

# **Diversity and sustainability in community based conservation**

by

**Michel P. Pimbert<sup>1</sup>,  
and  
Jules N. Pretty**

**Paper presented at the UNESCO-IIPA regional workshop on Community-based Conservation, February 9-12, 1997, India.**

## **Abstract**

"Community based conservation" and "peoples' participation" have become part of the conventional rhetoric and more attention is being paid to this approach on the ground by international and national conservation organisations. There are now several examples of projects which involve local communities and seek to use economic incentives for the conservation and sustainable use of wildlife, protected areas, forests, wetlands, grasslands and other biodiversity rich areas. However, the practice of community based conservation remains problematic because of its high dependence on centralised bureaucratic organisations for planning and implementation.

This paper identifies some of the reforms needed to encourage and sustain community based conservation in situations where rural people are directly dependent on natural resources for their livelihoods. Emphasis is placed on strengthening diverse local livelihoods through more decentralisation and local control of conservation and natural resource management.

---

<sup>1</sup> For correspondence contact Dr Michel Pimbert, International Institute for Environment and Development (IIED) 3 Endsleigh Street, London, WC1H 0DD, United Kingdom. E-mail: [michel.pimbert@iied.org](mailto:michel.pimbert@iied.org)

## Introduction

Top down, imposed conservation all too often entails huge social and ecological costs in areas where rural people are directly dependent on natural resources for their livelihoods. A growing body of empirical evidence now indicates that the transfer of "Western" conservation approaches to the developing countries has indeed had adverse effects on the food security and livelihoods of people living in and around protected areas and wildlife management schemes (Ghimire and Pimbert, 1997; Ghimire, 1994; Kothari et al, 1989; IIED, 1995; Wells and Brandon, 1992; West and Brechin, 1992 ). 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, 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 to "poachers" and "squatters" (Colchester, 1994). Resettlement schemes for indigenous peoples removed from areas earmarked for conservation have had devastating consequences. So have the coercive wildlife conservation programs implemented by the former pro-apartheid governments of Rhodesia (Zimbabwe) and South Africa (McIvor, 1997; Koch, 1997). Denying resource use to local people severely reduces their incentive to conserve it. Moreover, the current styles of protected area and wildlife management usually result in high management costs for governments, with the majority of benefits accruing to national and international external interests. All these trends may ultimately threaten the long term viability of conservation schemes as local populations enter into direct conflict with park authorities and game wardens.

This deep conservation crisis has led to the search for alternative approaches that re-involve local communities in the management of wildlife and protected areas. "Community based conservation" and "peoples' participation" have indeed become part of the conventional rhetoric and more attention is being paid to this approach on the ground by international and national conservation organisations. There are now several examples of projects which involve local communities and seek to use economic incentives for the conservation and sustainable use of wildlife and protected areas (Kiss, 1990; McNeely, 1988; Sayer, 1991; Stone, 1991; Wells and Brandon, 1992). However, the practice of community based conservation remains problematic because of its high dependence on centralised bureaucratic organisations for planning and implementation. Some of these initiatives are nothing more than "official accommodation responses" to the growing opposition to parks and local resource alienation in forests, wetlands, grasslands, mountains, coasts and other biodiversity rich sites. Nonetheless, a few of them are clearly challenging the dominant conservation approaches and seem to be based on more equitable power and benefit sharing arrangements (for recent reviews see IIED, 1995; Borrini-Feyerabend, 1996). But these more progressive initiatives are limited in number and scope. They are still relatively isolated examples in mainstream conservation practice.

This paper identifies some of the reforms needed to encourage and sustain community based conservation in situations where rural people are directly dependent on natural resources for their livelihoods.

## Community based conservation: from blueprints to process

There are few examples of community based conservation based on indigenous knowledge and rule making institutions. A recent survey of forest conservation implemented by WWF International in Africa, Latin America, Asia and Europe has shown that there are relatively few community based programmes in which there is significant devolution of power to local people (Jeanrenaud, personal communication 1997 and in press). The situation is similar in wetlands, mountain areas and other ecological contexts where rural people live.

