



Chapter 3. CO-MANAGEMENT OF NATURAL RESOURCES

3.1 What's in a name?

There are two main challenges in managing natural resources. One is to respond appropriately to the *ecological characteristics* of a given environment, preserving its integrity and functions while assuring a flow of benefits from it. This challenge is mostly about *content*— the *what* and *when* of managing natural resources. The other is to respond to the *social characteristics* of the same environment, dealing in an effective way with the inevitably conflicting interests and concerns of different social actors. This challenge is mostly about *process*— the *who* and *how* of managing natural resources. Throughout history, attempts to respond to the latter social challenge have included many forms of hostile struggle, both open and violent and hidden, via various means of social control. Fortunately, they also include a variety of collaborative, co-management solutions.¹

In this chapter we will attempt to illustrate and systematise some contemporary collaborative solutions to resource management challenges. Under diverse socio-political and economic circumstances, these span a bewildering array of processes, agreements and organisations, as it will be apparent from the concrete examples we will describe.

¹ And at times, they include a mix of both...

Terminology is not a trivial issue here. There is no doubt that it would be useful to have a common lexicon for phenomena found throughout the world, which in the least would facilitate communicating experiences and lessons learned. But there are pitfalls to avoid. We could use the term “co-management” in a broad and general sense, but lumping too much under the concept may add to a generic “corrupted language” by which some vague and appealing terms are utilised to cover all sorts of practices and behaviours.² We could, on the contrary, develop a set of air-tight definitions for similar yet slightly distinct phenomena. But that may complicate communication, without necessarily fitting the complexity of real events. In the last decades, various terms have been employed to describe different levels, stages or areas of application of “co-management situations”. A selection of those terms is listed in Table 3.1, given in the chronological order in which they were introduced, beginning with a quote of historical value.

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Table 3.1 Concepts and terms used to understand and describe collaboration in managing natural resources	
Mutual aid	In the practice of human aid we can retrace the earliest beginning of evolution, we thus find the positive and undoubted origin of our ethical conceptions, and we can affirm that in the ethical progress of man, mutual support— not mutual struggle— has had the leading part. In its wide extension, even at the present time, we also see the best guarantee of a still loftier evolution of our race. (Kropotkin, 1902)
Adaptive management	A guiding principle for the design of the interface between society and biosphere, between community and ecosystem, between household and environment.... The release of human opportunity requires flexible, diverse and redundant regulation, monitoring that leads to corrective action, and experimental probing of the continually changing reality of the external world.... The emphasis is on social learning about the complex adaptive systems of which we are a part. Human institutions are crucial factors in this learning. (Holling, 1978 and others quoted in Røling and Maarleveld, 1999)
Participation	Organised efforts to increase control over resources and regulative institutions in given social situations, on the part of groups and movements of those hitherto excluded from such control. (UNRISD, 1979)
Networking	A number of autonomous ... groups link up to share knowledge, practice solidarity or act jointly and/ or simultaneously in different spaces. Based on moral (as distinct from professional or institutional) motivations, networks are cooperative, not competitive. Communication is of their essence. ... Their raison d'être is not in themselves, but in a job to be done. ... They foster solidarity and a sense of belonging. They expand the sphere of autonomy and freedom. The source of the movement is the same everywhere— people's autonomous power— and so is their most universal goal, survival. (Nerfin, 1986)
Co-management	...a political claim [by local people] to the right to share management power and responsibility with the state... (McCay and Acheson, 1987)
Collaboration	The pooling of appreciation and/ or tangible resources (e.g., information, money, labour) by two or more stakeholders to solve a set of problems neither can solve individually. (Gray, 1989)

² Majid Rahnema (1992) powerfully warns against this danger, which has plagued terms such as “participation,” “aid” and “development” for a long time.

Popular participation	As an end in itself, popular participation is the fundamental right of the people to fully and effectively participate in the determination of the decisions which affect their lives at all levels and at all times. (African Charter for Popular Participation in Development and Transformation, 1990)
Co-management	The sharing of power and responsibility between government and local resource users. (Berkes, George and Preston, 1991)
Community forestry	The control and management of forest resources by the rural people who use them especially for domestic purposes and as an integral part of their farming system. (Gilmour and Fisher, 1991)
Co-management (of protected areas)	The substantial sharing of protected areas management responsibilities and authority among government officials and local people. (West and Brechin, 1991)
Democratisation	The act of subjecting all interests to competition, of institutionalising uncertainty. The decisive step towards democracy is the devolution of power from a group of people to a set of rules. (Przeworski, 1991)
Joint forest management	Collaboration in forest management between agencies with legal authority over state-owned forests and the people who live in and around these forests. (Fisher, 1995)
Environmental partnerships	Voluntary, jointly defined activities and decision-making processes among corporate, non-profit, and agency organisations that aim to improve environmental quality or natural resource utilisation. (Long and Arnold, 1995)
Collaborative management (of protected areas)	A situation in which some or all of the relevant stakeholders are involved in a substantial way in management activities. Specifically, in a collaborative management process the agency with jurisdiction over natural resources develops a partnership with other relevant stakeholders (primarily including local residents and resource users) which specifies and guarantees the respective management functions, rights and responsibilities. (Borrini-Feyerabend, 1996)
Joint protected area management	The management of a protected area and its surrounds with the objective of conserving natural ecosystems and their wildlife, as well as of ensuring the livelihood security of local traditional communities, through legal and institutional mechanisms which ensure an equal partnership between these communities and governmental agencies. (Kothari <i>et al.</i> 1996)
Participation	A process through which stakeholders influence and share control over development initiatives and the decisions and resources that affect them. (World Bank, 1996)
Collaborative management for conservation	A partnership in which government agencies, local communities and resource users, non governmental organisations and other stakeholders negotiate, as appropriate for each context, the authority and responsibility for the management of specific area or set of resources. (IUCN, 1996b)
Co-management	True co-management goes far beyond mere consultation. With co-management, the involvement of indigenous peoples in protected areas becomes a formal partnership, with conservation management authority shared between indigenous peoples and government agencies... or national and international non-governmental organisations. [...] true co-management requires involvement in policy-formulation, planning, management and evaluation. (Stevens, 1997)

Affirmative democracy	In analogy to [the concept of] “affirmative action” prevailing in the USA, in affirmative democracy marginalised social groups are to be given the same capacities and rights as those enjoyed by the groups on the top. (Navarro, 1997)
Collaborative management agreement for a conservation initiative	Representatives of all key stakeholders agree on objectives for the conservation initiative and accept specific roles, rights and responsibilities in its management.... [They] ensure that the trade offs and compensations are clear and that all parties are aware of the commitments made by the others. (Borrini-Feyerabend, 1997)
Patrimonial mediation	Patrimonial refers to all the material and non-material elements that maintain and develop the identity and autonomy of the holder in time and space through adaptation in a changing environment.... The mediation establishes long-term patrimonial objectives, legitimates them by culturally appropriate rituals, elaborates strategies to achieve the objectives and sets up natural resource management organisations. (Weber, 1998)
Stewardship	People taking care of the earth... a range of private and public approaches to create, nurture and enable responsibility in users and owners to manage and protect land and natural resources. (Mitchell and Brown, 1998)
Shared production regimes	Regimes that produce goods or services by utilising inputs from at least two individuals or legal entities which are not part of the same organisation and are not under the control of the same principal. Each party independently decides the level of input to contribute to the shared production process and the overall goal or goals are jointly determined. Responsibility for bearing the costs of inputs is negotiated between the partners as is the share of any eventual profit and no single entity has the right to modify these terms unilaterally. (Vira <i>et al.</i> , 1998)
Natural resource co-management	The collaborative and participatory process of regulatory decision-making among representatives of user-groups, government agencies and research institutes. (Jentoft <i>et al.</i> , 1998)
Co-management	A system that enables a sharing of decision-making power, responsibility and risk between governments and stakeholders, including but not limited to resource users, environmental interests, experts and wealth generators.... Essentially a form of power sharing... by degrees... through various legal or administrative arrangements... often implying a discussion forum and a negotiation/ mediation process. (NRTEE, 1998).
Pluralism	The recognition of the presence and role of multiple actors and their influence in shaping the performance of both natural systems and man-made institutions. (Ramírez, 1998)
Democratic experimentalism	Citizens in many countries directly participating with government in solving problems of economic development, schooling, policing, the management of complex ecosystems or drug abuse. Central governments of nearly all political colours at times encourage these developments by devolving authority to lower levels and loosening the grip of public bureaucracies on the provision of some services while wholly privatising others. At times they simply tolerate local experimentation by waiving formally, or through inaction, their statutory rights to specify how programmes are administered. (Sabel, 1998)
Platform for collective action	A negotiating and/ or decision-making body (voluntary or statutory) comprising different stakeholders who perceive the same resource management problem, realise their interdependence in solving it, and come together to agree on action strategies for solving the problem. (Steins and Edwards, 1999)

<p>Co-management of natural resources (also participatory, collaborative, joint, mixed, multi-party or round-table management)</p>	<p>A situation in which two or more social actors negotiate, define and guarantee amongst themselves a fair sharing of the management functions, entitlements and responsibilities for a given territory, area or set of natural resources. (Borrini-Feyerabend <i>et al.</i>, 2000)</p>
<p>New social partnerships</p>	<p>People and organisations from some combination of public, business and civic constituencies who engage in voluntary, mutually beneficial, innovative relationships to address common societal aims through combining their resources and competencies. (Nelson and Zadek, 2001)</p>
<p>Deliberative democracy</p>	<p>Deliberation is the “careful consideration” of the “discussion of reason for and against”. Inclusion is the action of involving others, with an emphasis on previously excluded citizens. Deliberative inclusionary processes enable participants to evaluate and re-evaluate their positions in the light of different perspectives and new evidence. Democracy without citizen deliberation and participation is ultimately an empty and meaningless concept. (Pimbert and Wakeford, 2001b)</p>
<p>A management-centred paradigm</p>	<p>In contrast with a benefit-centred paradigm, this approach to community participation is concerned with transforming the way the forest is managed and seeks to achieve this through a transfer of responsibility with authority to the forest-local communities. This is a power sharing rather than a product-sharing process. (Alden Wily and Mbaya, 2001)</p>
<p>Decentralisation (de-concentration) Privatisation (delegation) Democratic decentralisation (devolution)</p>	<p>Decentralisation is any act in which a central government formally cedes powers to actors at lower levels in a political-administrative and territorial hierarchy. De-concentration involves the transfer of power to lower branches of the central state, such as prefects, administrators or local ministry agents. Privatisation is the transfer to non-state entities, including individuals, corporations, NGOs, etc. Democratic decentralisation is the transfer to authorities representative of and downwardly accountable to local populations. (Ribot, 2002)</p>
<p>Multi-stakeholder processes</p>	<p>Processes that bring together all major stakeholders in new forms of communication and decision-finding (and possibly decision-making),... recognise the importance of equity and accountability... and the democratic principles of transparency and participation. (Hemmati, 2002)</p>
<p>Sound governance</p>	<p>Sound governance is based on the application of UN principles, such as legitimacy and voice (through broad participation and consensus-based decisions), transparency and accountability, performance (including responsiveness to stakeholders, effectiveness and efficiency), fairness (equity and the rule of law) and direction (including strategic vision and the capacity to respond to unique historical, cultural and social complexities). (Institute on Governance, 2002)</p>
<p>Public involvement in governance</p>	<p>Public involvement is generally recognised to have three pillars: public access to information, public participation in decision-making processes and access to justice. As a practical matter, it also implicates the right of free association and free speech. These rights operate synergistically. (Bruch and Filbey, 2002)</p>

In this work we deal mostly with the concept of “co-management”, for which we have adopted a broad but factual working definition (see Box 3.1).

Box 3.1 Co-management of Natural Resources

In this volume we employ the term co-management (CM) to describe a partnership by which two or more relevant social actors collectively negotiate, agree upon, guarantee and implement a fair share of management functions, benefits and responsibilities for a particular territory, area or set of natural resources.

Our definition of “co-management” is not specific regarding forms, types or levels of power sharing, and it is more concerned with actual events (shared management functions, benefits and responsibilities) than with stated management objectives. Some believe that it would be more appropriate to use different terms for different formal levels of involvement.³ It is difficult, however, to identify a sharp demarcation between formal types of participation and actual power sharing in management activities. For instance, a process of active consultation with local stakeholders may result in the full incorporation of their concerns into the management plan of a state-controlled protected area. Or a multi-party body without legal authority may enjoy a high level of social recognition and see its recommendations invariably endorsed by decision makers (see Box 6.12). This is *de facto* power sharing. Conversely, it is possible that several actors who officially participate in negotiating management decisions (let us say because they hold seats in the decision-making body, they are *de jure*⁴ in charge) end up more often than not in a minority position and are powerless to influence the final decisional outcome. Is the second case necessarily more “co-managed” than the first? There is, however, one situation, in which the formal inclusion of social actors in a decision-making body makes the entire difference. This is when decision-making is stipulated by consensus rather than by vote. A pluralist body in which decisions are made by consensus— rather than by vote— assigns the full value to the meaning of co-management.

In sum, we understand co-management as a broad concept spanning a variety of ways by which two or more relevant social actors develop and implement a management partnership. We speak about it in a pragmatic, *de facto* sense, regardless of the *de jure* condition it corresponds to, ignores or contradicts. Obviously, supportive tenure rights, policies and legislation strengthen collaborative processes and partnerships. Yet, more often than one may think, there is a schism between policy and practice, and practice is ahead of policy in many cases.⁵

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³ See, for instance, Franks, 1995, for the case of a protected area. Stevens (1997) also discusses this at some length.

⁴ The distinction between *de jure* and *de facto* corresponds to the distinction between what is prescribed by norms and laws and what actually happens in real life.

⁵ See Part IV of this volume.

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Co-management is not a new approach. Partnerships for resource management are as old as human cultures,⁶ exist in all countries of the world⁷ and concern all types of territories and natural resources. Forests, fisheries and coastal resources, grazing lands and wildlife are included in existing management agreements among various parties.⁸ At times the partnership does not regard any specific territory but only a resource that may be temporarily found on a given territory— e.g., water or migratory wildlife.

Management partnerships can be found in state-owned, communally owned, privately owned and mixed-property territories. The scale at which the agreement works may be as large as an entire watershed or as small as a forest patch. The partners may include state and para-statal bodies— such as national governments, ministries, district development committees, state universities and protected area agencies, and private bodies— such as indigenous councils, landowners, communities and interest groups within communities, NGOs and private operators. Usually, different types of partners are involved (e.g., a public agency, several local communities and private operators) but the partners can also be all of the same kind, for instance several landowners or several interest groups within a community. As discussed in Chapter 2, the co-management approach stresses partnerships *with* communities as well as *within* communities.

