Towards Food Sovereignty

Reclaiming autonomous food systems

Michel Pimbert

Reclaiming
Diversity &
Citizenship

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Chapter 4. The role of local organisations in sustaining local food systems, livelihoods and the environment

The history of mutual aid and collective action in social and ecological affairs is as ancient as human life. For as long as people have engaged in livelihood pursuits, they have worked together on resource management, labour-sharing, marketing and many other activities that would be too costly, or impossible, if done alone. Local groups and indigenous organisations have always been important in facilitating collective action and co-ordinated management of food systems and their environments at different spatial scales. In Mutual Aid, first published in 1902, Petr Kropotkin draws on the history of guilds and unions in Europe, travel and colonial accounts outside Europe, and the experience of village communities everywhere, to show how collaboration and mutual support are at the heart of whatever makes human beings successful (Kropotkin, 1955). Negotiated agreements on the roles, rights and responsibilities of different actors in a common enterprise are at the heart of the forms of mutual aid and collaboration described by Kropotkin. To this day, local organisations continue to play a central role in this process of negotiation and co-ordinated action in a variety of settings and at different scales (Borrini-Feyerabend *et al.*, 2004; 2007).

The different types of local organisations concerned with food, farming, environment and development include:

- traditional and indigenous organisations;
- governmental and quasi-governmental organisations;

"The natural and social calamities pass away. Whole populations are periodically reduced to misery and starvation: the very springs of life are crushed out of millions of men, reduced to city paupers; the understanding and the feelings of the millions are vitiated by the teachings worked out in the interest of the few. All this is certainly part of our existence. But the nucleus of mutual support institutions, habits and customs remains alive with the millions; it keeps them together.... In the practice of mutual aid, which we can retrace to the earliest beginning of evolution, we see the origins of our ethical conceptions; and in the progress of man, mutual support— not mutual struggle— has had the leading part. In its wide extension, even at the present time, we find the best guarantee of a still loftier evolution of our race."

Petr Kropotkin, 1902

Table 4.1. Categories of institutional actors

Community institutional actors	Responsive to local relational dynamics, accountable to collective community interests, and able to articulate views and positions effectively with external institutional actors
Government institutional actors	Derive much of their strength from their status as "gatekeepers": coercively backed authorities that determine what communities can and cannot do. They also derive strength from their ability to control the flow of fiscal and other resources from the centre to the periphery. Rarely do flows to communities offset what has been extracted from them. Finally, state agencies also act as gatekeepers for donor grants and aid projects
Non-governmental institutional actors	These focus on specific issues or problems. NGOs arise in response to perceived needs and their raison d'être falls away when the need (or the perception of it) changes. They can mobilise financial and personal resources comparatively quickly and efficiently. They have the money, personnel, and rapid-response capacity for programmes and projects, while national governments claim sovereignty and gatekeeping authority

Source: Murphree, 1994

- non-governmental and civil society organisations; and
- emergent, popular or "community-based" organisations, including new social movements.

These organisations differ according to their range of action and institutional affiliation (Table 4.1). The distinction between community and other institutional actors (governmental and non-governmental) is important here because much of the argument presented in this book stresses that the former—local community-based institutional actors (traditional or newly emerging)—should have a pre-eminent position in the governance and management of food systems.

Moreover, this distinction is necessary here because in discussions on local organisations, the terms "civil society organisations" and "civil society" are commonly used to refer to a wide array of non-state actors: NGOs, research institutions, professional bodies, peasant organisations and urban community groups, for example. However, it is important to recognise that the all-

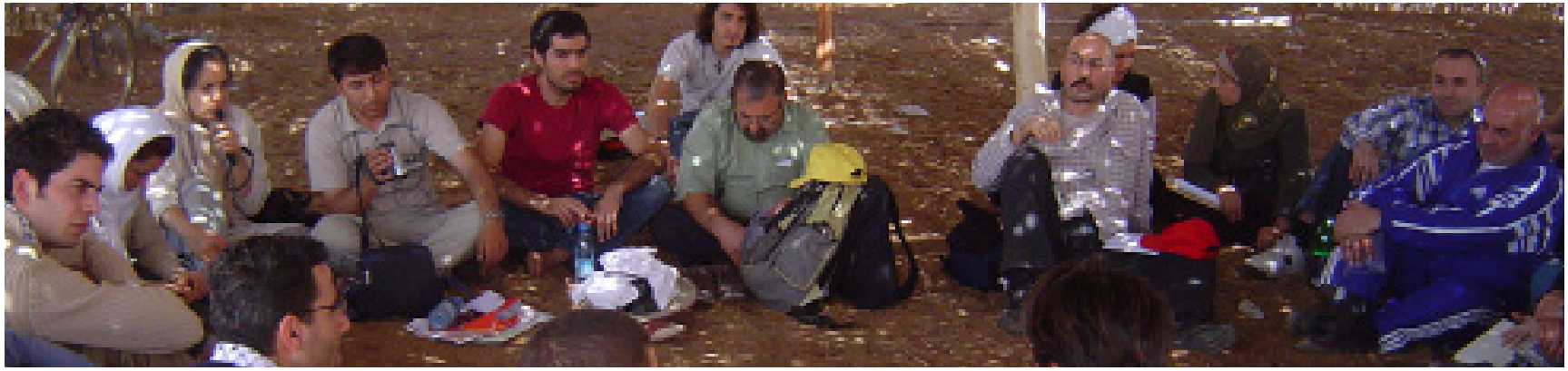


Table 4.2. A comparison between two different types of civil society organisations

	Peasant and peoples' organisations	Non-governmental organisations (NGOs)
Types of organisations	Community based organisations, peoples' organisations, mass organisations and social movements that include, for example, indigenous peoples and fisherfolk organisations, urban poor groups, trade unions, farmer organisations and women's collectives	Non profit organisations that channel funds for conservation and development projects Organisations that capture significant resources to conduct research on issues of importance to the marginalised and "poor"
Funding sources	Private donations, international organisations	Private donations, governments, foundations, international organisations and corporations
Staff and membership	Community members and volunteers, with a small number of paid staff in larger peasant organisations Many—but by no means all—have democratically elected leaders who are directly accountable to their communities or wider membership	Usually staffed by well educated, middle class professionals Continued existence depends on ability to secure funds from donors for specific projects or campaigns
Roles	Work to further the interests of their mass membership and/or members of their community	Project driven organisations created to speak for those without a voice. In practice, act either as critics that challenge the powerful, or as allies and advisors to dominant social forces and coalitions of power

embracing terms "civil society organisations" and "civil society" obscure significant differences in aims, purposes, interests, organisational cultures, accountability mechanisms and power among this diversity of actors. In this chapter, I explicitly focus on local, community-based food provider and peasant organisations as distinct from the more mainstream components of "civil society". For example, the main features of local, community based, peasant organisations are compared and contrasted with those of NGOs in Table 4.2.

There is of course a risk of simplification in making such distinctions. But the kind of information shown in Table 4.2 is broadly useful for at least two reasons: (1) it invites a more critical analysis of who different actors really are, what they stand for, how and for whom they work, and why; and (2) such comparisons also help us move beyond homogenising and politically naïve views of "civil society" that effectively blind us "to the hierarchical and oppressive relations that exist within

civil society" (Eschle, 2001). This theme is further explored in Chapters 5 and 6.

Local organisations[1] can exist across a range of scales—from individual through national and up to international federations, consortiums, networks and umbrella bodies. One reason for linking up and federating in this way is to increase the effectiveness of organisations in managing localised food systems, and to strengthen their leverage in policy and political debates on farming, environment and people's access to food. Local organisations thus play a key role in achieving food sovereignty. According to Pedro Magana Guerrero, a former peasant leader of UNORCA in Mexico, the *"consolidation of alternatives rests completely on what is happening at the local level, it depends on the development of organisations in their regions, in their countries. This gives viability to a global process"* (Pedro Magana Guerrero, cited in Desmarais, 2007).

However, many rural communities are no longer in charge of managing their local food systems, and, importantly, they are not "trusted" by state bureaucracies to be able to do so. This is one of the important insights masterly illustrated by Scott (1998). As a result of this active disempowering, which in some places has been going on for a long time, human communities—and their local organisations—may have become incapable of managing their environments and/or sharing management rights and responsibilities with others. But, throughout the world, many local organisations—individually and collectively—still play a key role in:

- sustaining the ecological basis of food systems;
- co-ordinating human skills, knowledge and labour to generate both use values and exchange values in the economy of the food system; and
- the local governance of food systems, including decisions about people's access to food and natural resources.

In the next section I present empirical evidence for the importance of local organisations in sustaining ecologies, livelihoods and the flexible governance of food systems.

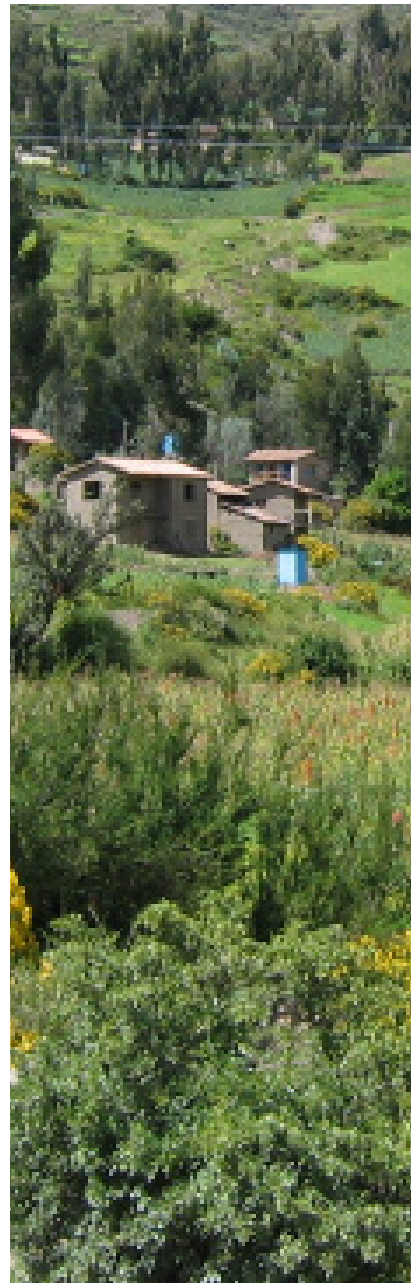
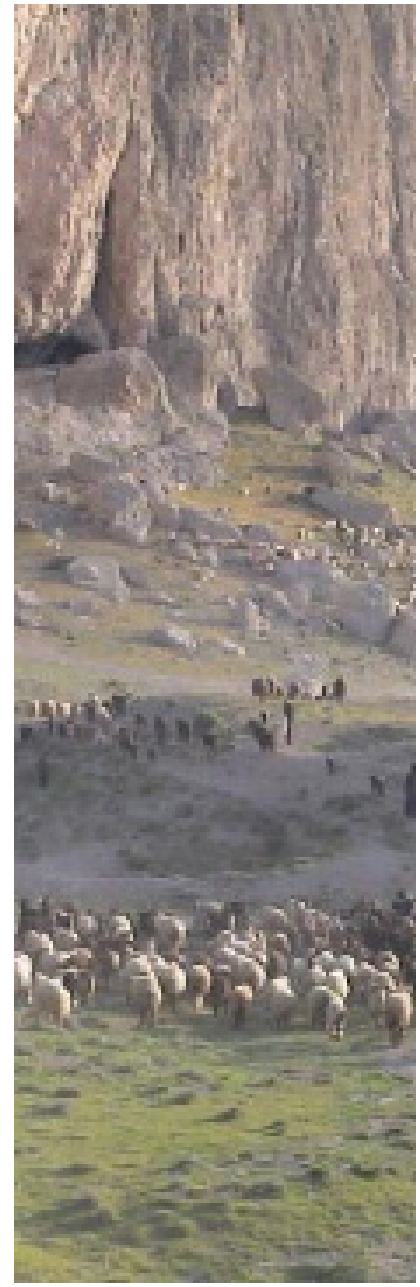
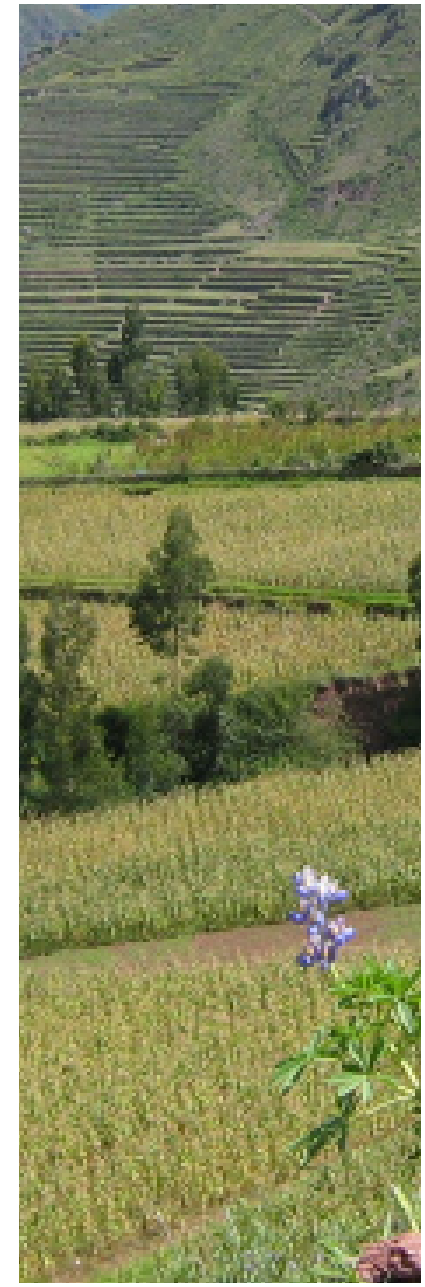
1 Strictly speaking, organisations are not the same as institutions. Institutions are "the humanly devised constraints that shape human interaction…they structure incentives in human exchange, whether political, social or economic…Institutions reduce uncertainty by providing a structure to everyday life…Institutions include any form of constraint that human beings devise to shape interaction" (North, 1990). Land tenure rules and other rules regulating access, use and control over natural resources are examples of institutions. Although they embrace them, institutions are not organisations; they are best understood as a set of informal and formal rules that are administered by organisations. Organisations are thus "groups of individuals bound by some common purpose to achieve objectives" (North, 1990). Organisations operate within the framework—the rules and constraints—set by institutions. Examples include government departments or local beekeeper associations which administer sets of formal and informal "rules of the game".

4.2. Local adaptive management of food-producing environments

Local organisations are crucial for the adaptive and sustainable management of food-producing environments. As Michael Cernea has put it: *"resource degradation in the developing countries, while incorrectly attributed to 'common property systems' intrinsically, actually originates in the dissolution of local level institutional arrangements whose very purpose was to give rise to resource use patterns that were sustainable"* (Cernea, 1993). Local groups enforce the rules, incentives and penalties needed for the sustainable management of landscapes, environmental processes and resources on which local food systems depend. For example, in the Marovo Lagoon in the Solomon Islands, fisherfolk rely on many complex, unwritten rules on ownership, institutions, management and use of marine and agricultural resources. The rules specify fishing and cultivation methods and limit the period and quantity of fishing in areas threatened by excessive off-take. Although the system is currently under pressure from increased commercialisation of fishing and population expansion, local communities are successfully accommodating these developments within their customary framework (Hviding and Baines, 1992).

Moreover, local organisations are particularly well-placed to monitor and respond adaptively to environmental change. This is important because variation within and among the environments in which local food systems are embedded is enormous. Daily, seasonal and longer-term changes in the spatial structure of these environments are apparent at the broad landscape level right down to small plots of cultivated land. These spatio-temporal dynamics have major implications for the way food-producing environments are managed—how, by whom and for what purpose.

Uncertainty, spatial variability and complex non-equilibrium and non-linear ecological dynamics require flexible responses, mobility and local-level adaptive resource management in which farmers, pastoralists, fisherfolk and forest dwellers are central actors in analysis, planning, negotiations and action (Gunderson *et al.*, 1995). Such adaptive management is mediated by local groups that co-ordinate planning and action at different spatio-temporal scales. More generally, collective action, based on social learning and negotiated agreements among relevant actors in an ecosystem, is often a condition for sustainable use and regeneration of that ecosystem (Borrini-Feyerabend *et al.*, 2004). "Platforms" that bring relevant actors together are key for mobilising capacity for social learning,

negotiation and collective action for natural resource management and sustaining critical ecological services on which local food systems depend. Examples of such platforms include local fishing associations, producer co-operatives, joint forest management (JFM) committees, farmer field schools (FFS), farmer groups and user groups of various kinds (see Box 4.1).

Local adaptive management may also focus on whole landscapes, as in the Peruvian Andes (Box 4.2), or on small plots of land and at micro-geographical scales (Box 4.3).

Local organisations are faced with two main challenges in managing natural resources and ecosystems. 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, responses also include a variety of solutions based on co-operation and on processes in which 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 (see Kropotkin, 1902 and 1924; Borrini Feyerabend *et al.*, 2007).[2] Traditional knowledge and skills, in particular, are set to work within changed environmental, political and social contexts, including "science-based" innovations. Instead of witnessing the death of local communities in natural resource management we witness at times the birth of many forms of social "syncretism"[3] and synergy—the wise merging of features from different origins.