The way conservation bureaucracies and external institutions are organised and the way they work currently inhibit this devolution of power to local communities. The methods and means deployed to preserve areas of pristine wilderness largely originated in the affluent West where money and trained personnel ensure that technologies work and that laws are enforced to secure conservation objectives. During and after the colonial period, these conservation technologies, and the values associated with them, were extended from the North to the South, - often in a classical top down manner. Positivist conservation science and the wilderness preservation ethic hang together with this top down, transfer of technology model of conservation. They are mutually constitutive elements of the blueprint paradigm which still informs much of today's design and management of protected areas and wildlife schemes in developing countries (Pimbert and Pretty, 1995) (Table 1).

The main actors in this approach are normal professionals who are concerned not just with research, but also with action. Normal professionals are found in research institutes and universities as well as in international and national organisations where most of them work in specialised departments of government (forestry, fisheries, agriculture, health, wildlife conservation, administration...). The thinking, values, methods and behaviour dominant in their profession or discipline tends to be stable and conservative. Lastly, normal professionalism generally *"values and rewards "first" biases which are urban, industrial, high technology, male, quantifying, and concerned with things and with the needs and interests of the rich"* (Chambers, 1993).

Conservation usually reflects the priorities of regional, national and above all international interests over local subsistence needs. The design, management and infrastructure of protected areas and wildlife schemes all too often reinforce the interests of global conservation and those of the international leisure industry and other commercial groups. Local people often express their sense of deep frustration with these externally imposed priorities by saying that "people should be considered before animals" (Hackel, 1993), and they often view "wildlife conservation as alien, hypocritical, and as favouring foreigners" (Munthali, 1993).

Declaring biodiversity rich areas as "internationally important" conservation sites is meaningless for local resource users as long as the issues that emerge out of such declarations have not been discussed and resolved to the satisfaction of local communities. Farmers and forest dwellers who have lost land and/or traditional rights over resources cannot appreciate the value of vague "long term" conservation benefits for society or humanity. In their view, conservation benefits should be immediate and quantifiable, with local people getting a fair share of the benefits accruing from the successful management of the protected area and wildlife schemes.

**Table 1. Biodiversity conservation and natural resource management paradigms: the contrast between blueprint and learning-process approaches (Pimbert and Pretty, 1995)**

	<b>Blueprint</b>	<b>Process</b>
<b>point of departure</b>	nature's diversity and its potential commercial values	the diversity of both people and nature's values
<b>keyword</b>	strategic planning	participation
<b>locus of decision making</b>	centralised, ideas originate in capital city	decentralised, ideas originate in village
<b>first steps</b>	data collection and plan	awareness and action
<b>design</b>	static, by experts	evolving, people involved
<b>main resources</b>	central funds and technicians	local people and their assets
<b>methods, rules</b>	standardised, universal, fixed package	diverse, local, varied basket of choices
<b>analytical assumptions</b>	reductionist (natural science bias)	systems, holistic
<b>management focus</b>	spending budgets, completing projects on time	sustained improvement and performance
<b>communication</b>	vertical: orders down, reports up	lateral: mutual learning and sharing experience
<b>evaluation</b>	external, intermittent	internal, continuous
<b>error</b>	buried	embraced
<b>relationship with people</b>	controlling, policing, inducing, motivating, dependency creating. People seen as beneficiaries	enabling, supporting, empowering. People seen as actors
<b>associated with</b>	normal professionalism	new professionalism
<b>outputs</b>	<ol style="list-style-type: none"> <li>1. diversity in conservation, and uniformity in production (agriculture, forestry,...)</li> <li>2. the empowerment of professionals</li> </ol>	<ol style="list-style-type: none"> <li>1. diversity as a principle of production and conservation</li> <li>2. the empowerment of rural people</li> </ol>

A radical shift is required from imposed conservation which aims to retain external control on the management and end uses of biological resources to an approach which devolves more responsibility and decision making power to local communities. Community based conservation is likely to be sustainable ecologically, economically and socially only if the overall management scheme can be made sufficiently attractive to local people for them to adopt it as a long term

livelihood strategy (Pimbert and Pretty, 1995). In that context, dialogue, negotiation, bargaining and conflict resolution are all integral parts of a long term participatory process which continues well after the initial appraisal and planning phases.