Some find it useful to distinguish between management partnerships for productive purposes (e.g., agriculture or animal husbandry) and partnerships for conservation (e.g., to preserve the habitat of a given species or manage a protected area). Such distinction, however, is not easily drawn. Whenever the management of natural resources for productive purposes involves some consideration of future and not only present production, it inevitably involves measures for the preservation of the environmental elements that sustain production— e.g., soil, water, vegetation and fodder, biodiversity, or the local climate. Conversely, biodiversity and environmental functions sustain community livelihoods and support many small and big businesses throughout the world. As a matter of fact, it is hardly possible to separate what is done by society for the sake of conservation from what is done for the sake of the economy.

In the following, a variety of concrete examples of co-management are introduced and discussed. A possible distinction between productive and conservation objectives is mentioned, but ultimately left to the judgement of the reader.



⁶ Kropotkin, 1902.

⁷ For a recent review of principles and practices of partnerships see McNeely, 1995.

⁸ McCay and Acheson, 1987. Co-management settings for non-renewable resources (e.g., oil and mineral deposits) seem to be much less common, although some initiatives may now be promoting them (Mate, 2001).

3.2 Practicing co-management

...in agriculture

A variety of partnerships are in place throughout the world to sustain agricultural production. Some have traditions rooted in the millennia, such as the *minga* (communal works) of Andean people,⁹ the *naam* gatherings of Sahelian societies¹⁰, the *nafir* systems of Sudan or the *boneh* systems still found throughout western and southern Asia (see Box 3.2). The *minga*, for instance, is a central event in the lives of Andean communities and a main avenue of people's solidarity. It is communal work, decided upon and regulated by the community members themselves during their assembly at the end of each month. Every family

sends a member to the *minga*, which can be called upon to open an irrigation channel, break up some particularly hard soil in common agricultural plot or carry out any other task needed by the community. The *minga* usually happens once a week, and after work the people eat together or conclude their efforts with a drinking party. If a family does not fulfil its obligations, it is subjected to heavy social pressure. Today, this traditional practice is still very much alive and actually spreading to private land, with people working on privately owned plots on a rotational basis (in this case the *minga* is called *prestamano*— "lending a hand").



...[common agricultural work] is a central event in the lives of [rural] communities and a main avenue of people's solidarity.

Even in non-traditional societies farmers, communities, government agencies, researchers and non-governmental organisations collaborate in agricultural production by contributing a variety of inputs and supportive conditions.¹¹ Increasingly, they also link their production-oriented efforts to forms of care that allow extracting natural resources sustainably, *i.e.*, to maintain productivity in the future. For this, farmers communicate with one another, agree on a common course of action and share the responsibilities for carrying it out.

Box 3.2 **The *boneh*— a co-management system based on crop-sharing** (adapted from Farvar, 1991)

In most of southwest Asia crop sharing is common when the factors of production are owned by different people or groups. For instance, some people own land, others own water, others have seeds and animal traction, and still others can provide labour. If they pool together what they have to produce some crops they will be entitled to a share of the harvest according to their contribution. In this system each partner, including the landlords and the landless peasants, have benefits and responsibilities.

One such crop sharing system, which has been quite common in Iran and neighbouring countries, is the *boneh* (known also with many other names including *haraseh*, *sahra*, *jogh*, *boluk*, *dang*, etc.). A *boneh* is a production unit including an area of land usually equal to what the water source available will irrigate in one 24-hour period, the water rights to irrigate that land, the peasants assigned to working it, and the animal power needed for ploughing and harvesting. The entire agricultural land of a community is often subdivided into a number of *bonehs* equal to the number of days in the irrigation

⁹ Sanchez Parga *et al.*, 1984.

¹⁰ Pradervand, 1989.

¹¹ Thrupp, 1996.

cycle. The council of Elders of the community roughly coincides with the Council of the Chiefs of the *bonehs* (Irrigation Council). The turn for irrigation is usually determined by drawing lots. Once a year, prior to the start of the irrigation season, the elders representing all the *bonehs* get together and decide by drawing lots whose *boneh* would get to use all the water available to irrigate on the first day, whose on the second, and so on. In this way, the risk of starting on the last day of the irrigation cycle (which would expose the crops to longer periods of drought) is distributed at random (“decided by God”). Within each *boneh*, a further management system for water distribution usually functions like clock-works.

At the end of the season, the crop is harvested collaboratively, and literally heaped up into the number of shares decided by agreement or tradition. Each owner of a factor of production arrives on the scene and hauls away his or her share of the harvest. These arrangements are often codified and written down in contracts, some of which are still preserved and studied.

Although the various land reform schemes in Iran have in some respects weakened the *boneh*, this is still the preferred system for irrigation management and the organisation of production in the semi-arid areas of the country. Entrepreneurs from central Iran use it to organise workers, land and irrigation when penetrating new agricultural lands, for example areas irrigated by a new dam.

If [the members of the Landcare Group] decide to take action together, they usually elect a steering committee, which is then asked to investigate local problems, opportunities and available resources in a systematic way.

A telling example of farmer collaboration comes from Australia, where thousands of voluntary groups are currently engaged in what is known as Landcare programme.¹² The programme aims at developing more sustainable systems of land use, counteracting the severe environmental impact brought about by the unadapted farming practiced of European immigrants in the last centuries. There is no typical Landcare group (they show a remarkable diversity among themselves) but, basically, a Landcare group gathers individuals who come together voluntarily to co-operate in caring for the land. One of the points of strength of Landcare is that such individuals are not only farmers, but also community members at large, environmental activists and government agency staff. A Landcare group may begin with an informal gathering of individuals who end up discussing land management problems. If they decide to take action together, they usually elect a steering committee, which is then asked to investigate local problems, opportunities and available resources in a systematic way. That steering committee may in turn call for a more formal group to take shape, and elect its own executive team.

A Landcare group becomes operational with decisions regarding management boundaries, goals and memberships. The land degradation problems are discussed, the potential resources to solve them investigated, and the relationships with state and governmental assistance agencies and other sources of support developed. Among the routine duties of a group is usually the monitoring of local land status via innovative “land literacy” approaches (community-based action research, farmer-fly-overs, using of living organisms as indicators, listening to interpretative tapes when travelling, or even becoming “hands-on” users of sophisticated techniques and computer programmes for Geographic Information Systems— GIS). Participatory methods (observation walks and drives, mapping, etc.) are used to plan the management of farms and water catchments in an integrated way. In all this, new relationships are established with government extension agents and consultants, who may provide specific technical support. Many groups identify a facilitator (possibly a professional one). If the group’s activities require on-going care that cannot be provided by volunteers only, they hire a pro-

¹² Campbell, 1994a.

fessional co-ordinator. If necessary, the groups apply for funds and other resources from the government and other sources.

The organised groups with worthy projects to implement can also refer themselves to the Landcare Programme itself, which may decide to assign some financial support. The Programme fosters various and non-uniform rules among the Landcare groups, and this has proven one of its winning features. It is too early to have conclusive data on the impact of the Programme for the whole country. Today, however, communities and agencies co-operate to define and tackle land degradation problems and further research and new extension approaches in ways that did not even seem possible only a decade ago.

...in water and watershed management

Perhaps more than any other natural resource, water has been co-managed for centuries, under different cultures and geographical conditions, resulting in the effective utilisation of a most essential input to life and agriculture (see Box 3.3). Throughout the world, there exist innumerable examples of traditional associations for water management, many of whom have been studied extensively to understand their characteristics and functional mechanisms¹³, often as part of the study of traditional management practices of common property resources. Some insights from these studies will be reviewed in Part III of this volume.

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Box 3.3 Cultural co-management in Bali (adapted from Reader, 1990)

The island of Bali enjoys a constant climate, suitable for the continuous production of rice throughout the year. To fulfil this potential the Balinese people have had to cope with two main challenges: adapting to cultivation in their steep, deeply fissured mountain environment and managing water. In fact, although water is available all year around, it is needed in the rice fields only part of the time, such as during planting and growing but not at harvesting and immediately afterwards. The Balinese people have solved the problem of steep terrain by building terraces on the mountain slopes. They have solved the water management problem by setting up an irrigation system that controls the flow of water down the slopes, alternatively flooding and draining fields, and maximising production on every terrace.

An optimal use of the water can be achieved only if the timing of cultivation in different fields is co-ordinated in a rotational cycle. For instance, the fields at the top may be flooded and prepared for planting while the crop is already well-advanced in the middle terraces and already being harvested in the lower ones. Obviously, such a well-timed cycle needs advanced co-operation among all farmers. Since times immemorial, this has been achieved in Bali by local organisations called *subak* (irrigation societies), comprising all the owners of the landholdings irrigated by the same water source.

An individual water source (*tempek*) is composed of a dam and system of channels and aqueducts that keep water flowing at optimum speed from the main lakes on the top of the island. Each land unit (*tenah*) is due to receive precisely the same amount of water from the *tempek* it depends on, regardless of its owner and position. The technical difficulties of dividing water accurately and regulating the timing of its supply are taken in charge by the *subak* council, who also collects taxes to finance upkeep and improvements and calls the members to contribute to maintenance and construction works. Each *subak* has a written constitution (at times written on a palm leaf!), each member casts one vote on matters of policy and election of officials (regardless of the size of land units held)

¹³ Ostrom, 1992; Tang, 1992.

and fines are imposed for infraction of *subak* rules.

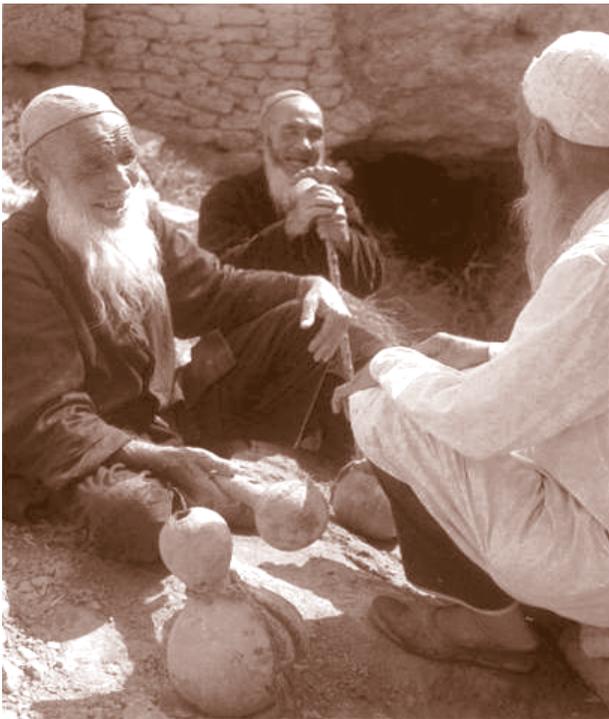
The Balinese people have set the context of the *subak* in the realm of a transcendent authority— Dewi Sri, the goddess of rice and fertility. Every stage of water division is marked by a ritual ceremony, held in the temples at the top of the water flow and in the shrines interspersed among the rice terraces. The ceremonies are scheduled according to the Balinese calendar (the Balinese year is 210 days, exactly the double of the local cycle of rice growing), and at each ceremony the *subak* farmers are reminded of the timings and sequence of the water flows. Thus, at each ceremony the co-operative relationship among farmers is strengthened. The religious occasions and the growing cycle of rice match closely, structuring the whole island into a co-ordinated system in which water management, rice production, spiritual life and social reciprocities closely merge.

...the management plan for the river [was the occasion to create] a most fruitful and appreciated experience in local democracy.

Partnerships for water management can play an important role for the sake of local ecosystem health but also for social development. For instance, a “River Parliament” has been created among various bearers of interests and concerns on the management of the river Drôme, in France. France’s law declares rivers to be property of the nation, to be managed for the general interest. The problem is that everyone needs to agree on what this interest is, within a complex system of management conditions. For the Drôme, three years of meetings, studies and encounters produced a consensus among all major interested parties. This consensus, spelled out in a document called “The Drôme Sage”, is now the management plan for the river, the ground on which a number of contracts mobilise conspicuous national resources, and a most fruitful and appreciated experience in local democracy.¹⁴ French politicians are proud of their experience with the Drôme, and are proposing it as a model for the European Community, on the basis of the European Union (EU) Directive on watershed management.

In Argentina, the Encadenadas lake watershed (south-west of Buenos Aires) has been subjected for decades to a recurrent alternation of floods and droughts that has accustomed the local residents to natural disasters. Such disasters went side-by-side with social conflicts, as some groups could protect themselves from floods only if others would accept to be subjected to water shortages. Thus conflicting interests stalled decisions or prompted one-sided measures that left many people unsatisfied. In fact, at one time or another, everyone in the Encadenadas area was hit very hard by water management failures. Droughts severely affected agriculture and tourism. Destructive floods became so severe as to make some areas permanently un-inhabitable. The crucial challenge was managing water as a common good for different local administrative units, each with its own socio-geographic peculiarities and ecologic/ economic priorities.

For some time the Argentinean government saw the problem as merely technical, *i.e.*, a problem that could be solved by appropriate technical solutions such as water reservoirs and other



¹⁴ Voir Media, 1998.

hydraulic works. It was not as simple as that. In practice, the providers of public service did not even manage to agree on a definition of the problems that satisfied *all* interest groups (e.g., tourism-dependent businesses, agriculturists, fisher folk, people from upstream and downstream villages, etc.). In addition, some of the hydraulic works they set in place actually ended up aggravating local hardships rather than solving them. It was at this time that a change of attitude began to be felt among the various actors interested in water management. Rather than discussing technical fixes, they turned to discussing rights, responsibilities and equity issues. The management of the whole watershed took centre stage, instead of the usual conflicts to appropriate specific water benefits in specific locations. This change also signalled the emergence of new social actors, *viz.* local *ad-hoc* associations, which started acting alongside the state-sponsored technical administrators and the political administrators elected in various municipalities. Thus began a laborious process that eventually established some co-ordinated management plans and set in place a Watershed Management Committee. The richer definition of the water problem and the emergence of organised social actors, capable of co-managing water rights as well as economic compensations and indemnities for water damages, are now widely regarded as crucial steps in both the development of the region and its democratic re-awakening.¹⁵

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...in agricultural research

Not only soil or water can be profitably co-managed, but also agricultural research,¹⁶ for instance on new seed technologies, on irrigation systems and on a variety of management practices. In fact, the participation of peasants— the main users of the research results— in defining research objectives and methods is considered by some among the most promising innovations in modern agriculture.¹⁷

Box 3.4 Participatory research with women farmers in dry-land agriculture (adapted from Pimbert, 1991, and Pastapur and Pimbert, 1991)

Joint problem solving, mutual learning and negotiated agreements were at the heart of a participatory research process involving scientists and women farmers cultivating marginal land in Andhra Pradesh, India. Actors involved in this decentralised research jointly established reversals in the conventional roles of scientists and farmers: women farmers took key decisions and scientists acted in a facilitating and support role. This was farmer-led research on insect pest management.

