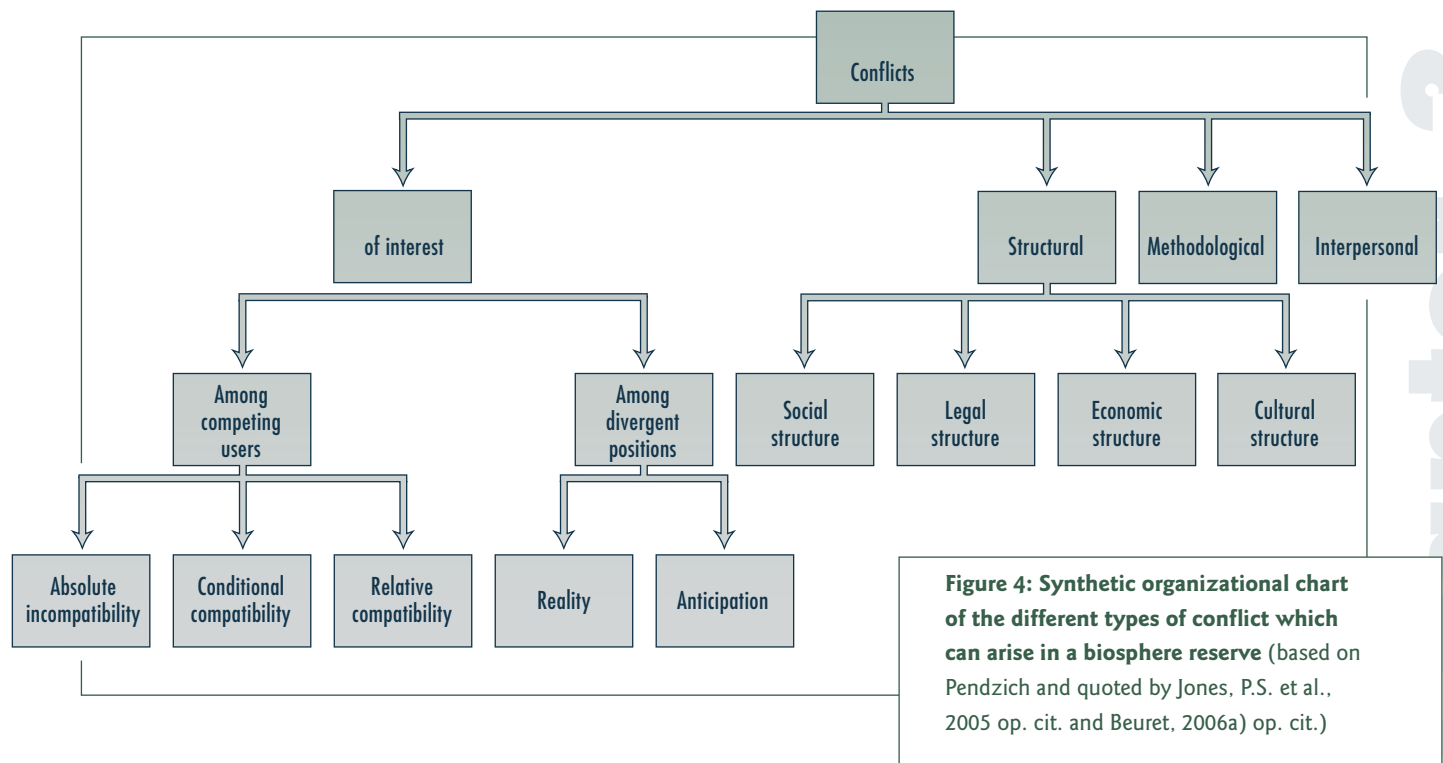
The different types of conflict

We can identify four large categories of conflict (based on the typology of Pendzich, quoted by Jones, P.S. et al., 2005)

- Conflicts of interest linked to competing or incompatible uses of identical resources or linked to divergent positions. There are several types of conflicts linked to the multifunctional nature of spaces and natural resources (Pennanguer, quoted by Beuret, 2006c):
 - Conflicts due to the absolutely incompatible nature of two activities which are mutually exclusive, the development of one leading to the disappearance of the other.
 - Conflicts due to conditional compatibility, when two activities are compatible only under certain conditions.

- Conflicts due to relative compatibility, if one activity changes the conditions under which another activity is performed.
- Conflicts tied to different positions concerning management objectives:
 - Tied to a real situation, when stakeholders have really opposite opinions concerning the management of the area and of natural resources. For example, certain animals are considered by some an endangered species and by others a meal or potential trophy.
 - Tied to an anticipated situation, when a stakeholder anticipates the position of another stakeholder. Conflicts by anticipation reveal a lack of information and dialogue in the biosphere reserve and can be resolved by building the mutual trust of stakeholders. These conflicts occur in particular when the biosphere reserve is being created, since fears are expressed concerning the application of constraining rules regarding the access to and use of resources.
- Conflicts tied to methodology, or how the different groups of stakeholders manage a situation, a problem. This can be the case during management processes which include both legislation and customary rules, or when diplomatic solutions are in opposition with using force and legislative means with civil disobedience.
- Structural conflicts, linked to the biosphere reserve's structure, on different levels:
 - On the social level when the social organization of the biosphere reserve is not representative or is unfair — either in reality or perceived as such by some stakeholders— (educational system, ability to negotiate, weight carried in the decision-making, ...);
 - On the legal level, if the system favours certain stakeholders (recognition, equality before the law,...);
 - On the economic level, for example when the environmental dimension is not integrated into economic policies or due to the domination of certain powerful enterprises in the local economy;
 - On the cultural level, due to the presence of different value systems which do not understand or accept each other.

These different types of conflict can coexist within a biosphere reserve.



How should conflicts be analysed and understood?

Identifying the roots of the conflict

Conflict analysis consists in identifying and bringing out the deeper roots of conflict, its primary sources.

The first thing is to identify the visible source of the conflict, and then break it down into several elements which in turn can be broken down into separate elements. The conflict can thus be represented as a “problem tree”, where the roots represent the causes of the conflict, and the branches are the consequences. The construction of this tree should be done collectively, so that no causes of conflict are forgotten. In this way stakeholders recognize the complexity of the situation. This phase is essential, in as much as the sustainable management of an environment-linked conflict requires working on the roots of the problem and not just correcting the consequences.

The analysis of stakeholder representations based on “order of magnitude”

It is absolutely necessary to understand the interests, fears and need of stakeholders in the analysis of a conflict. The positions of the different stakeholders generally reflect their personal value system. Boltanski and Thévenot (quoted in Beuret, 2006a) op. cit.) speak of “orders of magnitude”, meaning the system of references

governing a stakeholder’s position and his justifications. Identifying these “orders of magnitude” can facilitate the understanding of stakeholders’ rationales. There are six orders of magnitude, or six ways of perceiving reality on the basis of the importance attributed to a given issue;

- the domestic rationale, when attention is focused on familiar issues such as persons, places, tradition;
- the civic rationale, when attention is focused on the general interest, on fairness;
- the industrial rationale, when attention is focused on efficiency, performance, on the functional aspect of beings and things;
- the commercial rationale, when attention is focused on the commercial value of space and its natural resources;
- the inspired rationale, when priority is given to the esthetic, singular aspects of a natural area or transformed by man, or of cultural practices;
- the renown rationale, when a person’s or an organization’s renown, or that of a method, is what makes him/it trustworthy.

The stakeholders of a biosphere reserve thus rely on these orders of magnitude to justify a position as well as criticize the representations of other stakeholders. This reading of the stakeholders’ behaviour can help improve the situation. For example, it can help distinguish between a justified complaint and a “strategic” standpoint.

Concentrating on the reality of the conflict

Regardless of the nature of the conflict, it is important to focus on the reality of the local context. Two different conflicts can mobilize the same resources or ecosystems (e.g. a coastal zone), or similar categories of stakeholders (e.g. fishermen, tourists, ecologists) and stem from very different origins, linked to the local context. For example, an interpersonal conflict can be covered by a conflict linked to the use of resources; a conflict pertaining to resource access may explain a conflict which at first glance seems cultural. If the conflict is not accurately analysed, its management can fail (Textbox n°34).

How can research help conflict management?

Scientific research in a biosphere reserve can help the analysis and management of conflicts by bringing in new information. This information can support dialogue with a view to building solutions collectively. The knowledge brought by science can concern the access and use of resources and biodiversity (understanding of behaviour, customary rules, ..), as well as stakeholder perceptions, that is, local knowledge or technical innovations. The understanding of social dynamics, in other words the behaviour of different groups of stakeholders and their interactions is an essential aspect of conflict management (Textbox n°35).

Dialogue in conflict management

Clarifying latent conflicts

The first stage in the management of a conflict is the recognition of its existence by the stakeholders. If a stakeholder refuses to admit that there is a conflict, it will be difficult to engage in a management process.

In addition, so-called “latent” conflicts (Beuret 2006a) op. cit.) are sometimes expressed through blocked situations and pressure exerted by some stakeholders on others.

It is thus essential to clarify the conflict through dialogue. Thanks to this clarification, not only can the problem be discussed, but the underlying social demands of stakeholders can be expressed.

How to start an itinerary to manage a conflict?

It is often difficult to bring the different parties of a conflict together around a table and thus launch the dialogue, thanks to a simple invitation. Before the parties can agree to start out on a concertation itinerary, it is often necessary to establish a preliminary agreement

Textbox n° 34

Defining the level of conflict in the Bañados del Este Biosphere Reserve (URUGUAY)

In the Bañados del Este Biosphere Reserve, the following table was used to define the level of importance of the conflicts:

Pressure exerted by a sector of activity on the environment	High			
	Medium			
	Low			
		Low	Medium	High
		Vulnerability of the environment which is under pressure		

This initial description of the conflicts between conservation and development must be completed by an analysis of the reality of the context, the social dynamics at hand, the different stakeholders involved and their interests.

Textbox n° 35

The contribution of scientific research to customary practice and to interactions between man and nature in the analysis and management of conflicts in the Nanda Devi Biosphere Reserve (INDIA)

Research conducted in the Nanda Devi Biosphere Reserve has produced insights leading to a better understanding of conflicts and input for their management.

Research objectives:

- learn about the socio-economic and cultural status of the villagers and identify the reasons for accepting (or not) ecologically sustainable alternatives;
- quantify the dependence and pressure exerted by villagers on the natural resources of the buffer zone and the adjacent forests;
- suggest strategies for the sustainable use of the natural resources of the buffer zone.

Approach:

- socio-economic analysis (reconnaissance of the area, interviews with local leaders, questionnaire

on demography, land use, resource use among all the families, participatory observation);

- analysis of the dependence of man on resources in three villages corresponding to different ecological levels (analysis of firewood consumption, wood transfers, animal transfers, at the entrance and exit of the village, during a year);
- analysis of the pressure exerted on the natural milieu, along a transect starting from the village centre.

These studies made it possible to study the impact of human action on biodiversity, the rationale of villagers' actions and behaviour, as well as perceptions concerning the proposed alternatives.

Textbox n° 36

The preliminary agreement, first stage in the management of a conflict between sport fishing and commercial fishing in the Lac Saint-Pierre Biosphere Reserve (CANADA)

The decrease in the yellow perch population, a species of fish emblematic of the Lac Saint-Pierre has led to a conflict between sport and commercial fishermen. A work group representing the different parties in conflict was set up on the initiative of the Ministry of Agriculture and Fisheries (which supports commercial fishing) and the Ministry of Fauna (which supports sport fishing). The first stage meant meeting together to reach a preliminary agreement setting terms and rules of dialogue. The work group thus agreed that the decision must be based on scientific studies, and that extreme solutions, meaning the prohibition of one or the other activity, are excluded. Through this preliminary agreement, the parties mark their commitment to the dialogue process.

concerning the framework of the dialogue. This framework can involve:

- the process itself: how the stakeholders are represented, rules of dialogue, what kind of knowledge can be tapped (scientific, local, ...), which stakeholders will be playing a role during the process (scientific experts, associations, ...)
- the object of the dialogue, what will be or will not be talked about. The aim is to bring together the stakeholders to negotiate what they deem can be negotiated. The different parties of the conflict will thus have to make concessions in order to be able to reach this preliminary agreement.

This preliminary agreement represents, as it were, a guarantee needed by each party in order to be able to engage in dialogue. The parties can then commit themselves to the dialogue process. This commitment (oral or written) makes it more difficult for a party to withdraw from the dialogue and sets the foundations for the concertation process (Textbox n° 36).

Conflict management: an itinerary

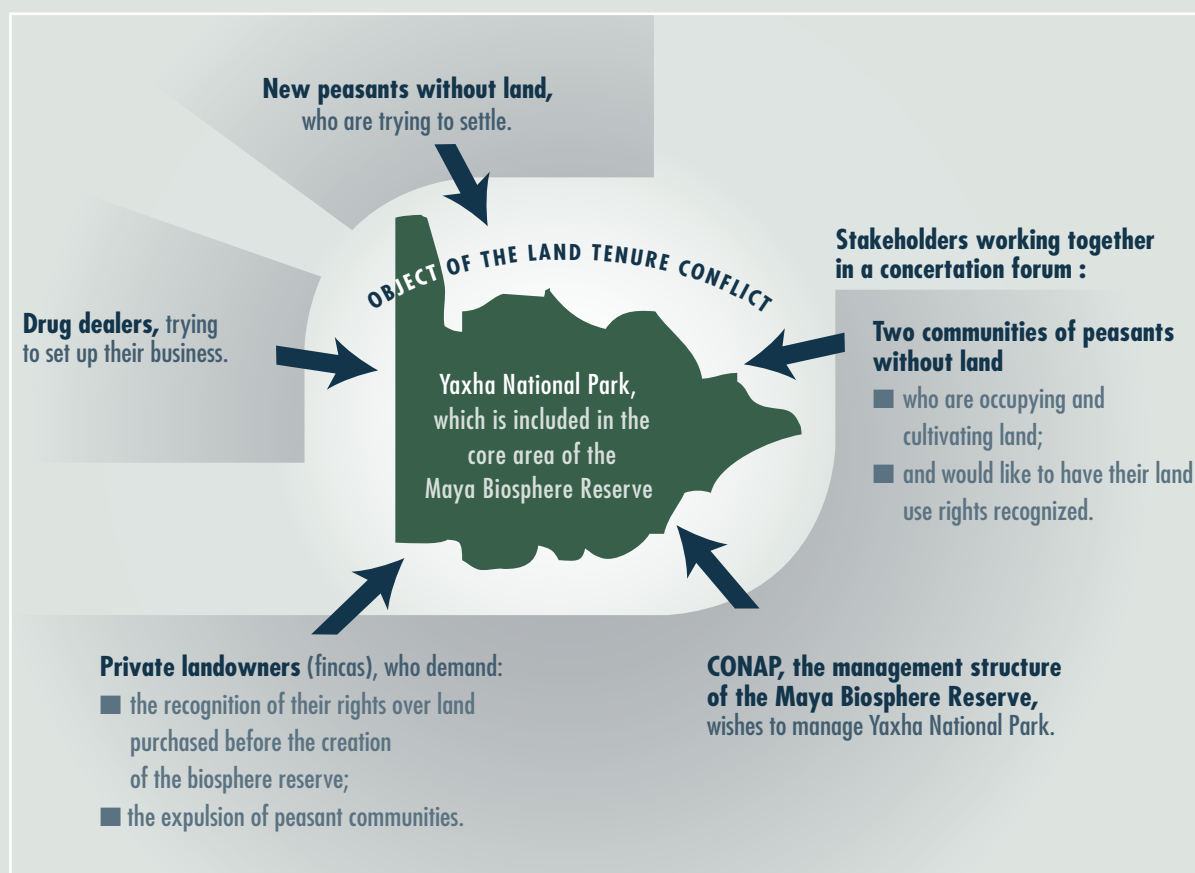
As in the collective construction of the management policy or management plan of a biosphere reserve, the management of a conflict takes time and must follow a concertation itinerary. The management structure of the

biosphere reserve can be both a facilitator and a coordinator of the concertation process. The following textbox describes conflict management itineraries (Beuret 2006b) op. cit.) (Textbox n° 37).

Textbox n° 37

A conflict management itinerary concerning the land tenure system of the core area of the Maya Biosphere Reserve (GUATEMALA)

A conflict concerning the land tenure system in the south of Yaxha National Park, core area of the biosphere reserve



Organizing the concertation forum

Following the wishes of the peasant communities, the “deputy mayors” appointed by the local municipalities for the two communities that have settled illegally asked CONAP, the biosphere reserve’s management structure, to launch a spatial planning and organization process. After two very heated meetings between CONAP and the peasant communities first, then with the landowners, it was decided that a committee would be created, bringing together:

- five representatives of each of the peasant communities;
- seven representatives of the landowners (they all belong to the same family);
- representatives of CONAP (the regional director of CONAP will lead the process);
- CONTIERRA, a public organization specializing in mediation in land tenure conflicts;
- the governor and his representative.

Organization of the parties in conflict

Peasant communities

The peasant communities are supported by an assessor, a lawyer chosen by a religious organization who participates in supporting development, the Apostolic Vicariate of Peten.

Landowners

The speaker is the head of the family of the landowners.