Existing conservation institutions and professionals need to shift from being project implementors to new roles which facilitate local people's analysis, planning and action. The whole process should lead to local institution building or strengthening, so enhancing the capacity of people to take action on their own. This implies the adoption of a learning process approach in conservation (Table 1) and a new professionalism with new concepts, values, participatory methodologies and behaviour.

## **Reversals for community based conservation**

To spread and sustain community based conservation considerable attention will have to be given to the following needs, social processes and policies.

**Debunk the "wilderness" myth and reaffirm the value of historical analysis.** Most parts of the world have been modified, managed and, in some instances, improved by people for centuries. The very biodiversity which conservationists seek to protect may be of anthropogenic origin, since there is often a close link between moderate intensities of human disturbance and biodiversity.

Much of what has been considered as "natural" in the Amazon is, in fact, modified by Amerindian populations (Posey, 1993). Indigenous use and management of tropical forests is best viewed as a continuum between plants that are domesticated and those that are semi-domesticated, manipulated or "wild", with no clear cut demarcation between natural and managed forest. Certain large animal species would not occur in forest unmodified by humans, and important game species of mammals such as deer, tapir, monkeys, collared peccary and jaguars reach much higher densities in modified areas. Home gardens planted by indigenous and local communities are particularly attractive to wildlife and several species may have actually increased their populations as a result of crops and fruit trees planted by people. Species richness and the abundance of wildlife in indigenous peoples agriculture in the Sonoran desert (USA) is greater than in adjacent or analogous habitats that are not cultivated (Reichardt et al, 1994). In agricultural landscapes it is mainly local people who create and manage biological diversity (Haverkort and Millar, 1994; Salick and Merrick, 1990).

Many indigenous groups have evolved ways of harvesting resources without depleting them. Biodiversity rich areas,- denser forests, relatively undisturbed grasslands, reefs and waterways,- are generally found associated with territories claimed or used by indigenous peoples (Alcorn, 1994). For example, the 12 countries with the most biological diversity are also homes to diverse indigenous societies within whose territories much of that biological diversity is conserved. Many of the areas richest in biological diversity are inhabited by indigenous peoples who manage, maintain and defend them against destruction (Alcorn, 1995; Colchester, 1994).

Indeed, many of the landscapes which are often viewed as pristine or "wild" by outsiders, are in fact human created and human modified. Ethnoecological studies are increasingly discovering that what many had thought were wild resources and areas are actually the products of coevolutionary relationships between humans and nature (Gomez Pompa and Kaus, 1992; Pimbert and Toledo, 1994; Posey, 1994). The United Nations Educational, Scientific and Cultural Organisation (UNESCO) introduced the term "cultural landscapes" to describe this phenomenon (UNESCO, 1994).

Designating landscapes and the species they contain as cultural has a number of important implications for community based conservation and the concept of rights over biological

resources. For example, indigenous peoples organisations point out that where wild species and landscapes are products of nature, local communities can assert no special claim to them, and the national law considers them to be in the public domain, under the sovereign rights of the State. However, if species and landscapes have been moulded or modified by human presence, they are not automatically considered to be in the public domain. Local communities may therefore claim special rights of access, decision, control and property over them. This historical reality should be the starting point of community based conservation wherever local people have shaped local ecologies over generations. To transcend the "wilderness myth", community based conservation must begin with the notion that biodiversity rich areas are *social spaces*, - where culture and nature are renewed with, by and for local people (Ghimire and Pimbert, 1997).

**Strengthen local rights, security and territory.** Colonial powers, international conservation organisations and national governments have a long history of denying the rights of indigenous peoples and rural communities over their ancestral lands and the resources contained therein. For example, most of the very large area earmarked for conservation in Costa Rica is under a strictly protected regime that excludes local communities, unlike in Germany and France where protected area regimes represent more of "social compromise" (Brüggermann, 1997; Finger and Ghimire, 1997). This negation of the prior rights of indigenous and other local communities has been one of the most enduring sources of conflicts and violence, both in the developing world and in advanced industrialised nations such as Canada where aboriginal people seek greater self-determination by regaining control over territories now enclosed in the country's protected area network (Morrison, 1997).