In this context, local organisations play a central role in realising human opportunities to adaptively deal with changes at the interface between household and environment, between community and ecosystem, between society and biosphere. They facilitate the emergence of institutions that are key for the adaptive management of ecosystems and landscapes—from agreements on rights of access and use of particular resources to sanctions for transgressing locally-decided "rules of the game". This is the "soft side of the land" (Röling and Maarleveld, 1999), which includes complex organisation, a network of often overlapping institutions, leadership, cultural practices, labour allocation, religious beliefs, and so forth.

Land use, be it at the level of the field, farm, village territory, landscape, coastal area, or watershed, can be seen as the emergent property of the society that lives off it. For example, most indigenous management agreements spring from, and are shaped by, cosmologies[4] that recognise linkages between human and environmental health, local dietary and medicinal sources, spiritual

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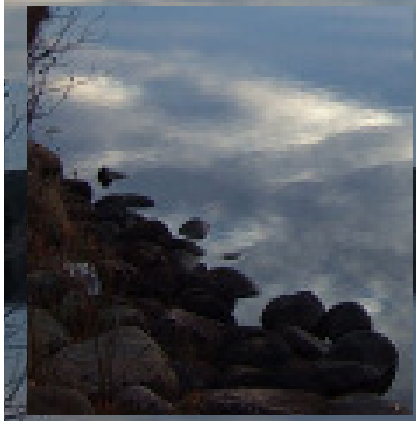
2 This understanding of negotiated agreements between different actors is not restricted to state-community partnerships. These approaches can be and are applied among and within communities as well. There are many instances of co-operative decision-making concerning natural resources held in common property regimes among two or more communities, or between communities and private, NGO, or international actors, or including only interest groups within a local community. Moreover, in the negotiated agreements made by many indigenous peoples the national state is often not present as a partner because it is perceived as non-legitimate or irrelevant or antithetical to indigenous peoples' self-determination.

3 Syncretism is an attempt to reconcile disparate or contradictory beliefs, often while melding practices of various schools of thought.

4 Cosmology is the study of the origin and nature of the Universe in its totality, and by extension, humanity's place in it— how the relationship between people and nature in its widest sense is perceived.

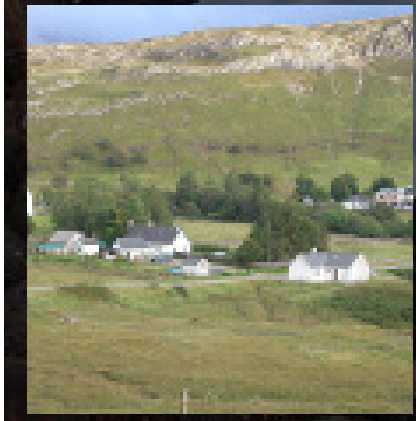
BOX 4.1 Local platforms for natural resource management



Fishing associations and the adaptive co-management of freshwater ecosystems in Sweden

Local fishing associations are common in Sweden. These associations, which in many respects resemble common-property systems, manage many of Sweden's vast number of lakes, rivers and streams. National laws introduced over the last 20 years make it possible for freshwater associations not only to manage lakes and rivers, but also entire watersheds. Fishing associations also have the right to make decisions about fishing and fish conservation. The national government, however, is still in charge of some decisions such as instituting bans on certain fishing methods and granting permission for stocking and transfer of fish and shellfish.

A detailed study of the management of the Lake Racken watershed has highlighted the key role of local fishing associations in sustaining crayfish populations and the wider ecosystem. The institutional framework for the management of crayfish populations is made up of a nested set of institutions at different organisational levels. Rules for the management of crayfish are both informal and formal, and are embedded in local fishing associations and government. But much of the learning-by-doing for the adaptive co-management of fisheries is carried out by the local fishing association, whose members actively develop site specific ecological knowledge as well as flexible institutions and adaptive organisations (adapted from Olsson and Folke, 2001).



Farmers' organisations managing woodlands in Scotland

Self-mobilised groups in Scotland have developed community-based organisations specifically to co-ordinate and implement woodland management over a wide area. In Assynt, for instance, the local farmers (called crofters) established the Assynt Crofters' Trust in 1992 with some 130 members spread across 13 townships. The trust raised the money to buy the former North Lochinver Estate by public subscription, grants and loans from public bodies. The members elected directors to the trust's board on a township basis, and the trust was then run by an executive company chairman and various officers. Since then, the trust has developed the potential of the estate, including through a native woodlands programme (adapted from Jeanrenaud and Jeanrenaud, 1996).

Box 4.2. Adaptive management of landscapes in the Peruvian Andes

With the support of a local NGO (ANDES), indigenous Quechua communities in the region of Cusco have become organised into "local platforms" for the adaptive management of mountain landscapes and livelihood assets. In early 2000, the indigenous communities celebrated the opening of the Potato Park as a community conserved area (CCA). Unusually for a conservation area, the Potato Park protects not only the natural environment but also the sociocultural systems that created the landscape. It is also unusual in that many of the most important forms of biodiversity in this CCA are domesticated—in fact they are the product of hundreds of years of deliberate ecosystem management, genetic selection and breeding by the Andean farmers. The farmers are well known for their remarkable ingenuity in the use of ecological habitats and species. For example, the majority of indigenous peoples in the area continue to farm traditional crop varieties and animal breeds, maintaining a high level of genetic diversity, which is well suited to their complex and risk-prone environments. Many of their small plots contain more than 100 different varieties of potato.

Most importantly, the Association of Communities of the Potato Park is responsible for running the park. The association's members include the traditional head authority of each of the communities, along with representatives of local residents, non-government organisations, traditional authorities, local co-operatives and others. For the Quechua, the ecological, social, economic and cultural realms of human life are integrated through local organisations, institutions, laws and policies that transform assets (natural, physical, financial, human, social, cultural) into livelihood outcomes. Examples of such indigenous transforming structures and processes include:

The development of community-to-community and farmer-to-farmer learning networks based on the principle of *ayni* (reciprocity). Exchange is promoted through the sharing of information, practices and learning processes. Local platforms (organisations) of "barefoot technicians", elected by their own communities, network with other communities and create opportunities to share and transfer traditional knowledge and innovations.

The consolidation of local grassroots enterprises. These groups are anchored in Andean principles of reciprocity and a local definition of well-being. The organisations work using the principles of Andean economy to reinforce local food systems within a holistic approach to the adaptive management of biocultural landscapes.

This local adaptive management of Andean landscapes thus helps sustain the Quechua's collective bio-cultural heritage. The latter encompasses the knowledge, innovations and practices of indigenous and local communities which are collectively held and inextricably linked to traditional resources and territories. This heritage includes the diversity of genes, varieties, species and ecosystems; the cultural and spiritual values; and customary laws shaped within the socio-ecological context of communities. For the Quechua, all of these are linked to knowledge of cosmic forces, as part of their "cosmovision" or holistic worldview.

Source: Argumedo and Pimbert (2005).

Box 4.3. Local organisations adaptively manage ecological change at different spatial and temporal scales

- The abundance of insect pests and their predators varies enormously within and between fields, even in the more intensively managed systems. In high-input irrigated rice farms, 100-fold differences in the abundance of plant hopper populations are commonly observed on rice plants grown a few metres apart. Huge variations in insect abundance also exist at larger spatial scales, and all are marked by dynamic change over time. This implies that highly differentiated pest management approaches are needed to monitor and control pests effectively and economically. An FAO-government programme in Asia, which uses the farmer field school approach to integrated pest management (IPM), is a clear demonstration of the advantages of such local adaptive management of pests and their predators in irrigated rice. As local organisations that bring people together for joint learning and action, farmer field schools (FFSs) have been a major innovation for the local adaptive management of agricultural biodiversity. FFSs have developed farmers' own capacity to think for themselves and generate their own site-specific solutions for crop protection. The FFSs aim to make farmers experts in their own fields, enabling them to replace their reliance on external inputs, such as pesticides, with endogenous skills, knowledge and resources. Over one million rice-paddy farmers and local resource users in Indonesia participated, and are still involved today, in this large-scale programme.

- Crops experience rapid changes in environmental conditions, both above and below ground. For example, the physico-chemical and biological characteristics of soils are rarely homogenous within a single plot, let alone between plots. The intense selective pressures associated with this kind of micro-geographical variation calls for a fine-grained approach to agricultural biodiversity management that hinges on local organisations that support farmer-led plant breeding and decentralised seed multiplication. This adaptive strategy is generally advocated for resource-poor farming systems in marginal, risk-prone environments. However, the Réseau Semences Paysannes in France (a platform of farmer organisations, see Box 7.11, and 7.15) sees this approach as increasingly relevant for high-input situations in which agricultural diversification can be used to solve production problems induced by genetic uniformity (e.g. pest outbreaks) or to exploit new market opportunities (such as economic niches for local or regional products).

Sources: Fakih, M, T Rahardjo and M P Pimbert (2003); Réseau Semences Paysannes (2004).

well-being, and livelihoods and natural resource management practices (see Box 4.4). There is a close-knit association between a cosmovision and customary resource management systems and agreements (Haverkort and Hiemstra, 1999; Posey, 1999).

In that context, adaptive management for sustainability is not only a "hard" attribute in terms of keeping within the carrying capacity of a given environment or minimising ecological footprints; it is also a "soft" one in the sense that sustainable land use emerges from collective decisions and human values. For example:

> *"The unsustainable land use in a country such as the Netherlands, with its manure surplus of one metric ton of slurry per head of the population, can only be understood through the soft side, and also remedying it can only come about through the soft side: making collective decisions about how the land will be used. Such decisions must involve the consumers, mitigate the impact of the agricultural treadmill and the subsequent price squeeze, and overcome the powerful coalition of interest of farmers, agribusiness, exporters, ministry officials, chemical industries etc.…Indeed, such collective action must include agreed upon rules of access and use, and systems of monitoring and sanction.…"* (Röling and Maarleveld, 1999)

Box 4.4. Holistic relationships between indigenous culture and land determine customary management agreements: indigenous agriculture of the Peruvian Andes

Andean culture perceives "nature" as if it were a living and highly sensitive being, capable of responding positively when handled well, but also of responding furiously when mistreated. Andean women and men see the flora, fauna, soil, and water as parts of a whole which also includes their children: "We are part of the Earth". This relationship does not imply immobility, but rather continuous transformation and domestication of the environment, not for the unilateral benefit of humankind but for the reciprocal benefit of nature and society.

Andean culture is agro-centric since the prime concern of the society is to assure adequate and sufficient food, and to produce raw materials for processing. Agro-centrism means that the social organisation, science, art, philosophy, religion, perceptual frameworks, language, and technology (including natural resource management agreements) are all functions of the farming activities. Andean society seeks an integral relationship with its medium, as reflected in the careful organisation of space and the eagerness to create beauty that benefits nature and society. For example, the construction of irrigation systems benefits society as it allows an increase in production. At the same time, nature benefits through greater total biomass production and enhanced biodiversity within and between ecosystems.

For the technician, a plot is no more than a medium for production. For the campesino it is at the same time a source of food, a meeting place and a sacred place where rituals are carried out.

Source: Adapted from Fernandez and Vasquez, cited in IUCN, 1997

The ability to develop and re-imagine the "soft side of the land" is a unique attribute of local organisations because of their capacity for collective learning and action in the face of change. By bringing together different actors, local organisations are crucial in mediating the kind of social learning needed to flexibly develop adaptive responses to change, tailoring the "institutional landscape" to deal with specific social and ecological challenges (Holling, 1978 and others quoted in Röling and Maarleveld, 1999).

Social actors involved in the local adaptive management of food-producing environments typically act as innovators. They try out in practice novel technical and institutional solutions to problems which often demand a re-adjustment of their habitual ways of working. This adds to the always present need to deal with the complex, uncertain, and rapidly changing characteristics of environment and society. It is well-known that the environment is currently responding to a variety of influences—from climate change to overexploitation and pollution—which alter its natural features, rhythms and cycles. Equally pervasively, socio-cultural and economic change has been sweeping across the planet. Today, even remote rural livelihoods are undergoing dynamic change, and all human communities increasingly express differentiated and evolving needs. In this context, local adaptive management is the only sensible approach. Adaptive management emphasises on-going learning through iterative processes and fitting solutions to specific contexts (see Holling, 1978; Gunderson *et al.*, 1995; Taylor, 1998; Gunderson and Holling, 2002). It is based on systematic experimentation and careful analysis of feedback to policies and management interventions. "Learning by doing" is thus an integral part of those processes that help sustain the ecological basis of food systems.

Local organisations usually develop successful adaptive management regimes when they build on local practices and the knowledge used by rural people to manage food-producing forests, wetlands, fields, rangelands, coastal zones and freshwater systems. In the next section I describe some particularly noteworthy adaptive processes mediated by local organisations.

4.2.1. The use of sophisticated environmental indicators to track and respond to change

Indigenous peoples, fishers, farmers, forest dwellers and pastoralists have learnt to rely on a sophisticated set of indicators to adapt to environmental change and ensure the resilience of their food systems. These include:

- Physical environmental indicators: the onset of seasonal rains, shifts in wind direction and patterns, or timing of the first snowfall.

- Biological indicators: the coming into leaf of certain trees or shrubs in the spring, the blooming of certain flowers, or the appearance of certain migrating animals or birds.

These might help them predict the optimal times for planting crops or harvesting certain fish, for hunting certain animals or for picking berries and other "wild" foods. In some cases, small-scale producers can also predict abundance of certain species or productivity of certain plant resources on the basis of such indicators. The use of such indicators allows local communities to monitor long-term changes in ecotones, such as loss of ice shelves, reduction or increase in forest cover, spread or contraction of deserts, changes in salinity in tidal areas and wetlands, water quality and availability. These indicators thus provide valuable feedback and help local organisations co-ordinate adaptive responses to dynamic change. For example, indigenous peoples in British Columbia (Canada) extensively use phenological indicators[7] (e.g. flowers blooming, bird songs and appearance of certain insects) to judge relative ripening and harvesting times for plants and seasonal movements of animals (Box 4.5). The use of such phenological cues and other

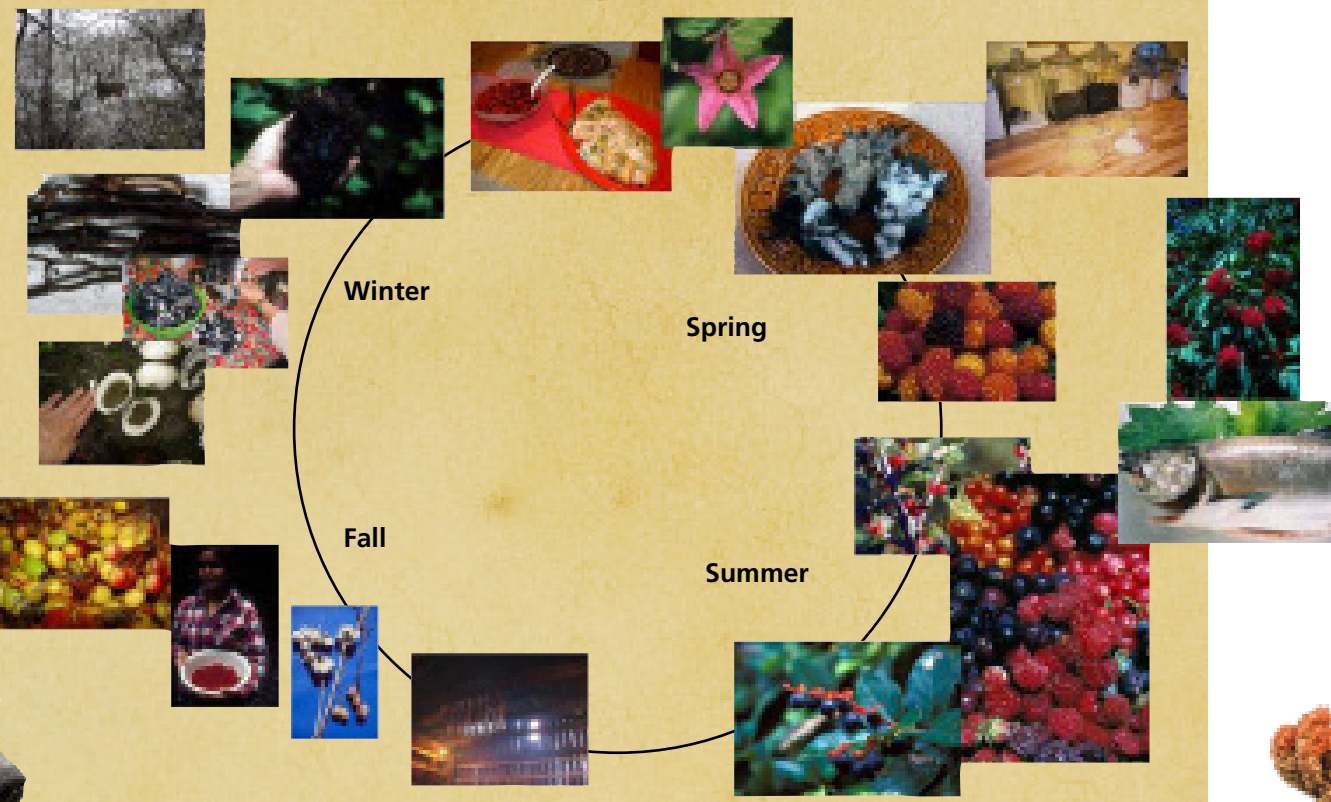
7 Peoples' traditional phenological knowledge (TPK) relates to knowledge about the seasonal timing of growth, development, reproduction and migration of organisms, which generally occurs in a predictable sequence, based on temperature thresholds, length of daylight, moisture or other environmental determinants (Lantz and Turner, 2003). The environmental factors that influence stages of species' development may be recognised directly, as well as through concurrent effects on other species.