An intra-category negotiation aiming to define the range of possibilities and the best strategy

Peasant communities

Can one demand property rights indiscriminately, on private land or on expropriated land considered state property?
Can some families be moved onto other land?

Landowners

Should they maintain an extreme position, that is, demand property rights on all land, including expropriated land, or should they adopt a more flexible position?

A preliminary agreement consolidates the committee and opens up management perspectives

Concessions from each party make it possible to reach a preliminary agreement:

- a priori commitment of the peasant communities to move if they are given land elsewhere;
- a priori commitment of landowners to give up land which has been expropriated and lose 10% of their land if their rights are officially recognized;
- the management structure suggested the possibility of granting each party a standard area free of property rights.

The preliminary agreement represents an important threshold in the conflict management process. Thanks to the agreement, the following has become irreversible:

- a situation due to the concessions made by each party (which may be unequal):
- a network of stakeholders thanks to the commitment of each party in the process.

This itinerary of conflict management is still ongoing today, with a precise evaluation of the situation of land tenure (measurement of plots, existing crops,...)

Giving impetus to a conflict management itinerary

Several approaches are used in territorial mediation to unblock delicate dialogue situations or help the concertation itinerary move forward towards building an agreement (See Barret, 2003 op. cit. and Beuret, 2006 op. cit.).

- a reference to common values: the aim is to focus the dialogue on what the parties have in common, beyond their differences. It can be the feeling of belonging to the same community, group of stakeholders, the same land, or yet again a common vision of the future, general objectives of the biosphere reserve such as sustainable development and biodiversity conservation.
- an invitation to use one's imagination: the aim is to encourage participants to express their aspirations, their expectations for the future of the biosphere reserve, over and beyond the specific constraints tied to the local context. The possibility of "stepping aside" for a moment can be very beneficial to the dialogue process.
- the worst case scenario: by explaining the possible consequences of stopping the dialogue effort and returning to a status quo. However, stakeholders

must not feel threatened and forced to reach an agreement in a climate of urgency, but rather must be given a sense of their responsibility along with a reminder of the opportunities and advantages brought to them through the co-construction of an agreement (Textbox n° 38).

- Inspiration through example: by using the example of a similar conflict management situation in the same biosphere reserve or in another belonging to the World Network.
- Going beyond the representatives: representatives sometimes hold onto a more rigid position than the stakeholders they represent, because they feel they have to defend the latter's interests. In some cases it may be productive to sidestep the representatives in order to unblock a situation.
- Protecting dialogue against external pressure: the participants must be protected against the pressure exerted by some stakeholders of the biosphere reserve who are opposed to the targeted agreement. This pressure occurs more frequently at the time of the final phase of the conflict management process, during the drawing up of the final agreement. The risk is that some stakeholders may finally withdraw from the dialogue and the construction of the agreement, thus depriving the latter of any legitimacy.

Textbox n° 38

Stimulating voluntary agreement by revealing existing dangers during a conflict in the Lac Saint-Pierre Biosphere Reserve (CANADA)

The conflict concerned the deterioration of the banks of the Saint-Lawrence river, linked to the excessive speed of the ships. The representative of the biosphere reserve explained that the image of the maritime transport firms is likely to suffer from the ongoing deterioration. From the start, this argument, as well as the threat of stringent legislation encouraged dialogue. Later, during the meetings, the representative of the biosphere reserve listed various alternatives, among which: financial compensation for environmental damages, restoration of the river banks, and measures to reduce speed in order to prevent erosion. The Saint-Lawrence Ship Operators Association thus chose the last, least expensive, solution. This approach thus made it possible to construct a voluntary agreement.

The multiplicity of issues at stake in biosphere reserves can lead to conflicts among stakeholders. The sustainable management of these conflicts, linked to the existence of conflicting interests, uses and values, requires a deep understanding of the causes and dynamics underlying these conflicts. Taking into account the different stakeholders in the analysis of conflicts should make it possible to establish the conditions necessary for their successful management.

Furthermore, dialogue makes it possible to find together a viable solution, supported by all. ■■■

Chapter 4

The Periodic Review:

a key moment

in the dialogue process

4.1 – A Self-evaluation

ARTICLE 9- PERIODIC REVIEW

1. The status of each biosphere reserve should be subject to a periodic review every ten years, based on a report prepared by the concerned authority, on the basis of the criteria of Article 4, and forwarded to the secretariat by the State concerned.

UNESCO 1996. THE SEVILLE STRATEGY
AND STATUTORY FRAMEWORK.

The first biosphere reserves designated in 1976 were mainly dedicated to research and conservation objectives. However, beginning in 1985 and 1986, due to changes in needs and practices in the field, the focus shifted to the three main functions of biosphere reserves (conservation, sustainable development and logistic support). At that time, concerns were voiced about what was possible, authorized, or not in a biosphere reserve. An international working group was set up, leading to the drafting of article 3 on the functions of biosphere reserves and article 4 on criteria. The drafting of these articles required a great deal of negotiation and compromise, with a view to ensuring the flexibility of the concept's application. At the time, one hundred or so biosphere reserves did not meet function and criteria requirements, which meant they had to be upgraded. One of the principles of the periodic review is that there is no external evaluation; this is why article 9 specifies that the review is based on a report. The advantage of this approach is that the concerned authorities are urged to show an interest in biosphere reserves, and this leads to self-criticism and greater responsibility. Several national workshops were organized afterwards.

The periodic review is thus more political than scientific in nature; its aim is to improve the quality of the sites, and as such the credibility and visibility of the World Network. The report produced by the periodic review should analyze the functioning of the biosphere reserve and answer practical questions, for example whether or not the biosphere reserve has a management plan. The limits of the review are tied to its nature: it is a static exercise aimed at upgrading the sites. For many countries, and for the International Co-ordinating Council (UNESCO, 2007), it has now become important and necessary to move on to a more dynamic process. The periodic review form is now being revised so that infor-

mation may be provided on a more regular basis¹, especially as concerns progress and changes, advances made in sustainable practices and knowledge, adaptive management and governance capacities (Textbox n° 39).

Lessons learned

In November 2007, 213 biosphere reserves submitted a report to the Secretariat in the framework of the periodic review. In June 1998, 48 biosphere reserves had responded (Oszlanyi J. in UNESCO, 2000), and 108 in 2001 (UNESCO, 2001). The analysis of these first reports had shown that research and conservation functions were dominant and that dialogue and stakeholder participation were insufficient, in particular due to the fact that in the majority of countries the development function had not yet been sufficiently implemented (Price, 2000).

Among other impacts of the review, some member states have made increasing efforts to improve the management and functioning of their sites, and significant data and reports concerning the sites have been sent to the Secretariat. Meetings and debate forums have been organized on the local and national level, and the limits and borders of certain sites renegotiated in order to improve the implementation of the three functions (France, Egypt, Switzerland). Several sites which did not meet the criteria of the Statutory Framework have been withdrawn by Member States from the World Network (Germany, Australia, United Kingdom, Norway), thus tightening the stringency of the latter's requirements concerning the integration of the three functions and stakeholder participation.

Taking stock of changes and improvements

A biosphere reserve is a dynamic, socio-ecological space, in constant interaction with its environment in the widest sense of the term — including its political environment. Zonation, for example, is the result of negotiations between stakeholders and institutions, to

1. It must be noted that for certain biosphere reserves, especially those designated during the first years of the MAB programme, the Secretariat did not have any data. This is why it was decided to include certain questions on fauna and flora inventories in the periodic review form, in order to update the available information for each site of the World Network.

The periodic review: a learning process to evaluate change and adaptive capacity in biosphere reserves

In 2005, the International Advisory Committee on biosphere reserves raised the question of the re-examination of the periodic review procedure, with a view to improving the monitoring of changes made in the context of the integration of the three functions of biosphere reserves. The Bureau of the MAB Council took note of these recommendations and in particular of the necessity to reconsider the periodic review procedure, which tended to be descriptive and static. The Committee underscored among others the need to improve trend monitoring and change assessment, and recommended the setting up of a pilot project. This pilot project would focus on the integration of the three functions, as well as on the manner in which the management structure of the reserve was able to adapt to change. The project would include the preparation of a complete series of data for the biosphere reserves, with the elaboration of reference documents to be used to monitor the evolution of the reserves and improve the efficiency of the periodic reviews. The pilot project would be in charge of answering the following questions:

1. What is a well-managed biosphere reserve (a “good” biosphere reserve), according to the Statutory Framework and the Seville Strategy (UNESCO 1996)?
2. How can the changes in a biosphere reserve’s itinerary be measured, highlighting the integration of the three functions of conservation, development and logistic support?
3. How can we evaluate the process of adaptation of governance structures to existing time and space frames, ensuring the performance of the three functions?
4. Is it possible to use the biosphere reserves as laboratories for the measurement of sustainable development?

This pilot project would be implemented in at least six countries and six biosphere reserves, in order to test the procedures and means necessary for the preparation of a complete set of data and indicators as reference data to measure trends and changes, the integration of the three functions and the concertation process among stakeholders.

The global objective would be to build a corpus of references on sustainable development practices, based on experience on the sites, enabling the World Network of Biosphere Reserves to become an international platform bringing together managers, researchers and decision-makers working in the field of biodiversity and facing global challenges such as climate change.

meet precise objectives which must be accepted by all at a given time. The zonation system which was coherent at one time may no longer be relevant in a new context, when the biosphere reserve and its population are facing new challenges and transformations (Cibien, 2007).

Changes in forms of governance (political, institutional changes, relations among local communities), the emergence of new partnerships, of new or renewed interest on the part of towns or villages located near the site can trigger the necessity to redefine the management system, borders (geographic and institutional) and the objectives of the biosphere reserve.

In some countries, the periodic review has led to the renaming of certain biosphere reserves, after their geographic limits were extended to reflect more accurately regional dynamics and socio-economic interactions (France, Canada).

The periodic review represents an opportunity to carry out a qualitative survey (Cibien, 2007 op.cit.) of

the actions implemented by the coordination structure and their results, thanks to the Seville Strategy implementation indicators (Estonia) or other indicators elaborated by the country in the framework of a monitoring and evaluation programme. It also provides an opportunity to discuss the updating of the zonation system and assess its relevance, question the objectives and means of management policies and examine the issues and problems tied to implementation. It is also a time to discuss weak points. In order to facilitate these reviews and analyses, some countries have implemented monitoring and evaluation indicators. Some indicators were specifically designed to evaluate participation and dialogue (Textbox n° 40). One objective of improvement for the periodic review is the elaboration of relevant indicators which can be used in both quantitative and qualitative surveys and indicate the factors leading to change; these indicators should enable the countries to perform a high quality and dynamic review.

Participation and dialogue indicators for monitoring and evaluation in the Maya Biosphere Reserve (GUATEMALA)

The core areas and forest concessions of the buffer zone (multiple-use zones) are being monitored and evaluated thanks to indicators measuring general participation in the management of concessions.

Several examples of participation and access to participation indicators, in the framework of the collective management of resources, are given below:

- extent of development of the organizational structure: existence of statutes and compliance with statutes, definition of functions and mechanisms governing power delegation and participation.
- representation of various interest groups in the decision-making body (% of groups represented among those identified).
- degree of concentration of decision-making in the decision-making body (does the manager let the board of directors participate in the decision-making? To what extent do women participate?).
- access to the accounting and management system (do the members know the system and to they have access to the information generated?).
- building capacity to foster participation: educational level, investment in educational resources (research grants, funding for teachers, etc.).

The periodic review is also a time to take stock of progress made by the biosphere reserve, especially as concerns the updating of knowledge, in particular scientific data; competences in resource and ecosystem management; stakeholder relations pertaining to resource management; and education and information programmes for the public. It is a time to discuss how these advances in knowledge, in the experience and practices of local stakeholders can best be used to define new management objectives for the biosphere reserve. These positive results, along with the dialogue forums, represent a solid basis for seizing new opportunities, building new partnerships, discussing choices and meeting new challenges.

Sufficient time for exchanges and dialogue between stakeholders and institutions

The periodic review is an opportunity to mobilize the competences of stakeholders and institutions both on the local and national levels. Many countries organize local and national workshops, bringing together the key persons of different biosphere reserves and using local and national scientific competences and resources, with the support of the MAB National Committee (Textbox n° 41).

The recommendations of the international meeting of experts "Seville +5" on the implementation of the Seville Strategy (UNESCO, 2001) provide details concerning local and international responsibilities for the periodic review and underscore the crucial role of local stakeholder participation and involvement (Textbox n° 42).

The periodic review represents a long period of dialogue, and requires sufficient human and financial resources to ensure its efficiency and lasting effects. During that time, genuine concertation approaches and procedures can be implemented, making it possible for the stakeholders to express their wishes, opinions, concerns, hopes and expectations.

It is also an opportunity for many countries to apply and test different approaches and methods of dialogue, with the possibility of innovating in terms of concertation and co-construction of long term goals. Researchers in the social and natural sciences can play a key role by encouraging interdisciplinarity. Research can act as

Creation of a multi-institutional working group in the Oberlausitzer Heide – und Teichlandschaft Biosphere Reserve (GERMANY)

For the periodic review, a working group was created with representatives from different Länder, administrative units of the biosphere reserve, the MAB National Committee as well as scientists. The periodic review was carried out following the international recommendations of the Statutory Framework as well as the criteria developed on the national level for the designation and evaluation of biosphere reserves such as:

“Administration and organization:

(15) The local population must be enabled to share in designing the biosphere reserve as its area for living, working and engaging in recreation. Proof must be supplied that suitable forms of citizens’ participation are being practiced”.

Recommendations of working group 8 on the impact of the periodic review, Pamplona, Spain (UNESCO, 2001)

1. The process of developing a periodic review should be used as an opportunity to strengthen support for biosphere reserve and raise awareness among national agencies, NGOs and other stakeholders. At the level of each biosphere reserve, local stakeholders should be actively involved in the review process.
2. The main purpose of the review is to ensure that each biosphere reserve effectively fulfils all three functions of a biosphere reserve, or has the potential to do so, inter alia through an effective and robust institutional arrangement.
3. The review should therefore pay particular attention to the institutional aspect. The process of developing a periodic review should be interactive, involving at least the coordinators(s) of the biosphere reserve(s) concerned and the national Committee or focal point. Where appropriate, a workshop involving multidisciplinary experts/scientists (including coordinators of other biosphere reserve in the country) should also be held as part of the process. Where possible, field visits should be organized to contribute to the process and reinforce local commitment.
4. The process should also facilitate new policy guidelines emerging in the country concerned for the improvement/expansion of existing biosphere reserve and the selection of new ones.
5. Biosphere reserve are dynamic entities with respect to policies, management, land uses and conservation. For each biosphere reserve, sets of qualitative and/or quantitative indicators should be developed and applied, in collaboration with local stakeholders, as tools to continuously evaluate the success of the biosphere reserve in achieving its functions. These progress indicators should be easy to use, cheap, and quick.
6. The MAB Secretariat should provide support for the compilation, dissemination and critical analysis of national experiences of the review process, possibly through workshops. The MAB Secretariat, including UNESCO’s regional offices, should also provide support, when requested, for the preparation of reviews and implementation of recommendations.
7. To improve follow-up of recommendations on the periodic review, the Secretariat should request that information on measures taken should be provided in time for the following meeting of the Advisory Committee.

The use of participatory tools in the Fanjingshan Biosphere Reserve (CHINA)

In 1999, the Fanjingshan Biosphere Reserve submitted its periodic review report. The advisory committee on biosphere reserves welcomed the progress made since the creation of the biosphere reserve in 1986 but recommended deeper involvement of the local population in its management. The following year, the biosphere reserve implemented a host of new methods aiming to encourage local participation, such as the Participatory Rural Appraisal (PRA). PRA, a method often put forth by FAO or the World Bank, can be used by communities to evaluate their resources, identify problems and classify them according to importance. Management strategies can then be drawn up to address these problems.

a mediator, showing the diversity of interests and viewpoints, as well as the rich variety of possible choices and proposals (Textbox n° 43 and 44).

Cooperation among researchers, managers and local stakeholders also makes it possible to update key data, take stock of available information in the biosphere reserve, compare data and identify new needs in terms of research and capacity building, including training. The periodic review is an opportunity to encourage people living in the biosphere reserve to contribute, on a voluntary basis, to the collection of data and information, following a “citizen science” approach increasingly used and tested in several biosphere reserves of the World Network (France, Canada, United Kingdom, USA).

Building a common future thanks to negotiation

The periodic review is a time for debate and negotiation, at a particular moment in the life of a biosphere reserve. Innovative tools may be used for this purpose and the role of the “companion” approach is essential. Indeed, rather than something done once and for all,

Mediator research: role plays as the basis for collective thinking for the sustainable management of ecosystems: the case of the Camargue (delta du Rhône) Biosphere Reserve (FRANCE)

In the Camargue Biosphere Reserve, a role play was developed to trigger collective debate on the sustainable management of reed-beds (*Phragmites australis*) and the conservation of the bittern (*Botaurus stellaris*), a heron which has become vulnerable in Europe. The aims were to raise awareness on the following issues:

- biological and hydrological interdependence, their dynamics and different space and time scales;
- the technical-economic and socio-cultural aspects of the different uses of reed-beds;
- the advantages and limits of concertation and negotiation for the management of natural areas that do not fall under legal protection measures.