Denying resource use to local people severely reduces their incentive to conserve it and undermines local livelihood security. Policies for community based conservation clearly need to reaffirm and protect local rights of ownership and use over biological resources,- for ethical as well as practical reasons. Two immediate priorities in many developing countries would be to:

1. *Reform protected area categories and land use schemes to embody the concepts of local rights and territory in everyday management practice.* Existing legal and political frameworks in most countries clash with the notion that protected areas should address local people's needs. To better integrate the concept of conservation with sustainable local livelihoods, countries need first to reform their legal and political instruments for protected areas. Key reforms relate to communal ownership of lands within protected areas, control and management responsibilities and benefit sharing. The Parties to the Convention on Biological Diversity should facilitate this fundamental rethinking in conservation by preparing a series of recommendations to party countries. They could also request IUCN's Commission on National Parks and Protected Areas to develop, in consultation with indigenous and peoples organisations, a proposal for a new category of protected area more compatible with local priorities, needs, institutions and land use. Currently, "none of the categories (of the IUCN system) are defined to guarantee the recognition of indigenous people's rights to self determination and self development" (Indigenous peoples, environment and development Conference, 1995).

In this context, it is particularly noteworthy that the CNPPA's newly introduced category VI allows for the sustainable use of natural ecosystems but, in practice, at least two thirds of the area must remain in its "natural state" for inclusion in this internationally accepted category. Although this latest IUCN category was apparently designed to integrate social development concerns in protected area management, human settlements and resource use by local people are only tolerated as exceptions. Moreover, the different protected area categories which do allow for some human use are very unevenly represented in the developed and developing countries. Category V, Protected Landscapes /Seascapes, is especially relevant here. By definition a Protected Landscape/Seascape is "an area of land, with coast and sea

as appropriate, where the *interaction of people and nature over time* has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area" (IUCN, 1994a, our emphasis). Out of a world total of 2273 Protected Landscapes/Seascapes recognised by IUCN (IUCN, 1994b), over half the category V sites are located in Europe, with 1307 sites covering 6.6% of the land surface. This reflects the view that conservation, - in Europe at least-, depends on the involvement of people, and therefore places where people co-exist with nature are worthy of special attention. In sharp contrast however, Category V sites are under-represented in the protected area networks of the developing world: 4 sites for the whole of Central America (0.01% of the land area), 56 in South Asia (0.09%), 20 in Sub-Saharan Africa (0.1%), 7 in the Pacific (0.03%) and 175 in South America (1.1%) (WCMC, 1994).

Similarly, the concept of "cultural landscapes" under the World Heritage Convention explicitly recognises the role of human agents in the continuing, organic evolution of whole landscapes (Phillips, 1995). In practice, however, the recognition of cultural landscapes "out there", and the creation of the legal basis for their management, has been an exclusively Euro-centric phenomenon. This partly reflects the greater attention which has been given to the evolution of rural landscapes in Europe in particular; these have been subject to detailed analysis by cultural historians, geographers and social ecologists. Similar well researched and documented analysis of national landscape types and their evolution has all too often been lacking in the developing world.

In many European countries the long established order of land tenure and rights of access to resources was generally respected in the recent decades. British conservationists, for example, accepted the vision of nature as part of a process of "continuity and gradual change, with man at the centre and integral to the rural landscape" (Blacksell cited in Harmon, 1991:34). National parks in Britain and elsewhere in Europe thus recognised existing rights and sought to maintain the established pattern of farming and land use by rural communities. The extension of similar policies and legislation to the developing world is clearly an important prerequisite for sustainable community based conservation.

2. *Strengthen local control over the access and end uses of biological resources, knowledge and informal innovations.* There are a variety of legal arrangements that can be introduced by government to assure local control over resources. The range of choices is not limited to private property of land: communal property of land and/or resources are often more culturally appropriate options in much of the developing world (Bromley and Cernea, 1989). Where local communities have been granted secure usufruct rights over neighbouring forests, governments have witnessed clear reversals in forest degradation and its associated biodiversity (Fortmann and Bruce, 1988). As VK Bahuguna recently (1992) put it "*The only solution to the present day crisis of depletion of forest resources, and the circumstantial alienation of people, is to opt for people's forests by involving local people in forest protection and development*".