Box 4.5. The use of environmental indicators to adapt to change in British Columbia, Canada

A survey of the ethnographic and ethnobotanical literature for British Columbia, Canada and surrounding areas revealed 84 words in 21 languages which refer to a range of phenological events and discrete seasonal time periods. Of these, 35 were related to the phenology of plant resources, 26 of which pertained to berries; and 49 were associated with animal phenology, 39 of which related to fish. Such phenological indicators encoded in language and vocabulary have enabled people to gauge when to pick certain berries, when to fish for oulachen[6] or to hunt seal or marmot, or when the bears are beginning their winter sleep. Such intimate understanding of life cycles of species in relation to environmental cues is important for people's survival. Using these cues has allowed people to accommodate year-by-year variations in seasonal cycles without expending excessive energy through premature travel to distant harvesting sites, whether offshore islands, river canyons or mountainsides.

Source: Turner, 2006

Seasonal Rounds dependent on predictable weather patterns



indicators has allowed these peoples to accommodate and respond to environmental change, ensuring the resilience of their food system. Archaeological and paleoecological records extending back over 12,000 years provide a picture of dynamic relationships between shifting ecosystems, human settlement, resource use and availability, and technological and social developments (see Turner, 2006).

In Sahelian countries such as Burkina Faso, farmer groups monitor the migratory patterns of birds, leaf fall in the forests and many other indicators to determine or adjust planting dates or choice of crops and crop varieties (Box 4.6).

There are numerous other examples of the use of multiple indicators by small scale producers who constantly adjust their activities to changing circumstances. It is significant that the organisational capacity to rely on a combination of indicators is increasingly recognised as key for adaptation to climate change (Salick and Byg, 2007; Eyzaguirre et al, 2007). This ability is vitally important for those indigenous and other communities of small-scale producers who live in marginal areas with fragile ecosystems or at the boundaries between major ecosystems, such as:

- *Desert margins*: Sahel in West Africa, Sonora on the US-Mexican border, steppes of Mongolia and Central Asia, Kalahari of Southern Africa, oases of North Africa.
- *Circum-polar region*: North America, Greenland, northern Siberia, Lapland.
- *Mountain ecosystems*: Himalayas, Shan Mountains of South East Asia, Pamir of Central Asia, Andes.
- *Tidal areas and wetlands*: Okovango of Southwest Africa, Bixagos mangroves of West Africa, Ojibwa marshlands of North America.
- *Tropical forests*: Borneo, Amazon Basin, Peninsular Malaysia, Dja and Congo Basin, Assam, Western Ghats.

Box 4.6. Environmental and cultural indicators used by farmers to determine planting times and manage crop cultivars in Burkina Faso

Plants
Leaf fall of *Tamarindus indica*, *Butyrospermum paradoxum* (karite)
Flowering of *Sclerocarya birrea* (Nobga), *Lannea microcarpa* (Sagba), *Pterocarpus lucens* (Kumbrsaka)
Yellowing and leaf fall of *Lannea acida* (Sambnutuga)
Appearance of *Stylochiton hypogea* (Wule) in the river beds
Maturity and fruiting of *Lannea microcarpa* (Sagba), *Scleraocarya birrea* (Nogba), *Butyrospermum paradoxum*
Ripening, drying and souring of fruits of *Lannea microcarpa* (Sagba), *Sclerocarya birrea* (Nogba)

Birds
Guinea fowls laying eggs
Some birds (Taaba) building their nests
Storks returning (migrating back) to the village
South-north migration of Silokoe and Klimba birds
Sparrowhawk crying continuously (repeatedly)

Animals
Lizards shedding skin
Toads going to the bush from ponds
Toads croaking incessantly

Rituals
Predictions of rainmakers
Traditional lunar calendar
Spiritual leaders, rituals at planting and harvest time

Stars and Weather
Appearance of the constellation of the six stars in the west
Change in the normal trajectory of the sun
Wind blowing from the east
Temperatures warming up
First clouds appearing
Continuous thundering

Source: Sawadogo, 2001

4.2.2. The use of diversity to reduce risks and mitigate impacts of natural disasters and long-term environmental change

Many adaptive responses to environmental change draw on the huge pool of biodiversity available (Box 4.7). At the local level, food providers and their organisations harness diversity within and between species to adapt to environmental change in their fields, forests, wetlands, rangelands and landscapes.

Many different types of agricultural biodiversity ("cultivated", "reared" or "wild") are used by different people at different times and in different places. The resilience of food systems depends on such creative use of biological diversity by local organisations of producers to minimise risk and realise new opportunities created by dynamic change. For example:

- Indigenous farming communities in the Andes have domesticated over 70 species of cultivated crops and generated a huge diversity of genetically distinct landraces within these crop species. Their *chacras* (fields marked off for cultivation) exist in an environment characterised by

Box 4.7. A wealth of life

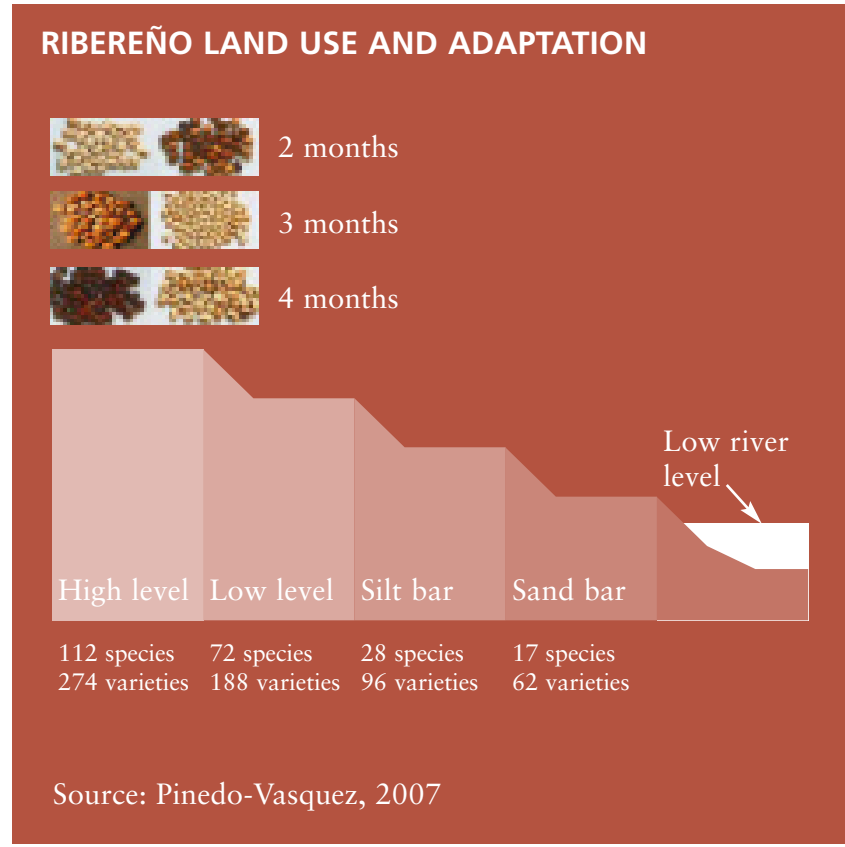
Out of the 250,000 plant species that have been identified and described, some 30,000 are edible and about 7,000 have been cultivated or collected for food at one time or another (Wilson, 1992). World-wide, several hundred animal species including mammals, fish, reptiles, molluscs and arthropods also contribute to food and livelihood security. Diversity within species is also remarkable among those plant and animal species that have been domesticated for crop and livestock production by innovative rural people. The inherent variation within farmers' crop varieties (landraces) is immense. Estimates of the distinct number of varieties of Asian rice (*Oryza sativa*) range from tens of thousands to more than 100,000 (FAO, 1998), while some communities in the Andes grow as many as 178 locally named potato varieties (Brush, 1991). Livestock keepers have also generated and safeguarded considerable intra-specific diversity through their animal husbandry. In India alone, 26 different breeds of cattle and 8 breeds of buffalo, 42 breeds of sheep and 20 breeds of goat have been identified along with 8 breeds of camel, 6 breeds of horse, 17 breeds of domestic fowl, as well as native pigs, mithum and yak (FAO, 1995). In south east Mexico, women's groups keep as many as nine breeds of local hen, as well as local and exotic breeds of turkey, duck and broilers in their back gardens.

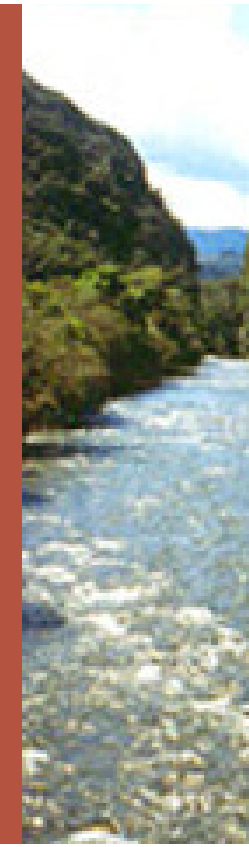
Source: Pimbert, 1999

heterogeneity, variability and change, from the landscape level right down to micro-geographical scales. Indigenous farmers adaptively respond to this heterogeneity by growing many different crops and landraces in diverse ways in the *chacra*: by enriching the genetic heterogeneity of the plants; by planting in the same *chacra* a mixture of varieties of each cultivated species to increase intra-specific variability (e.g. a mixture of potato varieties); increasing inter-specific diversity by planting associations of crops in a *chacra*, e.g. sowing mixtures of varieties of maize in strips alternating with rows of mixtures of quinoa ecotypes; planting on multiple and dispersed *chacras* situated at different altitudes (between 1,000 and 4,500 metres) and planting at different times. Indigenous organisations that facilitate these community responses to change believe that the mutual cultivation of the diversity of life based in the *chacra* is the "best way to synchronise with the heterogeneity of the diverse, dense and variable Andean environment" (Rivera, 1998).

- In the agricultural drylands of Mali, village level organisations facilitate the exchange of genetic diversity by co-ordinating seed exchange networks. There are several types of interconnected networks within and between villages, and the combination of these networks helps maintain biodiversity, the quality of seed and overall resilience of the system. This web of local organisations ensures that dryland farmers can access and use the crop genetic diversity they need to adapt to change, risk and dynamic complexity in their specific contexts (Bazile, 2006).

- In South India local organisations of farmers and informal groups co-ordinate individual and collective efforts to closely tailor the choice of crop varieties to the distinct soil types found on small farms and across watersheds. Dryland farmers in the Telengana region of Andhra Pradesh (India) recognise several soil types on the basis of colour, texture, taste and smell. These





criteria are used as indicators to decide which crop varieties to sow in different soil micro-environments in the risk-prone drylands (Table 4.3; Pionetti, 2005; Reddy, in press).

- Throughout the world nomadic pastoralists maintain mixed flocks and herds of animals to minimise risk and buffer against the dynamic changes that are typical of rangeland environments (Benhke, 1991; WAMIP, 2007). In Iran, the herds of the Qashqai tribes and other pastoralists include mixed populations of genetically diverse sheep, goats, camels, horses and mules (CENESTA, 2006). The livestock on which migrating pastoralists rely is usually genetically diverse, emphasising hardier animal breeds. For example, Ndama cattle are more resistant to diseases and less demanding in their use of pastures (Eyzaguirre, 2007).

- Many other documented examples show that small-scale producers and their institutions continuously adapt to their dynamic environments by deploying a mosaic of plant and animal genetic diversity, both within micro-environments and across landscapes (Netting, 1993; Caroll, *et al*, 1990; Howard, 2003).

Moreover, many rural people, regardless of their type of land use (pastoral, swidden or continuous cropping…), deliberately incorporate wild resources into their livelihood strategies and in order to adapt to environmental change. In north east Thailand, for example, 50% of all foods consumed are wild foods from paddy fields, including fish, snakes, insects, mushrooms, fruit and nutritious vegetables that are available in different seasons

Dalit Food Systems
www.diversefoodsystems.org/vid/dalit.mov - click here

3.5 minutes

Table 4.3. Farmers' knowledge of soils and crop-soil partnerships in Medak district, Andhra Pradesh, India

Soil type	Major soil characteristics	Most suitable crop varieties
RED SOILS		
Mixed silt	High silt content, low fertility level, very poor moisture retention capacity	Kharif crops only: pearl millet, little millet, sorghum, niger, roselle
Clay loams	Relatively high clay content, good drainage, fertile, good water retention	All dryland kharif and rabi crops including paddy and millets, pulses and oilseeds
Shallow sandy	High porosity, low to medium fertility, very poor moisture retention capacity	Kharif crops only: groundnut, field bean, pigeonpea, sorghum and all millets
BLACK SOILS		
Shallow silt	Low to medium fertility, relatively good moisture retention capacity	Kharif crops only: sorghum, dryland rice, finger and foxtail millet, sesame, greengram, niger, blackgram
Deep clay	Very fertile, deep (up to 1.5 m), very good water retention capacity	All dryland rabi crops: wheat, chickpea, linseed, safflower
Mixed	Clay loams, good drainage, high fertility, good moisture retention capacity	All dryland kharif crops and safflower and chillies in rabi (after a kharif fallow)
SALINE SOILS	High sodium content, low fertility, unsound for cultivation	Horsegram exclusively
ROCKY SOILS	Low soil content, low fertility, poor moisture retention capacity	Three kharif crops: sorghum, pearl millet, pigeonpea
WATER-LOGGED	Very poor drainage	Rice in kharif and chickpea or lentil in rabi

Source: Participatory rural appraisal with organised groups of women farmers, facilitated by Deccan Development Society, 1999.

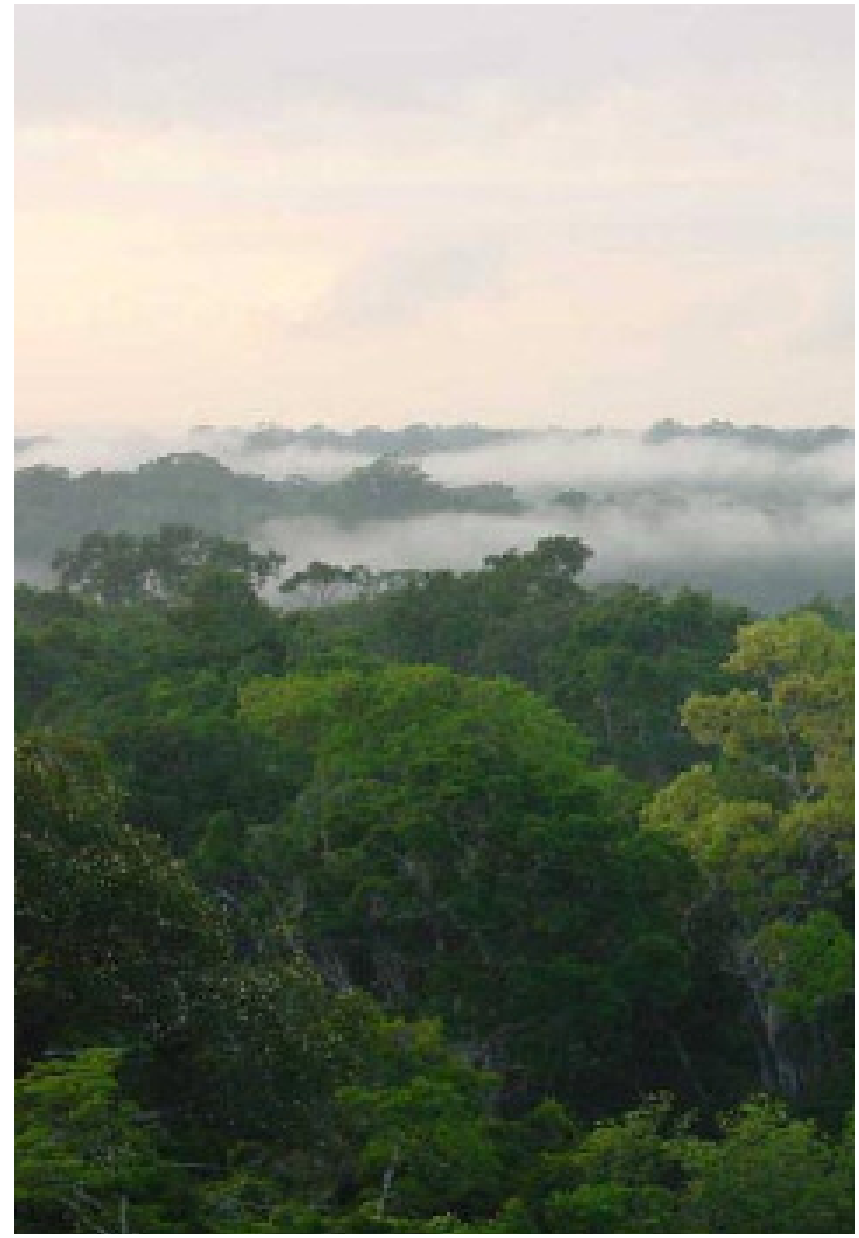
and diverse micro-environments (Somnasung *et al*, 1988). Up to 24% of the Scottish population collect non-timber forest products for household use on a regular basis (Emery *et al*., 2006). Some Aboriginal groups in central Australia and the James Bay Cree in Canada are doing more foraging of wild foods today than 20 years ago (Beauclerk *et al*., 1988). Wild resources are particularly important for the food and livelihood security of women, children and the poor, especially in times of stress such as drought, changing land and water availability or ecological change (Gujit *et al*., 19; Scoones *et al*., 1992). These groups generally have less access to land, labour and capital and thus need to rely more on the wild diversity available. In India, the poor obtain 15-23% of their total income from common property resources, as compared with 1-3% for wealthier households (Jodha, 1986). Much of the harvest of wild plants and animals significantly contributes to local food and livelihood security in Southern Africa where the value of day-to-day wild resource consumption is around US $800 million per annum according to the recent Millennium Ecosystem Assessment (Biggs *et al*., 2005). In Zimbabwe, some poor households rely on wild fruit species as an alternative to cultivated grain for a quarter of all dry season meals (Wilson, 1990). In Botswana, the agropastoral Tswana use 126 plant species and 100 animal species as sources of food by adaptively responding to the availability of different types of wild foods across the landscape (Grivetti, 1979).