The model used as the basis for the role play was a spatial representation of an archetypal wet zone, divided into two pieces of property, one privately owned, the other belonging to the municipality, the two areas hydrologically interdependent. Each property was divided into eight management units. Land use and water management decisions were made by the players, following negotiation, concerning the wet zone, the property, and

the management units. The short and long term effects of the wet zone management decisions made by the farmers, the reed gatherers, the fishermen, the hunters and naturalists were then simulated thanks to a computerized model.

Several sessions were scheduled with different stakeholders: students, nature conservation project managers, scientists and protected natural area managers.

Overall, the role plays (and the simulation) made it possible to:

- facilitate the sharing of perceptions among stakeholders in order to promote a wider grasp of the situation;
- stimulate stakeholder interaction;
- help raise awareness of the impact of actions carried out in their own environment and that of others, in order to better evaluate their actions;
- provide the tools and means of imagining and collectively evaluating territorial management alternatives.

the identification of objectives, issues, stakeholders and their representatives is a process which must be regularly repeated in the concerted management of a biosphere reserve.

The tools and approaches presented in this chapter (see also this work Etienne et al.), and in particular the “companion modeling” approach are rooted in the co-construction of issues raised in connection with the management of a territory and of its resources. This co-construction mobilizes researchers and managers in an interdisciplinary approach, enabling them to build a common view of the management goals of the biosphere reserve. These approaches and tools help better understand and foresee changes thanks to dynamic models, simplified representations of reality. The elaboration of scenarios can help stakeholders make choices for the future on the basis of available information and shared evaluations of existing practices and future options.

The “companion modeling” approach, applied with the support of the French MAB National Committee in several biosphere reserves during periodic reviews (Etienne et al. op. cit.) is one approach among others, which can trigger and facilitate dialogue. Dialogue must then be pursued, formalized, ritualized and translated both in terms of biosphere reserve management and in terms of political support (Textbox n° 45).

The periodic review represents a long and intense period of dialogue among stakeholders and institutions, highlighting what has been accomplished over the past ten years and providing a opportunity to discuss plans for the next ten years.

The periodic review is not only a time for dialogue and exchange, for reflecting and taking stock of what has been accomplished, it is also a key moment for innovation. It is an effective way of mobilizing and involving key stakeholders, the inhabitants of the biosphere reserve, researchers, the MAB National Committee, local officials and political institutions. It is an opportunity to diversify approaches and methods to perform this review (participatory approaches, role games, monitoring and assessment indicators, companion modeling, national workshops, forums and discussion platforms, ...). It is an opportunity to learn, both for the stakeholders and for the World Network, thanks to the accumulation of knowledge, experience and practices from different biosphere reserves.

The review also mobilizes local and national stakeholders (in particular the MAB National Committee), as well as regional stakeholders such as Regional Networks and UNESCO Regional Offices, which play an important role in the follow-up of recommendations made on the international level by the Advisory Committee and approved by the MAB Bureau. These recommendations

make it possible to underscore what needs to be improved in a biosphere reserve and support the efforts of countries to maintain their sites. The periodic review is an investment in terms of human and financial resources and makes it possible to mobilize and add value to local, national and regional competences.

The involvement of local and national stakeholders, countries, regional and international stakeholders is a unique opportunity for sharing experience and practices, leading to a collective learning experience on a global level. This exercise mobilizes unique networks of stakeholders with competence, knowledge, know-how, which should be more widely shared among members of the World Network.

The periodic review has developed into a solid and important foundation for the World Network of Biosphere Reserves, enabling it to increase its visibility and credibility as a standard of reference for sustainable development practices. ■■■

Bibliography

- Bioret, F. et al. 1995. *Méthode d'élaboration de guides d'aide à la gestion pour les réserves de biosphère : application aux réserves de biosphère françaises*. Dossier MAB 19. Unesco, Paris.
- Beuret, J. E. 2006. Environnement et développement mis en dialogue dans les réserves de biosphère : recueil de fiches techniques. UNESCO-MAB.
- Cibien, C. 2007. Un examen périodique des réserves de biosphère, pour quoi faire ? *La lettre de la biosphère*. N. 7 Juillet 2007. Comité MAB France.
- Price, M. (ed.). 2000. EuroMAB 2000. Proceedings of the First Joint Meeting of EuroMAB National Committees and Biosphere Reserve Coordinators. 10-14 April 2000. Cambridge, UK.
- Price, M. F. 1996. People in biosphere reserves: An evolving concept. *Society and Natural Resources*, 9: pp.645 –654.
- UNESCO. 2001. Seville + 5. International meeting of experts. Compte rendus. Pamplona, Spain. 23-27 October 2000. MAB Report Series N. 69. UNESCO, Paris. <http://unesdoc.unesco.org/images/0012/001236/123605m.pdf>
- UNESCO. 2000. Information on the results of the survey on the implementation of the Seville Strategy. Sixteenth Session of the International Co-ordinating Council of the Man and the Biosphere Programme. UNESCO Paris 6-10 November 2000. SC-OO/CONF.208/3 add.

The “Dyfi Biosphere” Partnership, Dyfi Biosphere Reserve (UNITED KINGDOM)

The Dyfi Biosphere Reserve was designated by UNESCO in 1976 and does not meet the criteria of the Seville Strategy and the Statutory Framework, adopted in 1995. When the United Kingdom joined UNESCO in 1997, a periodic review was launched in order to modernize the Dyfi Biosphere Reserve in accordance with these criteria. Locally, the project was received with enthusiasm. However, the Dyfi Valley (known under its Welsh name as *Bro Dyfi*) had already received several other designations (Natura 2000 European network, Special Area of Conservation (SAC), and Special Area of Marine Conservation, National Natural Reserve and Ramsar Site). It soon appeared that the only advantage gained through the biosphere reserve status was that local communities would be encouraged to work more actively in favour of sustainable development.

Rather than modernize and extend the biosphere reserve and then hope for the participation of local stakeholders, it was decided to let the latter decide on the future of the biosphere reserve. The idea was that if the choice was freely made, enthusiasm and hope would ensure that the designation of biosphere reserve would be beneficial to both stakeholders and the natural environment.

The “Dyfi Biosphere” Partnership was created with a view to managing the stakeholder commitment process and in particular to determine whether the biosphere reserve should be extended or withdrawn from the World Network. The goal of the Partnership was clearly not to represent local stakeholders but to inform them and involve them in the finalizing of the report if they wish. The members of the Partnership belonged to organizations which were in a position to block the modernization of the biosphere reserve and whose support was crucial to the project's successful outcome.

The Partners included the four local authorities covering the geographical area, two syndicates representing the interests of local farmers, the Countryside Council for Wales, a semi-public institution in charge of the natural environment, the Welsh Language Board, two Welsh Assembly Government Departments, Ecodyfi (a key NGO concerned with sustainable development), Tourism Partnership Mid Wales and the Environment Agency Wales (a semi-public institution in charge of environmental protection).

The Partnership recruited a Community Engagement Officer in charge of relations with the local communities of the Dyfi Valley. His duties included providing relevant information on biosphere reserves and encouraging the population's active participation, vital to the process.

The stakeholder engagement process involved: a series of public meetings on a given theme, in the valley; participation in local agricultural events; presentations in local clubs and circle societies; seminars upon invitation with key stakeholders to explore the relevance of the biosphere reserve designation for key sectors of agriculture, forestry and culture. In addition, all the households living in the Valley received a brochure about the biosphere reserve, explaining opportunities and options. Following this awareness and information campaign, the Partnership held other meeting with groups of key stakeholders to examine problems in greater detail; a formal consultation was then set up, asking stakeholders whether the biosphere reserve should be extended and modernized. The answer to this question was a resounding “yes”.

The dialogue is now continuing with local authorities, the Welsh Assembly Government, and British institutions such as the UK MAB National Committee, in order to prepare the review form.

4.2 – An example of companion approach which could be used during the periodic review

Ever since the Seville Conference, the French MAB National Committee has been interested in finding ways to mobilize local society, involve its citizens in the “life” of biosphere reserves and contribute to building its future; its aim is to help them become open dialogue forums, at the service of conservation and sustainable development, requiring specific concertation approaches.

Basis of the approach

Complex relationships, involving ecological and social dynamics, are at play in biosphere reserves. Local stakeholders are not only the actors, but should also be the makers of management policies. What can be done to develop a new form of local management which is more open, dynamic, capable of adaptation and anticipation, creating partnerships among the different stakeholders, contributing to preserve natural resources thanks to sustainable management, on the basis of quality scientific data and cultural creativity? How can the collective intelligence of the local population be mobilized?

Each stakeholder has his own worldview and his own idea of what exists in his world, and this leads to different analyses, different behaviours, and sometimes to conflict. The companion approach described here aims

to facilitate the exchange of viewpoints and dialogue among stakeholders, to conduct a collective analysis of territorial issues, in terms of sustainable development and biodiversity conservation, and to highlight priorities of action in view of establishing a management policy through co-construction exercises. Given the wide variety of viewpoints, the approach aims to collectively determine the management problems encountered and identify the conflicts.

It is also necessary to mobilize the special knowledge necessary for managing a biosphere reserve, as concerns both its nature and the human activities that take place within it, in order to conduct scientific monitoring, studies and research in a more operational and targeted way (Textbox n° 46).

Concrete applications

The workshops are a forum of intense debates conducted by moderators and leading to the collective construction of shared references. This work is essential each time it is necessary to mobilize or remobilize biosphere reserve stakeholders to carry through a collective project. This type of approach is thus useful during the preparation stages, before the creation of the biosphere reserve, in order to take stock of the issues at hand, the

Textbox n°46

What is the origin of this approach?

The integration of simulation models to aid collective decision-making for the management of natural resources is one of the specific aspects of adaptive management (Holling, 1978; Walter, 1986). But these models are much more seldom used to stimulate stakeholder participation in the elaboration of physical planning scenarios (Costanza and Ruth, 1998; Bousquet et al., 2004). The gradual shift from planning documents based on authoritarian or rationalistic models to mediation tools based on a democratic model (Chauvin, 2002) required the creation of new tools for the construction and sharing of information. A team of researchers from the Cirad, the INRA, the Cemagref and the CNRS thus developed a so-called “companion modeling” approach

making it possible to involve stakeholders in the definition of a sustainable territorial development project (www.commod.org). This method was tested with complex cases (natural spaces with multiple uses, biosphere reserves), or in situations of conflict (Opération Grand Site, urban-forest interfaces).

The final part of the approach is rooted in a debate conducted by the network of biosphere reserve coordinators concerning management policies for biosphere reserves, which resulted in the “Method for the elaboration of support guides for the management of French biosphere reserves” published by UNESCO (Bioret et al., 1998).

available knowledge on the site, the important stakeholders. During the construction of the project, at the time of periodic reviews, when it is felt that boundaries must be modified or that a new zoning plan, better adapted to current management issues is needed, or yet again prior to the writing of the management plan or policy required by the Statutory framework of the World Network, this approach makes it possible to give deeper content to the “perspectives” chapter. In the case of transboundary biosphere reserves, this method can foster greater integration and mutual understanding.

Last, this approach can also be useful on an ad hoc basis, in complex management situations (numerous stakeholders with contradictory agendas) or conflicts.

Depending on these various contexts, the method can be applied in different ways: either globally or partially, depending on the issue. In the case of conflicts or important management problems, computerized models can be added in order to establish scenarios, and possibly role-playing games, which we will not be addressed in this article.

Who launches the process?

The commissioners

In each situation, it is important to check the legitimacy of the body or person asking local stakeholders to participate in a construction exercise concerning collective issues. In biosphere reserves, the coordination structure seems to be in the best position to launch such a process. The invitation usually proceeds from the managing authority.

In the case of biosphere reserves in the making, the initiative can come from an administration, an NGO or from elected officials involved in the creation process.

In reserves which have existed for a long time, and which need wide-ranging changes and for which it is difficult to find a local leader willing to launch the review process, the MAB national Committee has legitimacy to initiate this process (Textbox n° 47).

Textbox n°47

The review of the Camargue Biosphere Reserve (FRANCE)

In 1977: The Camargue Biosphere Reserve was designated by Unesco. The area is a natural reserve of international interest for wetland conservation.

In 1995: it became evident that the biosphere reserve no longer met the criteria set during the Seville Conference. How could the necessary changes be brought to the reserve, given the fact that there was no identifiable leader? MAB France then decided to bring together the largest possible panel of stakeholders actively engaged on the biogeographical area of the Rhône delta: administrations of the two concerned regions and départements, mayors, socio-economic actors, researchers, NGOs. The committee proposed either a complete review of the biosphere reserve, or the withdrawal of the designation. The review of the biosphere reserve meant defining new boundaries that accounted for the Camargue ecosystem as a global entity, involving all local stakeholders, and identifying an appropriate coordination body.

A plenary meeting was organized to provide information on the process, launch a consultation and col-

lective debate, reaching out as widely as possible. A companion modeling approach was briefly conducted (it was impossible to mobilize participants for more than a half-day), which highlighted the diversity of points of view on local resources and interactions between stakeholders. The review project was approved by the participants, who designated a “hard core” of organizations in charge of elaborating the new biosphere reserve. They asked MAB France, which is neutral, to head the process and designated a “local secretary”, the Regional Natural Park of Camargue.

Frequent work sessions were held during a year and a half in order to gradually construct the biosphere reserve project thanks to debate and concertation, and to integrate into the process the Syndicat mixte de la Camargue Gardoise, located on the west bank of the Rhône river.

In 2006 : UNESCO officially recognized the Camargue Biosphere Reserve (Delta du Rhône), jointly coordinated by the Regional Natural Park and the Syndicat mixte de la Camargue Gardoise.

The group facilitators

In general, it is better if the persons who conduct the workshops are not involved in local activities, more specifically, are not concerned with the problem to be addressed.

The facilitators must be chosen for their aptitude and legitimacy in conducting debates during the co-construction process. They must thus have been trained in this approach. Their training can be taken care of by the MAB national committees, as in France and in Sweden. A team of at least two people is necessary, one person to conduct the debate and the second person as secretary and observer. Additional group facilitators may be necessary if the group is divided into subgroups.

The advantage of having a scientist as group facilitator is the fact that s/he is relatively independent, completely detached from local socio-economic concerns and can quickly master the companion tool. In this case, it is best to choose a scientist whose research field borders both the life sciences and the humanities, and who has had experience leading debates among researchers and managers. Mediators or public debate specialists can also play this role, as long as they are trained or knowledgeable on questions pertaining to territorial management, biodiversity and local development.

Discussions can be conducted by agents of the biosphere reserve or of the local authority, depending on the content of the issue to be discussed, since the facilitator must remain independent.

How to prepare the workshops

Clarify the issue to be discussed

The reason why these debates are organized must be clearly stated and must concern a clearly defined territory. The question to be addressed is formulated by the commissioner, in collaboration with the group facilitators.

Creating a relevant work group: identifying partners

The choice of partners can be based on many criteria. These are relatively variable; depending on the case and what the commissioners prefer, three types of situations are possible:

- Emphasis is put on a global view of the system: in this case, participants will be “technicians” whose local experience legitimates their being called on to speak on behalf of the stakeholders they see every day. It is important not to leave out an activity which a priori plays a determining role, and to avoid over-representation of one activity compared to others (for example, by inviting three forestry technicians because public forest, private forest and forest wildlife each depend on different organizations which are active on the territory).
- While maintaining a global view of the system, emphasis is put on the involvement of local stakeholders: in this case participants will be representatives

Textbox n°48

Facilitating the workshops

The role of the workshop facilitators is to be the group’s “hand”. The facilitator conducts the debate in such a way as to ensure that group members enjoy a real exchange and that they agree on the terms they use. The facilitator intervenes only when a proposal is formulated too generically, using terms which can have several meanings and/or lead to misunderstandings. For example, the term “manager” is too vague, and must always be refused and replaced by a more precise term defining the stakeholder. Similarly, the word “wood” means both “a place where trees grow” (the woods) and the material resulting from tree development”. But “woods” (first meaning) do not necessarily produce “wood” (in the sense of a resource used by someone).

The assistant observes the process and writes down what occurs during the session.

To ensure that each participant, regardless of social position, shyness, etc. can give his/her opinion, the group facilitator gives the floor to each of the participants in turn. This fosters equal access to speaking time. The first person to speak is never the same.

It is necessary to facilitate the involvement of each and every person in this co-construction process, in order to create a climate of trust, transparency and open debate. Diagrams, visible by all the participants and showing each of the proposals are constructed as the meeting goes along, either on a paperboard or on a computer with simultaneous projection (Power Point, for example).

of local stakeholders chosen for their legitimacy (they have been democratically elected) and the relevance of their activity to conservation and regional development.

- Emphasis is put on the involvement of local stakeholders, while remaining attentive to the diversity of the system: participants will then be chosen with respect to the diversity of their activities.