Recognition of anthropogenic landscapes and "wild" species moulded by human agency has important implications for ownership, and consequently rights over access and use of biological resources (for tourism and bioprospecting). But in the rush to exploit the biological wealth of developing countries, little or no attention is given to the intellectual property rights of local communities who have shaped the "wild" and enhanced biological diversity. Indeed, recent advances in biotechnologies and genetic engineering have enhanced the commercial values of the genes and biochemical substances found in the diverse flora and fauna conserved in protected areas. Bioprospecting expeditions by Northern based institutions often use the knowledge of local peoples to identify promising drugs, biopesticides and other new natural products. A very small fraction of the benefits derived from the commercialisation

of biological resources is retained in the country, let alone the community, where the collections took place (UNDP, 1994) Moreover, commercial companies protect their new found "discoveries" and products with the help of patents and other intellectual property rights. These Western concepts of private property do not recognise the intellectual contributions and informal innovations of indigenous and rural peoples who have modified, conserved and managed so called "wild" plant and animal species (Crucible, 1994).

Indigenous peoples,- some 300 million people-, manage or control some 19% of the Earth's surface and are currently grouped into 4000 to 5000 different cultures. Their representatives argue in UN and other fora that governments should recognise their sovereign rights to determine:

- i) how biological resources should be conserved and managed on their ancestral territories
- ii) the rules of access to genetic resources and
- iii) how benefits should be shared for the uses of those resources and the associated indigenous knowledge.

Integrating these local views into policies for community based conservation is a central challenge. Similarly, national policies on Farmers' Rights should be framed in such a way as to stress that Farmers' Rights extends beyond the issue of compensation for farmers and farming communities; it includes rights to land and secure tenure, the farmer's fundamental right to save seed and exchange germplasm, and the right of farming communities to « say no », by choosing not to make their germplasm and knowledge available.

**The need for genuine peoples' participation and professional reorientation in conservation bureaucracies.** Despite repeated calls for peoples' participation in conservation over the last twenty years (e.g. Forster, 1973; III World Parks Congress, 1982; McNeely, 1993), the term "participation" is generally interpreted in ways which cede no control to local people. It is rare for professionals (foresters, protected area managers, wildlife biologists...) to relinquish control over key decisions on the design, management and evaluation of community based conservation. Participation is still largely seen as a means to achieve externally-desirable goals. This means that, whilst recognising the need for peoples' participation, many conservation professionals place clear limits on the form and degree of participation that they tolerate in protected area and wildlife management.

Seven different types of participation are shown in Table 2. The implication of this typology is that the *meaning* of participation should be clearly spelt out in all community based conservation programmes. If the objective of conservation is to achieve sustainable and effective management of biological resources, then nothing less than functional participation will suffice. This implies the use of participatory methodologies by staff of conservation NGOs and government agencies .Participatory Rural Appraisal (PRA) describes one group of a growing family of methods and ways of working that enable local people to share, enhance and analyse their knowledge of life and conditions, to plan and act. These approaches, when facilitated by outsiders, involve self critical awareness of their own attitudes and behaviour towards local people.

The adoption of participatory methodologies calls for a greater emphasis on training in communication rather than technical skills. Outside professionals must learn to work closely with colleagues from different disciplines or sectors, as well as with rural people themselves, including women and children. Judgement and interpersonal skills should be cultivated through the adoption and use of participatory methods. This may imply a significant shift in technique for conventional trainers, since training for participation must itself be participatory and action-based (Chambers, 1992a). One practical implication is that conservation agencies set aside time for field experiential learning for their professional staff, so that they, as people, can see, hear, understand that other reality, of local people, and then work to make it count.

However, the adoption of a participatory culture and changes in professional attitudes and behaviour are unlikely to automatically follow when new methods are adopted. Training of agency personnel in participatory principles, concepts and methods must be viewed as part of a larger process of reorienting institutional policies, procedures, financial management practices, reporting systems, supervisory methods, reward systems and norms (Thompson, 1995; Absalom et al, 1995). In both government departments and non governmental organisations, the challenge for top and middle management is to design appropriate institutional mechanisms and rewards to encourage the spread of participatory methods within the organisation. Without this support from the top, it is unlikely that participatory approaches which enhance local capacities and innovation will become core professional activities. They will remain isolated and marginalised within NGOs and government departments responsible for conservation programs. The central challenge for directors and board members of public, NGO and private sector conservation organisations is to radically restructure procedures and working relationships within their organisations.