To begin with, major insect pests of pigeon-pea, an important food crop in India, were jointly identified by farmers and scientists who surveyed the crop as they walked through farmers' fields. Women farmers discussed and documented together the characteristics of their pigeon-pea varieties and their local crop management practices. They thus agreed that pest-resistant varieties were an important component of integrated pest management approaches. On the basis of such an indication, the scientists searched for and identified improved pest-resistant pigeon-pea lines that closely matched the characteristics of the farmers' varieties. Small batches of pest resistant pigeon-pea identified by the scientists on research stations were then grown out by farmers along local varieties (landraces) to test their performance in different risk-prone farming situations. The results of these trials were evaluated entirely on the basis of the farmers' own criteria. In fact, the parameters considered by the women went well beyond the scientists' conventional ones, such as "yield" and "pest resistance". The women rated the pigeon-pea lines according to ten agronomic and social criteria, including pest resistance, taste, wood production and

¹⁵ Monachesi and Albaladejo, 1997.

¹⁶ Pimbert, 1991; Sowerwine *et al.*, 1994; and <http://www.prgaprogram.org>

¹⁷ Carmen Aalbers, personal communication, 1997.

quality, fodder value, obtainable market price and the retention of quality during storage. The women farmers' criteria and priorities were elicited in individual and group interviews using ranking methods drawn from Participatory Rural Appraisal approaches.

At all stages of the co-managed research process, women of different ages and wealth, and from different villages, were included in negotiations with scientists and a local non governmental organisation to reach agreements on what to monitor and evaluate, what indicators to use, how and when to collect and analyse data, what data actually meant, how findings should be shared and what follow up was needed. The women *sanghams* (collectives or community groups) from different villages were regularly involved in discussing and cross-checking the findings, as well as planning each next step in a flexible and adaptive way. The women collectives offered invaluable guidance to the outside scientists as to which research questions and categories of knowledge were most relevant to farmers' needs and priorities and to the local agro-ecological and social contexts.

The participatory research resulted in stunning outcomes:

- One of the improved pigeon-pea lines evaluated by the women farmers was decisively rejected by the farmers because of its bitter taste. However, by the time the women farmers reached this conclusion, the same pigeon-pea variety had just been officially released in the state of Andhra Pradesh on the basis of research station and on-farm trials managed by scientists alone, as part of a conventional transfer of technology approach to agricultural development
- Two other improved pigeon-pea varieties evaluated by the farmers performed well under their conditions and, in some cases, were rated as superior to the local landraces. But despite the advantages of the improved pest resistant pigeon-pea, the women farmers still wanted to retain their landraces and other improved varieties they had tested. They believed that pest attack was lower when they grew a mosaic of mixed varieties than when they grew a single variety. The farmers' insistence on biodiversity as a principle of production in risk-prone environments led the scientist to further explore this pest management option by analysing the pest-suppressant impact of mixing different pigeon-pea lines in various combinations.

The participatory research and jointly agreed procedures were particularly appropriate in supporting diversity as a means of sustainability and food security in the local, risk-prone environments. The co-management of agricultural research by scientists and the largely illiterate women farmers also highlighted the needs for changes in institutions, attitudes and behaviours to allow more people to learn and create knowledge and technologies together, through dialogue, collective inquiry and negotiation of roles, rights and responsibilities.

...in rangeland management

Partnerships among pastoralists and between pastoralists and peasant communities have stood the test of centuries in many environments. In the first case, it is necessary to assure that communities dependent on similar modes of production coexist and do not compete destructively with one another.¹⁸ In the second, as different modes of production draw resources from complementary ecological niches, pastoralists and peasants must find rules for a fair exchange of products and for benefiting from one another (e.g., because of the fertilising of the land by passing animals).¹⁹ In both cases, the need for co-operation and the potential for conflict are high, and entire cultures developed to respond to these challenges.

The *hema* system, once common in the Islamic world and now sadly rarer, consists of a set of rules for the grazing of herds on a given territory utilised by one

¹⁸ Horowitz and Salem-Murdock, 1987; Bassi, 1996.

¹⁹ Franke and Chasin, 1980; Horowitz and Little, 1987.

or more pastoralist communities (e.g., particular tribes or villages).²⁰ The families may possess hereditary ownership or right of use or have *de facto* been grazing on the territory for a long time (in other words, the property regime is usually mixed). The *hema* rules bind all the members of the community and specify areas where animal grazing is prohibited (with the exception of specific periods and drought times, when cutting of grass is allowed as special privileges for needy people); areas where grazing and cutting is permitted except in some seasons; areas where grazing is allowed all year round (but the kind and number of animals permitted to graze are specified); areas reserved for beekeeping; areas reserved to protect forest trees such as juniper, acacia or *ghada* (these areas are usually held under common property of a village or a tribe). A person committing offence against the *hema* rules has to pay a fine; repeated offenders receive severe social sanctions.

A most interesting feature of agreements within and among pastoral societies is a propensity towards flexibility through informality, *ad-hoc*-ness, un-boundness, porosity, impermanence and a continual socio-political negotiation.²¹ In other words, pasture access is often granted through alliances and political processes that better serve the interests of the partners when they are open and informal, leaving space for bargaining and re-adjustments. This best responds to the variable ecological and economic conditions that characterise pastoral life

The hema system... consists of a set of rules for the grazing of herds on a given territory utilised by one or more pastoralist communities....

Box 3.5 **Forole, the sacred mountain of the Galbo people**
(adapted from Bassi, 2003)

Forole is a sacred mountain just north of the border between Kenya and Ethiopia where the Galbo peoples (a sub-group of the Gabbra) hold the *jila galana* ceremonies. Most of the Galbo live in Kenya, but they move in pilgrimage to the Forole on occasion of the ceremony. The trees of Forole Mountain are totally protected by the Gabbra and access to the upper part is only allowed to a few people who preside over the ceremony of the sacrifice to the Sacred Python. The lower part of the mountain provides permanent water and is used as reserve grazing area by both the Gabbra and the Borana pastoralists. Sometimes there are tensions over pastoral resources among the two groups, but the Borana fully respect the sacredness of Forole Mountain and the inherent restrictions, indirectly assuring its conservation. This community conserved area is not univocally associated with a single ethnic group and engages local actors in complex economic and symbolic relationships that work quite effectively in maintaining the quality of pasture and the livelihood of people.

Unfortunately, the forces of economic modernisation (e.g., the money-dominated economy, the predominance of market values *versus* use values) and socio-cultural change (emergence of state power and bureaucracies, urbanisation, loss of value of traditional institutions and systems of reciprocities, propensity towards fixed access rules and regulations in place of flexible, on-going, political negotiations) managed to severely weaken many culture-based partnerships throughout the world,²² such as the *hema* and *ghada* mentioned above. In some places the occupation of crucial land and destruction of traditional natural resource management systems of pastoral communities has resulted in tragedies of huge proportions, as in Ethiopia, where millions of Oromo-Borana people survive today at the mercy of climatic conditions to which earlier they were well able to respond.²³

²⁰ Draz, 1985.

²¹ Turner, 1999. See also Box 3.5 in this Chapter.

²² Watts, 1983a; Watts, 1983b; Horowitz and Little, 1987.

²³ Bassi, 2002.

It is a welcome change that some national governments and international donors are now “discovering” the management capacities of pastoral people.

It is a welcome change that some national governments and international donors are now “discovering” the management capacities of pastoral people. Thus in Kenya, the Loita Maasai communities have recently been re-assigned the management rights over the Loita Forest, after a decade of struggles in court and in the field.²⁴ In Mauritania, a recent law called *Code Pastoral* recognises the economic and management value of pastoral practices and some projects have promoted the establishment of various types of pastoral and farmers associations. These associations are encouraged and facilitated to enter into agreements with the government and among themselves to improve herds’ health and land productivity while preserving the environment from excessive exploitation.²⁵ And in Iran, pastoral communities, the government and progressive NGOs are experimenting with new forms of support to sustainable use of pastoral resources.²⁶

...in forest management

Besides agricultural and grazing lands, forestlands throughout the world have been the objects of multiple interests and seen many conflicts developing around them. Fortunately, they have also been the focus of encouraging types of collaborative solutions. Here below are contemporary examples from three continents.



In the Pacific Northwest region of the United States, the Applegate River watershed is located in Southwest Oregon and northern California. Long the object of intense polarisation and controversy over forest management practices, the Applegate Valley is composed of a patchwork of federal, state, county, and private lands. Tired of the gridlock, a number of the key stakeholders convened in 1992 to form the Applegate Partnership, a group uniting natural resource agencies, industry, conservation associations and local residents towards the goal of ecosystem health, diversity and productivity. This sixty-member group is co-ordinated by a nine-member Board of Directors. The partnership serves in an advisory capacity to relevant resource management agencies and seeks to educate private landowners and provide them with incentives to manage their forestlands in a sustainable fashion. The partnership has no legal authority to make decisions on behalf of participating agencies but, because of its broad representation and shared purpose, it has considerable *de facto* influence over forest

²⁴ Karanja *et al.*, 2002.

²⁵ Pye Smith and Borrini-Feyerabend, 1994. For a summary of the achievements of Mauritania’s second livestock project see Shanmugaratnam *et al.*, 1993.

²⁶ See the case example 1.4 in chapter 1 of this volume.

management practices in the Applegate Valley, and has succeeded to improve the whole management climate in the region. In particular, it succeeded to remove from the scene the deeply entrenched animosity and the polarity around the issues that had been so pervasive before. In place of the gridlock, “positive relationships developed between polarised groups, agencies and the community; a common vision was attained.”²⁷

In India, beginning in the 1970s, the expansion of an informal grassroots forest protection movement eventually triggered the issuing of a national resolution in June 1990. The resolution provided the authority for communities to participate in the management of state forests (no other institutional actor was contemplated in the resolution and the private sectors remained out of its scope). Subsequently, sixteen state governments issued resolutions extending rights and responsibilities to local communities for state forest protection under what is now called the Joint Forest Management (JFM) programme. As part of the programme, forestry department officials and *ad-hoc* local committees from the villages sited close to the forests develop joint management agreements and micro-plans. Over 10,000 village committees are currently active, representing a significant but still limited percentage of the potential and need in the Indian federation.²⁸ The Joint Forest Management programme has achieved impressive results in forest conservation, but is limited by local people’s lack of secure tenure to the resources they are managing. The state regulations, in fact, fail to address the long-term rights of participating communities.²⁹

...forestry department officials and ad-hoc local committees from the villages... develop joint management agreements and micro-plans.

Box 3.6 Conserving their palm groves: the pride of Gaya communities in Niger

(adapted from Price and Gaoh, 2000; and personal communication by Anada Tiega, 2003)

The Gaya region in southwest Niger offers an example of local communities re-appropriating— as well as reinventing and reorganizing— their rights to their surrounding natural resources. About 80 villages with a population of 80,000 reside in the midst of a region of the Sahel blessed with superior conditions for agriculture, including a resource unique in potential and diversity of use: the ron palm (*Borassus aethiopum*). Benefits derived from the ron palm extend to much of the rural population in Gaya, with distribution of goods and revenues shared between different groups in the society. Thus, women, farmers, herders, fisher folks and artisans all have recognised rights to access to, and use of, the palm.

The palm is of particular interest given a wide range of products harvested from its different parts. In the past it had been overexploited throughout the country to the point that Gaya harboured one of the few standing groves left in the whole country. External support to conserve and develop the potential of the local ecosystems initially focused on “technical” conditions for environmental regeneration, but has since progressively moved to efforts to promote community initiatives for conservation, management of wild resources and establishing basic conditions necessary for sustainable livelihoods. The ron palm has become the central focus for important changes in local forms of association, governance, law and economic organisation. In particular, some community land-use management groups (*unités de gestion de terroir*) have emerged, enjoying great local specificity and independence in their decision making process. Each group exercises the right to govern common resources as well as financial autonomy. The progressive recognition by government of the groups and their rights has a direct impact on revision and application of land tenure law and legislation on forms of association, as well as on common property and rights and responsibilities in natural resource management. Progressively, the local groups have extended their interests to a variety of other resources, such as wetlands and fisheries. Their success has been so important that one of their wetlands has now been declared a Ramsar site.

²⁷ Wondolleck and Yaffe, 1994. See also Box 8.6, in chapter 8 of this volume.

²⁸ Pandey, 1996; Poffenberger, 1996.

²⁹ SPWD, 1992. For a thorough analysis of Joint Forest Management in India see Poffenberger and McGean, 1998.

Fires, illegal harvesting and clearing for millet production ceased, and the illegal hunting of elephants was also curtailed.

In Tanzania, local user groups in the Babati district are entrusted with full decision-making power about conservation and resource use in the communal forests close to their villages. The forestry department and the Swedish aid agency worked with the user groups to develop management tools and criteria, but all final decisions were left to them. For their local “communal forests”, this is fully in agreement with Tanzanian law. Discussions are being held, however, to extend their management responsibility also to nearby state-owned forests, a fact that falls outside of the scope of the existing legislation.³⁰ Some pilot experiences are occurring in the south of the Babati district (Duru-Haitemba) where several forests controlled by local communities have been declared Village Forest Reserves. These are gazetted nationally but planning, management, patrolling and enforcement of rules (established as village by-laws) remain with the locals. In this sense, local groups are recognised to have not just some rights and responsibilities in management, but full authority and control over the local resources that they themselves wish to place under protection.³¹ A similar situation is found for Mgori Forest, which, however, had a different starting point. Prior to 1995, Mgori Forest was claimed as government land. When it became apparent that the government did not have the means to manage it, it turned for assistance to the local communities. The resulting agreement stipulated that the 44.000-hectare forest would be managed by the five forest-adjacent villages in partnership with their district council. The presence of the district council was not too strong (one field officer only), but the communities soon organised to establish five Village Forest Management Areas, each demarcated and guarded by their village forest guards (totalling more than 100 people) on the basis of village by-laws. Fires, illegal harvesting and clearing for millet production ceased, and the illegal hunting of elephants was also curtailed. The villages have now obtained their Certificates of Village Land and plan to register their Forest Management Areas as common property.³²

Box 3.7 Devolving power: a way to promote management partnerships!

(adapted from Garreau, 2002)

The 1996s law on the devolution of management authority and responsibility to organised local communities that goes under the name of *GELOSE* (*Gestion Locale Sécurisée* or local security of resource management) created the conditions for a profound change of approach in natural resource management in Madagascar. Typical “integrated conservation and development projects”— such as the one operated by WWF around the protected areas of Marojejy et Anjanaharibe-Sud— took advantage of this law and offered a new chance to management partnerships in the region.

At the beginning the project accompanied the local communities, as well as the administration of the communes and the sub-districts, in revisiting their history and discussing the future of their land, resources and livelihoods. This patrimonial approach created new ties among the local families and villages, which discovered similarities among their problems and wishes. Local people seemed even to start developing a common identity, despite the mixed ethnicity of the region (a pole of recent immigration). At the same time, the project diffused information on the two main components of the GELOSE law: the devolution of power regarding forests and other common property resources and the clarification and attribution of land tenure rights regarding areas under family cultivation. As time went by, the project ended up playing a role of advisor and intermediary between the communities and the administration and help building the capacities of everyone in the process, including the “mediators” foreseen by the national GELOSE procedures. It also helped the communities to ritualise the long-term manage-

³⁰ Johansson and Westman, 1992. Also: David Gilmour, personal communication, 1996.

³¹ Wily and Haule, 1995.