The list of workshop participants should logically be made up of members of management committees, in other words:

- representatives of various local/regional authorities (in France: communes (municipalities), groups of communes or agglomerations, conseil général, conseil régional);
- representatives of administrations (in charge of the environment and physical planning, agriculture, fishing and forests, public works, economic, industrial or cultural issues);
- representatives of public bodies in charge of managing land and biological resources (forests, water);
- representatives of associations (naturalists, hunters, fishermen, nature sportsmen, cultural heritage, etc.);
- representatives of socio-professional bodies (Chamber of Agriculture, Chamber of Commerce and Industry, Departmental Committee in charge of tourism);
- socio-economic actors (hotel and restaurant owners, farmers, fishermen, industrialists, artisans, small and medium-sized enterprises).

The role of researchers in the process is variable. Generally, scientists are selected on the basis of their knowledge of the main issues at hand on the given site. Some will be involved from the start, others may join the process later, if participants feel the need for additional expertise on a theme which is particularly important for the understanding of how the system works. Local “erudites” may also be asked to participate.

A compromise must be found between the necessity of ensuring that the main and most influential stakeholders of the biosphere reserve territory are represented, and the need to limit the number of participants, since too many participants can hamper the effectiveness of a meeting (thirty participants is probably the maximum).

How should the participants be invited to the workshops

The choice of place, duration and periodicity of the workshops depends on numerous external factors which should be carefully considered, in particular the avail-

ability and constraints of the persons one wishes to involve in the process.

Some basic principles should be observed:

- The meeting place should be easily accessible to the participants and as neutral as possible, unless clearly identified as the legitimate headquarters of the partner who is calling the meeting or raising the issue (for instance, the biosphere reserve headquarters).
- Each session should last at least 2 hours, and participants must remain focused on the collective exercise. The ideal solution is to organize the process over a period not exceeding one month. This can be in the form of a two-and-a-half-day workshop, or one day a week, or three day-long sessions with a ten-day interval in between each of them.
- The invitation should also be formulated in an attractive manner in order to avoid missing important partners.

The workshops

First stage:

sharing representations of the territory and understanding its dynamics

During this stage, the participants must identify together the territory's development potential. The latter depends partly on present resources and partly on stakeholders who play an important role in the given area. The ecological dynamics that contribute to the quantitative, qualitative and spatial evolution of certain resources are identified, as well as social dynamics. The interaction between stakeholders and resources is also discussed.

Participants are encouraged to respond collectively to a series of questions asked by the workshop facilitator.

QUESTION N°1: What are the territory's main resources and what is the information most necessary to ensure their sustainable use?

In this exercise, participants draw up a list of the territory's important resources (Figure 5), the word "resource" referring to any good or product used by a stakeholder.

The information pertaining to resources is tied to indicators that make it possible to quantify or qualify their value. Thus, several indicators may be relevant for a single resource. For example, many different indicators depending on different stakeholders present may refer to the forest: the number of cubic meters of wood produced per hectare (foresters), the number of game animals caught (hunters), the quality of silence (residents), the harmony of colors (tourists), etc.

If certain resources are temporary, it is necessary to specify their period of existence (season, good years) and/or their life span (life span of a building, time to silt up a pond). The resources which function as external variables but which are determining factors in the functioning of a system are also indicated (e.g. climate variations).

Last, the processes governing the main transformations undergone by these resources are also listed; these may be either natural or man-made.

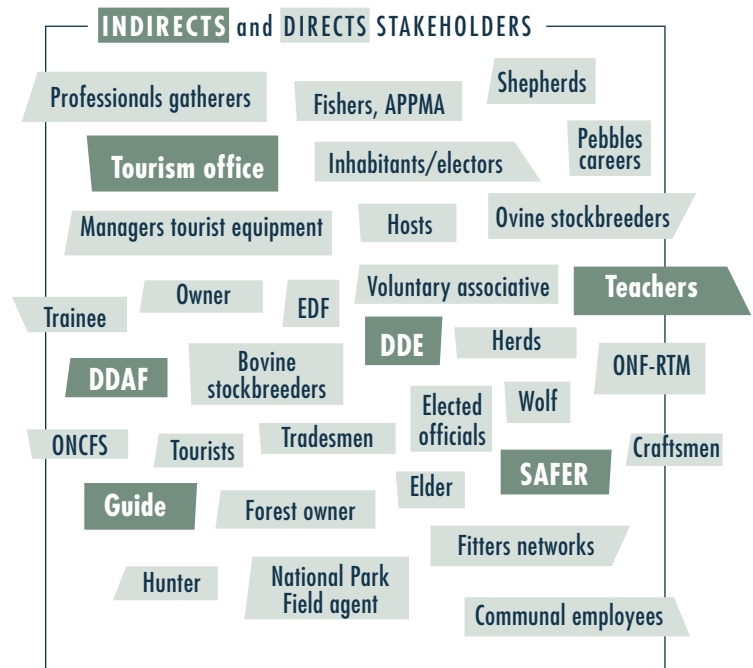
QUESTION N°2: Who are the main stakeholders who seem able to, or who should play a decisive role in the sustainable management of this territory?

The list of stakeholders who intervene on the site is drawn up, with a distinction between those whose practices have a direct impact on the dynamics of certain resources of the territory, and those whose action has an indirect impact (stakeholders who encourage the latter stakeholders to change their practices) (Figure 6).

Figure 5



Figure 6



ONCFS:	French Hunting and Wildlife Department (administration in charge of wildlife management)
EDF:	French National Electricity Company
ONF-RTM:	French National Department of Forests-Restoration of Mountain Land
DDAF:	French Departmental Office for Fishing and Forestry (Ministry of Agriculture)
SAFER:	Land Management and Rural Establishment Agencies
APPMA:	Fishing and Protection of Aquatic Environment Association
DDE:	French Departmental Office of Public Works (Ministry of Public Works)
PME:	Small and Medium-size Enterprises
PMI:	Small and Medium-size Industries

QUESTION N°3: How do the main stakeholders use the resources they wish to obtain?

In order to answer this question, one must identify the interactions between resources and the previously identified stakeholders, and these interactions must be described (Figure 7). With the help of the facilitator the participants draw arrows linking stakeholders and resources and formulate the verb describing the nature of the interaction.

When the diagrams are complex, the exercise should be divided into several phases.

There are two possible options:

1. If the issues have not been clearly defined beforehand, the facilitator can suggest regrouping resources per category (for instance: constructions, water, animal, plant, etc.), then make up work groups based on the three or four resources which seem most important to the participants. The next phase must then be devoted to sharing the work and establishing links between the different diagrams.
2. If specific issues appeared clearly during the discussions accompanying the co-construction phase, the facilitator will propose that the participants draw up an interaction diagram per issue. She/he must make sure the resources and stakeholders mentioned by the participants are linked to the issue being worked on, and if there is some doubt, ask the participants to clarify the link.

For example, concerning the extension of the Camargue Biosphere Reserve, the following issues were identified: agriculture, cattle-raising and water; tourism and leisure; interface between industrial zone and natural zone; real estate. A diagram was drawn for each “topic”, describing

the relations among the main stakeholders and main resources.

Second stage: identifying research and development priorities

For a biosphere reserve, better knowledge for better management means identifying gaps in knowledge concerning important management issues.

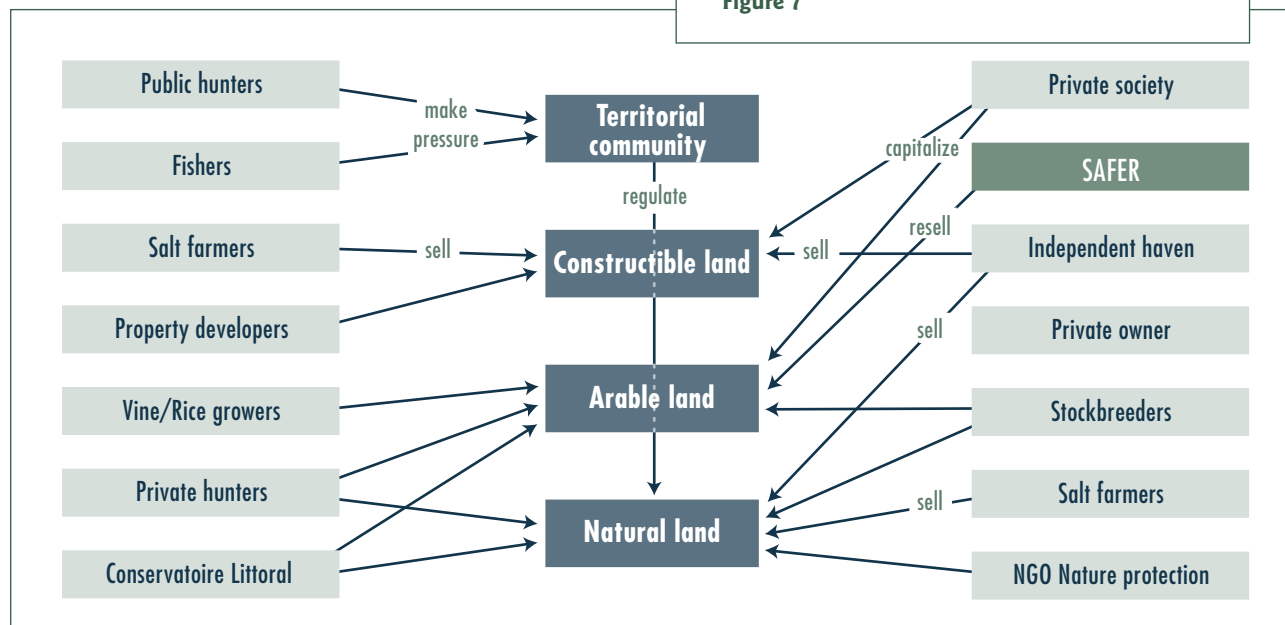
From the sustainable development viewpoint, some questions must necessarily be raised concerning the ecological, economic, social and cultural viability of the biosphere reserve's pattern of development. Do we have enough objective indicators enabling us to assess the situation?

The facilitator asks the participants to establish a list of all the activities that exist on the territory and to determine which part of the biosphere reserve is concerned. Either it concerns an area of the biosphere reserve, or a specific element: rivers, grottoes, etc. Their relative importance must be determined. Next, the ecological, economic, social and cultural impact of each of these activities is evaluated, as well as the level of scientific or empirical knowledge the participants have on this subject (see Table).

Third stage: construction of the biosphere reserve project

Once the issues and potential of territory have been clarified and shared by the various participants (who are all local stakeholders), one must imagine, together with the main stakeholders, the type of actions to be implemented so as to ensure the sustainable conservation of resources and development of the biosphere reserve.

Figure 7



Activities	Persons concerned	Area concerned	Ecological impact	Economic impact	Social impact	State of knowledge
<ul style="list-style-type: none"> ■ Draw up the list 	<ul style="list-style-type: none"> ■ Type ■ Number 	<ul style="list-style-type: none"> ■ Topical (describe) ■ Area (% of total) 	<ul style="list-style-type: none"> ■ Positive, negative, neutral ■ Low, medium, high ■ Increasing, decreasing (if necessary) ■ Describe if necessary ■ Do not know 	<ul style="list-style-type: none"> ■ Describe per type ■ Positive, negative, neutral ■ Low, medium, high ■ Increasing, decreasing (if necessary) ■ Do not know 	<ul style="list-style-type: none"> ■ Positive, negative, neutral ■ Low, medium, high ■ Increasing, decreasing (if necessary) ■ Describe if necessary ■ Do not know 	<ul style="list-style-type: none"> ■ Scientific, empirical ■ Nil, poor, middling, good, excellent

Crucial issues, which should be the priority focus of research and monitoring, should also be discussed, as well as educational, training and information policies.

The priority zones of intervention are determined, in terms of both conservation and development, requiring map work, following the zoning system specific to biosphere reserves.

Following the workshops designed for the collective elaboration of the major directions of the biosphere reserve project, thematic work groups are also organized. After discussion, a document is drawn up and written by the team in charge of coordinating the biosphere reserve, but other partners may also be involved. This document should be submitted for discussion to the main stakeholders, then formally approved by the local authorities and elected officials.

The document's final form is flexible, and can be adapted to diverse institutional situations; its life span is also variable. However, the latter must be determined within a span of ten years, corresponding to the periodicity of biosphere reserve reviews.

A few words concerning means

In order to implement this approach in a satisfactory way, the biosphere reserve must have sufficient human and financial resources. Indeed, these basic conditions are necessary in order to:

- ensure the visibility of its actions, by raising awareness and providing the necessary information to the population and socio-economic stakeholders;
- give sufficient legitimacy to its function as facilitator and coordinator, to its effort to decompartmentalize structures working in the same space, which requires considerable know-how;

■ ensure its political and technical ability to bring together local energies in a global territorial project, materialized thanks to a formally approved document, which guarantees the coherence of its actions. The constitution of a biosphere reserve requires a great deal of effort (organization and facilitation of meetings, negotiations with local, regional, national stakeholders), which is impossible to carry through without the necessary means.

Beyond financial issues, this effort requires trained staff, and the establishment of constructive ties with specialized organizations, including research organizations.




Bibliography

- Bioret, F. et al. 1995. Méthode d'élaboration de guides d'aide à la gestion pour les réserves de biosphère: application aux réserves de biosphère françaises. Dossier MAB 19. UNESCO, Paris.
- Chauvin C. 2002. L'aménagement, outil de suivi de gestion durable, *Ingénieries*, n° spécial Aménagement forestier, p. 29-34.
- Costanza R., Ruth M. 1998. Using dynamic modelling to scope environmental problems and build consensus. *Environmental Management*, 22, pp. 183-195.
- Etienne M., collectif ComMod. 2005. La modélisation comme outil d'accompagnement. *Natures, Sciences et Sociétés*, 16(2).
- Holling C. 1978. *Adaptive environmental assessment and management*, John Wiley, London.
- Walters C. 1986. *Adaptive management of renewable resources*, New York, McGraw Hill.

Chapter 5

The dialogue within the World Network



Since the adoption of the Seville Strategy and the Statutory Framework (UNESCO, 1996), dialogue and concertation have become the underlying principles of biosphere reserve creation and management. In order to implement these principles, stakeholders, in particular those in charge of coordinating and managing biosphere reserves, must develop new competences.

The Seville Strategy has thus urged stakeholders and institutions in charge of biosphere reserves, especially those created after 1995, to find new methods and test practices fostering dialogue, concertation, as well as conflict management and prevention.

The preceding chapters present some of the methods and practices of dialogue experimented in the World Network. The wealth of existing knowledge on dialogue far exceeds what has been reported here: many more approaches and experiences still deserve to be better known and shared.

Recognizing and building competence and capacity for dialogue

The World Network is a hotbed of local, individual and institutional talent and competence for dialogue. The implementation of the Seville Strategy has contributed to the emergence of dialogue and mediation experts.

In the field, by working towards achieving the ambitious goals of a biosphere reserve, many biosphere reserve managers and coordinators have become the principal dialogue facilitators on the site. Thanks to their extensive knowledge concerning land issues, some have become dialogue experts, creating links between decision-making bodies and local communities, external organizations (administrative, technical, financial) and management authorities.

The competence of these key stakeholders lies mainly in their personal qualities and their past experience in the biosphere reserve, conducting working groups, coordinating activities and managing conflicts among institutions and stakeholders.

Although many have never received formal training, for these stakeholders dialogue is an ongoing and daily process.

The role of dialogue facilitator appears more clearly through the term of “coordinator”, adopted by the participants of the EuroMAB Regional Network (EuroMAB, 2005). Indeed, the word highlights the nature of the task, which is to create links among the different stakeholders and areas of the biosphere reserve (issues tied to zonation).

However, beyond these personal competences, it is a fact that the roles and responsibilities of the stakeholders and institutions in charge of coordinating a biosphere reserve still remain to be clearly defined when coordinating and conducting dialogue on the territorial level, and when mediation is required in case of conflict and decision-making difficulties.

Since Seville, stakeholders in charge of biosphere reserves have been facing higher expectations in matters of dialogue and concertation. These new expectations have to be clearly explained in order to ensure better participation and concertation, particularly in the biosphere reserves created before the Seville Strategy. For example, foresters trained to protect a given space or resource from all forms of human development (considered a pressure) and to use force if necessary were expected to begin negotiating, without having been trained, with local communities which for years had been barred from conducting activities on that site.

This change of perspective on the vision of a biosphere reserve according to the criteria of the Statutory Framework has led to a change in the roles, functions and responsibilities of the stakeholders and authorities in charge of managing the area. On one hand these changes made possible the emergence of genuine talents for dialogue and on the other hand they revealed the crucial need to develop individual and organizational capacities for dialogue and concertation.

Some countries have devoted a great deal of energy to building local and national capacities in matters of conflict prevention and management for the different categories of stakeholders working in a biosphere reserve (managers, local communities, institutions, decision-makers, etc.). Workshops and training programmes have been set up to meet their needs.

A biosphere reserve thrives on the pooled competences of such stakeholders in matters of biodiversity, education, area management, facilitating and negotiating. They represent the indispensable link between institutions and groups which do not share the same objectives or perception on land issues. These stakeholders have earned a solid reputation thanks to their work, their talent for mediation, their knowledge.

The skill and competences of these dialogue experts must be given greater recognition within the World Network. They are an asset for the countries and for the World Network, which should be shared with the rest of the world.