Institutionalising and operationalising participatory approaches in conservation bureaucracies will be an arduous task based on trial and error, self critical reflection and further experimentation and innovation. In that context, inspiration and lessons might be drawn from the few examples of institutional transformation in large scale programmes dealing with rural development, agricultural research and extension, soil and water management and education (Bawden, 1994; Hinchcliffe et al, 1995; Thompson, 1995; Scoones and Thompson, 1994; Uphoff, 1992).

**Table 2. A typology of participation**

Typology	Components of Each Type
1. <i>Passive Participation</i>	People participate by being told what is going to happen or has already happened. It is unilateral announcement by an administration or project management without any listening to people's responses. The information being shared belongs only to external professionals.

- |   |  |
|---|--|
| 2. <i>Participation in Information Giving</i>   | People participate by answering questions posed by extractive researchers and project managers using questionnaire surveys or similar approaches. People do not have the opportunity to influence proceedings, as the findings of the research or project design are neither shared nor checked for accuracy.  |
| 3. <i>Participation by Consultation</i>         | People participate by being consulted, and external agents listen to views. These external agents define both problems and solutions, and may modify these in the light of people's responses. Such a consultative process does not concede any share in decision-making and professionals are under no obligation to take on board peoples's views.   |
| 4. <i>Participation for Material Incentives</i> | People participate by providing resources, for example labour, in return for food, cash or other material incentives. Much in-situ research and bioprospecting falls in this category, as rural people provide the fields but are not involved in the experimentation or the process of learning. It is very common to see this called participation, yet people have no stake in prolonging activities when the incentives end.               |
| 5. <i>Functional Participation</i>              | People participate by forming groups to meet predetermined objectives related to the project, which can involve the development or promotion of externally initiated social organisation. Such involvement does not tend to be at early stages of project cycles or planning, but rather after major decisions have been made. These institutions tend to be dependent on external initiators and facilitators, but may become self-dependent. |
| 6. <i>Interactive Participation</i>             | People participate in joint analysis, which leads to action plans and the formation of new local groups or the strengthening of existing ones. It tends to involve interdisciplinary methodologies that seek multiple perspectives and make use of systematic and structured learning processes. These groups take control over local decisions, and so people have a stake in maintaining structures or practices.                            |
| 7. <i>Self-Mobilization</i>                     | People participate by taking initiatives independent of external institutions to change systems. Such self-initiated mobilization and collective action may of may not challenge existing inequitable distributions of wealth and power.   |

(modified from Pretty, 1994)

**Build on local priorities, the diversity of livelihoods and local definitions of well-being.**

From the outset, the definition of *what* is to be conserved, *how* it should be managed and *for whom* should be based on interactive dialogue to understand how local livelihoods are constructed and people's own definitions of well being. Participatory, community based conservation starts not with analysis by the powerful and dominant outsiders, but with enabling local people, especially the poor, to conduct theirs and define their own priorities. This methodological orientation is absolutely essential in order to avoid the following problems in the design of community based conservation schemes:

1. The priorities and diverse realities of rural people have often been largely misunderstood or underperceived by outside professionals who pretend to combine conservation with the satisfaction of human needs in park buffer zones, and other so-called community based conservation and Integrated Conservation and Development Projects (ICDPs) (Wells and Brandon, 1992). Most professionals have tended to project their own categories and priorities onto local people. In particular, their views of the realities of the poor, and what should be

done, have generally been constructed from a distance and mainly for professional convenience. For example, many aspects of rural livelihoods are not captured or fully revealed by conventional questionnaire surveys used in planning and evaluating ICDPs. The socio-economic surveys and schedules construct a standardised, short and simple reality in which much that matters for local survival is liable to be left out (Chambers, 1992). And yet, livelihood systems are diverse in rural areas. They commonly rely on a mix of wild foods, agricultural produce, remittances, trading and wage labour. Household decision making continually adjusts to the changing nature of the environment and local economies. Household livelihood strategies often involve different members in diverse activities and sources of support at different times of the year. Many of these, like collecting wild foods and medicine, home gardening, common property resources, share-rearing livestock and stinting are largely unseen by outside professionals.