Another adaptive process based on the use of biodiversity involves actively maintaining complex ecosystems to buffer the effects of natural disasters and environmental change. For example:

- It is common knowledge among coastal communities that mangroves absorb the energy and reduce the force of tidal surges and tsunamis. Mangrove ecosystems also absorb the impacts of flooding from increased erosion and severe rainfall. Many local organisations of fishers and small-scale producers living in tropical regions still actively conserve these ecosystems by co-ordinating livelihood activities and regulating access to and use of mangrove forests in the inter-tidal zone (Dugan, 1993; IUCN, 2006).

- Indigenous lands occupy one-fifth of the Brazilian Amazon—five times the area protected by national parks—and are currently the most important barrier to Amazon deforestation. Indigenous lands were often created and maintained by local organisations in response to the expansion of the agricultural frontier, and many have been shown to prevent deforestation completely despite high rates of deforestation along their boundaries. Moreover, recent research shows that deforestation and fire are significantly reduced in inhabited reserves (indigenous lands, extractive reserves) compared to large (>10 000 ha) uninhabited national parks in Brazil (Nepstad *et al*., 2006). Recent work in the Ucayali region of the Peruvian Amazon also shows that the frequency of devastating fires and deforestation is significantly lower on indigenous peoples' lands than on absentee landlords' and absentee pastoral lands (Pinedo, 2007). In all these cases, the inhibitory effect of indigenous lands on deforestation and fire is still strong after centuries of contact with the dominant culture and is not correlated with indigenous population density. Local indigenous organisations are actively involved in co-ordinating patterns of access and resource use in the Amazon forest. This results in the active maintenance of a mosaic of complex, biodiversity-rich ecosystems that buffer against outside threats, environmental stresses and change, including climate change (Salick and Byg, 2007).

Such diverse portfolios of activities based on the contributions of agricultural biodiversity (e.g. crop cultivation, harvest of wild plant species, herding, fishing, hunting, whole ecosystem management) thus help sustain rural livelihoods because they improve their long-term resilience in the face of environmental change, adverse trends or shocks. In general, increased diversity promotes more flexibility because it allows greater possibilities for substitution between opportunities that are in decline and those that are increasing. In this context, local organisations play a key role in co-ordinating such community-based adaptive responses to change.



4.3. Local organisations and people's access to land and food

4.3.1. Locally-developed rules for resource access and use

Indigenous peoples and rural communities negotiate and enforce a wide spectrum of norms (customary law and practice) and procedures (for law making, conflict management, dispute settlement) to govern access to—and use of—natural resources such as land, forests, water, seeds, livestock and fish. Such norms and procedures are often unique to a given culture or local society and have developed as that culture evolved over many generations in a particular environment. Indigenous knowledge is the foundation of such customary governance systems, and its evolution through experimentation and innovation is the basis of local decision-making in natural resource management. Examples include the customary land tenure systems of Papua New Guinea, which specify the conditions under which forests and forest products can be accessed, harvested, used, collected or hunted; and the customary harvest restrictions (sasi) practised by communities living in the Molucca islands of Indonesia and in the Pacific islands to ensure sustainable use of marine species (Zerner, 1991).

The customary management agreements of farmers, fishers, pastoralists and indigenous peoples generally value the diversity of available ecological zones and allocate resource use in ways that are conscious of the spatial, distributional and ecological impact on the landscape-wide mosaic. Agreements can include rules for allocation of resources within a community and/or between communities and be mediated by a variety of cultural processes, including spiritual beliefs (see Box 4.8).

Informal resource access agreements are constantly negotiated among a variety of parties through local institutions. For

Box 4.8. Customary rules for access to fisheries and water

In the South Pacific, ritual restrictions based on area, season and species prevent overfishing. Religious events often open and close fishing seasons. Canadian Pacific tribes believe salmon spirits give their **bodies** to humans for food but punish those who waste fish, catch more than they can use, or disrupt aquatic habitats.

For coastal peoples in Benin and the Ivory Coast, the great fishing period (May to October) is initiated by an opening rite over the "Aby" lagoon, sometimes carried out simultaneously in the different areas. It is the priest of the spirit called Assohon who opens the fishing in May and closes it in October. Sacred catfish of Sapia are sheltered by the Dransi River which is formally forbidden to fisherfolk. Together with sacred crocodiles from Gbanhui, all the aquatic species are protected by food prohibitions to the villagers. During the day dedicated to sacred and venerated crocodiles, it is forbidden to go to the Yonyongo river.

The customary management agreements of the fisherfolk of Jambudip (India) help co-ordinate the complex variables of seabed topography, seawater conditions and sequences of tide with fish behaviour to ensure both successful catches and the safety of fisherfolk at sea. In their selection of the appropriate seabed over which to conduct their activities, these fisherfolk are like the agriculturists who tend to classify the soil according to its relative fertility and the types of crops grown. The "soil" of the seabed is classified by its capacity to support the net poles and by its fertility in the types and quantity of fish in the waters above it. Such management agreements and practices have helped regulate access to coastal environments and conserve a considerable amount of marine diversity.

Several water bodies (village tanks, ponds, rivers and others) are attributed sacred qualities in India and are protected from over-fishing or the over-extraction of other resources. Some of them exist within the bounds of sacred groves. Management agreements based on spiritual beliefs help preserve these water bodies, allowing for the underwater forms of life, even at the micro-level, to flourish undisturbed. The only surviving population of *Trionyx nigricans*, the large freshwater turtle, is found in Chittagong (Bangladesh) in a sacred pond dedicated to a Muslim saint.

Sources: Durning, 1992; Zoundjihekpon and Dossou-Glehouenou, 1998.

example, the arrangements to establish a livestock corridor through a farmer's field in semi-arid northern Senegal are usually the product of informal discussions at the village mosque (Freudenberger and Freudenberger, 1993). Such *ad hoc* agreements have no formal legal status and are not enforced by the government. Conflicts between two or more parties are informally arbitrated by respected authorities such as the village chief, a village council or a wise elder.

Among many rural communities, agreements on who can access resources and how, are usually enforced through social sanctions according to customary law, with decision-making in the hands of local organisations. In Rajasthan (western India), self-initiated forest protection committees even levy fines on offenders (the amount often depending on the ability of the offender to pay), as well as through social sanctions, a practice that is informally condoned by official agencies (Kothari *et al.*, 2000). In the south Indian state of Maharashtra, villagers follow strict rules and regulations for access and use of forests for food, medicines, fuel wood and timber (Box 4.9).

Box 4.9. Village empowerment and management of natural resources: the case of Mendha Village

Gadchiroli District (Maharashtra State) and the surrounding region is famous for its biodiverse, dry deciduous forests as well as for its tribal communities. In the 1970s the forest-dependent tribal communities in this area were faced with displacement and the destruction of their forests by a government-sponsored hydro-electric project. This led to strong tribal opposition to this project, which was eventually shelved by the government. United by the movement, the tribal population in the area started a campaign for tribal self-rule, declaring their own villages as small republics within the constitution of India. Mendha-Lekha, with a population of 400 Gond tribals, was one of the villages where the process towards self-rule gained momentum.

During the 1960s, 1,800 hectares of forest which were traditionally part of the village boundary had been taken over by the government and used for revenue generation through logging by contractors, charcoal making, and bamboo extraction for the paper industry. At the same time, restrictions were imposed on local people's use of resources to meet basic needs. An important aspect of self-rule was to reclaim the local forest and to promote its sustainable use for current and future generations.

In the early 1980s the village established an institution called the gram sabha (the village assembly) which represents all adult members (at least one man and one woman from each family) in the village. Decisions in the gram sabha (GS) are taken unanimously and implemented through strong oral social rules. Social ties and sanctions are so strong that the decisions taken by the GS prevail over any other official or unofficial orders. All outsiders who intend to carry out any activities in the village or the adjoining forests have to present their plan in the GS for permission. The village has various other institutional structures, such as the Van Suraksha Samittee (VSS), or Forest Protection Committee, which deals with forest-related decisions. Villagers have stopped all damaging logging and other commercial exploitation of forests by outside agencies. Non-timber forest products and bamboo are currently extracted (after a decade-long moratorium) jointly by the forest department and the villagers. Villagers follow strict rules and regulations for access and use of these resources. Encroachment onto forests by the villagers, forest fires and unregulated extraction of non-timber produce, which were serious problems previously, have largely been stopped. Such is the reputation of the VSS that the government forest staff have agreed that forest protection in the village is no longer their job.

Source: Kothari, A., Pathak, N. and Vania, F. (2000)

Informal rules of access to natural resources are also increasingly being negotiated between local community organisations and rural development and conservation projects. Covenants, memoranda of understanding, project and research agreements such as the ones described in Box 4.10 rarely have legal standing. Yet such non-notarised written agreements can be effective in formalising the roles, rights and responsibilities of the rural communities and external agencies involved.

4.3.2 Local organisations and access to land

Throughout the world, local organisations of indigenous peoples and other small-scale producers are also directly involved in efforts to reclaim rights to lost lands. Indeed, many local organisations are centrally involved in confronting the legacy of colonisation, imperialism and unequal relationships embedded in mainstream conservation and industrial food and agriculture. This has become a high priority today because small-scale

Box 4.10. The protocol for the Community Biodiversity Development and Conservation Programme

The Community Biodiversity Development and Conservation (CBDC) Programme is an inter-regional initiative developed by agricultural non-governmental organisations in Africa, Asia and Latin America, in co-operation with Northern partners. Its purpose is to strengthen the ongoing work of farming communities in conserving and enhancing the agricultural biodiversity that is vital to their livelihoods and food security. The CBDC programme is also a unique attempt to establish a working relationship between farmer communities and institutional systems of innovation (national agricultural research systems and universities).

The CBDC's Programme Protocol was adopted in Barcelona in 1994 and spells out the agreements which CBDC partners have reached with one another. It was developed to guide relations concerning intellectual property, rights and responsibilities in relation to genetic resources, information, funds, technologies, methodologies and systems. The partners recognise that one particularly difficult element in this programme is the relationship between institutional and farmer/community innovation systems. All partners believe that farmers, and humanity at large, are best served through the full and free exchange of plant genetic resources unfettered by the constraints imposed by intellectual property rights or other monopolistic market practices. Partner NGOs do not wish to co-operate with institutions (public or private) that impose or facilitate intellectual property control over plant genetic resources.

The protocol assumes that the partners have mutual trust and confidence, are willing to co-operate, and that a highly-legalistic document is not necessary. It also recognises that other partners at the regional, national and community level may not know all their colleagues and, therefore, basic working relations should be spelled out adequately. In addition, the protocol recognises that there is an imbalance in the ability of partners to access genetic resources, information and financial resources. The occasional and sometimes long-standing tension between the community and institutional system, and the history of mutual misunderstanding, should be taken into account. For these reasons, the protocol operates on the assumption that decisions are taken "bottom up" (from the community to the global level) and that the authority will rest, as far as possible, at the community level.

The protocol is divided into two operational parts: the first addresses issues of intellectual integrity intended to ensure that germplasm, information, funds, technologies, methodologies and systems, and the rights and responsibilities that go with them, will be respected. The second section addresses issues of institutional integrity intended to protect and promote the interests of the partners. The protocol is seen as an evolutionary document that is modified and adapted as partners learn how to work with one another at the local, national, regional and global levels.

Adapted from CBDC Programme, 1994; see also www.cbdcprogram.org

producers everywhere are increasingly pushed off their land by the combined effects of two modern forms of enclosure: an expanding network of protected areas and the spread of industrial monocultures and livestock farming.

Worldwide, for instance, the growth of national parks and protected areas has been relatively rapid over the last two decades. In the early 1990s protected areas covered some 5.2% of the Earth's land area—an area roughly equivalent to the size of the United States (excluding Alaska) or twice the size of India (WCMC, 1992). Today, national parks and protected areas now cover some 12% of the Earth's land area (UNEP-WCMC, 2008). And, despite rhetorical claims to the contrary, this expanding network of protected areas is still one of the major immediate causes of human displacement, alienation, social conflict and abject poverty in biodiversity-rich areas today (Ghimire and Pimbert, 1997; Brechin *et al*., 2003, CEESP, 2006; Dowie, 2006). The management of protected areas in developing countries all too often entails huge social and ecological costs. These are rarely perceived as likely to be significant during the process of designation but may ultimately threaten the long-term viability of the protected areas themselves. The devastating consequences of resettlement schemes for indigenous peoples and peasant communities removed from areas earmarked for conservation are particularly noteworthy in this context (Colchester, 1997; Cernea, 2008; Wani and Kothari, 2007). So are the enduring negative impacts of coercive conservation programmes implemented by the former apartheid governments of Rhodesia (Zimbabwe) and South Africa (McIvor,1997; Koch, 1997). On several occasions, local communities have been expelled from their settlements without adequate provision for alternative means of work and income. In other cases, local people have faced restrictions in their use of common property resources for food gathering, harvest of medicinal plants, grazing, fishing, hunting and collection of wood and other wild products from forests, wetlands and pastoral lands. National

parks established on indigenous lands have denied local rights to resources, turning local people practically overnight from hunters and cultivators into "poachers" and "squatters" (Colchester, 2003).

More insidiously, the exclusion of resident people from protected areas leads to the loss of valuable traditional knowledge of plant, animal and microbial species used for food, medicinal and other purposes. Rural processing technologies, local food systems and innovations which evolved over many generations also disappear, together with the capacity for indigenous experimentation that historically produced a myriad of sophisticated agricultural and ecological management systems (Wood, 1995; Altieri, 1987).

Local organisations of pastoralists, forest dwellers, fishers, small farmers and indigenous peoples are at the forefront of struggles to oppose such coercive forms of conservation that exclude and alienate local communities from their lands and

livelihoods. It is noteworthy that some of the most creative ways of reconciling conservation with sustainable livelihoods have been generated through the efforts of such local organisations. All these locally determined actions aim to reclaim lost rights of access, use and control over land and natural resources on which local livelihoods, human well-being and culture directly depend. Negotiated agreements with the state are often key in securing access and other rights to ecosystems important for food, medicine, fuel, and other human needs (Boxes 4.11 and 4.12; see also Borrini - Feyerabend *et al.*, 2004; 2007).

In other situations, regaining access and control over land and productive resources may depend more on collective forms of direct action and civil disobedience, with or without violence. For example Brazil's Landless Workers Movement—or *Movimiento dos Trabalhadores Rurais Sem Terra* (MST)—carries out long overdue land reform in a country where two-thirds of the cultivable land is owned by less than 3% of the population. Since 1985, the MST has peacefully occupied and directly taken over unused land, where it has established co-operative farms, constructed houses, schools and clinics, and generally promoted indigenous cultures. Through its direct action and organisation MST has won land titles for more than 250,000 families in 1,600 settlements; today about 200,000 encamped families now await government recognition. MST is the largest social movement in Latin America with an estimated 1.5 million landless members in 23 out of 27 states of Brazil (see http://www.mst.org.br/mst).

click here
Joao Pedro Stédile from Brazil on MST

There are many other contemporary examples from all over the world that illustrate the importance of local organisations in regulating access to land and resources (Ghimire, 2001; Borrini-Feyerabend *et al.*, 2007). And history also offers valuable insights into how local organisations—and the networks they form—can co-ordinate access to land, productive resources and the means of life. For instance in Spain during the Civil War of 1936-1939, peasant collectives in Andalusia and Aragon established communal systems of land tenure, in some cases abolishing the use of money for internal transactions, setting up free systems of production and distribution, and creating a decision-making procedure based on popular assemblies and direct, face-to-face democracy (Bookchin, 1994; Laval, 1975).

Box 4.11. Local organisations ensuring territorial recognition for the Guaraní Izoceño people in Bolivia

The Kaa-ya Iya National Park (83.4 million hectares) is the largest in Bolivia and contains the world's largest area of dry tropical forest under legal protection. Its most unique characteristic, however, is that the park was created in response to demands for territorial recognition by the Guaraní Izoceño people. This is the first park in the Americas declared on the basis of a demand by indigenous people and the only park in the Americas where an indigenous people's organisation (Capitanía del Alto y Bajo Izozog or CABI) has primary administrative responsibility. CABI is the long-standing political authority structure of the Guarani people of the Izozog and contributed significantly to the social mobilisation that ushered in national decentralisation reforms described below.

The park's management committee comprises staff of the Ministry of Sustainable Development and Planning and representatives of CABI, WCS (a foreign donor), local municipalities, a community group of Chiquitanos, the Ayoreo Community of Santa Teresita and a group of Izozog women. The indigenous representatives form the majority of the committee, which helps define policies for the management of the park.