The emergence of dialogue skills within the biosphere reserves has gone along with an increase in knowledge

as a result of dialogue among researchers from different disciplines and managers¹ of biosphere reserves.

Knowledge gained from adaptive co-management to be shared

The adaptive² management approach implemented in biosphere reserves favours learning processes related to interactions between social dynamics and ecological dynamics. The biosphere reserve's function as logistical support (learning function) fosters first and foremost the collaboration of scientists from different disciplines. Given the objective of sustainable development, the promotion of a "science of sustainability"³ requires that researchers working in different disciplines be given the means to collaborate. Interdisciplinarity — a productive and complex approach — requires genuine openness and willingness to exchange among participants in view of collective achievements. Robert Barbault (2006) identifies three levels of interdisciplinarity: a) interdisciplinarity among biologists, b) interdisciplinarity among all the disciplines belonging to the life sciences; c) interdisciplinarity between the life sciences and the humanities and social sciences.

This interdisciplinary work is a "genuine social process which involves:

- applying rules that facilitate collective work and regulate power relationships based on specific statuses and asymmetrical information;
- using mediation tools facilitating negotiation and leading to the creation of a common language to deal with the given issue;
- the existence of a facilitator-mediator, considered legitimate by all parties concerned and who will ensure "efficiency" and "fairness" by enforcing the basic rules underlying the process". (Levrel, H. 2007)

The application of the interdisciplinary approach is based on the same principle as that previously mentioned concerning the creation and management of a biosphere reserve: the existence of a genuine dialogue process among disciplines making it possible to work together on the same issues.

This interdisciplinary approach is an asset of biosphere reserves. This asset is further strengthened by the existence at UNESCO of numerous international scientific programmes fostering this necessary interdisciplinarity: in addition to the MAB Programme on Man and the Biosphere, the international hydrological Programme (IHP), the Intergovernmental Oceanographic Commission (IOC), the Programme for the Management of Social Transformations (MOST), the International Geo-

science Programme (IGCP), the International Basic Sciences Programme (IBSP). Some biosphere reserves, as in Canada, have become a showcase for interdisciplinarity by mobilizing researchers from these different intergovernmental programmes to work together for sustainable development.

Interdisciplinarity and dialogue are necessary conditions for biosphere reserves to become exemplary platforms of dialogue. It is also important to establish lasting relationships among researchers and managers of the biosphere reserve. This is the main foundation of adaptive management, which means "sharing knowledge and power" (Levrel, op.cit.). This co-management takes into account the diversity of stakeholders, of their points of view, their knowledge and know-how.

Co-management reinforces ties between the spheres of research and those of local ecosystem management and planning. Indeed, social interactions are most intense on the local level, and this makes it possible to launch a process of dialogue, concertation and negotiation based on stakeholders, stakeholder networks, organizations and institutions. Co-management at that level makes it possible to mobilize significant social resources and institutional cooperation systems, bringing together local stakeholders to work on common issues, as advocated by the MAB programme according to the ecosystemic approach.


Several observations drawn from the examples and practices described in this document deserve to be further studied and analysed in the World Network:

- Biosphere reserves make it possible to observe the rules of access to and use of resources among stakeholders over the long term, and facilitate exchanges and dialogue among institutions and networks of stakeholders for the implementation of adaptive co-management.
- Owing to their socioeconomic and cultural diversity, biosphere reserves are sources of knowledge, creativity and innovation, are able to provide a wide range of responses, and of adapting to change. Biosphere reserves represent a permanent and dynamic source of dialogue among stakeholders, a place where knowledge is recognized and can be improved over time in the context of the different events that occur

1. Managers in the widest sense of the term, as defined in chapter 1.

2. Adaptive management is a form of interactive management based on the idea that the practice of management should be seen as belonging to an iterative and continuous process of experimentation, based on the cooperation of decision-makers, scientists and managers (Folke, 2003, Olsson et al, 2004; Levrel, 2007).

3. Term created by the National Research Council, quoted by Levrel, H. 2007. See <http://www.sustainabilityscience.org>



during the life of a biosphere reserve. This sum of experience must be shared thanks to the networks of stakeholders and institutions.

- Biosphere reserves foster exchanges among scientists and holders of local knowledge, thus encouraging knowledge sharing, the co-construction of common references, a common learning process and the integration of this combined knowledge in the social institutions in charge of managing and coordinating the site.
- In biosphere reserves, cooperation and dialogue are legitimate sources of learning in order to better understand man-nature interaction, improve collective information, improve the management of ecosystems and biodiversity, and consequently better cope with uncertainty and change.

In order for biosphere reserves to become excellence centres of dialogue and co-construction of collective knowledge, the principles and values of equity and justice must evidently come first: exchange and dialogue must be open, the access to information and the sharing of knowledge and its uses must be reciprocal.

A goal for the World Network: communicating and transmitting knowledge

Biosphere reserves are dynamic forums where one can experiment and learn, communicate and transmit knowledge.

The studies conducted in the framework of the research and training programme on dialogue and concertation (Beuret 2006a; Bouamrane, 2006, Boureima, 2007; Deldicque, 2007; Levrel et al., 2006, Etienne, 2006), which described the itineraries of several biosphere reserves, revealed the existence of networks of remarkable men and women. These stakeholders initiate, pursue and transmit actions and words, dialogue and concertation practices in various and unique contexts. Observing and studying these practices, experiences, relationships allows us to uncover a wide variety of ways of saying and doing dialogue in biosphere reserves.

This note is a contribution to the recognition of the plurality of dialogue practices and talents within the World Network. In addition to describing the problems met in the field by stakeholders working on the implementation of the recommendations of the Seville Strategy, thanks to specific examples, it pays tribute to the creativity and capacity for innovation shown by stakeholders and institutions facing difficult challenges.

The concrete aspects of the approaches presented here play an important part in the social construction of standards, principles and social networks in biosphere

reserves, without which knowledge cannot be communicated and transmitted.

Exchanges and dialogue trigger interest in other dialogue practices and cultures in the World Network. Biosphere reserves are dynamic sources of knowledge on the environment and the world, and it is crucial that this knowledge be better transmitted. The World Network is an encyclopedia of specific and local knowledge linked to universal knowledge, in all times and all places.

UNESCO's role, and more specifically that of the MAB programme is to develop concrete ways and means to record the practices of biosphere reserves, their productions, the transmission of knowledge, by comparing approaches and calling for the participation of different disciplines and scientific programmes, and by mobilizing the stakeholders.

In this way will the Biosphere Reserves of the World Network earn recognition and renown as laboratories for sustainable development. ■ ■ ■

Bibliography

- Barbault, R. 2006. Chercheurs, gestionnaires et autres acteurs de la biodiversité: des partenariats à construire. Bouamrane, M. (ed). Biodiversité et acteurs. Des itinéraires de concertation. *Réserves de biosphère. Notes techniques 1*. UNESCO, Paris.
- Carpenter, S.R. and C. Folke. 2006. Ecology for transformation. *Trends in Ecology and Evolution*.
- Folke, C. 2003. Social-ecological resilience and behavioural responses. Biel A., Hanson, B. Martensson, M. (eds). *Individual and structural determinants of environmental practice*. Ashgate Publishers, London: 226-242.
- German Commission for UNESCO. 2006. Strengthening cooperation between national commissions for UNESCO and International/intergovernmental scientific programmes. Framework Action Plan of the workshop in Berlin, 30 January-1 February 2006.
- Etienne, M., Le Page C., Cohen, M. 2003. Role-Playing Games, Models and Negotiation Processes : part I. *A step-by-step Approach to building Land Management Scenarios Based on Multiple Viewpoints on Multi-agent system simulations*. JASSS (6) issue 2.
- EuroMAB Austria 2005 - Meeting of the EuroMAB Biosphere Reserve Coordinators and Managers; Proceedings, Hernstein (Austria), 25-30 October 2005/ http://hw.oeaw.ac.at/euromab_austria_2005inhalt?frames=yes
- Levrel, H. et al. 2006. Co-construction dans six réserves de biosphère d'Afrique de l'Ouest : à la recherche d'indicateurs d'interactions pour gérer la biodiversité. Bouamrane, M. (ed). Biodiversité et acteurs. Des itinéraires de concertation. *Réserves de biosphère. Notes techniques 1*. UNESCO, Paris.
- Levrel, H. 2007. Quels indicateurs pour la gestion de la biodiversité. Les cahiers de l'IFB. IFB, Paris.
- Olsson P, Folke C., Berkes, F. 2004. Adaptive co-management for building resilience in social-ecological systems. *Environment management* (34): 75-90.

Dialogue in the Seville Strategy (UNESCO, 1996)

Goal II: Utilize biosphere reserves as models of land management and of approaches to sustainable development

- II.1:** Secure the support and involvement of local people
- II.1.1. Prepare guidelines for key aspects of biosphere reserve management, including the resolution of conflicts, provision of local benefits, and involvement of stakeholders in decision-making and in responsibility for management.
 - II.1.4 Identify and promote the establishment of activities compatible with the goals of conservation, through the transfer of appropriate technologies which include traditional knowledge, and which promote sustainable development in the buffer and transition zones.
 - II.1.5. Survey the interests of the various stakeholders and fully involve them in planning and decision-making regarding the management and use of the reserve.
- II.2:** Ensure better harmonization and interaction among the different biosphere reserve zones
- II.2.4. Establish a local consultative framework in which the reserve's economic and social stakeholders are represented, including the full range of interests (e.g. agriculture, forestry, hunting and extracting, water and energy supply, fisheries, tourism, recreation, research).

Goal IV: Implement the biosphere reserve concept

- IV.1:** Integrate the functions of biosphere reserves
- IV.1.5 Prepare guidance on management issues at biosphere reserve sites, including, inter alia, methods to ensure local participation, case studies of various management options and techniques of conflict resolution.

Annex 2: Other practices in biosphere reserves

Chapter 1

Creation itinerary of the Cape West Coast Biosphere Reserve (SOUTH AFRICA)

The creation of a biosphere reserve for the *West Coast* was first proposed in the context of the 1995 *West Coast Subregional Structure Plan*. Following a feasibility study, the provincial cabinet approved the idea in 1996, on condition that *Cape Nature Conservation* and the *West Coast District Council* evaluate its viability.

The dialogue leading to the creation of the Cape West Coast Biosphere Reserve was thus initiated. The different stages of the process involved:

- A review of the process, for the purpose of reaching a preliminary agreement on how the process was to be conducted, and to ensure that it followed the recommendations of the provincial government, the appropriate committees and UNESCO.
- Communication of information through various means:
 - A brochure describing the biosphere reserve concept, its main functions and advantages as well as the West Coast Biosphere Reserve project. 14,000 brochures were distributed and the project was posted on the website devoted to South Africa's environmental projects.
 - Information published in various newspapers, as well as the quarterly newsletter of the West Coast District Council.
 - Posters during local events.
 - Three editions of the "bio-bulletin" providing information for communities, and sent by mail to all the concerned stakeholders.
 - Letters sent to government departments on the national and local levels.
 - Presentations made for various organizations.
- Establishment of a framework: workshops were organized, during which the problems and concerns linked to the creation of the biosphere reserve were identified. A data base grouping together the various points of view was set up.
- Creation of a management committee in 1998-1999:
 - In June 1998, the Mamre meeting elected a temporary committee made up of members belonging to the local community;
 - In July 1998, the temporary committee set up three work groups: Management, Public Participation and Constitutional. A plan for public participation was carried out, with information published in local and provincial newspapers, posters, and the mailing of over 1,000 personal invitations to attend the next meeting to be held

in Darling. A management plan and a constitution were also prepared for discussion at the Darling meeting.

- In 1999, two meetings were organized in Darling. The statutes of the management committee were approved and eleven representatives of the different sectors were elected: Landowners/Renters' associations, Industry, Local communities/NGOs/Community based organisations, local, provincial and national authorities, Agriculture, Tourism, Environment, para-state institutions.
- The management committee became a non-profit organization (*a Section 21 Company*)

A biosphere reserve itinerary born from a conflict: the case of the Green Belt of São Paulo (BRAZIL)

In the 1970s, a project to build a circular highway around São Paulo led to strong opposition among civil society. The opponents regrouped, especially in the north of São Paulo, and several NGOs and local leaders began to emerge. This force of opposition became a force of proposition with the move to create a biosphere reserve in this zone, which coincides with the green belt of São Paulo. The opponents to the highway project wrote a petition, signed by 150,000 people, demanding that the circular highway project be stopped and a biosphere reserve created instead.

Three years later, the opposition movement submitted a project for the creation of a biosphere reserve to the Forest Institute. The Institute agreed to back the project. One of the movement's leaders was also in charge of the Forest Institute and served as a go-between. At the same time, another project for a larger biosphere reserve which included São Paulo (the Mata Atlântica project) was under way. After discussion, both projects were maintained and linked together. The São Paulo green belt (and the Mata Atlântica) project joined the World Network of Biosphere Reserves in 1993. A common structure housed the operational teams of these two biosphere reserves.

In 1995, the Biosphere Reserve organized a workshop with the stakeholders on the following issue: "What are we going to do in the biosphere reserve, now that it has been recognized by UNESCO?" A study group created upon completion of the workshop suggested a management system for the reserve. A council was planned but not immediately implemented due to São Paulo State authorities' lack of interest in the Biosphere Reserve.

In 2000, a new law on protected areas specified the category of "biosphere reserves" and stipulated the creation of a council in each biosphere reserve. In 2004, the council of the Biosphere

Reserve of the Green Belt of São Paulo was set up. One of its tasks was to draw up the management plan.

The Sierra Gorda Biosphere Reserve (MEXICO), born from a local initiative

In the early 1980s, Martha Ruiz Corzo moved to the Sierra Gorda with her husband, who was born there, and their two children, in search of a simpler lifestyle. In order to counter the increasing deterioration of the environment of the Sierra Gorda (deforestation, waste), with her husband and a few friends she created the “Ecological Group of Sierra Gorda”. In the beginning, they carried out environmental awareness-raising campaigns in schools and among farmers, as well as tree plantations. The results of the awareness-raising campaigns were promising: the inhabitants of the Sierra Gorda began to make ovens that used less firewood, reforested mountains that had been increasingly used as pasture land, sorted the waste, ... Martha Ruiz Corzo then pursued her work with local and national authorities. She launched a one-hour weekly radio programme discussing environmental problems. Under the pressure of civil society, the first Mexican Biosphere Reserve was created in 1997 and Martha Ruiz Corzo became its director. The biosphere reserve was designated by UNESCO in 2001. Today, large forest areas have been restored and wildlife is thriving (for instance, jaguar and deer populations have increased).

The itinerary creation of the Waterberg Biosphere Reserve (SOUTH AFRICA)

The Waterberg Biosphere Reserve was created over a period of three years (1996-1999), during which more than forty formal meetings took place, as well as numerous informal meetings and exchanges involving all the stakeholders concerned: political authorities on different levels (national, provincial, local), local and native communities, nature conservation NGOs, landowners, etc.

The creation itinerary can be divided into six stages, even though some were conducted simultaneously.

- Collection of information (14 months): a proposal to determine the limits of the biosphere reserve, identification of key stakeholders, collection of bio-geographic data and socio-ecological study of the area, identification of ongoing activities corresponding to the biosphere reserve function.
- Setting up an educational / information programme about the biosphere reserve concept (8 months).
- Creation of a coordination committee of the biosphere reserve, with the participation of key actors.
- The biosphere reserve nomination process (6 months): finalizing legal aspects, zoning, identification of the actions to be implemented in each of the zones (core, buffer, transition areas), obtaining the agreement of all key stakeholders for the implementation of the biosphere reserve, as well as their commitment to participating in its management.

- Obtaining the support of local and provincial authorities (2 months);
- Carrying out the final proposal of the Waterberg Biosphere Reserve (24 months): evaluation the different stages of the creation process, using UNESCO indicators to improve the biosphere reserve proposal, writing the designation proposal.

Men and women: perceptions and aspirations which can be different at times and which must be taken into account: the case of Nanda Devi (INDIA)

A survey conducted in the Nanda Devi Biosphere Reserve (India), by Rao et al. (2000), has shown notable differences in the perceptions and aspirations of men and women. The answers indicate that men are more concerned with economic opportunities, and women with living conditions.

For example, to the question: “In the Biosphere Reserve of Nanda Devi, if nature were endangered by the lifestyle of residents living on the periphery of the core area and it were necessary to take measures to ensure its protection, would you agree with the following proposal(s)?

- the expropriation of farms and animals at a price higher than the market price, so that residents could gradually change their occupations;
- exchanging farms for good farmland located in areas more distant from the core area.

About two thirds of the men agreed with both proposals whereas 81% of the women were opposed to the first proposal and 62% to the second.

Revolving coordination in the Rhön Biosphere Reserve (GERMANY)

The Rhön Biosphere Reserve was created between 1989 and 1991 and reflects the political history of Germany and the different approaches towards biodiversity conservation and sustainable development in East and West Germany. This biosphere reserve lies across three länder: Hesse, Bavaria (former FRG) and Thuringe (former GDR). This historical division of the Rhön mountains into three sovereignties has had a considerable influence on the culture and landscape of the area. Despite these differences, the fact that common issues and problems have arisen concerning the management of this biogeographical area led to the creation of this biosphere reserve.