2. Many community based conservation schemes initiated by outsiders have overlooked the importance of locally specific ways of meeting needs for food, health, shelter, energy and other fundamental human needs. Outside professionals and institutions all too often failed to see the difference between fundamental human needs and their satisfiers: the ways and means of satisfying these needs. Whilst fundamental human needs are universal, their satisfiers vary according to culture, region and historical conditions (Max-Neef, 1989)<sup>1</sup>. Some remarkable exceptions apart, housing, health care and agricultural developments in community based conservation schemes, 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 by satisfiers that must be bought in the market and/or produced industrially.
3. Measures to combat poverty and hardship induced by a protected area scheme in a developing country usually fixate on the creation of full or part time jobs in, for example, the tourism and crafts sector. Employment and wages thus become standard forms of compensation for lost livelihoods- the many activities which make up a living. The problem is that for most rural people, and particularly for the weak and vulnerable, employment can only be a subset or a component of livelihood. Informed by reductionist employment thinking, well meaning job creation strategies substitute for other, more imaginative, approaches which might seek to sustain local livelihoods by building on a multiplicity of activities and resources. Local definitions of well being and culturally specific ways of relating to the world and organising economic life are thus displaced in favour of the more uniform industrial-urban development model of the North.

---

<sup>2</sup> 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 (among others: 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), and freedom (autonomy, self-esteem, self-determination, equality).

4. In attempts to reach consensus and « get started », outsiders have often overlooked the variability within communities and ecosystems .And yet, local communities are far from homogeneous. Elites are present in all societies. Sometimes they provide much-needed leadership, but frequently they exploit common folks and further personal interests. Community members and groups are stratified along age, gender, religion, wealth, economic activities, social status and power. There are those who reside within protected areas and those who live outside of them. They may be indigenous people, or migrants to the area. Some communities or their members may depend upon hunting and forest gathering for their livelihoods, whilst others may specialize in fishing. Poorer households, the landless and women often rely more on wild resources throughout the year than other members of the local community. Variability among ecosystems has also tended to be overlooked. The different abundance of wildlife populations in different areas where community based schemes are run can have important implications for compensation and benefit sharing schemes, as experienced in the CAMPFIRE programme in Zimbabwe (Murphree, 1994; Peterson, 1995). A better understanding of this variability within communities and local ecologies,- and of how community members themselves perceive and experience it-, is essential.
5. A final example of the misfit between local realities and externally defined priorities stems from the way biological diversity and wild resources used by local communities are valued in economic terms. The few economic analyses of biological diversity conducted so far have essentially focused on global values and foreign exchange elements and very little on the household use values of , for example," wild" foods and medicines (Scoones et al, 1992; Gujit et al, 1995). Simple economic valuations based on direct use values (for consumption or sale) ( see Pearce et al, 1989) have often been misleading and too reductionist to provide a sound decision making basis for policy makers and land use planners. The economic and social values of much of the biodiversity that nurtures rural people have been ignored or underperceived by outside professionals. This has biased conventional resource planning in ICDPs in favour of major food crops and species of commercial importance. More participatory and comprehensive local level valuation methodologies have recently been developed (Gujit, et al, 1995). They can help better understand the range of ways biodiversity matters to local people, and how values fluctuate according to season or to the many viewpoints of highly differentiated local communities. These should be more widely used in the participatory planning of community based conservation.

Whilst the above examples of professional biases are also rampant in the wider community of development planners, economists and agricultural scientists (Chambers, 1993), the problem is compounded in public and private conservation organisations because they have few, if any, sociologists or anthropologists working in the field or at headquarters. This must clearly change.

**Build on local systems of knowledge and management.** Local management systems are generally tuned to the needs of local people and often enhance their capacity to adapt to dynamic social and ecological circumstances. Although many of these systems have been abandoned after long periods of success, there remains a great diversity of local systems of knowledge and management which actively maintain biological diversity in areas earmarked for conservation (Kemf, 1993; West and Brechin, 1992).