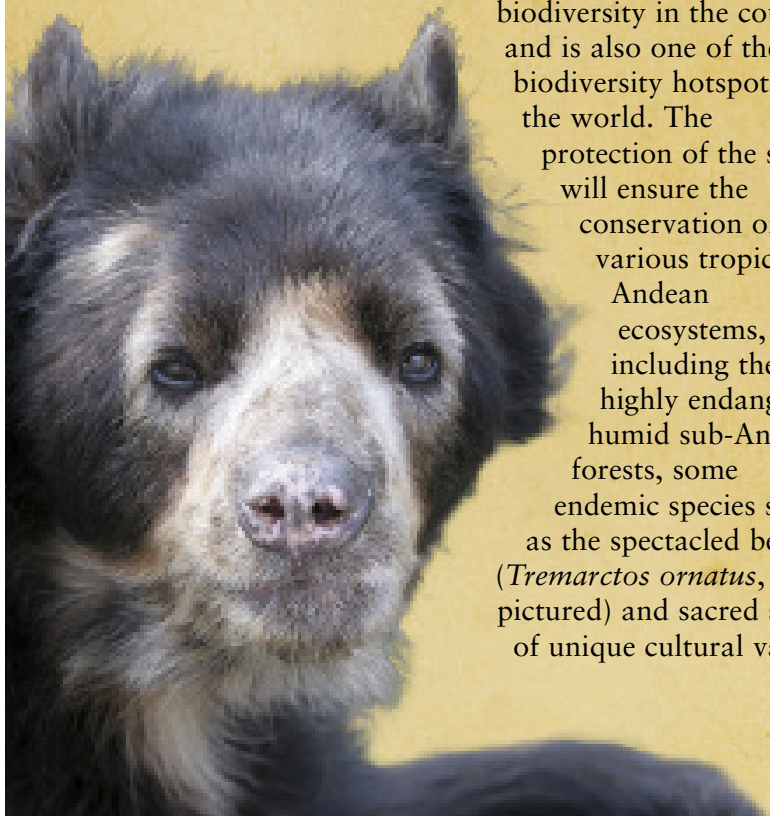
Under Bolivian law, the Capitanias are indigenous municipalities that own and administer the land under their jurisdiction. In 1993, the new Agrarian Reform Law recognised Bolivia for the first time as a multiethnic and multicultural country. This law allowed for the existence of community land ownership and legalised the creation of indigenous territories (Territorio Comunitario de Origen or TCO). It was not until these provisions for legal land titling were implemented in the Kaa-ya Iya area that CABI and the indigenous communities could become fully involved in managing the park and addressing the many conservation problems effectively.

Establishing the park has only partially fulfilled CABI's long-standing objective of re-claiming their land. Currently, 1.9 million hectares bordering the park and straddling the river are titled in their favour and the rest has being gazetted as park territory. CABI would have preferred all 5.3 million hectares (the 1.9 m ha land settlement and the park's 3.4 m ha) to be titled in their favour. The park's creation, however, was a realistic political compromise for all sides. It halted the rapid expansion of the agro-industrial sector, fanning out inexorably from its base in Santa Cruz de la Sierra (Bolivia's second largest city) and ensured that traditional lands were not clear-cut for industrial farming. CABI has also been able to capitalise on its internal cohesion to pressurise the hydro-carbon industry into making significant compensatory payments to them for the impact of the portion of a large 3,146 km-long gas pipeline that runs through their indigenous territory. Such compensatory payments, totalling US $3.7 million, were crucial to support the indigenous organisations themselves, strengthen local food systems, promote rural development and accelerate the process of titling indigenous lands.

Source: Adapted from Winer, 2001 and Winer, 2003

Box 4.12. Securing land tenure and rights through a co-management agreement: the case of Alto Fragua-Indiwasi National Park (Colombia)

The Alto Fragua-Indiwasi National Park was created in February 2002 following negotiations involving the Colombian government, the Association of Indigenous Ingano Councils and the Amazon Conservation Team (an environmental NGO focusing on projects to assist the Ingano Indians and other indigenous groups in the Amazon basin). The park is located on the piedmont of the Colombian Amazon on the headwaters of the Fragua River. Inventories conducted by Colombia's von Humboldt Institute determined that the site is part of a region harbouring the highest biodiversity in the country and is also one of the top biodiversity hotspots in the world. The protection of the site will ensure the conservation of various tropical Andean ecosystems, including the highly endangered humid sub-Andean forests, some endemic species such as the spectacled bear (*Tremarctos ornatus*, pictured) and sacred sites of unique cultural value.



Moreover, the Ingano peoples are able to sustain their food provisioning practices, livelihoods and culture in these unique environments.

Under the terms of the decree that created the park, the Ingano peoples are the key actors in charge of its design and management. The area—whose name means House of the Sun in the Ingano language— is a sacred place for indigenous communities. This is one of the reasons why traditional authorities have insisted that the area's management should be entrusted to them. Although several protected areas in Colombia share management responsibilities with indigenous and local communities, this is the first one where the indigenous people are fully in charge. This has been possible thanks to Colombian legislation that recognises traditional authorities (*asociacines de cabildos*) as legal subjects able to create their own development plans, including environmental management provisions.

The creation of the park has fulfilled a long dream for the Ingano communities of the Amazon Piedmont, because it naturally fits with their life plan (*plan de vida*): a broad, long-term vision for the entirety of their territory and the region. It also sets an important precedent for all the indigenous people of Colombia, and an example to follow.

Adapted from Oviedo, 2002; Zuluaga et al., 2003; Borrini - Feyerabend et al., 2004

4.3.3. Local organisations regulating access to food

Once food has been harvested from fields, forests, pastures and water, local organisations oversee its processing in a variety of local contexts. Many local organisations and groups also determine people's access to food.

The criteria and indicators used by these local organisations to guide action often reflect culturally-specific forms of economic rationality and highly diverse definitions of well-being. Indeed, the latter usually sharply contrast with the indicators and criteria used in mainstream definitions of poverty, well-being and economic exchange. For example, the international development community's current emphasis on market-based approaches is largely blind to the fact that many local organisations mediate forms of economic exchange that exclude the use of money.

A largely invisible informal economy based on principles of solidarity, gifts and reciprocity ensures that people in much of Africa have at least some access to food in rural areas and, to a lesser extent, also in urban centres (Latouche, 1998 and 2003). While the monetised economy is depressed in much of the African continent, people often live on the production of use values outside the money market and depend on informal economic exchanges. These mechanisms, such as subsistence-based markets and bartering, are mediated by a complex web of local organisations and groups (Latouche,1998). In the Peruvian Andes, the barter markets run by women's organisations ensure that the poorest of the poor have some food and nutritional security (Box 4.13). Both the volume and economic value of food exchanged through these webs of polycentric local organisations can be significantly higher than that sold in money-based markets (see Box 4.14). However, most development economists, policy think tanks, governments and international donors largely ignore the huge potential of these forms of economic organisation and exchange for meeting human needs.

These biases of "normal professionalism"[8] and "normal development" (see Chambers, 1993) also exist towards locally-managed and controlled food-distribution schemes in marginalised environments. For example in the drylands of India, the official Public Distribution System (PDS), set up as a safety net for the poor, has become socially and ecologically counterproductive. In the farming belts stretching across the Deccan plateau, north Karnataka, Marathwada, the deserts of Rajasthan and many adivasi (indigenous people) areas in central India, coarse cereals like sorghum and various nutritionally-rich millets (pearl, finger and foxtail millets) have been the mainstay of agriculture, diet and culture. Farming of these crops covers 65% of the geographical area of the country, areas where agriculture is rainfed and where the concentration of the rural poor is among the highest in the world. These rainfed crops require very few external inputs, such as chemical fertilisers, and need no irrigation. They offer nutritional and food security for rural communities—especially for the marginalised and most vulnerable. And yet, "progress" in food production and people's access to food in India over the last decades has been fuelled just by two crops: rice and wheat (the "fine" cereals). Of every 100 tonnes' increase in food production, 91 tonnes have been contributed by rice and wheat. The remaining 9 tonnes are made up of coarse cereals (5.5 tonnes) and pulses (3.5 tonnes). In the last three decades, the cropping area for sorghum has fallen by 35%, and little millet by nearly 60% .

Despite all the rhetoric of increasing food production in the country, policy-makers and foreign development aid advisors have allowed nearly 9 million hectares of the millet-sorghum growing area to go out of production. One of the major contributors to this

8 Normal professionalism refers to the thinking, values, methods and behaviour dominant in a profession. It values and rewards biases which are urban, industrial, high technology, male, quantifying, and concerned with things and with the needs and interests of the rich (Chambers, 1993).

Box 4.13. Barter markets in the Peruvian Andes

The valley of Lares-Yanatile in Cusco (Peru) is rich in biodiversity, containing three different agro-ecological zones between the altitudes of 1,000 and 4,850 metres: yunga, quechua, and puna. Andean tubers and potatoes are grown in the highest zone; corn, legumes and vegetables in the middle area, with fruit trees, coffee, coca and yucca in the lower part. Every week a barter market is held in the middle area of the valley, where nearly 50 tonnes of goods are traded each market day—ten times the volume of food distributed by the National Programme of Food Assistance. Anyone can participate and can trade any amount of any crop.

Women are key players in this non-monetary market, which is vital in ensuring that their families have enough food to eat, and that they have a balanced diet. The rainforest supplies vitamin C, potassium and sodium through fruit, such as citrus and bananas, that do not exist in the quechua and puna zones. The middle and high zones supply starches, mainly potatoes and corn, which provide desperately needed carbohydrates to the rainforest zone. Principles of reciprocity and solidarity guide the economic exchange of a diversity of foods, ensuring that important needs of people and the land are met in culturally unique ways. Indeed, recent action research has generated new evidence on the importance of Andean barter markets for:

- Access to food security and nutrition by some of the poorest social groups in the Andes.
- Conservation of agricultural biodiversity (genetic, species and ecosystem) through continued use and exchange of food crops in barter markets.
- Maintenance of ecosystem services and landscape features in different agro-ecological belts along altitudinal gradients and at multiple scales.
- Local, autonomous control over production and consumption—and, more specifically, control by women over key decisions that affect both local livelihoods and ecological processes.

A web of local organisations operating at different scales (from household to whole landscape) governs these forms of economic exchange and contributes to the adaptive management of environmental processes and natural resources. In addition to contributing to the food security of the poorest of the poor, this decentralised web of local organisations also enhances cultural, social and ecological resilience in the face of risk and uncertainty.

Sources: Marti, N., 2005; and www.diversefoodsystems.org

problem is the Public Distribution System (PDS), which concentrates on only rice and wheat. This centrally-run national PDS provides for a regular and continued uptake of rice and wheat from the market for distribution to the poor at subsidised prices. The PDS offers a steady and remunerative price for rice and wheat farmers who are already supported by subsidised irrigation, subsidised fertilisers and adequate crop insurance. On the other hand, farmers from the rainfed areas suffer from multiple disadvantages—no assured irrigation, no subsidies, no crop insurance, and unreliable market forces. Moreover, the flooding of the Public Distribution System with cheap rice and wheat weans away the traditional users of the more nutritious coarse grains and leaves the small-scale producers of sorghum and millets without a market. As a result, many rainfed farms have been abandoned, and

Box 4.14. An alternative Public Distribution System run by women in Andhra Pradesh, India

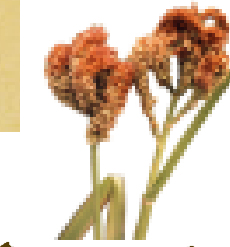
A Public Distribution System (PDS) operates in the villages around Zaheerabad in Medak District of Andhra Pradesh, as elsewhere in India. Every month, each family with access to this system (about half of the rural population) can buy 25 kilos of rice at a subsidised rate. Although this ration is a lifeline for poor rural families, the rice sold in the PDS is unfamiliar to the women of Zaheerabad. They have never grown rice on their dry lands, instead cultivating and cooking sorghum and millets, and a wide range of pulses. With more and more PDS rice coming from the resource-rich areas of South India, dryland farmers and their food crops were being gradually displaced. Their lands were being put to fallow and local biodiversity important for food and agriculture was being eroded. The PDS rice was cheap but nutritionally inferior to traditional coarse grains. Being reduced to consumers dependent on purchased food for their own survival undermined the women's self-esteem and self-respect as food providers and keepers of seed.

The women organised themselves into sanghams, voluntary associations of Dalit women (the lowest social rank in the village), and discussed possible alternatives to the government's PDS. They decided to reclaim their fallow lands and grow their traditional dryland crops again. They planned to establish a completely community-managed PDS system based on coarse grains, locally produced, locally stored and locally distributed. Meetings were held in villages and the modalities of running an alternative PDS were worked out together with the Deccan Development Society (DDS), an NGO supporting the work of the sanghams. Formal agreements were signed between the DDS and the village sanghams to specify the roles, rights and obligations of each party in the joint management of the alternative PDS. Working through the DDS, the sanghams also approached the Ministry of Rural Development, which saw the merit of their case and approved funding for a Community Grain Fund.

In its first year, this jointly managed scheme involved over 30 villages, brought about 1,000 hectares of cultivable fallows and extremely marginal lands under the plough, produced over three million kilos of extra sorghum (at the rate of about 100,000 kilos per village) in a semi-arid area, grew extra fodder to support about 2,000 cattle, created an extra 7,500 wages and provided subsidised sorghum for about 4,000 families. Grain storage was decentralised, using indigenous storage techniques that minimised pest damage and health hazards. Biological diversity significantly increased in the area, as traditional crops and varieties were reintroduced as part of complex and diverse farming systems.

At the end of the storage period, during the food-scarcity seasons, the sanghams sell their grains at a subsidised price to around 100 poor households in each village. Using participatory methods, the Dalit women decide who among the villagers are the poorest and qualify for community grain support. In each village, the villagers draw social maps on the ground of all households. The villagers evolve criteria for rural poverty, and judge each household on a five-point scale of poverty, after careful deliberation in an open and transparent way. Households thus selected are issued a sorghum card by the sangham. Instead of the subsidised rice of the government PDS, which costs 3.5 rupees per kilo, this card entitles a family to an amount of sorghum at the subsidised price of 2 rupees per kilo, for each of the six months of the rainy season. The poorer the family, the larger its entitlement. In recognising each person's fundamental right to food, the sanghams thus practice their own concepts of equity and solidarity as they distribute the benefits of the co-managed PDS.

Sources: Satheesh and Pimbert, 1999;
Srinivas and S. Abdul Thaha, 2004



large areas of dryland agriculture are turning into fallows, thus worsening desertification.

In response to these multiple crises, local organisations have developed alternative forms of PDS based on the cultivation of local grains, local storage, local processing and decentralised local control in different regions of India (Box 4.14). Such community-controlled systems of food distribution contribute significantly to the alleviation of hunger and the regeneration of degraded drylands. They also significantly reduce the overhead costs incurred by the mainstream PDS, which involves energy-intensive long-distance transport of food grains, the maintenance of a huge storage infrastructure and centralised management.

Over the last 40 years, citizens in industrialised countries have also tried out new forms of organisation to rebuild a social bond between farmers and consumers. They have formed local organisations that explicitly encourage local solidarity-based partnerships between farmers and consumers. The origins of local organisations that bring together food producers and consumers can be traced back to Japan. In 1965, Japanese women initiated a direct, co-operative relationship in which local farmers were supported by consumers on an annual basis. Teikei, which literally translated means "partnership" or "co-operation", was developed by a group of women concerned about the use of pesticides, the increase in processed and imported foods and the corresponding decrease in the farm population. The more philosophical translation for Teikei is "food with the farmer's face on it." Since then the idea has spread and been developed in various countries of the world (Switzerland, the United States, Canada, France, United Kingdom, Belgium, Germany, Portugal, Australia, etc.), as well as in some countries in Africa, Latin America, and Southeast Asia.

These citizen organisations are known under different names, including:

5 minutes

DDS

www.diversefoodsystems.org/vid/dds.mov - click here

- *Community Supported Agriculture* (CSA) in the USA, Canada, the United Kingdom and Australia
- *Teikei* in Japan
- *Associations pour le Maintien d'une Agriculture Paysanne* (AMAP) in France
- *Reciproco* in Portugal

But despite different names all these local organisations have similar ways of working and goals (see Box 4.15 and Groh and McFadden, 1990).

Such local organisations and initiatives integrate several objectives, in particular:

Box 4.15. Community supported agriculture: farmers and consumers accessing the means of life on their own terms

Community supported agriculture (CSA) is a relationship of mutual support and commitment between local farmers and community members who pay the farmer an annual membership fee to cover the production costs of the farm. In turn, members receive a weekly share of the harvest during the local growing season. The arrangement guarantees the farmer financial support and enables many small- to moderate-scale organic and/or bio-intensive family farms to remain in business. Ultimately, CSA programmes create "agriculture-supported communities" where members receive a wide variety of foods harvested at their peak of freshness, ripeness, flavour, vitamin and mineral content.

By providing farmers with direct outlets for farm products and ensuring a fair compensation community supported agriculture supports local and sustainable food systems. Community supported agriculture:

- encourages proper land stewardship by supporting farmers in transition toward low or no chemical inputs and use of energy saving technologies;
- strengthens local economies by keeping money spent on food in local communities;
- directly links producers with consumers, allowing people to have a personal connection with their food and the land on which it was produced;
- makes nutritious, affordable, wholesome foods accessible and widely available to community members; and
- creates an atmosphere for learning about non-conventional agricultural, animal husbandry, and alternative energy systems not only for the farmers and their apprentices, but also for members of the community, educators from many fields of study, and students of all ages.

There are many kinds of CSA farms. All include payment in advance at an agreed price. In some, members of the community purchase a "share" of the anticipated harvest, while in others they sign up for a predetermined amount of produce over the course of the season. In most cases, this commitment implies a willingness to share with the farmer both the bounty from the land and at least some of the risks involved with production.