³² Alden Wily and Mbaya, 2001.

ment objectives, to organise internally (developing structures and rules through traditional agreements called *dina*) and to develop the necessary simple management plan and terms of reference.

The quality of this process was highly dependent on the pace of activities, which proceeded at the actors' own rhythm. The issues, beginning with forest conservation, slowly became "owned" by the communities and no longer needed to be promoted by outsiders. The communities discovered the complexity of forest management and the ways of sustainable use of forest products as well as soil and water. They themselves ask for all available tools and technical help to fulfil their forest management obligations and guarantee their future. Importantly, the state technical services become their natural partners, both to assist in surveillance and to provide technical solutions to problems. And the state administrations found their role in the coordinating initiatives and defending the established management rules vis-à-vis the external partners. In this light, the management devolution promoted by the GELOSE law seems indeed to have offered a unique occasion for collaboration and partnership among local actors.

...in the management of coastal resources

If examples of participatory management of forests abound, co-management regimes are also becoming frequent for water-based resources.³³ The firths of Scotland,³⁴ for instance, are marine and coastal wetlands including large estuaries, sea areas and coastal hinterlands— a sort of "arms of the sea", where water changes from salty to fresh and generates a complex mosaic of habitats and species. The firths are also the subject of numerous economic and cultural interests of local communities. In recent years, separate management projects have been set up for each firth, each run by a cross-sectoral, non-statutory partnership called "forum". Individual people have a chance to participate, although the statutory agencies tend to play a predominant role. The voluntary nature of these bodies constitutes both a strength and weakness for them. It is a strength insofar as people generously contribute their time and efforts for something they deeply care for. It is a weakness insofar as the decisions of a non-institutionalised forum may be stalled by a variety of obstacles and vested interests.

Box 3.8 Co-managing the Sian Ka'an Biosphere Reserve (adapted from Ramsar Convention Bureau, 2000)

In Mexico, an impressive co-management case is under way in the Sian Ka'an Biosphere Reserve, a coastal limestone flat of 628,000 ha located mid-way between Belize and Cancun on the eastern coast of the Yucatan peninsula. There, the land and sea converge gradually into a complex hydrological system of mangrove stands and creeks, salt and freshwater marshes, brackish lagoons and huge shallow bays of varying salinity, sea grass beds, islets and mangrove keys— all protected by a barrier reef growing along the coast. This sensitive ecological system has been under severe threat of irreversible degradation because of unbridled "development" based on forest exploitation, tourism and cattle ranching, and unplanned urbanisation.

In the early 1980s, the state government, headed by a committed governor named Joaquin Coldwell, agreed to take some major immediate measures: ending timber concessions to private companies, establishing community forestry programmes with local *ejidos* (a Mexican system of communal ownership) and asking that the area be classified as a biosphere reserve. In 1984, the process of developing a management plan for the reserve was started. The state and federal government created a steering com-

³³ For an illustrative review, see White *et al.*, 1994.

³⁴ de Sherbinin, 2000.

mittee to coordinate the work and established a local council including representatives of the fisher folks, coconut growers, cattle owners and peasants besides employees of the municipalities and scientists from the Autonomous University of Mexico. Gradually, forest concessions and cattle growers were asked to leave the area, fishermen organised themselves to control their fishing grounds and a zoning scheme was discussed and adopted. The initiative attracted the attention of national and international people and NGOs, which came together to create an association called the *Amigos de Sian Ka'an*.

The Association has promoted participatory action research and development initiatives based on the sustainable use of local resources and local environmental knowledge. Land tenure issues also needed to be addressed. The land in the *ejidos* belongs to the communities but the land in the biosphere reserve was federally owned and the local residents were concerned about their access to resources. The Council proposed the establishment of 90-year concessions for agricultural lots, reversible in case the occupants would not respect the regulations of the biosphere reserve. In a unique experiment, this concept was also applied to the sea. The lobster fishing grounds in the two bays were divided by the fishermen into "fields". Strictly speaking this modality cannot be legalised, but it has already become a "traditional management structure" in Sian Ka'an. Each fisherman cares for his field, devoting efforts to improve the lobster habitat, while their overall organisation carries out the surveillance against poachers.

*...local residents
survey against
dynamite fishing
[and] monitor
marine biodiversity.*

In the coastal area of Tanga (Tanzania), a co-management experiment has been on its way for several years with yearly planning workshops that bring together representatives of villages, government authorities, commercial users of the coastal resources and non-governmental organisations.³⁵ The workshops are promoted by an IUCN-assisted project, which is also engaged in encouraging villagers to analyse the situation and prospects of their natural resources and plan appropriate management activities for their land and sea territories. This is done with the concurrence and support of the other institutional actors gathered in the yearly workshops. To tackle coastal erosion, some villagers have replanted degraded mangrove areas. To support their fish stock, others are surveying their waters against dynamite fishing. The coastal residents had enjoyed resource abundance for centuries, and the project did not find a trace of traditional systems of coastal resource management in the area. Today, however, local residents not only survey against dynamite fishing, but they monitor directly marine biodiversity (including coral reef health and presence and abundance of fish species), after being specifically trained by the project staff.

In Thailand, the Yadfon Association has been working with 40 small fishing communities in Trang province starting with three villages in 1985, when the organisation was formed. The motivation was not to protect these habitats for the sake of conservation, but to secure the source of local livelihood, threatened by continual declining harvest of fish, squid, crabs, and shellfish. Fishers joined together to stop using destructive gear and practices, such as dynamite fishing and cyanide poisoning, and to restore the mangroves and sea grass beds. They successfully petitioned the local government to ensure regulations within their coastal zone. Following their successful example, in the upstream wetlands the rice farmers established a network to protect the sago palm and nypa palm forests. In all, the villagers are demonstrating their willingness and capacity to manage their coastal resources and are now active to ask the government to formally recognise their role.³⁶ In Sri Lanka, co-management of natural resources has been promoted by Special Area Management (SAM) processes in 11 coastal sites. These processes

³⁵ Gorman and van Ingen, 1996.

³⁶ Ferrari, 2003.

sought to involve communities as key managers and are now being evaluated in terms of their capacity to contribute to local livelihood sustainability.³⁷ Initiatives are also advancing, with different results, in countries as far as Belize,³⁸ Fiji,³⁹ Ecuador,⁴⁰ Australia (see later under co-management of protected areas) and Mauritania, where the Banc d'Arguin National Park and World Heritage Site is moving towards a co-management setting with the local fishing communities.⁴¹

Box 3.9 Marine Co-management in Soufriere (Saint Lucia)

(adapted from Renard and Koester, 1995; and Geoghegan *et al.*, 1999)

In the Caribbean island of Saint Lucia, a regional NGO called the Caribbean Natural Resource Institute (CANARI) and the local Department of Fisheries jointly facilitated a laborious conflict resolution process among local fishing communities, hotel owners, dive operators, community institutions and government agencies— for years in bitter confrontation over different management options for their area's coastal resources. The conflict resolution efforts paid off beautifully, as an effective co-management agreement is now in place.

A pluralist coordinating body, named the Soufriere Marine Management Association (SMMA), is composed of representatives of all major actors interested in the management of coastal resources. The Association developed a shared vision of the future of the marine and coastal environment of the Soufriere region, which includes sustainable development, the equitable sharing of its benefits and the fostering of wide social participation in decision-making. The Association is constituted as a “non-profit company” with charitable, developmental and scientific objectives and is assigned the powers of coordinating the implementation of the agreements to manage the Soufriere Marine Management Area, as well as related programmes and financial, technical and human resources.

Zoning is a main component of the agreement. So far, five zones have been identified, including Marine Reserves, Fishing Priority Areas, Multiple Use Areas, Recreational Areas and Yacht Mooring Sites. According to the zoning, different regulations for resource use are established for fishing, diving, yachting and water sports. Complementary programmes include activities in education, public awareness and communication, social and economic development, infrastructure, research and monitoring. The Association has established its own by-laws, with periodicity and arrangements for meetings, conditions for new members (they would have to become signatories to the agreement and be accepted as legitimate stakeholders at an annual general meeting of the Association), conditions for the nomination or election of officers on the board of directors (Chairperson, Deputy Chairperson, Secretary and Treasurer) as well as the duties of these officers, and procedures to constitute advisory committees and other bodies to assist the Board in the implementation of its programmes and the running of its operations.

The co-management setting has enhanced the protection of the marine reserves and thus profited the tourism industry. The fishermen, on the other hand, obtained a guaranteed access to the fishing zones and feel more secure in their livelihood. As a consequence, they actively support the reproduction and maintenance of the fish stock, resulting in environmental and economic benefits for everyone.



³⁷ Senaratna and Milner-Gulland, 2002.

³⁸ <http://www.communityconservation.org/Belize.html>

³⁹ <http://www.lmmanetwork.org>

⁴⁰ See Box 6.12 in Chapter 6.

⁴¹ Heylings, 2002.

...in the management of freshwater wetlands

For the management of freshwater wetlands, typical limited attempts at participatory approaches are supported by conservation and development projects, as in the cases of Djoudj National Park, Senegal and the adjacent Diawling National Park, Mauritania⁴². For neither Park an effective co-management setting is yet in place, but in both a variety of committees and meetings to engage stakeholders in discussions and advice are slowly substituting top-down decision making practices. The local environmental knowledge and the indisputable advantage of local communities in carrying out park surveillance are today recognised by governments and experts alike. With those, the right of the local people to maintain the integrity of their livelihoods (which includes their own forms of resource management and use) is also becoming recognised.

... the right of the local people to maintain the integrity of their livelihoods (which includes their own forms of resource management and use) is... being recognised.

In Mexico, the coastal wetlands of the southern state of Sonora encompass 62,000 ha of high biological diversity located along an important shorebird and migratory bird flyway. Effluents from irrigated agriculture pose the primary threat to the conservation of the wetlands, followed by cattle husbandry, shrimp aquaculture and urbanisation. Among the social actors with primary interests and concerns are the local permanent and seasonal fisher folks and the indigenous residents (*Yaquis* and *Mayos*) but also the aquaculturalists, farmers, livestock raisers, hunters, tourists, industrialists and other local residents. Through a series of workshops beginning in 1994 all these groups had the opportunity to work together and provide inputs into a strategic plan prepared together with governmental agencies, academic bodies, NGOs and donors.⁴³

In India, Keoladeo National Park⁴⁴ (Rajasthan) is a natural depression re-designed by local kings (e.g., using small dams) to attract as many birds as possible. Throughout centuries of careful water management, the site became an internationally famous bird sanctuary and began attracting more and more tourists. In order to favour conservation and tourism, however, the Indian government went possibly too far. In 1992 a three-meter wall topped with barbed wire was constructed all around the Park to prevent buffalo grazing and other Park access. These measures were implemented without consultation with the local communities, who saw their historical pattern of access and use suddenly becoming illegal. Years of violent conflict, non-cooperation and passive resistance ensued. Paradoxically, a very expensive scientific study ended up “discovering” that buffalo grazing is essential for the maintenance of the ecological characteristics that attract the birds, something that local people had known and fought for all along! It is with the help of the World Wide Fund for Nature (WWF) that a new atmosphere of dialogue and collaboration is finally developing between the park management and the local communities. A number of agreements have been drawn to regulate fodder collection and access to temples inside the park. Some welfare measures have also been initiated by park authorities and the tourist fees to visit the Park have been increased. The Park authorities report to be willing to allow controlled grazing of weeds inside the Park, sharing of tourist revenues with the local communities and setting up effective joint management schemes. In 2000, however, the situation was still quite unclear and potentially stalled, as national park policy in India was deemed not yet equipped to allow these kinds of formal agreements.

...a very expensive scientific study ended up “discovering” that buffalo grazing is essential for the maintenance of the ecological characteristics that attract the birds—something that local people had known and fought for all along!

⁴² Hamerlynck, 1997; Ould Bah *et al.*, 2003.

⁴³ Ramsar Convention Bureau, 2000.

⁴⁴ Pimbert and Gujja, 1997; and Biksham Gujja, personal communication, 2000.

Kenya's Lake Naivasha is the only freshwater lake in the otherwise saline lakes in the Great Rift Valley, supporting a rich biodiversity of plants, mammals, birds and amphibians. Over 60,000 people live close to the lake, using its water for drinking water and agricultural production. Human activities on the shores and the untreated water flowing back into the lake threaten the local ecology. Most land around the lake is privately owned and since 1931, the landowners organised themselves in the Lake Naivasha Riparian Association. This association manages the lands around the lake in the way it sees fit, the only constraint being that no permanent structures may be erected. Some years ago, the Association's Environmental Subcommittee, out of a growing concern about the state of the lake and its environs, started a management plan development process. This led to establishing codes of conduct (e.g., for the flower growers, the tourism industry people and the livestock keepers) for the wise use of the lake's water,⁴⁵ which prompted the listing of the lake as a Ramsar site.

Box 3.10 **Community based river conservation in Mandailing (North Sumatra, Indonesia)**
(adapted from Ferrari, 2003)

The *Lubuk Larangan* system has been carried out by the people of Mandailing Natal district (North Sumatra) since the 1980s. The system is used to protect a river, which is entirely forbidden to exploit during the "closed season" that generally lasts a full year. The monitoring for the fishing prohibition is carried out by the community located close to the river and applies to all the people who interact with the river. At the end of the closed season— which usually coincides with the Islamic celebration of the end of the fasting month, *Raya Idul Fitri* in Bhasa Indonesia language—the prohibition is lifted for a few hours. Everyone can participate in fishing activities in the river after paying a fee which goes to fund community development activities. The occasion generally turns into a community festival.

Before the spread of the *Lubuk Larangan* system in the 1980s traditional conservation activities applied to rivers and forests were practised by the Mandailing and known as *rarangan* (prohibition). These were closely interlinked with the traditional land use system, which was governed by the traditional authority. Since Indonesian independence, however, these traditional systems have been replaced by the central government and the local forest prohibitions have been abandoned. One of the major ecological and social problems currently affecting the province of Mandailing Natal is both legal and illegal logging. Various local communities in Mandailing restarted practising river protection in the 1980s in order to raise funds for public needs such as teachers' salaries, building of religious schools, provision of assistance to orphans and the poorest people, community road construction, etc. The fee collected during the fishing festival varies between 3 to 10 million Rupias which goes a long way in meeting community needs. The *Lubuk Larangan* system has been adopted from a neighbouring province but closely resembles local practise of the past. The district government passed a decree to regulate the *Lubuk Larangan* system in 1988.

The re-introduction of the *Lubuk Larangan* has created a spirit of cooperation and solidarity among the local people and has provided valuable economic benefit to the community. More studies need to be done to assess the ecological effects. It is believed, however, that an increase in river biodiversity should be revealed.

⁴⁵ <http://www.iucn.org/themes/wetlands/naivasha.html>

...large river basins call for a joint jurisdiction regime involving multiple stakeholders at various levels. The co-management path is ridden with difficulties but the costs of not attempting it are even greater.