The joint management plan does not call for the creation of a central management unit but rather a decentralized form of management, with units in each länder. The coordination of the biosphere reserve is managed by each länder in turn for a term of five years.

The creation of a coordination committee at the Waterberg Biosphere Reserve (SOUTH AFRICA) as a result of dialogue

The coordination committee of the Waterberg Biosphere Reserve was created after a participatory process of two years. It brings together the representatives of key stakeholders participating in the management of the area. It was deliberately restricted to few members (less than 20) in order to facilitate decision-making and the implementation of objectives (other stakeholders participate in the different technical committees). In 1998, the coordination committee was made up of:

- State representatives: two representatives of the Ministry of the Territory, of Agriculture and the Environment;
- Local authorities: one representative of each of the four local transition councils, one representative of the traditional chiefs, two representatives of the villages of Bakenberg and Koedoesrand/Rebone;
- Representatives of project operators (e.g. the Wilderness Trust);
- Representatives of existing protected areas in the core area: two representatives of the management committee of the Masebe Natural Reserve, one representative of the Marakele National Park;
- Representatives of the private sector: two representatives of a nature conservation NGO, two representatives of the agricultural sector, one representative of the tourism sector.

The creation of the Transboundary Biosphere Reserve of Pfälzerwald/ Vosges du Nord (GERMANY/FRANCE): moving closer together

The Transboundary Biosphere Reserve of Pfälzerwald/Vosges du Nord was created in 1998. Both territories had previously cooperated in environmental protection actions. Here is a brief history of this cooperation:

In 1985, the *Parc Naturel Régional* (PNR) of the Vosges du Nord and the *Verein Naturpark Pfälzerwald* began to launch joint actions: comparison of their ecosystems, construction of a Geographic Information System, promotion of sustainable tourism, publication of brochures.

In 1989, the Vosges du Nord Regional Park became a biosphere reserve. The creation of a Franco-German Transboundary Biosphere Reserve was already under consideration at that time: *"A recommendation has been made and supported to promote the creation of transboundary biosphere reserves in Europe. The Vosges du Nord Biosphere Reserve could qualify if the Palatinate Forest Nature Park in West Germany also becomes a biosphere reserve"*, Gilbert Long, president of the MAB France committee (*Dernière Nouvelles d'Alsace*, June 17, 1989).

In 1992, the *Verein NaturPark Pfälzerwald* (a Platinate Forest Nature Park) became part of the World Network of Biosphere Reserves; this created favourable conditions for increased collaboration.

In 1996, both biosphere reserves moved still closer with the signature of a "memorandum of understanding" setting the goals of a transboundary biosphere reserve. The memorandum aims to progressively integrate the policies of both biosphere reserves, particularly in the following realms:

- knowledge, protection and promotion of cultural and built heritage (thanks to a common Geographical Information System);
- coordinating the development of both natural parks for the purpose of coherence;
- natural area management;
- the promotion of sustainable development methods, especially for agriculture and tourism;
- the development of the eco-citizenship of local populations and visitors, thanks to environmental awareness and education campaigns.

A coordination committee was created, made up of:

- the presidents of the Vosges du Nord PNR and the Verein NaturPark Pfälzerwald,
- three delegates from each of these structures,
- regional representatives of both countries,
- presidents and vice-presidents of the scientific council of the biosphere reserve, in an advisory capacity.

The setting-up of a scientific advisory committee, composed of representatives of each biosphere reserve is planned. In 1998, the Transboundary Biosphere Reserve Pfälzerwald/Vosges du Nord was approved by UNESCO after a long cooperation and dialogue itinerary.

The Wood Forum, a forum for dialogue among stakeholders in the Entlebuch Biosphere Reserve (SWITZERLAND)

The wood forum, launched in 2000, has become an active association in the biosphere reserve, bringing together over one hundred local stakeholders involved in the "wood" resource cycle: forest landowners, farmers, companies, municipalities, ... The aim is to promote the sustainable use of wood as a construction material or source of energy.

The creation of an intercommunal structure as an outcome of dialogue in the Cévennes Biosphere Reserve (FRANCE)

The Cévennes Biosphere Reserve was created in 1984 on the basis of the Cévennes National Park. This creation went unnoticed by local stakeholders, in particular the local population, due to the absence of dialogue. In 1991, the management structure of the Biosphere Reserve (National Park agents) proposed to five *communes* (municipalities) of the Vallée du Galeizon, a small river basin on the edge of the biosphere reserve, to begin a discussion concerning the future of this area, which has a strong cultural identity. For the management structure, the Vallée du

Galeizon represents a pilot site “for the implementation of the principles of the MAB programme”. The local representatives decided to seize this opportunity to instill new dynamism into their territory, insisting on the fact that the project must lead to a programme of concrete activities and on the necessity of a participatory approach. The dialogue process then began with several public meetings and the creation of four work groups (agriculture and forestry, tourism and heritage, architecture and landscape, jobs and services) bringing together elected representatives of the five *communes*, the associations of the valley and the representatives of the main administrations or organizations concerned. Supplementary studies were also conducted thanks to funding from the Ministry of the Environment and the MAB France committee. These two years of concertation led to the elaboration of an “action plan for the conservation and development of the Vallée du Galeizon”. The three main orientations of the plan are the preservation and development of the life of the *communes*, improved area management, and promotion of natural resources and heritage. The elected representatives’ determination to implement this plan concretely led to the creation of an intercommunal structure, the “*Syndicat Intercommunal pour l’Aménagement et la Conservation de la Vallée de Galeizon (SIACVG)*” (Intercommunal syndicate for the planning and conservation of the Galeizon Valley”), with the technical support of the management structure of the Cévennes Biosphere Reserve.

CHAPTER 2

The search for “mixed” forestry technologies in the Manicouagan-Uapishka Biosphere Reserve (CANADA)

A good example of a conservation/development link which can serve as a basis for dialogue is the collaboration of this biosphere reserve with a forestry company to conduct research on technologies ensuring economic profitability while limiting negative impacts on landscape.

The attribution of forest concessions to local communities or businesses in the Maya Biosphere Reserve (GUATEMALA)

At the time of the creation of the Maya Biosphere Reserve in 1990, the local communities living in the forest organized the Association of Forest Communities of Peten (AFOCOP) in order to defend their interests. After a negotiation process that lasted several years, the first forest concessions were granted them in 1994, and given the positive results, the process was given additional impetus as of 1997.

Today, most of the buffer zone is managed in the framework of these concessions, granted to 14 communities and two businesses (for a duration of 20 years). The grantees must ensure the

maintenance of the external limit of the plot, prevent the invasion of the concession by groups searching for land, and ensure control and surveillance as concerns forest fires, illicit firewood gathering, poaching and the deterioration of resources.

Furthermore, the concessions are certified by an independent international body on the basis of their respect for sustainable forestry practices.

This institutional rearrangement has fostered a better conservation of the forest environment, thanks to the participation of the local communities.

The “snowball effect” of dialogue in the Lac Saint-Pierre Biosphere Reserve (CANADA)

Since the 1980s, and even more so with the creation of the biosphere reserve in 2000, dialogue has become an important part in the launching of initiatives and projects within the site of the Lac Saint-Pierre. People have understood that “talking to each other leads to wonderful things”¹. Given the biosphere reserve’s significant role in the creation of this “environment of dialogue”², it has become a central interlocutor for all the other stakeholders of the site. For example, it was consulted on a project to enlarge the port and on a dredging project, by the projects’ advocates themselves and on their initiative. Dialogue made it possible to establish a climate of trust within the biosphere reserve.

1 et 2. Normand Garriepy

The “eco-training” programme in the Green Belt of São Paulo Biosphere Reserve: support for the birth of local initiatives (BRAZIL)

In 1994, a programme to train young people for activities linked to sustainable development was initiated in the São Paulo Biosphere Reserve. Having begun with a pilot project conducted in San Roque in 1996, the programme now has twelve eco-training centres coordinated by a biosphere reserve agent. These centres are located in poor neighbourhoods of the participating cities and provide an opportunity for young people to develop a competence in the field of sustainable development. The training programme, which lasts two years, covers many themes: ecotourism, environmental education, ecological agriculture, waste management, etc. The training curriculum takes place in four stages:

- ten weeks of general training involving classes, workshops, exchanges;
 - a project designed to make the trainee apply the knowledge and competence learned;
 - at this point, the newly trained young person becomes a trainer for the next class and for a varied public;
 - Finally, the trainee is put in charge of coordinating projects.
- This pedagogical approach is user-friendly; it encourages self-reliance and a sense of responsibility and thus gives the young trainees confidence in themselves and in their abilities.

Other organisations were then created in order to enable the trainees to turn their “eco-training” into “eco-jobs”. Thus, for example, the eco-training centre of Santos created an NGO, jointly managed by the trainees and by technicians, which aims to develop projects requiring eco-jobs or facilitating the emergence of such jobs. Training programmes for business creation and management are also provided in the biosphere reserve: an eco-tourism agency was set up by young people trained in an eco-training centre in San Bernardo.

Conservation through the sustainable development of local communities in the Dana Biosphere Reserve (JORDAN)

This biosphere reserve is home to several hundred persons belonging to sedentary or nomad groups that are partially or entirely dependent on the resources of the area, in particular sheep and goat pastures.

In order to ensure both the conservation of biodiversity (by limiting overpasturing) and the improvement of the living conditions of the local communities, the management structure of the Dana Biosphere Reserve, the NGO Royal Society for the Conservation of Nature (RSCN) has thus worked (thanks to a project financed by the GEF) in collaboration with various stakeholders (local communities, public services, tourism sector, scientists, ...) on the creation of income through the alternative and sustainable use of resources and space: production and marketing of dried fruit, culture of medicinal plants, arts and crafts.

A geographic brand name “Wadi Dana” was also created. Its slogan: “help nature, help the population” reflects the wish to integrate the conservation and sustainable development functions of the biosphere reserve.

These different forms of cooperation with local communities have led to a more positive perception of the biosphere reserve on their part.

The Lapalala school of nature, an environmental education centre in the Waterberg Biosphere Reserve (SOUTH AFRICA)

The school was set up by the *Wilderness Trust* and aims to develop awareness and knowledge of the natural environment and biodiversity, as well as of the relations between our lifestyles (social, political and economic environment) and natural milieu (biophysical environment). Numerous activities are proposed, such as nature interpretation walks, studies of water, land erosion, discovery of the lifestyles of the Pedi and San people, wild-life observation sessions, ... Since 1985, 3,000 children have attended these courses.

The “ecological schools” of the Pfälzerwald Biosphere Reserve (GERMANY)

In the Pfälzerwald Biosphere reserve, several schools (Bad, Landau, Dürkheim) were given the “ecological school” label, due to the significant efforts made to teach ecological notions and respect for the environment.

The transboundary farmer markets organized by the Pfälzerwald/Vosges du Nord Biosphere Reserve (GERMANY/FRANCE)

Since 1999, the Pfälzerwald/Vosges du Nord Biosphere Reserve has organized markets where both French and German producers can sell their products. The aim of these markets is to promote authentic fresh food products, made in a quality environment, in an artisanal fashion and respecting the environment.

Environmental education and awareness-raising activities in the Rhön Biosphere Reserve (GERMANY)

Efforts have focused on the local population and on tourists, with a communication policy associating historical, landscape, cultural and ecological aspects, along with local identity: the aim is to “fuel enthusiasm for the future of rural areas”. A work group bringing together members from the three Länder belonging to the biosphere reserve was set up in 1994, in order to coordinate environmental education projects and organize joint operations.

The means available to achieve these projects vary. In the Bavarian part, for example, environmental education was entrusted to an association and the cost is shared between the Länder and the local authorities.

Numerous activities are offered, such as aromatic plant discovery walks, local history discovery itineraries, fruit tree pruning races, bat observation sessions, visits of sheep farms.

The identification of eco-functional zones in six biosphere reserves of WEST AFRICA

In the framework of the UNESCO-MAB/UNEP-GEF programme on “Building Scientific and Technical Capacity for Effective Management and Sustainable Use of Dryland Biodiversity in West African Biosphere Reserves”, a project to identify eco-functional areas was carried out in six biosphere reserves of West Africa. The eco-functional network is by definition “a group of villages and plots of land whose relations are governed by the existence of common natural resources (pastoral, agricultural, hunting and fishing).”

The eco-functional network approach is rooted in the assumption that the management of a natural resource based on the common interest of the stakeholders and villages ensures the viability of this resource, and better still its “appropriation” by the local communities. In addition, this makes it possible to gather information on “homogenous” areas where development and management rules are established on consensus, taking into

account basic territorial rationales and the requirements of current legislation”.

Using legislation to encourage the participation of powerful economic stakeholders in dialogue: the case of the Manicouagan-Uapishka Biosphere Reserve (CANADA)

Contacts with the forestry industries were established on the basis of existing legal regulations, whereby forestry enterprises must respond to the concerns raised by a group of citizens. The coordinators of the biosphere reserve used this avenue to raise the issue of landscape, and then offered to collaborate. Using a legal framework can indeed encourage stakeholders to accept dialogue.

A participatory project for the conservation and rehabilitation of the tropical forest of the Xishuangbanna Biosphere Reserve (CHINA)

A conservation project for the tropical forest of the Xishuangbanna Biosphere Reserve was implemented with the support of the German governmental agency GTZ (Technical Cooperation for Development). One of this project's main objectives is the planning of land use for local communities. This planning should make it possible to improve understanding of sustainable resource use, help clarify long-term natural resource management objectives and facilitate the sustainable use of natural resources on the scale of the village. This process took place in several stages:

- Analysis of the present situation of the village, definition of expectations in terms of development.
- Drawing up of a development plan and application procedures.
- Identification of necessary inputs.
- Determining present state of resources, advantages, technical capacity, human resources and how much external aid is needed.
- Linking up planned activities with objectives, within the specific context of the village.

Another objective is to reinforce the organization of village committees, in order to facilitate communication between villagers concerning rules for the use and management of natural resources. Other phases also aim to help villagers improve their living and working conditions and help them set up participatory biodiversity monitoring.

The implementation of a monitoring and evaluation system in the Sierra Nevada de Santa Marta Biosphere Reserve (COLOMBIA)

A monitoring and evaluation system was implemented in the framework of the Sierra Nevada Learning and Innovation for Sustainable Development Project, conducted by the NGO *Fundación Pro-Sierra Nevada de Santa Marta*. Thanks to this system,

the NGO and local communities are able to assess the present situation and redirect their actions if necessary. According to the NGO, “the participatory process for sustainable development enables the communities to monitor changes that have occurred on their land thanks to agreements, and to evaluate the impact of these changes on their organization and structures”.

Sustainable management thanks to the recognition of community rights in the Nanda Devi Biosphere Reserve (INDIA)

In Bundyar, a village of the Nanda Devi Biosphere Reserve, trekking activities and the numerous Hindu pilgrims who come to Nanda Devi exert a great deal of pressure on the natural environment: each year, 500,000 people cross the village using the only existing pathway. Taxes are levied on associated services (housing, shops, mule rentals), but the money goes to a higher management level and is not reinvested in the area. As a result the site is poorly maintained.

In 2003, a negotiation process promoted by the management structure of the biosphere reserve led to the redistribution of these taxes to the eco-development committee (EDC), a community organization representing the 84 families of Bundyar (10% are paid to the district). The recognition of community rights and the sharing of profits stemming from tourist activities will thus trigger local momentum. The EDC has launched several actions:

- The cleaning of the site and setting up of a waste collection system employing 46 persons;
- The implementation of ecotaxes for service providers;
- The creation of an insurance service for path users;
- The creation of an interpretation centre employing young people from the village.

Profits from tourism made it possible to launch actions benefiting the local community: financial aid for the school, purchase of medicine, loans.

The EDC of Bundyar received the “first prize for community institutions” at the Uttaranchal State Forestry Awards in 2004.

The institutional reorganization carried out thanks to the renegotiation of the tax collection system enabled the local community to manage the site, draw benefits, and take responsibility for the site.

A label of geographical origin in the Bañados del Este Biosphere Reserve (URUGUAY)

In the Bañados del Este Biosphere Reserve, brochures are being distributed to promote certain products bearing the label “*productos Bañados del Este*”. This eco-labeling initiative highlights, among others, the recognition of the territory as a biosphere reserve, the involvement of local populations in the production and marketing of products and services, as well as production practices in compliance with the sustainable use of resources.

Chapter 3

The construction of an agreement for a common position within the council of the São Paulo Green Belt Biosphere Reserve (BRAZIL)

The Green Belt of the São Paulo Biosphere Reserve was created on the basis of the opposition movement to the construction of a belt highway around São Paulo. However, in 1997 (four years after the creation of the biosphere reserve), the western segment was built anyway.

In 1998, the Environmental Council of the State of São Paulo – whose opinion is decisive—consulted with the management structure of the biosphere reserve about the construction of the three other parts of the project. Since no collective formal body existed within the biosphere reserve, a provisional council was created. The project was met with considerable disapproval by the nine members of the council.

In 2001, the state nevertheless began to plan the construction of the last three segments. A consultation was initiated with the Forest Institute, which also disapproved of the project, mentioning in particular the existence of the biosphere reserve. Due to this disapproval and to the pressure of civil society, the project was abandoned.