In return for fair and guaranteed compensation, consumers receive a variety of freshly picked (usually organic) vegetables grown and distributed in an economically viable and ecologically responsible manner. Some farms also offer fruit, herbs, flowers and other products, such as meat, eggs, cheese, and baked goods. Many farms offer their shareholders the opportunity to work in the fields or distribute produce in exchange for a discounted share price. Others offer sliding scales to accommodate lower income consumers. In this way, farmers and members become partners in the production, distribution and consumption of locally grown food.

When members obtain food from local farmers, environmental costs associated with the transport, processing and distribution of organic food and the consumption of fossil fuels are significantly reduced. Considering that the organic food available to members was produced locally rather than transported over long distances, the cost to the environment is significantly less than organic foods produced further afield. CSAs and similar initiatives around the world have very low ecological footprints in comparison with industrial and global food systems.

Source: www.csacenter.org

- mutual obligation of supply (by the producers) and of demand (by the consumers) of food produced in each crop year;
- a fair remuneration, paid in advance and enough to ensure a reasonable livelihood for the small-scale producers and their families;
- a shared responsibility for the risks and the advantages of healthy production, adapted to the rhythm of the seasons and respectful of the environment and bio-cultural diversity, safeguarding landscapes as well as natural and cultural inheritance;
- the maintenance and regeneration of an agricultural countryside that can ensure food production that is local, healthy, and not dependent on fossil or imported energy;
- the maintenance and regeneration of any form of small-scale economic production which ensures respect for the environment, social inclusion and greater equity in different parts of the food system and the local economy;
- the development of citizenship in the economy and social bonds of solidarity between producers and consumers and inhabitants of the cities and rural zones;
- education on the environment and citizenship;
- the fight against exclusion and poverty through new forms of solidarity and access to the means of life, whether it is in rural areas or urban environments; and
- food sovereignty in each community and area.

It is noteworthy that these local organisations have been effective in regenerating locally-controlled food systems in the very heartlands of industrial food and agriculture. In early 2004, there were more than 1,700 CSAs in the USA, 90 in the UK, 60 in Quebec (Canada); between 500 and 1,000 *Teikei* in Japan; and over 50 AMAPs in France. Following the *First International Symposium on Local Contracts between Farmers and Consumers* held in February 2004 in Aubagne (France), an international network was formed to promote local solidarity-based partnerships between farmers and consumers, bringing rural and urban citizens together. The name of this international network is URGENCI (see www.urgenci.net). These solidarity-based organisations also tend to extend to sectors other than agriculture, opening the way for a new approach to the economy and securing the means of life.

9 minutes

Global Oneness Project

www.diversefoodsystems.org/vid/peoplesgrocery.mov - click here

alternative: http://uk.youtube.com/watch?v=mRumFIcRtFk

This more holistic approach to sustainable living is well illustrated by the co-housing and ecovillage movements, as discussed below.

4.4 Nested organisations and the management of dynamic complexity

Noticeably, several organisations with different functions, powers and responsibilities are usually needed to co-ordinate different activities within food systems and their wider environment. Such "nested organisations" operate at different scales and act in complementary ways. These interlinked organisations provide the institutional landscape that is needed to manage dynamic complexity in the social and ecological realms in which food systems are embedded.

A web of informal organizations allows small farmers to adaptively manage soil fertility in the drylands of India. Cooperation and negotiated agreements ensure that this network of local groups sustains the many complementary activities needed for soil fertility management in these risk prone environments (see photo story – below).

More broadly, nested organisations help integrate the ecology, economy and culture of food systems. In the Peruvian Potato Park (Box 4.2), landscape management, agricultural production, economic exchanges, and spiritual life are all mediated by interacting networks of local organisations (producer organisations, groups of farmer crop breeders, video and the restaurant collective, shaman groups….). For example, as the tangible and intangible gifts and products of the land and human work enter the economic sphere they are taken care of by mutually supportive local organisations that manage:

- barter markets (Box 4.13) based on indigenous values of reciprocity, complementarity and solidarity;
- formal money-based markets based on eco-tourism, distribution and sale of artisanal crafts, the Potato Park restaurant, etc.;
- trust funds based on proceeds from formal money-based markets (above); and the equitable redistribution of trust fund income to all communities in the Potato Park.

Acting in complementary ways and at different scales, local organisations thus ensure the adaptive management of dynamic complexity, integrating the ecological, economic and cultural spheres of life. This web of interacting organisations provides the basis for decentralised governance and autonomous systems.

The importance of nested local organisations for the holistic management of dynamic complexity is also apparent in attempts to consciously reconstitute more sustainable communities for the 21st century. The co-housing and ecovillage experiments are noteworthy in this regard (Box 4.16).

In ecovillages in particular, local organisations play a central role in integrating activities, processes and structures needed for sustainable living. Located in both rural and urban areas, ecovillages develop networks of community supported agriculture and strong links with local and regional food providers. They also create work where people live, produce fresh local foods, and allow for a diversity of creative and recreational activities, all within walking distance. This often results in a higher quality of life, while using fewer resources and creating less pollution (Bang, 2005; Dawson, 2006). Residents' decision making is facilitated by a network of local organisations created to adaptively manage and co-ordinate the many activities that sustain these human settlements: community supported agriculture, land use, renewable energy systems, community facilities, workshops, cultural centres, crèches and childcare, etc. A web of nested local organisations, committees and small specialist working groups are at the heart of community scale governance in ecovillages such as Findhorn in rural Scotland and ZEGG in Germany (Box 4.17).

Soil fertility management by local organisations in Telengana region, Andhra Pradesh, India

Dryland farmers have developed cropping practices suited to the harsh climate of semi-arid regions

Keeping livestock is central to the stability of dryland agriculture

Farmers with bullocks can time their activities to get the best yields

Sheep penning: Farmers create microenvironments of high soil fertility

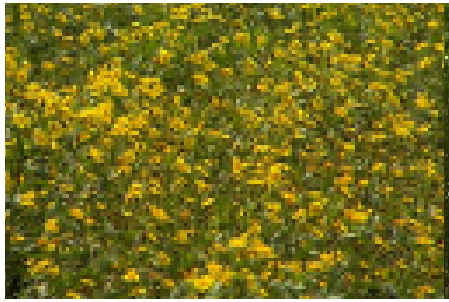
Farm yard manure is the preferred soil fertility enhancement practice in semi-arid regions

Vermicompost application is one of the emerging alternatives to chemical fertilisers

Women farmers mapping the soils in their village and the crops that grow on them

By mixing crops, the farmers ensure resilience and further enhance soil fertility

Diverse cropping and diverse fodder



An example of fertility based crop planning. Here, Niger, a dryland oil seed crop, is grown on low fertile soil

Women farmers favour a diversity of crops to optimise the use of their land and will mix crops with varying root systems to prevent competition over nutrients and moisture

There is growing consumer demand for organic food in markets

Source: Reddy, 2008.

Box 4.16. Co-housing, ecovillages and sustainable communities

Co-housing originated in the late 1960s in Denmark and has since spread to Sweden, the Netherlands, the US, Canada, Australia, New Zealand and Japan. In the co-housing model future residents have an important say in determining the design of the settlement–the location and types of houses; the community facilities, gardens and orchards; the layout of the roads and footpaths; the running of community supported agriculture schemes and farmer markets, etc. In co-housing there is always a community house for shared meals and other social functions. But all dwellings are self-contained and residents can choose the level of integration within the community that suits them. Local residents' organisations also take full responsibility for managing the co-housing site once it is occupied. It is notable that co-housing is evolving fast in countries like Denmark to include more senior residents and elderly people. Many pensioners are indeed realising that they can still enjoy a high quality social life in their later years, and that they need not be isolated in an institution or home in an indifferent suburb or town. As co-housing scholar Graham Meltzer has said *"Co-housing is a mainstream option and intentionally so. It is not an 'alternative' lifestyle but one deemed appropriate for the broad majority of people"* (Meltzer, 2005).

In contrast, the ecovillage movement is more explicitely socially and politically radical. Ecovillages draw on a wealth of ideas that can be traced back to Kropotkin, Fourrier, Gandhi, Schumacher, eco-feminism and the alternative education movement. An ecovillage is a *"human scaled full-featured settlement in which human activities are harmlessly integrated into the natural world in a way that is supportive of healthy human development and can be successfully continued into the future"* (Gilman and Gilman, 1991). Ecovillages are private citizens' initiatives in which the communitarian impulse is of central importance in sustaining local communities which aim to minimise their ecological impact and maximise human well-being and happiness. Many ecovillages have been created by people who want a more spiritual lifestyle that affirms a worldview of global interconnectedness and solidarity, for example Findhorn in Scotland, Auroville in India, Sieben Linden in Germany and Tamera in Portugal. In other ecovillages, such as Crystal Waters in Australia, Earthhaven and Ecovillage at Ithaca (EVI) in the USA, living within the Earth's limits, permaculture and ecological restoration have been stronger motives for local residents. In all cases, however, ecovillages seek to create holistic social models as alternatives to the destructive trends of industrial society and corporate led globalisation. They can be viewed as dynamic and complex systems, with many emergent properties and possible futures. Ecovillages are not an attempt to return to some idealised past. Instead, their aim is to create a new synthesis that draws on the best of human knowledge about living within ecological limits, in community level governance, and the application of modern, energy efficient technologies. As such, ecovillages often embody *"the micro-cosmic, physical manifestation of a new holistic worldview"* (Dawson, 2006).

Sources: Bang, 2005; Christian, 2003; Dawson, 2006; Gilman and Gilman, 1991; Meltzer, 2005.

Is a daily life of fear, repression, exploitation, competition and other "normal" behaviour something that we just have to bear? We do not seek or expect perfect answers but we strive to have the courage to ask our questions over and over again, following the vision that a humane life for human beings really is possible. A life based on choosing co-operation instead of competition and which places human contact and trust in the centre of attention
(Center for Experimental Culture Design, Germany
http://www.zegg.de)

2 minutes

Findhorn
www.diversefoodsystems.org/vid/findhorn.mov - click here
alternative: www.findhorn.org/video

In their seminal report, *Ecovillages and Sustainable Communities*, the Gilmans offered a vision of total transformation along ecovillage lines: *"…a key principle in our definition of ecovillages and sustainable communities is that they be designed so that a fully functioning society could be comprised of such units"* (Gilman and Gilman, 1991). In that context, a network of interacting local organisations must necessarily play a key role in ensuring the *human scale integration* of the following activities in each ecovillage (Jackson and Svensson, 2002; Dawson, 2006):

- organic, locally based food production and processing, and community supported agriculture;
- designing with nature: using permaculture design, eco-building, small scale energy generation, ecological waste management, low impact transport systems;
- learning from the best insights and practices of traditional and indigenous cultures;
- alternative economy: community banks and currencies, plural forms of economic exchange (with and without the use of money), and voluntary simplicity;
- reviving and nurturing citizen deliberations and forms of direct democracy, small-scale participatory governance, conflict facilitation and resolution, social inclusion and an active inter-generational community;
- creating a culture of peace and a holistic, whole person education; and
- acting as centres of research, demonstration and training for other ecovillages and wider society.

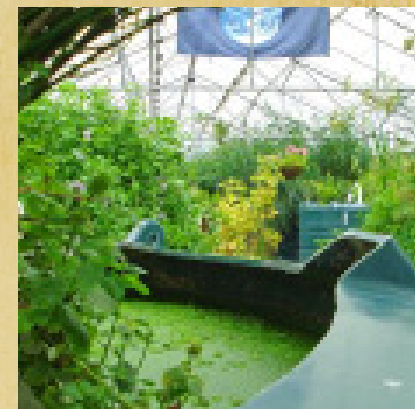
A range of overlapping and nested local organisations are needed to carefully integrate and oversee the food, energy, economic and other systems that sustain ecovillages and the environments they are embedded within.

Box 4.17. Ecovillages promoting social and economic re-localisation

The eco-village of Findhorn. Located in Scotland, the Findhorn Foundation has been known internationally since 1962 for its experiments with new models for holistic and sustainable living. Co-operation and co-creation with nature have always been major aspects of the foundation's work. From its earliest days Findhorn became well-known for its beautiful gardens grown in adverse conditions on the sand dunes of the Findhorn peninsula. Since 1981, the Findhorn Foundation has been involved in the development of the ecovillage as a natural continuation of its work with nature. In 1994, Findhorn pioneered the first community supported agriculture scheme in the UK. Findhorn's CSA is based on organic and biodynamic farming methods, and was established to increase residents' use of local produce as well as to enhance the quality of their food. The CSA scheme currently provides more than 70% of the community's fresh food requirements and supplies 200 individual households. While this CSA provides for the fruit and vegetable needs of the community, organic milk, cheeses, eggs and meat are produced by a nearby farm which covers a 95-acre area overlooking Findhorn Bay and the Moray Firth. With cows, sheep, chickens and dairy facilities, the farm is providing solutions to reducing food miles, while combining the best of traditional methods with 21st century technology. The ecovillage at Findhorn has developed a unique construction system, which is environmentally sound and energy efficient, using natural and non-toxic materials. Numerous homes and community buildings incorporate solar panels for hot water heating. The guidelines for new buildings in the ecovillage encourage very high levels of insulation, and double- or triple-glazed windows with low-emission window coatings. Waste water treatment relies on an ecological design that uses natural non-chemical biological systems to clean sewage by creating a mini-ecosystem within a greenhouse environment, mimicking nature's own water cleaning system. Over time the Findhorn Foundation Community has diversified into more than 40 different businesses and initiatives, providing a model of a vibrant, living local economy. The New Findhorn Association was created in 1999 to bring together the diverse organisations and people associated with the community within a 90 kilometres radius. The association promotes inclusive decision making and works to ensure better integration of the ecovillage into its bio-region. Acting through a web of local organisations, the New Findhorn Association thus encourages and supports a much wider process of social and economic re-localisation in its bio-region and beyond.

The Centre for Experimental Culture Design (ZEGG). Located south of Berlin in Germany, ZEGG has put a lot of effort into making the community an asset and a resource for local regeneration. Founded in 1991, ZEGG's aim is to establish an international conference and research centre working on possible models for socially and ecologically sustainable living. Members of this eco-village have participated in creating a local network of small-scale organic farmers and bakeries that supply it with potatoes, vegetables, eggs, bread and fruit. ZEGG initially focused on establishing its own infrastructure of ecologically-sound technologies–including a carbon neutral community heating system fuelled by local wood chips, a biological waste water treatment system, and organic food production. It then embarked on a local promotion and information campaign to promote these technologies in its own bio-region. In recent years, ZEGG has been an active player in local initiatives to create a free school, a local trading system, a forest kindergarten, campaigns to promote fair trade products, an infocafé that acts as centre for tolerance against right wing extremism and violence, community supported agriculture and many other cultural activities in the region. Whilst it places much attention on the technological features of sustainable living (eco-friendly buildings, renewable energy systems, community supported agriculture…), ZEGG also actively explores the foundations of a non-violent way of living. For members of this ecovillage, promoting a culture of trust and compassion, developing effective decision-making procedures and working with conflict are all key for a revival of genuinely participatory, community scale governance.

Sources: http://www.zegg.de/index.php?english and http://www.ecovillagefindhorn.com



Similarly, higher level organisations such as the Global Ecovillage Network (GEN) help co-ordinate activities between ecovillages throughout the world. GEN was created in 1996 at the UN HABITAT conference in Istanbul as a *"global confederation of people and communities that meet and share their ideas, exchange technologies, develop cultural and educational exchanges, directories and newsletters, and are dedicated to restoring the land and living 'sustainable plus' lives by putting more back into the environment than we take out"* (www.ecovillage.org).

4.5 Federations, networks and organised policy influence

Federated organisations have an important role in projecting the voice and concerns of small-scale food producers and other citizens in a variety of spheres. Many such federations that aim to influence policy-making and practice are not entirely focused on natural resources and agriculture. They include:

- Landless people's movements, the clearest examples being the million-strong *O Movimento dos Trabalhadores Rurais sem Terra* (MST) in Brazil and the *Kilusang Magbubukid ng Pilipinas* (KMP) in the Philippines.[9]

- Federations of the urban poor (see www.iied.org/urban/pubs/eu_briefs.html).

- Indigenous people's movements, such as the Co-ordinating Body for the Indigenous Peoples' Organisations of the Amazon Basin (COICA).[10]

- Peasant movements, such as the Asian Peasant Coalition, the Via Campesina[11] or the Réseau des Organisations Paysannes de l'Afrique de l'Ouest[12] (ROPPA) in West Africa.

- National federations of producer organisations, such as those of Benin, Niger, Mali and Senegal (GRAF/GRET/IIED 2003).

- The Global Ecovillage Network (GEN), with regional members in Europe, North and South America as well as Asia and Africa.[13] The network includes both intentional communities in industrialised countries and traditional villages in the developing world. For example, the largest GEN constituent is the 40 year old Sarvodaya movement, which includes about 15,000 traditional villages nationwide in Sri Lanka.

- Producers' organisations which are active at the international level, such as *Via Campesina*, a broad, worldwide coalition of peasants and farmers lobbying on land-tenure reform, agro-ecology, and food sovereignty.

Most of these organisations come to food and agricultural policy debates with wider agendas, for example land redistribution or participatory governance. As a result, their activities may be very wide-ranging and complex. Yet, they can lead to important shifts in the balance of power in favour of poor rural people, as the rise of producer organisations in West Africa illustrates (Box 4.18).