The management of large scale river basins is determined by the competing claims on water and water-dependent resources by international, national, sub-national and local actors. Such competing claims need to be resolved by a socio-political negotiation and the resulting decisions need to be properly enforced. Indeed, the very complexity of the situation of large river basins calls for a joint jurisdiction regime involving multiple stakeholders at various levels. The co-management path is ridden with difficulties but the costs of not attempting it are even greater. Two typical cases, the ones of Mekong and Okavango,⁴⁶ illustrate the attempts at establishing river-wide commissions, involving various countries and tackling issues according to collaborating rather than competing or hostile processes. Given the extent, importance and complexity of the relevant issues, the programmes developed by such River Basin Commissions begin by detailed, and often interminable, socio-ecological surveys. Fortunately, while the surveys are going on, limited attempts at co-managing resources, in particular fisheries, can be pursued with success in particular locations (see Box 3.11).

...in fishery management

Fisheries is a sector where co-management has been practised for a long time with excellent results. In the words of Pinkerton (1989) “The accomplishments of co-management [fishery] regimes in which governments and users have shared power and responsibilities in enhancement of long-range stock recovery planning and habitat protection are especially notable in producing superior and more efficient management”. In Europe, one of the earliest arrangements to involve devolution of central government powers and the formal sharing of fishery management jurisdiction with fishermen is the Lofoten Cod-fishery Co-management. This arrangement evolved as a solution of last resort to serious and protracted conflicts among fishermen crowded in the same, exceptionally rich cod migration routes. On the basis of the Lofoten Act, approved in Norway in the 1890s, the co-management arrangement became possible, and indeed succeeded in bringing peace where the Norwegian state had not been able to. As soon as the fishermen assumed responsibility to manage the fishery, they developed their own committees in charge of developing rules (fishing time, type of gear, space allocated, inspections, etc.). Those rules, upon adjustments on a “learning by doing” mode, have been effective for more than a century.⁴⁷

The maritime tradition of Japan never included the idea that the sea could be an open access environment.

In Japan, the offshore, distant fisheries and deep-water resources are managed in much the same way as other countries, by granting licenses to commercial companies. The inshore fisheries, however, have a long history of collective marine tenure arrangements, comparable to the one of land commons in Europe, with records that at times go back nearly a thousand years.⁴⁸ The current co-management system assigns regulatory authority at national and regional levels and decision-making power mostly at the local level.⁴⁹ This arrangement was designed to formalise traditional fishing rights, which in the past were in the hands of village guilds. Interestingly, the maritime tradition of Japan never included the idea that the sea could be an open access environment.⁵⁰ The rights are vested now in local fisheries co-operative associations, with membership based on residency and a period of apprenticeship in the fishery.

⁴⁶ The Permanent Okavango River Basin Commission (OKACOM) was established in 1994, while the Mekong River Commission (MRC) was established already in the 1950s.

⁴⁷ Jentoft, 1989.

⁴⁸ Ruddle and Akimichi, 1984, quoted in Weinstein, 1998.

⁴⁹ Lim, Matsuda and Shigemi, 1995.

⁵⁰ See the summary of the Japanese fishery case in NRTEE, 1998.



The members of a co-operative obtain their own individual rights of use, which are not transferable.⁵¹ The co-operative associations own the local coastal waters but need to apply to the government for fishing licences, which they then distribute among their members. The national government establishes the total allowable catch for the offshore and coastal fishing areas, and the local co-operatives sub-divide the quota among the fishermen. In addition, and in co-operation with other local authorities and partners, the co-operatives set up regulations, special projects, management plans, commercial ventures, purchase of supplies, and so on.

Rio Grande da Buba⁵² is a brackish estuary with very productive fisheries, a high density of marine and terrestrial mammals and a wide range of bird life in the south-western coast of Guinea Bissau. Since the early 1990s the IUCN has facilitated there the development of co-management arrangements between local villages and government agencies for the sustainable use of fisheries. The local fishermen were assisted to organise and set up among themselves a credit scheme based on traditional customs, which was remarkably successful. At the same time, government-assisted research was underway to identify sustainable levels of fishery exploitations. When it became clear that barracudas were being over-exploited, the local communities and government agencies agreed on promulgating and enforcing limitations on the number of boats and the use of fine meshed nets during reproduction time. These limitations have been overall very well respected. In the meantime, the IUCN was supporting the commercialisation of fish through women's co-operatives, which met astounding commercial success. Prior to the conflict that unfortunately engulfed the country in 1998 there were more than 30 organised groups of fishermen and women fish-sellers in Rio Grande da Buba. They had managed to stabilise their fishery catch while greatly increasing the benefits for their own communities. All the above was accompanied by repeated requests for training and social support by villagers, the result of successful village-driven development efforts. At the time of this writing some relatively peaceful if not stable political conditions have returned to the country and the fishermen organisations are active as ever, demonstrating a remarkable sustainability and resilience, and the capacity to survive even the most erratic socio-political conditions.

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⁵¹ Weinstein, 1998.

⁵² de Sherbinin, 2000.

Box 3.11 **Fishery co-management in the Mekong— Khong district (southern Lao PDR)**
(adapted from Baird, 1999)

Between 1993 and 1998, 63 villages in Khong district, Champasak province, southern Lao People's Democratic Republic (PDR) established co-management regulations to sustainably manage and conserve inland aquatic resources, including fisheries in the Mekong River, streams, backwater wetlands, and rice paddy fields. Local government endorsed these regulations, but the villages themselves choose what regulations to adopt based on local conditions and community consensus. The same communities are now empowered to alter regulations in response to changing circumstances.

Up until the 1950s and early 1960s fisheries practices in Khong were largely traditional. Fishing was conducted almost entirely for subsistence purposes, with the exception of a small amount of barter trade for certain high quality preserved fish, and the resources were managed as common property. Over the last few decades there have been many changes in aquatic resource management patterns in Khong district, and in Laos as a whole. The human population of Khong has increased rapidly. Lines and nets made of nylon, including mono and multi-filament gillnets, have become extremely common. As fish now fetches higher prices in the market and people are becoming accustomed to consumer goods, subsistence fishing has turned into market fishing.

The Lao PDR is supporting co-management with the assistance of some specific projects. Communities generally learn about this from neighbouring villages, friends and relatives, or from government officials. If their leaders are interested, they write a short letter to the Khong district authority, who later come to visit and assist in the process of developing a co-management plan (see also Boxes 5.10, 6.10 and 9.21). The plan included detailed regulations, such as fisheries conservation zones (partial or total), bans on stream blocking, on using lights at night, on chasing fish into nets, on destroying flooded forests and forests at the edges of the river, on using frog hooks and traps, on catching juveniles, and so on. It is generally up to the village headmen to assure that regulations are implemented. Most communities rely on a mixed strategy that includes enforcement of regulations and awareness raising, which are both important, especially at initial stages of implementation.

The aquatic resource co-management programme in Khong has been very successful. It has enhanced village solidarity, increased natural resource management capacity and increases the fish and frog stocks and catches. It demonstrated to be a most important option for equitably managing natural resources in the region.

...in mountain environments

Mountain environments present unique difficulties for the development of co-management settings. The relevant territories are often large, sparsely populated and comprise difficult terrains, sometimes including barriers that separate entire cultures and countries. And yet, remarkable examples of co-managed natural resources in mountain environments do exist. In the Annapurna Conservation Area— an internationally renowned high mountain environment in Nepal— a large-scale attempt at integrating conservation and local development has been promoted and supported for a decade by the King Mahendra Nature Conservation Trust.⁵³ Local, regional and national organisations discuss on an on-going basis the specific management decisions to be taken at various levels (including decisions over distribution of tourism revenues). The main aim is to involve all the relevant parties in management, so that their interests, concerns

⁵³ King Mahendra Trust, 1994.

and capacities are fully taken into account. Several committees participate in developing specific agreements, and dedicated agents called *lami* (matchmakers) facilitate the process.

A similar co-management experience is also pursued, albeit with different mechanisms and results, in the buffer zones of some National Parks in Nepal.⁵⁴ This builds upon several years of experience and positive results in community forestry initiatives in the country, another example of co-management involving governmental agencies and local communities.⁵⁵ In Pakistan, the Mountain Areas Conservancy Project is engaging local communities, concerned government departments and various conservation agencies such as IUCN, WWF, the Aga Khan Rural Support Programme and the Himalayan Wildlife Foundation. One of its aims is the development of community conservancies. A conservancy has a territory (usually a watershed), various conservation committees and a valley conservation plan and fund. The pluralist watershed conservation committees are organised into clusters and apex bodies at each level.⁵⁶

In Scotland, the Cairngorms Area is an important element of the natural heritage—probably the largest integral area of high and wild ground in the United Kingdom. The Area is managed by a Partnership Board composed of 20 members in representation of a wide range of social actors with relevant interests and concerns. In turn, the Board calls together the even larger spectrum of concerned individuals, groups, agencies and organisations that need to agree and co-ordinate action if any measure of conservation and sustainable development is to take place. This is done in meetings and conferences, privately and in public, and via many community-outreach activities. Through such extended consultations, the Board has developed a conservation and sustainable development strategy.⁵⁷ Zoning is a major means of composing different interests and concerns in the strategy, and several projects have been identified in different zones.

A similar pluralist management setting is sought but far from being achieved for the Mont Blanc region, a foremost scenic and biodiversity icon in Europe. This charismatic mountain environment, shared among Italy, France and Switzerland, is home to 30 municipalities with important common cultural characteristics developed through centuries of human and economic exchanges. On paper, a Trans-boundary Conference for the Mont Blanc and an ambitious joint programme have been set up, but in practice only the elected politicians of the three countries seem to have a voice in the management of the area, downplaying environmental concerns, responding only too well to economic imperatives and derailing any attempt at genuine participatory conservation attempts.⁵⁸ Currently, an umbrella NGO is actively organising national and international meetings among social actors concerned with the future of the mountain, its people and culture, and demanding an active role in deciding about it.

...dedicated agents called lami (matchmakers) facilitate the process of developing specific agreements.

Zoning is a major means of composing different interests and concerns in the strategy, and several projects have been identified in different zones.

⁵⁴ Kettel, 1996a and 1996b.

⁵⁵ Gilmour and Fisher, 1991; Hopley, 1993.

⁵⁶ Pathak *et al.*, 2003.

⁵⁷ Cairngorms Partnership, 1996.

⁵⁸ Chatelain and Ehringhaus, 2002.

Box 3.12 **Ambondrombe (Madagascar): caring together for a sacred mountain**

(adapted from Rabetaliana and Schachenmann, 2000)

Ambondrombe is a sacred mountain and historic site on the border between Betsileo and Tanala lands, towards the southern end of the Malagasy eastern escarpment between Ranomafana and Andringitra National Parks. Still relatively intact, dense tropical forest covers its flanks, giving way to rare cloud forests at the summit. At lower elevation to the East, the forest dwelling Tanala cultivate mainly bananas and robusta coffee. At lower elevation to the West the undulating savannah gives way to the manicured farms of irrigated rice, tobacco, maize, potato and fruit trees of the Betsileo agriculturists. In the last century, the Ambondrombe Mountain and surrounding lands were also inhabited by several generations of Betsileo royal families. These families called in some Merina people, who brought in their handicraft and agricultural skills. The Merina's cultural influence was absorbed rather than fought by local people, and its impact is still evident today in local architecture, handicrafts, legend, folklore and taboos. For both the Tanala and Betsileo peoples, the mountain forest offers rich natural resources, abundant water, relatively fertile soils, wood for building and cooking, natural fibres, medicinal plants and a vast variety of bush food for hunting and gathering. It is only too reasonable that they both claim the mountain forest as part of their ancestral inheritance and favour settlements of their own people at the edges of this forest corridor. More claims are also coming from new migrants and stakeholders (scientific, commercial and tourism) as Ambondrombe constitutes the only intact biodiversity bridge left between north and south along the eastern Malagasy escarpment.

How can the complex interests and conflicts at play be effectively managed to conserve this unique natural and cultural jewel of Madagascar? The exceptional self-help spirit of local elders and leaders around Ambondrombe is showing the way. A community-based natural and cultural resource management programme has started with voluntary forest guards organised by a committee of village elders. The elders are accustomed to protecting the forest against illegal migrants and settlers and to make sure that the use of local resources is done in a sustainable way according to customary laws (*dina*).

The programme is taking advantage of a state-approved system of natural resource management called GELOSE (*Gestion Locale Sécurisée*, or local security of resource management) in which they work with various national and international, governmental and non-governmental partners (see also Box 3.7 in this Chapter). The Water and Forests Service assists in land use and fire control and management. An NGO is helping with reforestation for timber and firewood, training local farmers in plantation management, sawing and semi-industrial charcoal production with improved mobile kilns. Another NGO assists in agricultural diversification and intensification, e.g., the restoration of silk worm production for the weaving of traditional garments (*lambas*) and in agroforestry approaches. Local consultants assist with a comprehensive ecotourism strategy, involving the descendants of the Betsileo royal family, custodians of cultural and sacred sites in the area.

The stakes are high and the challenge is impressive. In the course of the negotiations the poor face the rich; the local visions, aspirations, actions and taboos stand up to global perspectives, interests and influences; the demands of traditional subsistence livelihoods clash with the ones of modern economy; and the local governance system based on customary law needs to deal with the rules and inflexibility of a modern nation state. Fortunately, all the stakeholders involved have expressed a common aim: developing and applying self-help approaches to preserve the natural and cultural diversity and identity of the unique Ambondrombe "lifescape". The work is on-going.

...in managing migratory wildlife

Co-management arrangements do not necessarily refer to a specific territory or area of sea. Such is the case for agreements on the management of migratory

wildlife, which refer to specific animal species, for instance the Beluga whales found in the coastal and estuarine areas of the Eastern Canadian Arctic. This species of whales has been managed for years through agreements between Fisheries and Oceans Canada and various communities and organisations of the Inuit indigenous nation. Under the agreements, female whales are protected, there is a sanctuary area where calves can grow undisturbed, and hunting rules are established and respected⁵⁹.

Similarly, a large herd of porcupine caribou, ranging across two Canadian territories and the state of Alaska, is managed as a result of an international agreement between the governments of the USA and Canada.⁶⁰ The herd is of major economic and cultural importance to a number of Alaskan and Canadian indigenous communities. This is true not only because the caribou meat is an essential component of their diet. Hunting, preparing the meat and sharing the harvest are the building blocks of their cultures. The agreement between the USA and Canada provides for the constitution of the International Porcupine Caribou Board, in charge of developing a management plan for the herd and its habitat. In Canada, a similar “national” Board exists, including members from the Gwich’in Tribal Council, the Council for Yukon Indians, the Inuvialuit Game Council, the Yukon Territorial Government, the Government of Canada and the Government of the Northwest Territories. Every year, management plan updates and reports are agreed upon and distributed among the various interested groups within Canada, and across the border.