In 2004, the biosphere reserve was consulted once again. This time, there was a biosphere reserve council representing a wide range of stakeholders (NGOs, industrial sector, etc.) with diverging opinions concerning the project. A work group made up of fifteen persons was then created. The scientific secretary of the biosphere reserve led the process and acted as mediator.

The dialogue took place in several stages:

- Acquisition of a common culture in order to lead the group to the same level of knowledge. Government and civil society experts were mobilized and the mediator acted as “translator”. The process was facilitated by the fact that the participants were all literate and used to using the same action formats.
- Triggering the dialogue, beginning with a statement of the existence of the conflict among stakeholders. The next step was to obtain the stakeholders’ willingness to participate in the process of finding an agreement and establishing a preliminary agreement to frame the debate by limiting the range of possible decisions.
- A common analysis of the problem thanks to field trips and debate phases.
- Construction of a single proposal around the notion of what is “acceptable by all parties”. An initial proposal was drawn up by the president of the biosphere reserve to serve as a basis for dialogue. The debates then provided an opportunity to amend the proposal. It was during this stage that the mediator’s role was most difficult: as the agreement progressed, external pressures increased and there was the

risk that some parties — the representatives of the sectors favourable to the project— might withdraw from the process.

The final document, which still retained some points of disagreement (underlined as such) was finally signed by all the parties.



The itinerary of conflict management between sport fishing and commercial fishing in the Lac Saint-Pierre Biosphere Reserve (CANADA)

The decrease in the yellow perch population, a fish species emblematic of the Lac Saint-Pierre, has triggered a conflict between sport fishermen and commercial fishermen. A work group representing the different parties in conflict was set up on the initiative of the Ministry of Agriculture and Fisheries (which supports commercial fishing) and the Ministry of Fauna (which supports sport fishing), in the following way:

A “political” committee:

Commercial fishing represented by:	Mediation performed by:	Sport fishing represented by:
The Ministry of Agriculture and Fisheries	A general non specialist mediator and the mediator of the scientific committee	The Ministry of Fauna
An association representing the “commercial” fishermen		An association representing the “sport” fishermen
A food industry		A provider of services offering leisure fishing activities to tourists

A scientific committee:

Commercial fishing represented by:	Mediation performed by:	Sport fishing represented by:
Scientists from the Ministry of Agriculture and Fisheries	A scientific mediator, a known specialist	Scientists from the Ministry of Fauna

Step 1: a preliminary agreement sets the range of possible settlements, excluding extreme solutions.

Step 2: the “political” committee requests information from the scientific committee.

Step 3: the general mediator has an interview with each of the parties in order to prepare the dialogue.

Step 4: the negotiation phase, when the mediator played a role:

- by reformulating what was said in terms understandable to all (e.g.: the decrease in the fish population mentioned by a fisherman means a loss of income),
- by understanding the stakeholders’ strategies and fighting strategies that aim to disrupt the process on the part of those who are strongly opposed to negotiation,
- by refocusing the debate on what was at stake,
- by facilitating the search for a win-win solution, which benefits both parties.

Step 5: the mediator thus mediated the debate in order to unblock the situation: “I write a report in which I show the elements of consensus and those that cause disagreement, and I give my recommendations to the minister”.

Step 6: recognition of the report by the concertation table of the elected officials of the Lac Saint-Pierre.

Finally, the government made a decision in accord with the recommendations of the mediator, following negotiations among stakeholders and approval by local public authorities.

- Agossou, V., Baltissen, G., Béavoqui, L. 1999. Participation villageoise au développement rural : Manuel du praticien. Institut Royal des Tropiques, 84 pp. http://www.kit.nl/net/KIT_Publicaties_output/showfile.aspx?a=tblFiles&b=FileID&c=FileName&d=TheFile&e=465
- Bandura, A. 1995. *L'apprentissage social*. Editions Mardaga, Bruxelles.
- Barret, P. 2003. *Guide pratique du dialogue territorial : Concertation et médiation pour l'environnement et le développement local*. Fondation de France. Coll. Pratiques. 136 pp.
- Barrière, O. 2003. Gestion de l'environnement en pays Bassari (Sénégal oriental) ; réflexion sur un droit de l'environnement au Sénégal. *Revue Canadienne Droit et Société / Canadian Journal of Law and Society*, 18 (1) : 73-101.
- Barbault, R. 2003. La biologie de la conservation dans les réserves de biosphère. *La lettre de la biosphère* (66):1-2. MAB France. <http://www.MAB-france.org/>
- Barbault, R. 2006. Chercheurs, gestionnaires et autres acteurs de la biodiversité : des partenariats à construire. Bouamrane, M. (ed). *Biodiversité et acteurs. Des itinéraires de concertation. Réserves de biosphère. Notes techniques 1*. UNESCO, Paris.
- Barouch, G. 1989. *La décision en miettes : systèmes de pensée et d'action à l'œuvre dans la gestion des milieux naturels*. L'Harmattan, Paris. 237 pp.
- Blondiaux, L. 2004. Prendre au sérieux l'idéal délibératif : un programme de recherche. *Swiss Political Science*, 10 (4) : 147-210. <http://www.chaire-mcd.ca>
- Beuret, J-E. 2006 a). Environnement et Développement mis en dialogue dans les réserves de biosphère. Rapport technique et Recueil des fiches techniques. UNESCO-MAB.
- Beuret, J-E. 2006 b). *La conduite de la concertation pour la gestion de l'environnement et le partage des ressources*. L'Harmattan, Paris. 340 pp.
- Beuret, J-E., Dufourmantelle, N., Beltrando, V. 2006 c). *L'évaluation des processus de concertation : RELIEF, une démarche, des outils*. La documentation Française. Réponses environnement. 145 pp.
- Bioret, F. et al. 1995. Méthode d'élaboration de guides d'aide à la gestion pour les réserves de biosphère : application aux réserves de biosphère françaises. *Dossier MAB 19*. Unesco, Paris.
- Bishop, J. 2005. *Creating an "infrastructure for engagement": from why to how*. BDOR Ltd and InterAct Networks. <http://www.interactnetworks.co.uk>
- Borrini-Feyerabend, G., Kothari, A., and Oviedo, G. 2004. *Indigenous and Local Communities and Protected Areas: Towards Equity and Enhanced Conservation*. IUCN, Gland, Switzerland and Cambridge, UK, xvii + 111 pp. <http://app.iucn.org>
- Bouamrane, M. (ed.). 2006. *Biodiversity and stakeholders: concertation itineraries*. Technical Notes 1. UNESCO, Paris. <http://www.unesco.org/MAB/pub.shtml>
- Boureima, A. 2007. Rapport de travail sur les zones éco-fonctionnelles de la Réserve de biosphère de la Pendjari. Programme « Renforcement des capacités scientifiques et techniques pour une gestion efficace et une utilisation durable de la diversité biologique dans les réserves de biosphère des zones arides et semi-arides d'Afrique de l'Ouest », UNESCO/MAB – UNEP/GEF. http://www.unesco.org/mab/project/savannas/doc_fr.shtml
- Brodhag, C. 2004. Glossaire pour le développement durable. Agora 21. Ecole des Mines, Saint Etienne. <http://www.ecologie.gouv.fr/Glossaire-du-developpement-durable.html>
- Cibien, C. 2006. Les réserves de biosphère : des lieux de collaboration entre chercheurs et gestionnaires en faveur de la biodiversité. *Natures, Sciences, Sociétés* 14 : 84-90.
- Cibien, C. 2007. Un examen périodique des réserves de biosphère, pour quoi faire ? *La lettre de la biosphère*. N. 7 Juillet 2007. Comité MAB France.
- David, A. 2000. La recherche intervention, cadre général pour la recherche en management? Les nouvelles fonctions des sciences de gestion, Vuibert : 193-213.
- Deldicque, M. 2007. Elaboration d'un guide méthodologique - Le dialogue dans les réserves de biosphère : repères, pratiques et expériences. Mémoire de fin d'études pour l'obtention du Diplôme d'Agronomie Approfondie (DAA) Génie de l'Environnement – Option « Systèmes de Production et Développement Rural. UNESCO-MAB et ENSAR.
- Etienne, M. 2006. *La modélisation d'accompagnement : un outil de dialogue et de concertation dans les réserves de biosphère*. Bouamrane, M. (ed). Biodiversité et acteurs : des itinéraires de concertation. Réserves de biosphère, Notes techniques 1. UNESCO, Paris. <http://www.unesco.org/MAB/pub.shtml>
- European Commission. 2003. Common implementation Strategy for the Water Framework Directive. (200/60/EC). Guidance on Public Participation in relation to the Water Framework Directive. Guidance Document n. 8.
- FAO . 2000. *Egalité des chances et sécurité alimentaire : le rôle de l'information*. Stratégie d'action, Division de l'information. <http://www.fao.org/docrep/x4745f/x4745f00.HTM>
- Génot, J.C. et Barbault, R. 2004. Quelle politique de conservation ? *Biodiversité et changements globaux*. ADPE pp. 162 -191
- German MAB National Committee. (ed.). 2003. *Full of Life. UNESCO Biosphere Reserves – Model Regions for Sustainable Development*. Springer, Bonn.
- GTZ. 2003. Exploiter pour conserver : Comment les animaux d'élevage et plantes cultivées délaissés constituent un potentiel économique pour le développement rural. <http://www2.gtz.de/agrobiodiv/download/ncb-franz.pdf>
- Hatchuel, A. 2005. Pour une épistémologie de l'action, l'expérience des sciences de gestion. Teulier, R. et Lorino P (éditeurs scientifiques). *Entre connaissance et organisation : l'activité collective*. Colloque de Cérisy, La Découverte, Paris. pp. 72-92.
- Hockings, M., Stolton, S., Leverington, F., Dudley, N. and Courrau, J. 2006. *Evaluating Effectiveness: A framework for assessing management effectiveness of protected areas*. 2nd edition. IUCN, Gland, Switzerland and Cambridge, UK. xiv + 105 pp. <http://www.iucn.org/themes/wcpa/>
- Jardin, M. 1996. Les réserves de biosphère se dotent d'un statut international: enjeux et perspectives. *Revue juridique de l'environnement*. 4: 375-385. CNRS, Paris.
- Jones, P.S.; Young, J.; Watt, A.D. (eds.). 2005. *Biodiversity conflict management: a report of the BIOFORUM project*. 76 pp. <http://www.nbu.ac.uk/bioforum/>
- Kaufman S. 2006. Une taxonomie des dispositifs de décisions et délibérations publiques. Processus et dispositifs d'intervention dans les décisions publiques aux Etats-Unis. *Revue Négociations*. Dossier Négociations et médiation : perspectives croisées n° 2006 (2) : 34-30.

- Lass, W., Reusswig, F (eds.). 2002. *Social Monitoring: Meaning and Methods for an Integrated Management in Biosphere Reserves*. Report of an International Workshop, Rome, 2-3 September 2001. Biosphere Reserve Integrated Monitoring (BRIM), Series n°1, UNESCO, Paris.
- Lascoumes, P. 2005. Le développement durable: vecteur d'innovations politiques ? Le développement durable, les termes du débat. Armand Colin. pp. 1-6.
- Latour, B. 2005. Il faut repenser l'écologie politique. Les enjeux sociaux de l'environnement, *Sciences Humaines*, Hors-série n° 49, Juillet-août 2005, pp. 92-93.
- Möller, L. (ed.). 2007. *UNESCO Biosphere Reserves : Model Regions with a global reputation*. UNESCO Today, Journal of the German Commission for UNESCO (2), German Commission for UNESCO.
- Mormont, M., Mougnot, C., Dasnoy, C. 2006. La participation, composante du développement durable: quatre études de cas. *Vertigo* 7 (2). <http://www.vertigo.uquam.ca>
- Price, M. (ed.). 2000. EuroMAB 2000. Proceedings of the First Joint Meeting of EuroMAB National Committees and Biosphere Reserve Coordinators. 10-14 April 2000. Cambridge, UK.
- Rao, K. S., Nautiyal S., Maikhuri R.K., Saxena K.G. 2000. Management conflicts in the Nanda Devi Biosphere Reserve, India, *Mountain Research and Development*, 20 (4): 320-323.
- Secrétariat de la Convention sur la diversité biologique. 2004. *Approche Par Ecosystème (Lignes Directrices de la CBD)*. Montréal. 51 p. <http://www.cbd.int/doc/publications/ea-text-fr.pdf>
- Smouts M.C. 2005. Le développement durable : valeurs et pratiques. *Le développement durable, les termes du débat*. Armand Colin : 1-6.
- Sourd, C. 2004. *Explique-moi les réserves de biosphère*. Coll. A la découverte du monde. UNESCO/Nouvelle Arche de Noé Editions.
- Thévenot, L. 2006. *Trois familles de modèle d'action*. L'action au pluriel, Sociologie des régimes d'engagement. La Découverte : 8-11.
- UNESCO. 1995. Promouvoir la libre circulation de l'information et le développement de la communication. Stratégie à moyen terme 1996-2001 adoptée par la Conférence générale, XXVIIIème session.
- UNESCO. 1996. *Réserves de biosphère : la Stratégie de Séville et le Cadre statutaire du Réseau mondial*. UNESCO, Paris. <http://www.unesco.org/MAB>
- UNESCO. 2000. La solution du puzzle : l'approche écosystémique et les réserves de biosphère. UNESCO, Paris.
- UNESCO. 2000a). Information on the results of the survey on the implementation of the Seville Strategy. Sixteenth Session of the International Co-ordinating Council of the Man and the Biosphere Programme. UNESCO Paris 6-10 November 2000. SC-OO/CONE208/3 add.
- UNESCO. 2001. Des outils et des hommes pour une gestion intégrée des zones côtières. Guide méthodologique. Manuels et guides de la Commission Océanographique Intergouvernementale. N. 42. Unesco, Paris.
- UNESCO. 2001a). Seville + 5. International meeting of experts. Compte rendus. Pamplona, Spain. 23-27 October 2000. MAB Report Series N. 69. UNESCO, Paris.
- UNESCO. 2001b). Sixteenth Session of the International Co-ordinating Council of the Programme on Man and the Biosphere. UNESCO Headquarters, Paris 6-10 November 2000. Final report.
- UNESCO. 2002. First EuroMAB Training workshop on Conflict Management in Biosphere Reserves. Réserve de biosphère des Vosges du Nord, France, 3-8 septembre 2002. Rapport final. Unesco, Paris.
- UNESCO. 2002a). *Biosphere reserves: Special places for people and nature*. UNESCO, Paris.
- UNESCO. 2003. *Réserves de biosphère: Des lieux privilégiés pour les hommes et la nature*. UNESCO, Paris.
- UNESCO. 2004. Dialogue entre les civilisations. Le nouveau Courrier. Janvier 2004. Numéro spécial. UNESCO, Paris.
- UNESCO. 2005. Réserves de biosphère – Avantages et opportunités. <http://unesdoc.unesco.org/images/0014/001424/142453f.pdf>
- UNESCO. 2005a). Rapport du Bureau du Conseil International de co-ordination. Paris, 27-29 Juin 2005.
- UNESCO. 2007. Rapport du Bureau du Conseil International de Co-ordination. Paris, 18-20 Septembre 2007.

Indicative list of related websites

- <http://www.genreenaction.net/> - Information and resource gateway of the French-speaking network "Genre en Action" ["Gender in Action"]. The network provides information, offers training programmes and a forum on the "gender and development" approach for all persons involved in development issues in the North and the South.
- <http://www.chaire-mcd.ca/> - Website of the Canada Research Chair on Globalization, Citizenship and Democracy. The Chair studies the mutations of the different institutional spheres of modern societies and the emergence of new forms of citizenship, political community, democracy and social justice.
- <http://www.enbi.info/forums/enbi/index.php> - Website of the European Network of Information on Biodiversity (ENBI).
- <http://www.institut-gouvernance.org/> - Website of the Institute for Research and Debate on Governance (IRG).
- <http://www.interactweb.org.uk/> - InterAct is an alliance of experienced practitioners, researchers, writers and policy makers committed to putting participatory, deliberative and co-operative approaches at the heart of debate, decision-making and action across the UK.
- <http://www.iucn.org/themes/ceesp/> - Website of the IUCN (World Conservation Union) Commission on Environmental, Economic and Social Policies (CEESP): see in particular the Themes on Indigenous and Local Communities, Equity and Protected Areas (TILCEPA) and on Governance, Equity and Rights (TGER).
- <http://www.ivry.inra.fr/tsv/> - Website of the «Social and Political Transformations Related to Life Sciences and Life Forms» of the French National Institute for Agricultural Research (INRA).
- <http://www.c3ed.uvsq.fr/gecorev/> - Website of the colloquium on the "co-management of natural resources and the environment, from the local to the global sphere": to reinforce dialogue between researchers, civil society and decision-makers.

<http://www.comedie.org/> - Website of the programme on « Concertation and MEDIation for the Environment and local development» (COMEDIE) whose aim is to support local concertation or mediation initiatives in the field of the environment, local development and area management, in order to increase their efficiency and spread a culture of dialogue.

http://www.parcs-naturels-regionaux.fr/concertation_zs/ - Website of the on-line guide on « Concertation – Action among enterprises and local authorities» of the federation of regional natural parks.