New energy and creativity are often released when different federations and networks of local organisations learn to better communicate and work together. It is indeed striking that over the last decade organisations of food providers have moved far more quickly and boldly in framing policy alternatives than other change agents. For example, at the recent Forum on Food Sovereignty in Nyeleni (Mali) federations of food providers were able to further explore and affirm their shared values and goals, expanding on and enriching earlier definitions of "food sovereignty":

9 MST in Brazil has its own website, with pages in Portuguese, English, French, Spanish and Italian, such is its international prominence (http://www.mstbrazil.org/). KMP is a nationwide federation of Philippine organisations, which claims to have "effective leadership" of over 800,000 landless peasants, small farmers, farm workers, subsistence fisherfolk, peasant women and rural youth (http://www.geocities.com/kmp_ph/index.html).

10 www.coica.org

11 www.viacampesina.org

12 www.roppa.info

13 www.ecovillage.org

Box 4.18. Producer organisations, collective action and institutional transformation in West Africa

Producer organisations (POs) cover a wide range of activities, from management of common woodland or pasture resources, water use, and collection and sale of a particular crop; to providing access to fertiliser, seed and credit. Grouping together through collective action enables producers to take advantage of economies of scale, as well as to make their voices heard in government policy and decision-making. Additionally, producers hope to increase their negotiating power with companies buying their crop—increasingly necessary as globalisation is bringing more concentration and integration of agribusiness throughout the world. In some cases, producer organisations have also provided a valuable bridging function between farmers and sources of technical expertise, such as research and extension structures. Foreign aid funds have often been instrumental in strengthening the role that POs can play, despite the associated risk that the leadership may become distant from the interests and needs of the membership.

Over the past decade in West Africa, a range of POs have become established and have strengthened their positions at local, national and sub-regional levels. These organisations are in part the result of government withdrawal from important sectors of the rural economy, including the supply and marketing of agricultural inputs. They have also emerged in a context of greater political liberalisation, and now represent a political force of which governments must take notice. This became clear from the strike by Mali's cotton farmers in the 2001 season, due to low prices and continued waste and corruption within the *Compagnie Malienne pour le Développement des Textiles*. The strike cut output by half, with many cotton farmers switching to maize and other cash crops for that season.

Examples of POs operating at national level include the *Comité National de Concertation des Ruraux* (CNCR) in Senegal and the *Fédération des Unions des Producteurs* (FUPRO) in Benin.[a] The CNCR is an interesting case, bringing together a series of PO federations in Senegal, and has become a central actor in the dialogue between government, donors, and producers on agricultural strategy and related issues, such as land tenure. Such POs have the advantage of providing a channel to make the case for greater support to agriculture in general, as well as to take account of the particular constraints faced by smallholders. Policy and decision-making in government tend to follow both formal and informal procedures. Smallholders find it more difficult to access informal mechanisms that operate through networks of friends and associates and lobbying through high-level political contacts, which are usually the preserve of powerful economic actors, such as large commercial farmers and agribusiness. Thus, POs need to make best use of official channels and opportunities to give voice to the needs of less powerful actors.

At the regional level, there has been increased interest in generating pressure on governments and regional institutions to ensure that producer interests are better taken into account in negotiation processes, such as those concerning the World Trade Organisation (WTO), European Common Agricultural Policy (CAP) reform and the Cotonou negotiations. Organisations representing West African producers include the *Réseau des Organisations Paysannes de l'Afrique de l'Ouest* (ROPPA), the Association Cotonnière Africaine and the Union of Chambers of Agriculture for West Africa. ROPPA and its members have been particularly vocal in support of household farming, and opposed to the agribusiness model being promoted by some as the means to "modernise" agriculture: "This vision [in support of household farming] has been inspired by a global perception of the role of agriculture in society, not only for producing food and fibre but also performing many other economic, social and environmental functions".[b] Thus, the argument being made by ROPPA and others supports broader debates over the "multifunctionality" of agriculture and of the land, and the consequent need to avoid a purely economic or market-based approach.

a GRAF/GRET/IIED, 2003. b Belières et al., 2002.

Sources: adapted from Belières et al (2002) and Toulmin and Guèye (2003)

"Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts the aspirations and needs of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. It defends the interests and inclusion of the next generation. It offers a strategy to resist and dismantle the current corporate trade and food regime, and directions for food, farming, pastoral and fisheries systems determined by local producers and users. Food sovereignty prioritises local and national economies and markets and empowers peasant and family farmer-driven agriculture, artisanal-fishing, pastoralist-led grazing, and food production, distribution and consumption based on environmental, social and economic sustainability. Food sovereignty promotes transparent trade that guarantees just incomes to all peoples as well as the rights of consumers to control their food and nutrition. It ensures that the rights to use and manage lands, territories, waters, seeds, livestock and biodiversity are in the hands of those of us who produce food. Food sovereignty implies new social relations free of oppression and inequality between men and women, peoples, racial groups, social and economic classes and generations" (www.nyeleni2007.org).

Many such federations of the rural and urban poor are well-placed to promote non-state-led forms of deliberative democracy aimed at making national and global institutions accountable to citizens—particularly those most excluded from decision-making. Bold innovations such as *Prajateerpu* ("people's verdict") on the future of food and farming in South India (Box 4.19) suggest new ways of bringing together coalitions and federations of the poor with international organisations to:

- create safe spaces and participatory processes in which expert knowledge is put under public scrutiny through appropriate methods for deliberation and inclusion (e.g. citizen juries, consensus conferences and multi-criteria mapping);

- strengthen the voices of the weak in setting agendas and framing policies and regulatory frameworks for development and environment—at local, national and global levels;

- facilitate the horizontal interlinking and federating of citizen spaces as a way of decentralising and democratising the governance of food systems, in both rural and urban contexts; and

- support the emergence of transnational communities of inquiry, and coalitions for change committed to equity, decentralisation, democratisation and diversity in food systems, environment and development.

Local organisations and federations thus increasingly seek to have a greater say in the governance of food systems. In so doing, they challenge liberal understandings in which citizenship is viewed as a set of rights and responsibilities granted by the state. Instead, citizenship in the context of locally-determined food systems is claimed, and rights are realised, through the agency and actions of people themselves. Local organisations and federations are thus increasingly becoming expressions of an emergent citizenship in the governance of food systems.

click here
José Bové on WTO

Box 4.19. *Prajateerpu*: a citizens' jury on food and farming futures in Andhra Pradesh, India

Prajateerpu (or "people's verdict") was an exercise in deliberative democracy involving marginal farmers and other citizens from all three regions of the state of Andhra Pradesh. The citizens' jury was made up of representatives of small and marginal farmers, small traders, food processors and consumers. Prajateerpu was jointly organised by the Andhra Pradesh Coalition in Defence of Diversity (made up of 145 NGOs and POs), the International Institute for Environment and Development (IIED), the Institute of Development Studies (IDS) at the University of Sussex, the University of Hyderabad, Andhra Pradesh, and the all-India National Biodiversity Strategy and Action Plan (NBSAP). The jury hearings took place in Medak District, Andhra Pradesh, in June 2001. Jury members also included indigenous people (known in India as adivasi), and over two-thirds of jury members were women. The jury members were presented with three different scenarios, each advocated by key proponents and opinion-formers who attempted to show the logic behind the scenario. It was up to the jury to decide which of the three policy scenarios, or combination of scenarios, provided them with the best opportunities to enhance their livelihoods, food security and environment 20 years into the future.

Scenario 1: Vision 2020. This scenario was put forward by Andhra Pradesh's Chief Minister, backed by a World Bank loan and budgetary support to the AP State government by the UK's Department for International Development (DFID). It proposed the consolidation of small farms and rapidly increased mechanisation and modernisation of the agricultural sector. Production-enhancing technologies such as genetic modification would be introduced in farming and food processing, reducing the number of people on the land from 70 to 40% by 2020.

Scenario 2: an export-based cash-crop model of organic production. This was based on proposals from the International Forum for Organic Agriculture (IFOAM) and the International Trade Centre (UNCTAD/WTO) for environmentally friendly farming linked to national and international markets. Such approaches are increasingly driven by the demand of supermarkets in the North who want a cheap supply of organic produce which complies with new eco-labelling standards.

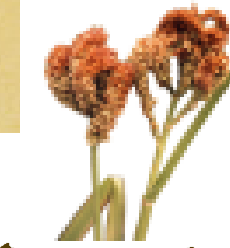
Scenario 3: a localised food system. This scenario was based on increased self-reliance for rural communities, agriculture with low external inputs, and the re-localisation of food production, markets and local economies, including long-distance trade only in goods that are surplus to local production or not produced locally.

The workshop process was overseen by an independent panel of external observers drawn from a variety of interest groups. It was their role to ensure that each "food future" was presented in a fair and unprejudiced way, and that the process was trustworthy and not captured by any one interest group.

The key conclusions reached by the jury members, their own "vision of the desired future", included features such as:

- food and farming for self-reliance and community control over resources; and
- maintaining healthy soils, diverse crops, trees and livestock, and building on indigenous knowledge, practical skills and local institutions.

It also included opposition to:



- the proposed reduction of those making their living from the land from 70 to 40% in Andhra Pradesh;
- land consolidation into fewer hands, and displacement of rural people;
- contract farming;
- labour-displacing mechanisation;
- GM crops, including Vitamin A rice & Bt cotton; and
- loss of control over medicinal plants, including their export.

Prajateerpu and subsequent events show how the poor and marginalised can be included in the policy process. By being linked with state-level and international policy processes, the jury outcomes and citizen voices have encouraged more public deliberation and pluralism in the framing of policies on food and agriculture in Andhra Pradesh. The state government that had championed Vision 2020 reforms was voted out of office in 2004. The largely rural electorate of Andhra Pradesh voted massively against a government that it felt was neglecting farmers' needs, rural communities and their well-being.[a] Similarly, the issues highlighted by Prajateerpu have been partly responsible for the setting up of a UK parliamentary inquiry into the impacts of British bilateral aid to India, and Andhra Pradesh in particular.[b]

a www.expressindia.com/election/fullestory.php?type=ei&content_id=31318 ; www.guardian.co.uk/international/story/0,,1212942,00.html

b www.parliament.uk/parliamentary_committees/international_development/ind040324__21.cfm

Sources: adapted from Pimbert and Wakeford, 2002; Pimbert and Wakeford, 2003; www.prajateerpu.org.

4.6 The need to strengthen local organisations for food sovereignty

The international community and governments have recently produced a number of global assessments on increasing malnutrition and food insecurity, the widening gap between the rich and poor, climate change, biodiversity loss and the collapse of ecosystem goods and services (MA, 2005; FAO, 2007; UNDP, 2008; IPCC, 2007). A striking feature of all these reports is the lack of recognition of the past, present and possible future role of local organisations in meeting fundamental human needs and sustaining the environment. Moreover, proposals for corrective action and policy responses to these multiple crisis mainly call either for more market or more technocratic state interventions. Citizens and their local organisations are barely mentioned in this context. The exclusion of indigenous peoples from the work of the Intergovernmental Panel on Climate Change (IPCC) is typical of this trend (Box 4.20).

The following examples further illustrate how pervasive and widespread this blind spot is among decision-makers and the international conservation and development community.

4.6.1. Beyond the Millennium Development Goals (MDGs)

The Millennium Development Goals (MDGs) are eight goals to be achieved by 2015 that respond to the world's main development challenges. The MDGs are drawn from the actions and targets contained in the Millennium Declaration was adopted by 189 nations and signed by 147 heads of state and governments during the UN Millennium Summit in September 2000 (see http://www.un.org/millenniumgoals/). Goals include the eradication of extreme poverty and hunger (MDG 1), reducing child mortality (MDG 4), and ensuring environmental sustainability (MDG 7).

Over the last ten years, many observers have criticised the MDGs for giving poor people false hope. In his book *The White Man's Burden*, William Easterly argues that the UN Millennium Development Goals—including the pledge to halve poverty by 2015—are *"another example of our Western Planners' approach, obsessed by figures and calculations with overambitious plans and targets. Most probably the UN will call for a new top conference in which the deadline will be postponed (and postponed and postponed) without holding anyone responsible. A failure without consequences except for the poor"* (Easterly, 2005). In Easterly's view, development planners are too top-down and they mostly work with foreign experts who overlook the importance of local institutions and site specific knowledge.

Reflecting on the lack of attention given to local organisations in the MDG process, the editors of a recent critical report (Bigg and Satterthwaite, 2005) argue that:

- Most of the local organisations that benefit and represent poorer groups are invisible to development assistance. Yet many of the local organisations that are central to poverty reduction and environmental sustainability are those that are formed and managed by low-income households—for instance subsistence farmer organisations, co-operatives of women food processors, savings and credit groups, and the federations formed by the rural and urban poor. The problem is not that pro-poor, representative organisations do not exist but that they are so often invisible to external "experts" and international agencies.

- Whilst successful development is intensively local, most development actions and investments are planned, implemented and evaluated centrally by national governments and international agencies.

Box 4.20. The exclusion of indigenous peoples' organisations from international discussions on climate change

Indigenous peoples[a] often live in diverse but fragile ecosystems which will be greatly affected by climate change. Worldwide, the livelihoods of indigenous peoples—some 300 to 500 million people, who are officially identified as very poor—depend on biodiversity and other natural resources that are directly affected by climate change. But there is also considerable evidence showing that indigenous peoples actively participate in ecosystem dynamics and may actually help enhance the resilience of these ecosystems (Posey, 1999).[b] They interpret and react to climate variability by creatively mitigating and adapting to the local impacts of climate change, relying on traditional knowledge systems, biodiversity and new technologies. For example, indigenous peoples and traditional societies maintain complex biodiversity-rich ecosystems that buffer the effects of natural disasters and long-term environmental change, including shifts in climate. They use genetic, species and ecosystem diversity to minimise risk and cope with dynamic changes in time and space. Indigenous societies also use a sophisticated set of environmental indicators to monitor and anticipate environmental change. Impacts of natural disasters and environmental change are often mitigated by moving between ecosystems or by indigenous communities using information from one ecosystem to adapt management strategies to sustain livelihoods in another ecosystem.

Despite the above, indigenous peoples and other traditional societies are only rarely considered in academic and policy debates on climate change. They are, in fact, usually excluded from national and international processes that currently seek to:

i) better understand the dynamics of climate change and its impacts at various scales;

ii) develop practical solutions for mitigation and adaptation to climate change, including new action oriented research; and

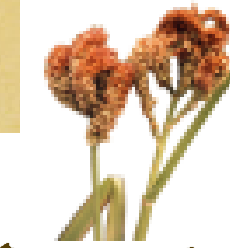
iii) frame and implement relevant policy and institutional responses to climate change and its impacts.

This neglect of indigenous peoples and their organisations is still widespread today, despite trends in international governance that acknowledge the importance of indigenous peoples and their rights. The following are particularly illustrative examples of how indigenous peoples' organisations, voices and knowledge are being marginalised in global discourses on climate change:

- The recently released IPCC II summary report on climate change impacts makes only scarce mention of indigenous peoples (www.ipcc.ch/SPM13Apr07.pdf). Moreover, the examples cited only refer to the polar region and present indigenous peoples as helpless victims of changes beyond their control.

- The IPCC II summary report on mitigation of climate change does not consider the role of indigenous peoples (www.ipcc.ch/SPM040507.pdf).

The marginalisation of indigenous peoples and their voices has its origins in colonial rule, and is an enduring feature of contemporary discussions on environment and development. But, to a lesser extent, this democratic deficit in global environmental governance also partly stems from the lack of real integration between the Multilateral Environmental Agreements (MEAs) on climate, desertification and biodiversity, and policy statements therein that call for greater inclusion of



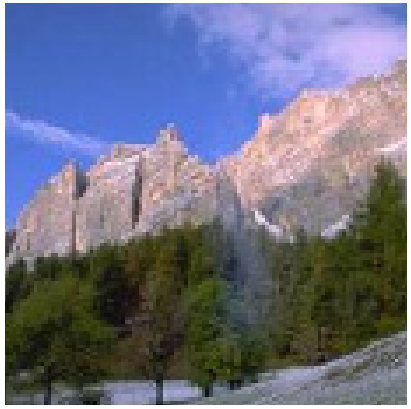
indigenous peoples' perspectives in environmental governance. For example, the Convention on Biological Diversity (CBD) specifically commits the Parties to respect, preserve, maintain and promote wider use of traditional knowledge with the approval and involvement of the users of such knowledge (e.g. Article 8j of the CBD). Parties under the Convention on Desertification are required to protect, promote and use relevant traditional and local technology, knowledge, know-how and practices (Article 18.2). Although provisions in these two treaties are complementary, the CBD emphasises the rights of indigenous and local knowledge holders over their knowledge base. The UNCCD, on the other hand, concentrates on the value of this knowledge in the improvement of rural livelihoods in dryland areas. These commitments to acknowledge and build on indigenous knowledge in the CBD and CCD have not been similarly embraced by the Parties to the Convention on Climate Change, who have concluded that *"opportunities exist for fostering…participation by indigenous peoples' organisations in the Convention process"*.[c] As a result, indigenous peoples' organisations continue to be excluded from meaningful discussions on how to respond to climate change.

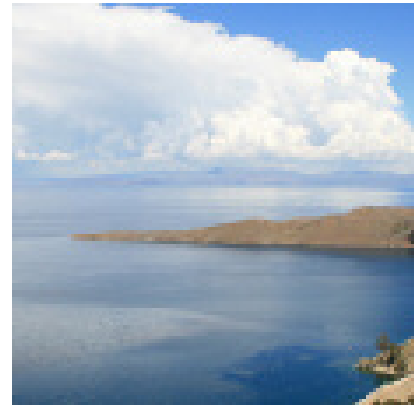
a In international law the term "indigenous peoples" is used to describe culturally distinct ethnic groups who have a different identity from the national society, and who draw existence from local resources and are politically non-dominant (ICIHI, 1987).