Possibly the best known example of co-management of migratory wildlife is the CAMPFIRE initiative in Zimbabwe.⁶¹ The initiative— described also in case example 1.3 in chapter 1 of this volume— has succeeded in establishing many specific partnerships among local communities, district authorities, the national government, some national NGOs, research institutions and business operators. The “producer communities” involved live right in the midst of the habitat of wildlife (including the large animals prized by trophy hunters), and directly sustain the rel-



evant opportunity costs and direct damages. Occasionally they also actively improve the habitat of wildlife, for instance by digging water pits for the elephants in case of severe droughts. On the basis of a specific Act of the national government, the district authorities are in charge of wildlife management. The national NGOs and research institutions provide technical and organisational help to the producer communities and district authorities. The business operators organise the flow of tourists and hunters that inject financial resources into the system and provide a return to the producer communities and the district administrations. The initiative has obtained positive results for both conservation

Co-management arrangements do not necessarily refer to a specific territory or sea area. Such is the case for agreements on the management of migratory wildlife, which refer to specific animal species...

⁵⁹ Drolet *et al.*, 1987.

⁶⁰ Porcupine Caribou Management Board, 1995. See also Table 8.1 in Chapter 8.

⁶¹ Jones and Murphree, 2001.

Even limited levels of authority and responsibility seem to make a significant difference.

objectives and the local economy and livelihoods. At the time of this writing, big game hunting seems to remain the only economic initiative strained but not substantially affected by the current socio-political crisis in the country. Big game hunting remains popular, allowing a relatively stable source of income to the wildlife-dependent communities.

The CAMPFIRE initiative has been so successful that it has been replicated under similar models in Botswana, Zambia, Mozambique, Namibia, Tanzania, and has inspired practice in many other African countries. The devolution of management authority and responsibility to local communities, however, has been more or less effective depending on a country-by-country basis. In Namibia the communities that joint together to form conservancies (see Box 3.13) have substantial decision-making power. The 51 communities in the surroundings of Tanzania's Selous Game Reserve— one of Africa's oldest and largest protected areas— on the other hand, have much less power. They are assigned rights and responsibilities over the wildlife that penetrates in their territories in a rather paternalistic way.⁶² And yet, even such limited levels of authority and responsibility seem to make a significant difference. There appear to be a reduction in poaching between the Serengeti and Selous by a factor of 10, attributable to the fact that only in the surroundings of Selous the local communities benefit from the wildlife that moves out of the park into their adjacent lands.⁶³

Box 3.13 Private and community conservancies in Namibia: co-managing land for game farming and wildlife-related livelihoods
(adapted from Jones, 2003)

Namibia has about 75% of its wildlife outside formal state-run protected areas. Private farms developed a multi-million euro industry based on consumptive and non-consumptive uses of wildlife. But individual farm units are not large enough for successful game farming, as game requires large areas where to take opportunistic advantage of pasture growth and water supply in arid and unpredictable environments. Mobility and flexibility are the keys to survival. Private farmers soon realised the advantages of pooling their land and resources to manage wildlife collectively and established "conservancies" with common operating rules, management plans and criteria for distribution of income derived from wildlife. There are now at least 24 conservancies on private land in Namibia (there were only 12 in 1998) covering an area of close to four million hectares. Efficiency of scale means that their returns are more than twice those of individual wildlife ranches.

Namibian communities have followed suit. There are now also 15 "community conservancies" in Namibia, managing another four million hectares of land with more than 200,000 wild animals, including endangered black rhino, endemic species such as Hartmann's mountain zebra, and large parts of Namibia's elephant population. Important habitats managed by community conservancies include the western escarpment of the central plateau, which is a major centre of endemism, seasonal and permanent wetlands; northern broad-leafed woodlands; and west flowing rivers which form linear oases in the Namib Desert. Several community conservancies have set some of their land aside as core wildlife and tourism areas within broader land use plans and wildlife has been re-introduced to at least three such conservancies. Torra⁶⁴, a community conservancy with more than 350,000 ha in north western Namibia, has one up-market tourism lodge generating about €50,000 annually. Trophy hunting is worth nearly €18,000 annually and a recent sale of Springbok raised €13,000. The size of the conservancy

⁶² Baldus *et al.*, 2003.

⁶³ R.K. Bagine, Chief Scientist of Kenya Wildlife Service, personal communication, 2003.

⁶⁴ Torra is the first and most economically successful community conservancy in Namibia. Other conservancies are less fortunate in terms of tourism potential and the lack of sustainable income may constitute a problem for their long-term viability.

means that it could certainly develop two more lodges without causing environmental damage or spoiling the wilderness experience for tourists. This would more than double the existing income, making considerably more money available for the 120 households once the operating costs of about €18,000 have been covered.

...in managing protected areas

Protected areas of various IUCN categories— from national parks to protected landscapes— are increasingly managed by partnerships involving governmental and non-governmental actors.⁶⁵ The 2003 World Parks Congress in Durban (South Africa) endorsed recommendations that identify and acknowledge several governance types for protected areas (PAs), including co-management and community management (community conserved areas). The openness to a diversity of institutional arrangements was recognised as a determinant of strengthening the management and expanding the coverage of the world's protected areas, addressing gaps in national PA systems, improving connectivity at the landscape and seascape level, enhancing public support for conservation, increasing the flexibility and responsiveness of PA systems, improving their sustainability and strengthening the relationship between people and nature. It was also endorsed that the IUCN PA category system (based on key management objectives) was to be integrated with a new dimension for "governance type" and strengthened with reference to cultural management objectives (more attention to be given to the crucial ties between biological and cultural diversity). As major as they appear, these statements do not signal a change in orientation but, rather, the full legitimisation of processes underway for several years, which were already recognised at the World Parks Congress in Caracas (1993) and at the Seville International Conference of 1995.⁶⁶ The Caracas Congress stressed the importance of "conservation partnerships"⁶⁷ and the Seville Conference emphasised that the biosphere reserves are to be managed with the active involvement of local authorities, NGOs and economic operators, in addition to local communities, scientists and conservation professionals.⁶⁸

The 2003 World Parks Congress endorsed recommendations that identify and acknowledge several governance types for protected areas, including co-management and community management (community conserved areas).

An interesting example of a biosphere reserve engaged to transform the participation theory into practice is the Sierra Nevada de Santa Marta (Colombia), the highest coastal mountain range in the world (it rises to 5,775 meters just 42 kilometres from the Caribbean coast). There, the Fundación Pro-Sierra Nevada de Santa Marta conceived and tirelessly supported a collaborative process to develop a strategy for the preservation of biodiversity and the sustainable use of natural resources. Innumerable meetings have been held among various institutional actors— including representatives of thirteen municipalities, two national parks, the indigenous inhabitants of the territory, the business sector (heavily dependent on the Sierra as a "water factory"), as well as the army and even some guerrilla groups and paramilitary factions. Despite the foreseeable spectrum of opinions and interests among stakeholders, some common concerns could be identified and a large number of potential initiatives were consolidated

⁶⁵ See, for instance, West and Brechin, 1991; Barzetti, 1993; Amend and Amend, 1995; Sarkar *et al.*, 1995; IUCN, 1996b; Borrini-Feyerabend, 1996. For recent reviews of case examples of co-managed protected areas and community conserved areas, see two recent special issues of *Policy Matters*, the journal of IUCN/ CEESP, No. 10 on Co-management and Sustainable Livelihoods and No. 12 on Community Empowerment for Conservation <http://www.iucn.org/themes/ceesp/publications/publications.htm>

⁶⁶ UNESCO, 1995.

⁶⁷ McNeely, 1995.

⁶⁸ This statement was needed. A survey of biosphere reserves concluded in 1995 that they had made little progress in involving communities in decision making. The study stated that collaborative action was slow to develop, alternative lifestyles were not taking hold, biological scientists were remaining in the drivers' seat and local participation was not given the attention it deserved (IUCN, 1995).

... management agreements can be signed between the landowners and the Park Authority and are considered to be legally binding contracts.

into a Sustainable Development Plan for the whole bioregion.⁶⁹ This Plan is the expression of a major social agreement developed under extremely difficult socio-political conditions. The implementation of the plan is understandably constrained by the political instability of the area, but the process has been very positive overall.

In some parts of the world, the participatory approach to protected area management has been for some time the rule rather than the exception. In Western Europe, for instance, the interests of local people are central to the stated objectives of protected areas (“...the well-being of those who live and work in the National Parks must always be a first consideration...”⁷⁰), privately owned plots are commonly included in the protected territory, and local administrators are largely involved in management activities. This is not surprising, as the landscapes of Europe are the product of a long history of interaction between people and the land. In fact, biodiversity values are often found in association with traditional land uses (such as pastoral farming systems) and the most appreciated landscapes are those that combine natural and cultural features. For such “cultural landscapes”, as aptly described by Phillips (1996):

“...the real protected area managers are not the park rangers but the farmers and the foresters who live there and make use of the land in a traditional way, as well as some branches of regional or local government in democratic representation of local residents. Day to day conservation is undertaken in partnership with a range of stakeholders in the public, private and voluntary sectors. In this sense, collaborative management has been widely practised in Europe for many years”.

The Park Director believes that the attitude of both management and the local parties is the most important ingredient of effective collaboration.

An example in point is the North York Moors National Park (United Kingdom), which includes land settled and farmed for millennia.⁷¹ The landscape encompasses large areas of semi-natural vegetation— such as ancient woodlands— interspersed with grazing areas, hedgerows, farmland and some small towns and villages. The relationship between the park and the local people is so close that the Park Management Plan is included as part of the general plan of Town and Country Development, prepared with the extensive involvement of the public. In fact, most of the land in North York Moors is under private ownership (a factor common to many protected areas in Europe) and the management plan is therefore dependent on the co-operation of the landowners. Management agreements can be signed between the landowners and the Park Authority and are considered to be legally binding contracts. The agreements are entirely voluntary, although the Park Authority can provide financial incentives and compensations in return for agreed works or environmentally sound farming practices. Land use changes can be controlled in part by the Park Authority, but farming activities generally remain outside these controls. The formal structural arrangement for co-management involves regular meetings, various forms of consultation, local input to the management plan and the representation of the local community on the Management Board. The Park Director, however, believes that the attitude of both management and the local parties is the most important ingredient of this very effective collaboration.⁷²

In France, the *Parcs Naturels Régionaux*⁷³ (PNRs, Regional Natural Parks) fully

⁶⁹ Fundaci n pro Sierra Nevada de Santa Marta, 1997.

⁷⁰ Harmon, 1991.

⁷¹ Statham, 1994.

⁷² Wilson, A., 2003.

⁷³ Allali-Puz, B chaux and Jenkins, 2003.

demonstrate the power of a new approach, citizen-based and citizen-controlled, to establishing and managing protected areas. For each of the 38 existing PNRs in the country (covering 11% of the national territory), the state retains its role of evaluator and supervisor but all other decisions, from boundaries to management objectives, are taken by local social actors. Such decisions are collected into “the Charter” of each Park, a voluntary contract among all the relevant parties. In other words, the citizens get together (usually through their elected representatives but also because of the impulse of NGOs and others) and decide that they want to manage their land, protect their natural and cultural patrimony and experiment with the best way of doing it. Together, they generate a vision, transcribe it into the Charter, and identify a variety of initiatives, partnerships and new and innovative agreements to take the Charter to action and awaken the natural, cultural and economic potential of the land. They themselves originate the request to the government that their land is declared a Regional Natural Park, which is a stamp of environmental quality. The state delivers the denomination on the basis of certain criteria and withdraws it if and when the criteria are no longer respected. A typical PNR is managed by a mixed body gathering elected officials at various levels and socio-professional representatives. This body works in on-going, close consultation with the civil society at large, organised in commissions, committees, etc. The adherence to the PNR is totally voluntary (a municipality can “keep itself out” of a PNR even if entirely surrounded by it) and the territory of the Park is entirely accessible.



The citizens generate a vision, transcribe it into the Charter, and identify a variety of initiatives, partnerships and innovative agreements to take the Charter to action and awaken the natural, cultural and economic potential of the land.

Box 3.14 **Tayna Gorilla Reserve (Democratic Republic of Congo)**
(adapted from Nelson and Gami, 2003)

The Tayna Gorilla Reserve located in North Kivu, DRC was created in 1999 through collaboration between conservation agencies and two traditional leaders of the Batangi and Bamate people. The Statutes for this “Community-based Reserve” of 800 sq km constitute a formal agreement between the customary landholders, government and NGOs. Local people directly participate in the management of this protected area, whose goals includes both the conservation of biodiversity and the promotion of rural development. In this region of ongoing armed conflict, the Tayna forest guards are unarmed, and repressive protection measures are not employed by them. Communities have been directly involved in the development of the Reserve’s management plan, including to establish a forest zoning scheme and to address the long-term development of the protected area. The Reserve programme recognises that customary use of the local resources will continue as part of the long-term management and conservation of the forest habitat. Key dilemmas faced by this initiative are the degree to which unauthorised use by outsiders can be prevented during periods of political instability, and how to include the local Pygmy population, which so far has been marginalised in the process of establishing this initiative.

...community-selected and certified local users can extract a limited quantity of specific resources (e.g., vines, honey, medicinal plants) from the National Park.

Unlike in Western Europe, in most countries of the developing South the forms of participatory management of protected areas now in place has evolved as a sort of “last resort” measure. Many have been promoted to palliate the scarcity of management funds, to deal with situation of high political uncertainty (see Box 3.14), or to mend long standing conflicts.⁷⁴ The latter was the case, for instance, for Bwindi Impenetrable National Park, one of the most famous and valuable national parks in Uganda, including as the habitat of the rare mountain gorilla. At the establishment of the Park the conflicts between local residents and park authorities were so severe that “spontaneous fires” in the park became a common phenomenon. Local people even refused to help when a ranger died in the area.⁷⁵ This was entirely understandable, as the local communities had been suddenly deprived of access to forest products needed for their own physical and social survival (forest foods, honey, medicinal herbs, poles, vines necessary to build their tools, etc.). Fortunately, a number of studies ascertained the conditions for sustainable, non-damaging use of some Park resources and a project supported by the Cooperative for Assistance and Relief Everywhere (CARE) facilitated the development of co-management agreements between the Uganda Wildlife Authority and the local communities on the border of the Park.⁷⁶ The agreements guarantee that a number of community-selected and certified local users can extract a limited quantity of specific resources (e.g., vines, honey, medicinal plants) from the National Park. In exchange, the communities agree to comply with rules and restrictions and assist in conserving the habitat as a whole. The “spontaneous fires” have greatly diminished and the relationship between the Park authorities and the local communities has substantially improved.

Co-management is also embraced in other National Parks in Uganda. In Ruwenzori, agreements were developed to specify in detail what types of rules and limits are to be followed for the collection of specific types of resources in the park area (e.g., for mushrooms, medicinal plants, honey, etc.).⁷⁷ Similarly, agreements are being signed between the Park agency and local parishes for Mt. Elgon National Park and Kibali National Park, assigning some surveillance responsibility to local groups, which, in turn, are allowed to gather natural resources that can be extracted in a sustainable way (e.g., bamboo shoots). Between 1996 and 1998 a number of agreements were developed and tested in both Mt Elgon⁷⁸ and Kibale.⁷⁹ Kibale entered into eight agreements, involving 29% of surrounding parishes. Of these, three agreements were for harvesting wild coffee in the park by people in Mbale, Kabirizi and Nyakarongo parishes (each parish consists of about 10 villages), one agreement allowed extraction of multiple resources such as papyrus, craft materials, medicinal plants, grass for thatching and access to crater lakes for fishing at Nyabweya, and four agreements allowed placement of beehives inside the Park. Meanwhile Mount Elgon entered into three agreements that provide access to a wide range of subsistence resources, such as firewood, and dozens more were developed later. As a whole, Mount Elgon is attempting to engage about 20% of its surrounding parishes (over 10,000 households) in collaborative resource management agreements. The Ugandan experience has been financially and technically supported by several foreign donors and international NGOs.