<http://www.nbu.ac.uk/bioforum/> - Website of the Bioforum project on the management of conflicts between biodiversity conservation and economic development.

<http://www.unece.org/env/pp/> - Website of the Aarhus Convention on access to information, public participation in decision-making processes and access to justice in matters of environment in Europe.

<http://cormas.cirad.fr> - CORMAS/CIRAD is devoted to the modelling of relations between societies and their environment. The site presents of the multi-agent systems (SMA) approach, which uses simulation tools for the study of the dynamics of interactions between resources and societies together with role-playing games. Cormas develops modeling tools making it possible to simulate interactions on several scales, and offers methodological discussions on the use of these tools.

Indicative list of handbooks on the participation of stakeholders in natural resource and land management

Agossou, V., Baltissen, G., Béavoqui, L. 1999. Participation villageoise au développement rural : Manuel du praticien, Institut Royal des Tropiques, 84 pp. Disponible sur : http://www.kit.nl/net/KIT_Publicaties_output/showfile.aspx?a=tblFiles&b=FileID&c=FileNam&d=TheFile&e=465

Barret, P. 2003. Guide pratique du dialogue territorial : Concertation et médiation pour l'environnement et le développement local, Fondation de France, Coll. Pratiques, 136 pp.

Beltrán, J. (ed.). 2000. Indigenous and Traditional Peoples and Protected Areas: Principles, Guidelines and Case Studies. IUCN, Gland, Switzerland and Cambridge, UK and WWF International, Gland, Switzerland. xi + 133pp.
<http://www.iucn.org/dbtw-wpd/edocs/PAG-004.pdf>

Beuret, J-E., Dufourmantelle, N., Beltrando, V. 2006c). L'évaluation des processus de concertation : RELIEF, une démarche, des outils. La documentation Française, Réponses environnement, 145 pp.

Borrini-Feyerabend, G., Kothari, A. and Oviedo, G. 2004. Indigenous and Local Communities and Protected Areas: Towards Equity and Enhanced Conservation. IUCN, Gland, Switzerland and Cambridge, UK. xviii + 111pp.
<http://www.iucn.org/dbtw-wpd/edocs/PAG-011.pdf>

FAO. 1997. Participation in practice : Lessons from the FAO People's Participation Programme.
<http://www.fao.org/sd/PPdirect/PPre0044.htm>

Hocking, M., Stolton, S. and Dudley, N. 2000. Evaluating Effectiveness: A Framework for Assessing the Management of Protected Areas. 2nd edition. IUCN, Gland, Switzerland and Cambridge, UK. x + 121pp.

<http://www.iucn.org/dbtw-wpd/edocs/PAG-014.pdf>

Mouterde, F. (sous la direction de). 2005. Guide du débat citoyen. La Documentation Française, Paris, Service d'Information du Gouvernement.

Ridder D., Mostert E., Wolters. H. A. (eds.) 2005. Apprendre ensemble pour gérer ensemble : améliorer la participation à la gestion de l'eau, HarmoniCOP, 111 pp.

<http://www.harmonicop.uos.de/handbook.php>

Sources and references of the textboxes on biosphere reserves

W Region (Benin, Burkina Faso, Niger)

Nomination Form W Biosphere Reserve (2002)

Boureima, A. 2007. Rapport de travail sur les zones éco-fonctionnelles de la Réserve de biosphère du W. Programme « Renforcement des capacités scientifiques et techniques pour une gestion efficace et une utilisation durable de la diversité biologique dans les réserves de biosphère des zones arides et semi-arides d'Afrique de l'Ouest », UNESCO/MAB – UNEP/GEF
http://www.unesco.org/mab/project/savannas/doc_fr.shtml

São Paulo Green Belt (Brazil)

Nomination Form São Paulo Green Belt Biosphere Reserve (2002)

Beuret, J-E. 2006 a). Environnement et Développement mis en dialogue dans les réserves de biosphère, Rapport technique et Recueil des fiches techniques, UNESCO/MAB.
<http://www.iflorestal.sp.gov.br/rbcv/index.asp>

Georgian Bay Littoral (Canada)

Nomination Form Georgian Bay Littoral Biosphere Reserve (2004)

Association canadienne des réserves de la biosphère (ACRB). 2005. Réserves de la biosphère au Canada. Bulletin n° 17, janvier 2005.
<http://www.biosphere-research.ca/>
<http://www.georgianbay.ca/>

Lac Saint-Pierre (Canada)

Beuret, J-E. 2006. a). Environnement et Développement mis en dialogue dans les réserves de biosphère, Rapport technique et Recueil des fiches techniques, UNESCO/MAB.
<http://www.lacsaintpierre.com/index.html>
<http://www.biosphere-research.ca/>
http://www.biosphere-canada.ca/reserves/lac_saint-pierre/default.asp

Long Point (Canada)

Periodic review: Long Point Biosphere Reserve (2001)

Whitelaw, G., Craig, B., Jamieson, G. and Hamel, B. 2004. Research, Monitoring and Education: Assessing the “logistics function” of four Canadian Biosphere Reserves. Biosphere Reserve in Canada: Exploring ideals and experiences. Environments: a journal of interdisciplinary studies, 32 (3).
http://www.biosphere-canada.ca/reserves/long_point/default.asp
<http://www.biosphere-research.ca/>

Manicouagan-Uapishka (Canada)

Nomination Form Manicouagan-Uapishka Biosphere Reserve (2007)

Beuret, J-E. 2006a). Environnement et Développement mis en dialogue dans les réserves de biosphère. Rapport technique et Recueil des fiches techniques, UNESCO/MAB.

<http://www.biosphere-research.ca/>

<http://www.biosphere-canada.ca/>

South West Nova (Canada)

Beuret, J-E. 2006a). Environnement et Développement mis en dialogue dans les réserves de biosphère. Rapport technique et Recueil des fiches techniques, UNESCO/MAB.

<http://www.biosphere-research.ca/>

<http://www.biosphere-canada.ca/>

http://www.biosphere-canada.ca/reserves/southwest_nova/default.asp

Fanjingshan (China)

Periodic review: Fanjingshan Biosphere Reserve (2000)

Xishuangbanna (China)

Periodic review: Xishuangbanna Biosphere Reserve (2004)

Zhaolu, W., Xiaokun, O. 1995. The Xishuangbanna biosphere reserve : a tropical land of natural and cultural diversity. Working papers n° 2. South – South cooperation programme on environmentally sound socio-economic development in the humid tropics.

Sierra Nevada de Santa Marta (Colombia)

UNESCO. 2002. Biosphere reserves: special places for people and nature. UNESCO, Paris.

UNESCO. 2003. Réserves de biosphère: Des lieux privilégiés pour les hommes et la nature. UNESCO, Paris.

Tribin et al. 1999. The Biosphere Reserve of Sierra Nevada de Santa Marta Colombia. Working Paper n° 30. UNESCO, South-South Co-operation Programme, Paris.

Periodic review: Sierra Nevada de Santa Marta Biosphere Reserve (2001).

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

Seaflower (Colombia)

Nomination Form Seaflower Biosphere Reserve (1998)

Howard, M. W. 1997. Report on Biosphere Reserve Environmental Education Course, CORALINA.

Howard, M. W. 1997. Report on Community Educational Workshop, CORALINA.

CORALINA. 1999. Actividades con la comunidad del proyecto: levantamiento de estudios y acciones para la conformacion de la Reserva de biosfera en el archipelago.

UNESCO. 2001. Enquête sur les mécanismes institutionnels.

Camargue (delta du Rhône) (France)

Periodic review (2006)

Etienne M. et collectif ComMOD. 2005. La modélisation comme outil d'accompagnement. Natures, Science, Sociétés 16 (2).

Cévennes (France)

SIACVG. 1992. Plan d'action pour la conservation et le développement de la vallée du Galeizon. Juillet 1992. Syndicat intercommunal pour l'aménagement et la conservation de la vallée du Galeizon (SIACVG).

EuroMAB. 1988. Local Involvement and Economic Dimensions in Biosphere Reserve Activities. Proceedings of the 3rd EuroMAB Biosphere Reserve Coordinators Meeting. Ilomantsi and Nagu, Finland, 31 August-5 September 1998. 365 p.

<http://www.mab-france.org/>

Mont Ventoux (France)

Interviews with M. Ken Reyna, Coordinator of Mont Ventoux Biosphere Reserve and M. Nicolas Bondil, PhD candidate at Ecole des Hautes Etudes en Sciences Sociales (EHESS).

<http://www.mab-france.org/>

Rhön (Germany)

Periodic review: Rhön Biosphere Reserve (2004)

Nauber, J. and Pokorny, D. 1991. Establishment of biosphere reserves in Germany: a case study of the Rhön biosphere reserve.

UNESCO. 2001. Enquête sur les mécanismes institutionnels.

UNESCO. 1999. The Rhön Biosphere Reserve – from planning to realization. UNESCO Workshop in Malaga / Sierra de las Nieves, 16-20 June 1999.

Pokorny, D. 1995. The Rhön Biosphere Reserve: Biosphere Reserve Management for Sustainable Development. UNESCO, International Conference on Biosphere Reserves. Commission B : Biosphere Reserve Management, Sevilla, 20-25 March 1995.

<http://www.biosphaerenreservat-rhoen.de/englisch/indexengl.html>

Pfälzerwald/Vosges du Nord (Germany/France)

Nomination Form Pfälzerwald Biosphere Reserve (1998)

Protocole d'accord en vue de la création de la Réserve de biosphère Vosges du Nord – Pfälzerwald (1996).

<http://www.biosphere-vosges-pfaelzerwald.org>

Oberlausitzer Heide – und Teichlandschaft (Germany)

Periodic review (2007)

Maya (Guatemala)

Beuret, J-E. 2006 a). Environnement et Développement mis en dialogue dans les réserves de biosphère, Rapport technique et Recueil des fiches techniques, UNESCO/MAB.

<http://www.conap.gob.gt/>

Nanda Devi (India)

Beuret, J-E. 2006. a) Environnement et Développement mis en dialogue dans les réserves de biosphère. Rapport technique et Recueil des fiches techniques, UNESCO/MAB.

Rao.K.S., Nautiyal S., Maikhuri R.K., Saxena K.G. 2000. Management conflicts in the Nanda Devi Biosphere Reserve, India, In Mountain Research and Development, vol.20, n°4, 320-323.

Dana (Jordan)

UNESCO. 2002. Biosphere reserves: special places for people and nature, UNESCO, Paris.

UNESCO. 2003. Réserves de biosphère: Des lieux privilégiés pour les hommes et la nature. UNESCO, Paris.

Irani, K. ; Johnson, C. 2000. The Dana Project, Jordan. Protected Areas in the North Africa/Middle East Region. PARKS. 10 (1), IUCN.

Mananara Nord (Madagascar)

UNESCO. 2002. Biosphere reserves: special places for people and nature, UNESCO/MAB, Paris.

Huttel, C., Touber, L., Clüsener-Godt, M. 2002. La Réserve de biosphère de Mananara Nord, un défi pour la conservation et le développement intégrés. UNESCO, Paris. 188 pp.

Raondry, N., Klein, M., Rakotonirina, V. S. 1995. La Réserve de biosphère de Mananara-Nord (1987-1994): Bilan et perspectives. Documents de travail, n°6. Programme de coopération Sud - Sud pour un développement socio-économique respectueux de l'environnement dans les tropiques. UNESCO, Paris.

UNESCO. 2001. Enquête sur les mécanismes institutionnels.

Sierra de Huautla (Mexico)

Nomination Form Sierra de Huautla Biosphere Reserve (2006)

Sierra Gorda (Mexico)

Nomination Form Sierra Gorda Biosphere Reserve (2001)

<http://www.sierragordamexico.org/es/>

Arganeraie (Morocco)

GTZ . 2003. Exploiter pour conserver: Comment les animaux d'élevage et plantes cultivées délaissés constituent un potentiel économique pour le développement rural.

<http://www2.gtzt.de/agrobiodiv/download/ncb-franz.pdf>

UNESCO. 2002. Biosphere reserves: special places for people and nature. UNESCO, Paris.

UNESCO. 2003. Réserves de biosphère: Des lieux privilégiés pour les hommes et la nature. UNESCO, Paris.

Cape West Coast (South Africa)

Nomination Form Cape West Coast Biosphere Reserve (1999)

<http://www.capebiosphere.co.za/>

Waterberg (South Africa)

Nomination Form Waterberg Biosphere Reserve (2001)

Menorca (Spain)

Castro F. S. 1994. An overview of the Spanish network of biosphere reserves. Comité espagnol MAB. Madrid. 157 pp.

Castello I. V.; Ignasi J.; Lopez L. A. 1993. Coordination mechanisms in the Spanish biosphere reserves. Nature and Resources, (29) 1-4: 12-16.

Periodic review: Menorca Biosphere Reserve (2006)

Montseny (Spain)

Castro F. S. 1994. An overview of the Spanish network of biosphere reserves. Comité espagnol MAB. Madrid. 157 pp.

Castello I. V.; Ignasi J.; Lopez L. A. 1993. Coordination mechanisms in the Spanish biosphere reserves. Nature and Resources, (29) 1-4: 12-16.

<http://www.diba.es/parcsn/parcs/videos.asp?parc=0&m=268>

Sinharaja (Sri Lanka)

UNESCO. 2001. Enquête sur les mécanismes institutionnels.

UNESCO. 2002. Biosphere reserves: Special places for people and nature. UNESCO, Paris.

UNESCO. 2003. Réserves de biosphère: Des lieux privilégiés pour les hommes et la nature. UNESCO, Paris.

Periodic review: Sinharaja Biosphere Reserve (2004).

Entlebuch (Switzerland)

Nomination Form Entlebuch Biosphere Reserve 2001

UNESCO Biosphere Entlebuch Lucerne Switzerland: Conservation – Development, (2002), Regional Management Entlebuch Biosphere Reserve Switzerland.

<http://www.biosphere.ch>

Dyfi (United Kingdom)

Author: Peter Frost, Administrative Contact for Dyfi Biosphere Reserve. Countryside Council for Wales, Maes-y-Ffynnon, Fford Penrhos, Bangor. LL57 2DN Gwynedd. United Kingdom

<http://www.ecodyfi.org.uk/>

Southern Appalachian (United States of America)

Van Sickle, C., Turner, R. S. 2001. The southern appalachian man and biosphere program: a model for management need-based research.

Nomination Form Southern Appalachian Biosphere Reserve (1988)

UNESCO. 2002. Biosphere reserves: Special places for people and nature. UNESCO, Paris.

UNESCO. 2003. Réserves de biosphère: Des lieux privilégiés pour les hommes et la nature. UNESCO, Paris.

<http://samab.org/>

Bañados del Este (Uruguay)

Beuret, J-E. 2006 a). Environnement et Développement mis en dialogue dans les réserves de biosphère. Rapport technique et Recueil des fiches techniques. UNESCO/MAB.

Can Gio (Vietnam)

Beuret, J-E. 2006 a). Environnement et Développement mis en dialogue dans les réserves de biosphère, Rapport technique et Recueil des fiches techniques, UNESCO/MAB.

ADEATUR:	Agro and Ecotourism Association of Rocha (Uruguay)
CBD:	Convention on Biological Diversity
CEMAGREF:	Research Institute for Agricultural and Environmental Engineering (France)
CIRAD:	International Agricultural Research Centre for Development (France)
CNRS:	National Centre for Scientific Research (France)
ENGREF:	National School of Water and Forest Engineering (France)
ENSAR:	National School of Agriculture of Rennes (France)
EU:	European Union
FAO:	Food and Agriculture Organization of the United Nations
FPSNSM:	Fundacion Pro-sierra Nevada de Santa Marta (Colombia)
GEF:	Global Environment Facility
GIS:	Geographic Information System
GTZ:	German Technical Cooperation for Development
IFB:	French Biodiversity Institute
INRA:	National Institute for Agricultural Research (France)
IRD:	Institute of Research for Development (France)
MAB:	Intergovernmental Man and the Biosphere Programme
MNHN:	National Museum of Natural History (France)
OECD:	Organization for Economic Cooperation and Development
NGO:	Non-governmental Organization
PNR:	Regional Natural Parks (France)
UNDP:	United Nations Development Programme
UNEP:	United Nations Environment Programme
UNESCO:	United Nations Organization for Education, Science and Culture



www.unesco.org/mab

For thirty years, the MAB Programme, particularly through its World Network of Biosphere Reserves, has initiated and supported studies on the interactions between human societies and natural resources in various cultural and socio-economic contexts.

In light of the many objectives assigned to a biosphere reserve and the diversity of stakeholders, institutions and their interests, biosphere reserves are research and training sites for the prevention and management of conflicts linked to the challenges of conservation and sustainable use of biodiversity.

The wealth and diversity of the dialogue experiences and practices presented here should be further enriched through the contributions of other biosphere reserves, in order to foster their dissemination within the World Network and throughout the world. The Division of Ecological and Earth Sciences, through its intergovernmental MAB Programme, thus wishes to make a substantive contribution to the challenges of biodiversity management in multi-use spaces, with an objective of sustainable development.