Source: Posey, 1999; UNFCCC, 2004

- The institutional structures of official aid agencies and development banks are largely incapable of supporting diverse local processes that really deliver for the poor. In large part, this is the legacy of the 1950s conception of development assistance (capital to help national governments invest in productive activities and infrastructure). Although the understanding of what development should be has changed greatly since the 1950s, the basic structure of how funds are transferred from official donors to "recipient governments" has not. The actual structures of most official development assistance agencies are still largely to provide national governments with large lumps of "capital" (as loans or grants). This is now being reinforced by the large transfers made direct to national governments (the official justification is that this is to support recipient government priorities, when in reality it is much linked to the convenience and low staff time needed within the international agencies to manage them).
- International agencies need to shift away from seeing "the poor" as clients or targets to which "development" and "environmental management" must be delivered, towards recognising low income groups as partners and active citizens with knowledge, resources and rights to influence how donor assistance is used.
- Monitoring should provide the information needed to track progress towards meeting the MDGs, such as eradicating extreme poverty and hunger (MDG 1) and ensuring environmental sustainability (MDG 7). An important part of monitoring is supporting discussion and learning within each locality that involves both those whose needs the MDGs are meant to be meeting, and the local organisations that contribute to meeting these needs.

For Bigg and Satterthwaite, securing the MDGs is best done when local organisations are fully involved in environment and





development. However, local organisations can do much more than simply enhance the efficiency with which the MDGs are met. Through the voice and agency of their members, local organisations can indeed challenge dominant "development" paradigms, offering radically different definitions of the "good life" and sustainable living.

By building on their knowledge, aspirations, values and cosmovisions, local organisations often end up questioning the fundamental assumptions behind the MDGs by offering alternative definitions of human well-being. Indeed, many organisations of food providers explicitly or implicitly challenge the deep rooted belief in "development" as an ever increasing *"commodification of nature and social relations"* (Rist, 1997). However, there are few safe policy spaces where these local organisations can deconstruct the assumptions of "development thinking". As a result, the usual *"Western hegemonic programme"*, cloaked in the name of *"universalism"*, prevails (Rist, 1997 and 2006).

The exclusion of local organisations from shaping the future thus leads to a neglect of different ways of satisfying human needs. Many rural and urban development schemes have overlooked the importance of locally specific ways of meeting needs for food, health, shelter, energy, education and other fundamental human needs. Non-local professionals and planners all to often fail to see the difference between fundamental human needs and the ways and means of satisfying these needs.[14] Whilst fundamental human needs are universal, their satisfiers vary according to culture, region and historical conditions (Max-Neef, 1989).

Despite some remarkable exceptions, agricultural developments, resettlement housing for displaced people, healthcare, changes in tenure laws and other externally-driven activities have, implicitly or explicitly, adopted the dominant cultural model of industrial society. In industrial societies fundamental human needs are almost exclusively catered for by satisfiers that must be bought in the market and/or produced industrially.

Subsistence farmers, pastoralists, indigenous peoples, fisherfolk and artisanal food processors are thus seen as poor if they wear home-made garments of natural fibre rather than synthetics. They are perceived as poor if they live in houses constructed from natural materials like bamboo, thatch and mud rather than concrete. They are backward and poor if they farm without hybrid seeds, chemical fertilisers and weed-free monocultures. The ideology of development declares them to be so because they neither fully participate in the market economy nor consume commodities produced for and distributed by the market, even though they may be satisfying their fundamental needs themselves. This neglect of human ingenuity and diversity ultimately reinforces the dominant model of development based on uniformity, centralisation and control.

Re-defining a non-ethnocentric agenda for the future thus requires putting the voices of local organisations and citizens at the core of discussions on human well-being and the environment. This theme is further discussed in chapter 5.

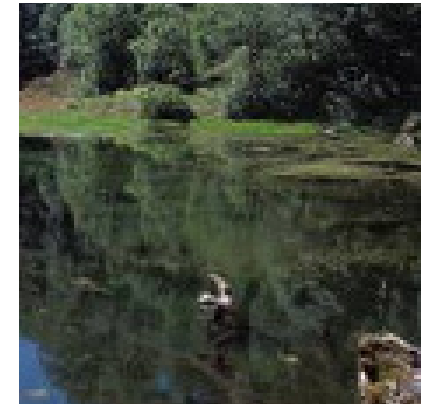
4.6.2. Beyond the Millennium Ecosystem Assessment and international conservation

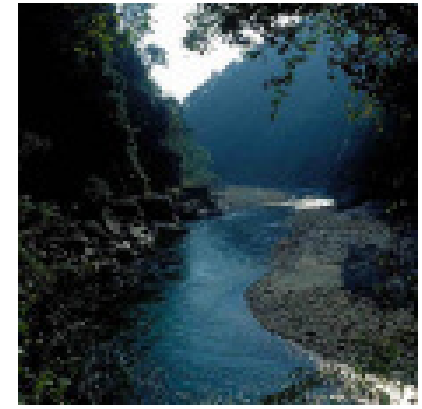
Recent documents by the Millennium Ecosystem Assessment community (MA, 2005) and international conservation organisations such as IUCN (World Parks Congress, 2004;

14 A definition of the "good life" implies different ways of satisfying fundamental human needs. Max-Neef and his colleagues have identified nine fundamental human needs, namely: subsistence (for example, health, food, shelter, clothing); protection (care, solidarity, work, etc.); affection (self-esteem, love, care, solidarity and so on); understanding (including study, learning, analysis); participation (responsibilities, sharing of rights and duties); leisure/idleness (curiosity, imagination, games, relaxation, fun); creation (including intuition, imagination, work, curiosity); identity (sense of belonging, differentiation, self-esteem and so on), freedom (autonomy, self-esteem, self-determination, equality).

IUCN, 2008) have noted that local organisations are centrally involved in mediating the dynamic interplay between culture and nature. There has been recognition that the processes of local adaptive management described in Section 4.2 above have often helped maintain many natural and modified ecosystems with significant biological and cultural diversity. These landscapes are often voluntarily conserved by long established rural communities through customary laws or other effective means mediated by local organisations. Indeed, many of these landscapes are so rich in human managed biodiversity that they are now increasingly described as community conserved areas (CCAs) by sections of the international conservation community (Box 4.21). They include, for example, landscapes with mosaics of natural and agricultural ecosystems containing considerable cultural and biological diversity, and adaptively managed by farming communities or mixed rural-urban communities.

Terrestrial and marine CCAs can range from a tiny forest or wetland patch (e.g. many sacred sites in South Asia, Pathak, 2006) to several million hectares.[15] The available evidence, whilst incomplete for all ecosystem types, suggests that the surface area covered by CCAs is substantial. It is estimated that 420 million ha of forests (11% of the world's total) are under some community ownership and administration, with about 370 million ha reported to be under some level of conservation management by communities (Molnar *et al.*, 2004). The Philippines alone have over 500 marine sites under coastal community resource management (Ferrari, 2006) and similarly large numbers are reported from the islands in the





15 For example, indigenous protected areas in some South American countries (Oviedo, 2006) and CCAs reported from the Southern African region (Holden et al., 2006).

Box 4.21. Community conserved areas and food providers

Community conserved areas (CCAs) can be defined as *natural and modified ecosystems containing significant biodiversity values, ecological services and cultural values. These include ecosystems with minimum as well as substantial human influence. They are voluntarily conserved by concerned indigenous, mobile and local communities through customary laws or other effective means.* Typically, these communities would by substantially dependent on the natural resources contained in these ecosystems, for food security, livelihoods, and cultural sustenance. At the same time, many CCAs include within their areas of control "no go" areas, ranging from very small to large stretches of land and waterscapes.

CCAs comprise three essential features:

1. One or more communities (farmers, indigenous peoples, mobile pastoralists, fishers, forest dwellers, peri-urban residents, etc.) that are closely linked to the ecosystems and landscapes through cultural, livelihood, economic or other ties.

2. Local management decisions and efforts which have enabled the conservation of habitats, species, ecological services and associated cultural values, although the objectives of management may vary (e.g. food production, sustaining livelihoods, water security, safeguarding of cultural and spiritual places).

3. Communities are the major players in decision-making about and implementation of ecosystem management. This implies some form of community organisation or authority which has the capacity to enforce regulations and co-ordinate the local adaptive management of ecosystems and landscapes.

CCAs include:

- Indigenous peoples' territories adaptively managed for sustainable use, cultural values or explicit conservation objectives.

- Landscapes with mosaics of natural and agricultural ecosystems, containing considerable cultural and biological diversity, and adaptively managed by farming communities or mixed rural-urban communities.

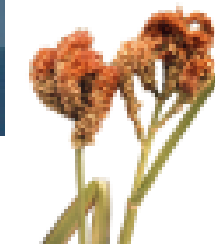
- Territories (terrestrial or marine) over which mobile or nomadic communities have traditionally roamed, adaptively managing resources through customary institutions, regulations and practices.

- Resource catchment areas, from which communities derive their livelihoods or key ecosystem benefits. Adaptive management ensures that these benefits are sustained over time.

- Nesting or roosting sites, or other critical habitats of wild animals, conserved for ethical or other reasons and explicitly oriented towards protecting these animals e.g honey bees and crop pollinators.

- Sacred spaces, ranging from tiny forest groves and wetlands to entire landscapes and seascapes, often (but not necessarily) left completely or largely inviolate.

Source: modified from Kothari, 2006



South Pacific and marine areas. One-fifth of the Amazon is covered by indigenous protected areas and territories, which is five times bigger than formal protected areas set up by governments and international conservation organisations (Oviedo, 2006). In South Asia, local organisations of small-scale producers and rural people adaptively manage tens of thousands of CCAs that comprise all kinds of ecosystems (wetlands, marine areas, grasslands, forests, deserts and so on), generating numerous ecological and socio-economic benefits (Table 4.4).

It has taken international conservation organisations and governments a long time to include CCAs and more people friendly concepts in their official declarations. That this has indeed happened is a tribute to the organised efforts of courageous professionals and coalitions of indigenous peoples and other citizens who argued and lobbied for shifts away from top-down, coercive and "people out" conservation schemes. However, there is little evidence so far that governments, conservation organisations, donors, and professionals have started implementing the concept of CCAs in national policies and practice. At best, official statements and practice on the ground remain ambiguous. For example, the first two principles of the ecosystem approach adopted by the Parties to the Convention on Biological Diversity merely imply a greater role for local organisations in land use (Box 4.22). At worst, official declarations, mission statements, annual reports and funding proposals sent to donors pay lip service to these and other more socially inclusive concepts of land use, using them as rhetorical devices for fundraising and public relations exercises.

4.6.3 Concluding remarks

All these examples suggest that recognition of the role of local organisations in meeting human needs and environmental sustainability is not, in and by itself, sufficient. In many cases,

Box 4.22. Ecosystem approach principles adopted as part of the Convention on Biological Diversity

Principle 1: The objectives of management of land, water and living resources are a matter of societal choice. Different sectors of society view ecosystems in terms of their own economic, cultural and society needs. Indigenous peoples and other local communities living on the land are important stakeholders and their rights and interests should be recognised. Both cultural and biological diversity are central components of the ecosystem approach, and management should take this into account. Societal choices should be expressed as clearly as possible. Ecosystems should be managed for their intrinsic values and for the tangible or intangible benefits for humans, in a fair and equitable way.

Principle 2: Management should be decentralised to the lowest appropriate level. Decentralised systems may lead to greater efficiency, effectiveness and equity. Management should involve all stakeholders and balance local interests with the wider public interest. The closer management is to the ecosystem, the greater the responsibility, ownership, accountability, participation, and use of local knowledge.

A total of 12 such principles form the basis of several decisions approved by the Conferences of the Parties to the Convention on Biological Diversity.

Source: www.biodiv.org/programmes/cross-cutting/ecosystem/decisions.asp

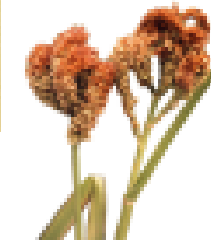


Table 4.4. Ecological and socio-economic benefits of community-based natural resource management in South Asia

Type of initiative	Ecological benefits	Socio-economic benefits	Examples*
Traditional sustainable use practices for habitats	Conservation of habitats such as village tanks, pastures, and forests, and the wildlife species they support; biodiversity rich corridors and gene movement between different parts of the landscape	Sustenance of traditional means of life, local food systems and livelihoods; financial revenues in some cases	*Van panchayats* (village forest council managed areas), *Kokkare Bellur*, India; *bugiyals* (pastures) in Indian Himalaya; several marine sites with traditionally regulated fisheries, in Sri Lanka and elsewhere
Traditional protection of sacred sites	Protection, often total, of forests, grasslands, village tanks	Cultural sustenance, protection and community identity	Several thousand in India and Bangladesh, usually small in extent
Recent initiatives to revive degraded habitats and sustainably use them	Regeneration of forests, grasslands, and other ecosystems, and of species dependent on them	Revival of traditional livelihoods and generation of new livelihoods, including financial revenues and employment. Political and social empowerment including in many cases greater equity (gender, caste, class …)	Several million hectares of forest lands in India and several hundred thousand hectares in Nepal and Bhutan; community fisheries in freshwater wetlands, Bangladesh
Resistance to destructive commercial forces	Reduction or elimination of factors threatening ecosystems and species	Protection of survival and livelihood base. Protection of political rights and social identity	Protection of Indian coastline and marine areas by traditional fisherfolk from destructive fishing and aquaculture; several movements against big "development" projects in several countries; movement against mining projects in several countries

Source: Adapted from Kothari *et al.* (2000).

*This list of examples is not exhaustive, but only includes some randomly selected ones.

local organisations need to be strengthened in order to play a more decisive role in shaping the future.

At the same time, it is important not to idealise local organisations and view them as unproblematic. For example, local organisations and federations are not always welcoming spaces for women, nor inclusive of the weak and marginalised, nor free from manipulation and co-option by more powerful insiders and/or outsiders. Community-based organisations are often plagued by internal inequities and social injustices, with decisions regarding natural resources or access to food being taken by the powerful (the men, the landowners, the "upper" castes). This is very often at the expense of the relatively powerless (the women, the artisans, the pastoralists). The gender bias highlighted in Box 4.23 for fishing communities in the Solomon Islands is indeed common in several other local organisations linked with food systems.

While this is by no means universal, some local organisations and federations concerned with food and farming clearly do have shortcomings in relation to equity, gender and entitlements of the very poor and marginalised. Such local spaces may

Box 4.23. The type of resource management agreement depends on who has the right to speak! An example of gender bias from the Solomon Islands

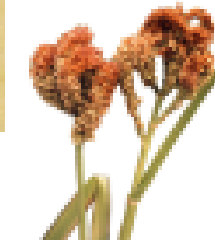
Resource management agreements must be located in their cultural context. In the Solomon Islands customary law has a profound influence on who can participate in decision-making. Land and marine tenure systems define the rights and entitlements to speak about and for resources. Individual legal titles to specific marine or land areas do not exist. It is membership in corporate, kinship based clans or butubutus that defines a person's relationship to resources. Although resources are claimed and controlled by the butubutu as a collective, there are clear distinctions between the power to speak about resources (and frame the resource management agreements) and the rights to merely use them. Rights and entitlements are unevenly distributed within and among communities, and are coming under increasing pressure from new commercial forces.

In the Solomons, women have inherently weak negotiating positions in traditional community institutions and decision-making processes. They are often uninformed about resource management issues and do not participate in public debate or in the framing of resource management agreements. By custom it is male relatives who speak on behalf of a woman landholder. However, customary law does not oblige them to consult with the women. "In decision-making processes, a male relation's vote is seen as equivalent to her choice".

Where women do find the confidence to talk as a group against the decisions made by men, it is likely they will be ignored. When the Tobakokorapa Association took the decision to designate an area used by women as protected, Michi women expressed their dissatisfaction at a general meeting. They were overruled by the older men and were told they would get "used" to the idea.

Gender bias is thus expressed not just in community structures but, more fundamentally, in intra-community power relationships and in the type of resource management agreements negotiated between members of the community.

Source: Adapted from Adams, 1996



reproduce overt or subtle forms of exclusion in the absence of a conscious social commitment to a politics of freedom, equity and gender inclusion. This suggests that local organisations and their networks may often need to be transformed for greater gender equity, social inclusion and democracy. This broad theme of transformation is discussed further in Part 3 of this book, along with ways of strengthening autonomous organisations for food sovereignty.

This is the web version of the fourth chapter of a book to be published by the International Institute for Environment and Development (IIED), the Centre for Agroecology and Food Security (CAFS), and the Rachel Carson Centre for Environment and Society (RCC) in 2014.

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The publication of this book has been made possible through the generous support of the Ministry of Foreign Affairs (DGIS) of the Government of The Netherlands, the Swiss Development Cooperation (SDC), Irish Aid, Novib-OXFAM (The Netherlands), The Christensen Fund, and the Rachel Carson Centre for Environment and Society.

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Michel Pimbert (2009). Towards food sovereignty: reclaiming autonomous food systems. CAFS, IIED and RCC, London and Munich.

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Full references for this chapter will appear in the final publication

References

All references cited here can be found at the end of the full book that will be published in winter 2014, *Towards food sovereignty: reclaiming autonomous food systems*. CAFS, IIED and RCC, London and Munich.