⁷⁴ See, for instance, West and Brechin, 1991; Adams and McShane, 1992; De Marconi, 1995; Chimire and Pimbert, 1997; and Kothari et al. 1997. For an illustrative review of conflicts around protected areas and ways to attempt managing them, see Lewis, 1997.

⁷⁵ Philip Franks, personal communication, 1995.

⁷⁶ Wild and Mutebi, 1996.

⁷⁷ Penny Scott, personal communication, 1996.

⁷⁸ Scott, 1996.

⁷⁹ Chhetri et al., 2003.

Many co-management initiatives for protected areas in the South begin timidly, as if the government agencies were afraid to lose power if the experiments went too far. Most often, the local institutional actors are invited to participate only in an advisory way. For instance, this was the case in Jamaica, where an Advisory Committee including representatives of different interests and concerns was established during the setting up phases of the Blue Mountains National Park.⁸⁰ In India, the debate on the possibility of Joint Protected Area Management (JPAM) is very lively and pilot initiatives are being promoted in selected protected areas,⁸¹ but their importance is much less than the one of the Joint Forest Management Programme. Even in the Ugandan cases described above, much is still to be done to assure the true and effective engagement of local actors. The agreements satisfy some of the needs of local communities and give them a new status and a voice that may grow with time, but the Uganda Wildlife Authority still retains full management authority. When “participatory planning” is limited to “consulting” local actors, it cannot and does not affect the substance of accepted management narratives and related action.⁸² Some ask whether the experience is not more an attempt to shed responsibilities than to devolve rights.⁸³

...land restitution claims by displaced indigenous and local communities are acquiring legitimacy and sprouting innovative solutions.

The partnership approach to managing protected areas is likely to have to expand under the current socio-political and economic conditions. Several countries are under pressure to restructure their internal budgets, and reluctant to invest scarce resources in government-run conservation. Sharing the burden among various entities, public as well as private, or even transferring control of territories to communities or private owners are becoming increasingly appealing options. Even governments that expect major tourist revenues out of the conservation investments are concerned that local social support is essential to guarantee the conditions for tourism to prosper. Meanwhile, the growing reality of private engagement in conservation is becoming better known and recognised and, in the wake of the fifth World Parks Congress of 2003, a wide constituency is building up around the recognition of the conservation importance of community conserved areas and co-managed protected areas. As part of this, a major phenomenon can be singled out: land restitution claims by displaced indigenous and local communities are acquiring legitimacy and sprouting innovative solutions.⁸⁴ And, after years of hostile relationships, indigenous peoples and local communities and national conservation agencies are beginning to work together to establish and manage new protected areas.⁸⁵



⁸⁰ Northrup and Green, 1993.

⁸¹ See Kothari *et al.*, 1996. As an example, in Kaila Devi Sanctuary (western India) local pastoralists have access to pasture in the sanctuary's territory in return for help in monitoring against illegal grazing and mining (Kothari, 1995). Several action research studies have been carried out on the possibility of developing joint management agreements in a number of protected areas (Kothari and IIPA Team, 1997).

⁸² Risby *et al.*, 2002.

⁸³ Blomley and Namara, 2003.

⁸⁴ See Box 4.3 in Chapter 4. On 14 October 2003, the Constitutional Court of South Africa ruled that indigenous peoples had both communal land ownership and mineral rights over their territory. Laws that tried to dispossess them are to be considered “racial discrimination.” The decision is that indigenous people who own land under their own unwritten law have the right to have this upheld in spite of the legal systems subsequently imposed by the state. This ruling has important implications also for other countries, such as Botswana, which operate under the same “Roman-Dutch” legal system.

⁸⁵ See examples described in Boxes 3.16, 4.4, 4.9, 4.10, 7.10 and 8.5.

...for private property under stewardship conditions

Land Trusts are a key force in land protection in the USA and Canada.⁸⁶ Basically, they involve a partnership among an environmentally oriented NGO, some local authorities, state authorities (when relevant) and a number of local landowners. The NGO, typically staffed by volunteers and endowed with a tiny budget, mobilises to respond on a timely manner to special conservation opportunities or risks. It contacts a number of landowners in adjacent lands and convinces them to agree to some management practices, sign a conservation easement and/ or donate their land for conservation purposes. The landowners are motivated by conservation values and positive social pressure but also by the tax advantages provided by local authorities and/ or the state to those who enter into such a partnership.

...there are now over 1,200 Land Trusts in the USA (a third of them in New England) and many are also found in the Atlantic coast of Canada.

At times, the agreement is simply a verbal statement between the landowner and the NGO, with technical assistance sometimes provided to the landowner. It may include restrictions to certain types of land development, assurance of keeping the land under appropriate use (e.g., forestry or agriculture) or assurance of using specific management practices (e.g., integrated pest management or run-off control devices). In other cases, full management plans are agreed upon by the landowners and the NGO or a conservation easement (deed restriction) is signed. The latter formally prohibits "in perpetuity" certain land uses (e.g., infrastructure developments and buildings) and allows only others (e.g., traditional agriculture). In other words, land ownership is retained with restriction of uses. For an easement to be effective, a specific legislation needs to be developed and approved, usually to provide tax incentives to the signatories of the easement. An extreme form of Land Trust is the one in which the landowners donate their property to the NGO, which assumes the responsibility to manage it. There are now over 1,200 Land Trusts in the USA (a third of them in New England) and many are also found in the Atlantic coast of Canada. The basic outcome is more land dedicated to conservation while people enjoy their property rights but also save in terms of taxes.

Conservation partnerships with the private sector are not limited to the North America continent. In South Africa, for instance, the National Parks Trust has negotiated an agreement with a private group, the Conservation Corporation, for the management of the Ngala Game Reserve. This led to the establishment of the first "Contract Reserve" between Kruger National Park and a private enterprise. Signed in 1992, the agreement foresees that the Conservation Corporation has exclusive rights for operating tourist activities over 14,000 hectares of Kruger National Park. The Corporation pays dues to the Park, which uses them for wildlife management, research, educational programmes and community-based projects in areas bordering the protected environment.⁸⁷ This is an example of a quite extreme partnership, basically the passing on of management authority to a private institutional actor in exchange for economic benefits to be re-invested in conservation.

Another private arrangement is found in Belize. There, the Community Baboon Sanctuary was formed in 1985 to protect one of the few healthy black howler monkey populations still existing in the world. Unlike other wildlife management projects, the sanctuary is a voluntary, grassroots conservation programme depending on the co-operation of private landowners within active farm communities. Nearly all the landowners in the eighteen-square mile sanctuary along the Belize

⁸⁶ Mitchell and Brown, 1998.

⁸⁷ Conservation Corporation Ltd., undated.

River signed voluntary conservation pledges to make their farming practices compatible with the preservation of the habitat of the black howler monkey. Each landowner pledged to follow an individual conservation plan, receiving only modest financial support from the World Wildlife Fund and the Zoological Society of Milwaukee County.

...promoted by conservation and development projects

The so-called Integrated Conservation and Development Projects (ICDPs) grappled for years with the complexity of issues at stakes and the multiplicity of actors involved in pursuing joint conservation and development goals. Recently, the contractual approach has become a fairly commonplace response to such complexities.⁸⁸ In this approach, more or less formal contracts spell out the rights and responsibilities of various parties (e.g., donors, local authorities, local communities, natural resource user groups) for the management of a territory or set of natural resources. Typically, a contract assigns to a local community the responsibility to carry out certain management tasks and/ or prevent certain destructive practices and unsustainable uses. In exchange, the community receives an assurance of access to certain natural resources and benefits and/ or it is provided with external aid in various forms (see Box 3.15)

Box 3.15 **The contractual approach to manage forest resources in Mali** (adapted from Aalbers, 1997)

In Mali's Kita district, the local forest reserves used to be heavily exploited by firewood merchants with the tacit consent of forestry officers and authorities. In contrast, local residents— dependent on the forests for firewood, timber, game and other non-wood products— were subjected to fines and imprisonment if they entered the forest even to gather for their livelihood needs. They were denied access to the forests that belonged to their ancestors from times immemorial. Obviously, strong hostile relations developed between the villagers and the forestry officers. From the early 1990s, that hostility has given way to new forms of collaboration as a direct result of an experimental project supported by the International Labour Organisation (ILO). The project, with joint development, conservation and social organising objectives, focused on elaborating new contractual arrangements for wood supply and forest management.

After completion of a forestry and socio-economic study, the project began by hiring some local villagers to carry out forest improvement works, including regeneration, scarification, and the building of firebreaks and access roads. The collaboration was stipulated in labour contracts and the work was remunerated with carts and donkeys, so that the villagers could more easily transport wood to the villages or to the town of Kita. This equipment, together with the experience gained in performing the forestry improvement works, enabled the villagers to undertake further contracts. The new contracts were more specific and sophisticated, and through them the villagers agreed to comply with forest management rules in exchange for a direct share of profits from the sale of wood. The villagers received training on methods of cutting and species to be preserved, and the amount of wood authorised for harvest remained a fraction of the regenerative capacity of the forests concerned. The latter Contracts for Wood Supply and Forest Management were institutionalised in 1991 by an Interim National Government sensitive to the needs of rural populations. This took place despite the opposition of forestry officers at regional and district levels, who did not readily accept either a partnership with the villagers or the obligations this entailed (loss of power, financial gain, etc).

The contractual forest exploitation is closely linked to the establishment of a wood distribution network

⁸⁸ For a review of experience with integrated conservation and development projects that recommends the contractual approach, see: Larson, Freudenberg and Wyckoff-Baird, 1997. See also Agersnap and Funder, 2001.

organised according to principles defined by the villagers and the state. Contractual exploitation, in fact, competes with uncontrolled and illicit exploitation. A revised taxation system now gives preference to wood derived from contractual exploitation. Together with tight controls at the entrance to the town of Kita, this is providing an incentive to contractual exploitation. A system of tax rebates— to establish funds for forest improvement and maintenance works, and for village investments— is under consideration by the Government. A share of the rebates would be received at the local level.

Entrusting villagers with forest management and exploitation has increased their sense of responsibility for the forest resources within their village lands. Through their own organisation (which now includes a federation uniting about thirty five villages), villagers currently survey their local forests and require that merchants pay for the resources they gather, rather than getting them for free. Moreover, the role of the forestry officers has been redefined as advisory, rather than enforcement or executive. All this had positive consequences on the villagers' own sense of dignity. The acceptance of the contractual approach at the national level, as well as its integration into the country's forestry legislation, generated great interests in rural populations outside Kita district. Rural people throughout the country are impatient to become involved in controlled contractual exploitation.

In general, many ICDPs have now adopted a methodology that includes an in-depth stakeholder analysis early on into operations, stakeholder workshops to involve various partners in the design and implementation of initiatives and conflict mediation support. Setting up various kinds of pluralist workshops and committees has proven useful in various circumstances. For instance, CARE has helped set up a pluralist task force in the process of demarcating the boundaries of the Pa-Kluay community territory (a Karen community in northern Thailand), the local forest, the Doi Inthanond National Park and three neighbouring communities.⁸⁹ The Task Force included several villagers from the local communities, staff of the forest department and staff of the national park. The demarcation was carried out with the satisfaction of everyone involved with the help of both in-forest surveys and analysis of existing maps of the area.

...with indigenous peoples

In the last decades, many indigenous peoples have negotiated agreements with national governments for the management of their ancestral territories. In Australia, the Great Barrier Reef Marine Park (a major source of revenue to the country— more than one thousand million Australian dollars per year⁹⁰) is managed by a specific Authority with hundreds of staff and a budget larger than the national budgets of some small countries. In the last decade or so, the Authority has substantially developed its position *vis-à-vis* local interests and concerns in the management of the Park. In the beginning, they used to only consult the stakeholders (including the Aboriginal People and people whose livelihood depends on Park resources). Then they started calling for workshops among local stakeholders to agree on specific management decisions (e.g., zoning arrangements). Now, some stakeholders (e.g., representatives of the Aboriginal People from the area) sit permanently in the Management Board of the Authority itself. This latter development happened after a ruling by the Australian High Court repealed the concept of *terra nullius* (no-man's land) held true at the time of the colonial conquest of Australia, and began the complex process of recognising the tenure rights of the Aboriginal People.⁹¹ The development also built upon the positive experiences of co-management regimes established elsewhere in the

...the Australian High Court repealed the concept of terra nullius (no-man's land) held true at the time of the colonial conquest of Australia, and began the complex process of recognising the tenure rights of the Aboriginal People.

⁸⁹ Prasittiboon, 1997.

⁹⁰ GBRMPA, 1994.

⁹¹ This ruling, which recognises that a native title existed under British common law, is known as the Mabo Decision.

country (e.g., in Gurig, Coburg and Kakadu National Parks⁹²) and on the positive experience of the Authority itself in its interaction with local institutional actors. The trend appears to be from informal to formal mechanisms, from advisory to power-sharing roles, from a management focus to a policy and planning focus.⁹³

In Canada there exist several Joint Management Boards, on which both representatives of government agencies and indigenous peoples sit.⁹⁴ Such Boards deal with a full range of management matters, from long-term strategic planning to daily operations. The Boards, established by legislation, have formalised the right of indigenous stakeholders to participate in management. Numerous umbrella agreements have obtained legislative backing,⁹⁵ and under those agreements several communities have, in turn, prepared their own co-management plans (only some of those plans, however, take into account the interests of non-indigenous stakeholders⁹⁶). Despite this, a recent review reports only a few bright spots (see Box 3.16) and not a few problems with regards to the establishment and management of national parks in aboriginal land in Canada, especially regarding the Government's "duty of consultation" with the owners of aboriginal title.⁹⁷ The Supreme Court of Canada has not offered a clear direction on this, stating that the nature and scope of such consultation may "vary with the circumstances".

...the trend appears to be from informal to formal mechanisms, from advisory to power-sharing roles, from a management focus to a policy and planning focus.

Box 3.16 Gwaii Haanas: the bright spot among Canada's co-managed Parks
(adapted from Gladu, 2003)

In the Haida language, *gwaii haanas* means "islands of wonder and beauty." The Gwaii Haanas National Park Reserve, located within the Queen Charlotte Islands off the coast of British Columbia, was established in 1986 under an agreement between Parks Canada and the Council of the Haida Nation. The Haida themselves initiated the process, after their land and culture started to disappear due to heavy logging in their traditional territories. Through alliances with conservation organisations, the Haida people drew international attention to the spectacular beauty and diversity of their homeland and the need to protect it. The dual Park-Reserve status stems from the land ownership dispute. Both the government of Canada and the Haida claim ownership of the land. Fortunately, both sides have been able to put aside their differences regarding ownership and promote instead their common interests and goals. The Haida intent is to protect the area from environmental harm and degradation and continue traditional resource uses. The federal government's intent is to protect the area as a natural cultural environment as part of the national protected area system. Such objectives are perfectly compatible, leading to a relationship based on respect, reciprocity, empowerment and effective cooperation. In fact, Gwaii Haanas is now governed by a joint Management Board, made up of two Haida representatives and two Parks Canada representatives, working by consensus. This may slow down

⁹² See Table 4.3 in Chapter 4; Hill and Press, 1994; and Smyth, 2001. For Australia as a whole an impressive and far-sighted development now sees Indigenous Protected Areas, declared and run by the Aboriginal People, recognised and supported as part of the national protected area system. See Chester and Marshall, 2003.

⁹³ Weaver, 1991.

⁹⁴ East, 1991.

⁹⁵ For instance: the James Bay and Northern Quebec Agreement of 1975; the Inuvialuit Agreement of 1984 in the western Arctic; the Nunavut Agreement of 1993 in the eastern Arctic; the Yukon First Nation Settlement Agreement of 1995 and the Nis'gaa agreement of 1996 in northern British Columbia. Some non-aboriginal groups failed to be recognised as legitimate parties in the agreements (Fikret Berkes, personal communication, 1996).

⁹⁶ In the early agreements, the Management Boards included nearly exclusively representatives of government agencies and aboriginal peoples, and some of the latter fought to exclude from the agreements other stakeholders, such as sport hunters (Fikret Berkes, personal communication, 1996). In some later agreements, the Boards include non-aboriginal, non-governmental stakeholders as well (Stephan Fuller, personal communication, 1996).

⁹⁷ Gladu, 2003.

some decisions but assures that they are all well thought out and widely accepted. The connections between land and culture are vital for the Haida, who are dependent on the natural resources for livelihood (through fishing, hunting and trapping) and also for medicines and the expression of their cultural identity through art. Five heritage sites within the borders of Gwaii Haanas are of particular high value to the Haida and are carefully protected. All this has been recognised and supported by Parks Canada. Consultation during the establishment and management of the protected area was adequate, and the process was not rushed (it took five years to come to an agreement). The establishment of the Park has promoted a shift in the local economy from logging to tourism. Employment opportunities have also been created by the Park itself (more than 50% of Park staff is Haida people). The only remaining challenge is to acknowledge the Haida presence, rights and participation in the management of the boundary waters of Gwaii Haanas. To the Haida, there is no separation of land and sea. Parks Canada, on the other hand, is promoting a new federal legislation that could disrupt the Haida Nation's ability to move freely between the land and the sea by introducing different levels of protection for various areas and restricting the fishing rights in some of those areas.

*...the process...
managed to
legitimise the
traditional owner-
ship rights of the
indigenous peoples,
in the absence of
other legal avenues
for the registration of
customary claims.*

Several inspiring examples of management collaborations between indigenous peoples and national conservation agencies exist in Latin America, some of which are described elsewhere in this volume.⁹⁸ In Asia co-management is accepted in principle in the Philippines and is being put into practice in the buffer zone of the National Park of Ratanikiri in Cambodia and in the Annapurna Sanctuary in Nepal.⁹⁹

In Papua New Guinea “wildlife management areas” are a special type of protected area initiated by local communities on their customary territories and only later formalised by official government legislation.¹⁰⁰ An example in point is the Bagiai Wildlife Management Area, declared in the Bagiai Island in 1976. The area occupies slightly more than half of the island and was declared under protection because the local people had become concerned about the decrease in wildlife, the over-fishing and the clearing of vegetation. The management rules for the area nearly entirely prohibit the use of firearms, large nets and lamps to attract fish at night, and ban fishing altogether in certain seasons. The central crater in the island is declared a sacred area, which cannot even be visited. The indigenous communities developed all these rules and boundaries and the government participated only in the sense that it approved and codified them and had them printed in the National Gazette. Not only did the process succeed in improving the resource status in the area, but also managed to legitimise the traditional ownership rights of the indigenous peoples in the absence of other legal avenues for the registration of customary claims.

For cases such as the last one, in which the participation of the national authority is rather “hands-off” and limited to a policy decision, the terms “community-based management” or “indigenous management” are also appropriately used in place of “co-management”.¹⁰¹ Hopefully, however, these examples of direct management by indigenous peoples remain examples of co-management as well. This is the case if they still associate in management a multiplicity of institutional actors *within* the local communities and societies.



⁹⁸ See Boxes 4.4 and 4.10 in Chapter 4. as well as Parques Nacionales de Colombia, 1999; Winer, 2001; Aburto and Stotz, 2003; Luque, 2003; Oviedo, 2003; Winer, 2003; Zuluaga *et al.*, 2003.

⁹⁹ See Colchester and Erni, 1999; Pathak *et al.*, 2003; and Ferrari, 2003.

¹⁰⁰ Fauna Protection and Control Act of New Zealand, 1966.

¹⁰¹ Stevens, 1997.

3.3 The characteristics of co-management systems

From the examples described above, we can draw some general understanding and identify characteristics pertaining to co-management approaches.

- Co-management capitalises on *multiplicity* and *diversity*. Different social actors possess different capacities and comparative advantages in management, and a partnership stresses and builds upon their *complementary roles*. Different social actors, however, may also possess contrasting interests and concerns. The challenge is to create a situation in which the pay-offs for everyone involved are greater for collaboration than for competition.
- Co-management is usually *multi-party* but also *multi-level and multi-disciplinary*. Processes, agreements and institutions are *inclusive* rather than exclusive, they attempt to include all the bearers of interests and concerns who wish to participate. Yet, inclusiveness has to be balanced by the requirement to *contain the transaction costs* of the process (information provision, individual consultations, large facilitated meetings, translation costs, time and skills to negotiate, etc.).
- Co-management is based upon a *negotiated, joint decision-making approach* and some degree of *power-sharing* and *fair distribution of benefits* among all institutional actors. While the type and extent of power-sharing and benefit distribution varies from situation to situation, all entitled actors receive some benefits from their involvement. This fact alone may uplift the least powerful stakeholders, redressing power imbalances in society and fostering *social justice*.
- Co-management strives to assure all relevant actors of the chance and capacity to express concerns and take part in decisions on the basis of entitlements recognised by society. In short, co-management attempts to achieve more *equitable* management. Yet, *equity does not mean equality* and different grounds for entitlement need to result in different roles in resource management.
- Co-management stands on the principle of *linking management rights and responsibilities*. In the words of Murphree (1996b): “*Authority and responsibility are conceptually linked. When they are de-linked and assigned to different institutional actors, both are eroded*”.
- Collaborative management stands on the concept of common good, the trust that it is possible to follow a course of action that harmonises different interests while responding, at least to some extent, to all of them. An inclusive, collaborative approach to the identification of institutional actors and negotiation of management agreements is a necessary condition for the common good to be identified and achieved.
- Co-management is part of a broad social development towards more direct and collaborative democracy. In it, the *civil society*—organised in forms and ways that respond to variable conditions— *assumes* increasingly important *roles and responsibilities*.

Co-management is based upon a negotiated, joint decision-making approach and some degree of power-sharing and fair distribution of benefits among all institutional actors.

Effective co-management depends on quality of public opinion... and strives to recognise cultural differences while building upon some underlying common interests.

- Effective co-management depends on *quality of public opinion*. This means that people understand the consequences of their choices (risks and opportunities) and are willing to pay the price for those. Both an excellent flow of relevant information *and* transparency in the management process are essential for this. Yet, different people hold true different values, opinions and wishes even on the same basis of “factual” information. Co-management strives to *recognise* such *cultural differences* while building upon some underlying common interests.
- Co-management initiatives can take on a large variety of shapes and forms



Co-management initiatives can take on a large variety of shapes and forms and need to be tailored to fit the unique needs and opportunities of each context.

and need to be *tailored to fit the unique needs and opportunities of each context*. Approaches to stakeholder participation in different environments have to be sensitive to their specific historical, cultural and socio-political contexts and cannot be appreciated outside of such contexts. CM regimes may present very different characteristics from place to place.

- Co-management builds upon what exists, in particular local, *traditional institutions for resource management*. It usually begins with an analysis of existing management systems, including institutional problems and opportunities. The next step is to strengthen what can be strengthened, also drawing from the creativity and inventiveness of new management partners. In taking advantage of the capacities and practices of new actors, co-management may play an important role in *socio-cultural innovation*.
- Co-management is a *process requiring on-going review and improvement*,

rather than the strict application of a set of established rules. Its most important result is not a management plan but a management partnership, capable of responding to varying needs in an effective and flexible way. As in the case of the Great Barrier Reef Marine Park Authority,¹⁰² intervening changes in legal, political, socio-economic and ecological factors induce consequent modifications to the institutional setting and/ or practice of conservation. In addition, a process of “learning by doing” generally leads towards a better recognition of specific needs, and new opportunities to involve institutional actors.

In other cases it may not be wise to have people express openly their opinions and concerns when they could expose themselves to violent repression and persecution.

Potential advantages for natural resource management exist in all types of arrangements, but so do potential problems. For instance, when authority is fully in the hands of a local body which has broken loose from traditional social controls, this may be co-opted by powerful individuals for their own interests, which may win over the interests of both conservation and the national and local communities. Conversely, when control is fully in the hands of a public agency, local rights, knowledge and skills in resource management may go unrecognised. In some cases, there can even be a decline in biodiversity as a result of the removal of people from a given territory.¹⁰³

Is co-management thus a panacea? Should it be attempted and pursued in all possible circumstances? Indeed, it is not and it should not be pursued in all circumstances. If the social actors with relevant interests and concerns are not effectively organised, capable of conveying their positions and willing to develop an agreement, the time and resources invested in a collaborative process may be fully wasted. In other cases it may simply not be wise to have people express openly their opinions and concerns when they could expose themselves to violent repression and persecution. In addition, mistrust among the social actors (at times amply justified by lack of transparency and good faith) can stall negotiations seemingly forever (see Box 3.17). As a matter of fact it seems appropriate to close this chapter, which listed many relatively successful examples of co-management settings, with an example of failed agreement and persistent conflicts. Co-management is not easy and indeed requires a constellation of circumstances to be taken to fruition.¹⁰⁴

Box 3.17 Contested reefs in the Miskito Coast of Nicaragua: no co-management in sight!
(adapted from Nietschmann, 1997)

The Miskito people, living on the north-east shore of Nicaragua, are the indigenous owners of one of the largest and least disturbed tracts of coral reef in the near shore Caribbean. The Miskito Shelf contains large expanses of coral patch and bank reefs, large beds of sea grasses and several coastal lagoons and associated wetlands, habitat of rare species such as the manatee and a small coastal-marine dolphin. For a long time, the Miskito control of their reef and shoreline has been a contested matter. Their opponents included foreign powers and commercial fishing businesses (one can count eleven wars against invaders since the early 1970s). More recently, they also included the Sandinista government (at the time of Contra-led insurgencies), resource pirates and drug dealers, and US-supported conservationists attempting to establish a biosphere reserve in the area. With whatever means they could master, the Miskito have consistently opposed the resource

¹⁰² For another example of variation of management regime, see Bertrand and Weber, 1995.

¹⁰³ Ghimire and Pimbert, 1997; Brown and Wyckoff-Baird, 1994.

¹⁰⁴ On this, see also Chapter 4 and Part IV of this volume.

management schemes proposed from outside their communities. What they wish is to establish their own indigenous coral reef management system based on customary rights and responsibilities, including regulation of fish catch, number of allowed fisherfolk and access to fishing areas. They also need concrete help to defend themselves against the large-scale exploitation of their marine resources by outsiders.

In 1991, twenty-three coastal Miskito communities, the Nicaraguan Ministry of Natural Resources and an international conservation NGO formally agreed to establish the largest Latin American coastal marine protected area, including the Miskito's Reefs. The agreement included provisions for Nicaragua to recognise the Miskito ownership of their ancestral land, lagoons and sea territories, and to assist in protecting them against resource piracy, industrial fishing and drug trafficking. The indigenous communities would manage the protected area with some technical assistance from outside, and receive financial assistance to carry out a number of conservation and development projects.

The Nicaraguan government administration includes people interested in donor funding and tourist revenues (and thus in favour of resource conservation), but also others accustomed to receiving income from the sale of fishing permits and payoffs by resource pirates and drug traffickers. As a result of internal power struggles, the government soon retreated from the initial agreement and attempted to open up to commercial fishing a large corridor that cut in two the original area to be managed. It also declared protected territory an inland area including five communities that had not yet entered the discussions on agreement. As not uncommon in the developing South, the government ministries of Nicaragua had little financial means, poor disposal of technical capacities, and overlapping and conflicting internal authorities (different ministries and branches responsible for conservation, commercial fishing, fishing permits, law enforcement and regional governance). In addition, they were used to planning for short-term goals only and showing an omnipresent desire to control the natural resources from far away offices. It is not surprising that the interests of the Miskito people found themselves in contradiction with those of the government.

In 1992, a local Miskito NGO was created to protect the local interests in management. The name of the NGO is Mikupia, meaning "Miskito heart". Despite meagre means, Mikupia managed to foster environmental discussions and organising in several communities. But new and powerful actors soon entered the scene. As soon as the provisional protected area was declared, a number of conservation and development NGOs from the North received some major funding to assist in the management and further their own goals— such as the conservation of local biodiversity but also more prosaic conservation of their own organisations and jobs. About 10% of the financial resources made available by the donors went to the Miskito communities and Mikupia. The remaining 90%— in the name of "community-based development"— was disbursed to US-based non-governmental organisations (with the consent of both the US donors and some branches of the Nicaraguan government). A new biosphere reserve management plan was soon prepared, with no mentioning of the provisions agreed upon in the initial plan— in particular the measures to confront piracy, industrial fishing and drug trafficking, and the conservation and development projects to be carried out by the local communities. On the contrary, the funds meant for those projects were spent to support the operations of the Northern NGO that considered itself the decision-maker on behalf of the communities and developed the management plan according to its own analysis and understanding.

The Miskito communities eventually learned the truth and realised that the foreign NGOs were more inclined to blame them for resource depletion than to support them in obtaining their resource rights. They banned the NGO from their land, and denounced it to the US donor. An investigation from the US donor was carried out, but did not acknowledge any wrongdoing on the part of the NGO. This prompted the Miskito communities to ban also the US donor from their region.

Despite these heated conflicts, the US donor decided to invest in the contested project and assigned management responsibility to other international NGOs, again without consultation or agreement with the Miskito people or their local NGO. On their part, the Miskito Reef communities created their own Miskito Community Protected Territory, and are now busy fighting drug trafficking and resource piracy in their area, and mapping their reefs and marine resource. The “colonialist conservationists” are still banned from their territories and no co-management agreement is in sight.