Local systems of knowledge and management are sometimes rooted in religion and the sacred. Sacred groves, for example, are clusters of forest vegetation that are preserved for religious reasons. They may honour a deity, provide a sanctuary for spirits, or protect a sanctified place from exploitation; some derive their sacred character from the springs of water they protect, from the medicinal and ritual properties of their plants, or from the wild animals they support (Chandrakanth and Romm, 1991). Such sacred groves are common throughout

southern and southeastern Asia, Africa, the Pacific islands and Latin America (Shengji, 1991; Ntiamoa-Baidu et al, 1992). The network of sacred groves in countries such as India has since time immemorial been the locus and symbol of a way of life in which the highest biological diversity occurs where humans interact with nature. Sacred groves are preserved by villagers, *"not because it represents the antithesis of their productive activities but because it safeguards their livelihoods and their continued existence.... When the commons of local communities are still protected by the Goddess, nature's diversity is preserved"* (Apffel Marglin and Mishra, 1993). Clearly these pockets of biological diversity could be the focus for the conservation and regeneration of forest cover, so perhaps forming the basis of more 'culturally appropriate' protected areas.

Some indigenous peoples and rural communities have established protected areas that resemble the parks and reserves codified in the CNPPA's system and in national protected area policies. In Ecuador, for example, the Awa have spontaneously decided to establish conservation areas. They have secured rights over a traditional area, which has been designated the Awa Ethnic Forest Reserve (Poole, 1993). Sacred places such as the Loita Maasai's forest of the lost child in Kenya (Loita Naimana Enkiyo Conservation Trust, 1994) are also widespread forms of vernacular conservation. Vernacular conservation is based on site specific traditions and economies; it refers to ways of life and resource utilisation that have evolved in place and, like vernacular architecture, is a direct expression of the relationship between communities and their habitats (Poole, 1993).

However, the similarities between vernacular and scientific models of conservation obscures the fact that motivations for setting up such areas are quite distinct from those leading to national parks and wildlife management schemes, even though the ultimate contribution to biodiversity conservation may be identical. The crucial distinction is that such areas are established to protect land for rather than from use; more specifically for local use rather than appropriation and exploitation by outside interests.

Indigenous ways of knowing, valuing and organising the world must not be brushed aside by so called "modern" technical knowledge which claims superior cognitive powers. Despite the pressures that increasingly undermine local systems of knowledge and management, community based conservation should start with what people know and do well already, so as to secure their livelihoods and sustain the diversity of natural resources on which they depend.

**Build on local institutions and social organisation.** Local organisations are crucial for the conservation and sustainable use of biodiversity. Local groups enforce rules, incentives and penalties for eliciting behaviour conducive to rational and effective resource conservation and use. For as long as people have engaged in livelihoods 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 institutions have always been important in facilitating collective action and coordinated natural resource management. Indigenous peoples resource management institutions probably offer the most striking evidence of active conservation. These institutions include rules about use of biological resources and acceptable distribution of benefits, definitions of rights and responsibilities, means by which tenure is determined, conflict resolution mechanisms and methods of enforcing rules, cultural sanctions and beliefs (Alcorn, 1994). Similarly, the literature on common property resources highlights the importance and resilience of local management systems for biodiversity conservation and local livelihoods (Arnold and Stewart, 1991; BOSTID, 1986; Bromley and Cernea, 1989; Ostrom, 1990; Jodha, N.S., 1990; Niamir, 1990).

As Michael Cernea (1993) 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*". The undermining and suppression of local institutions is no doubt the most debilitating and enduring impact of national and international bureaucracies. They have tended to substitute for local action, so stifling any existing initiatives and institutions. Through their radical monopoly control over management priorities and implementation, many conservation institutions and their donors have been profoundly disabling, seriously impairing local and national capacities for sustainable natural resources management. International conservation organisations acting as technical advisors or implementors of national protected area strategies and wildlife management schemes spend a large proportion of their funds on expatriate salaries, planes and helicopters for survey work, international travel and meetings. A very small part of the funds managed by these organisations is invested locally in capacity building and local institution building. More generally, the emphasis on State and professional control, often encouraged by suspicion and distrust for local people, means that a substantial proportion of natural resource management budgets must be spent on policing activities.

In developing community-based management schemes, increased attention will need to be given to action through local institutions and user groups. They include, for example, natural resource management groups, women's associations and credit management groups. Successful group initiatives include investing in protecting watersheds and reforestation; organising community run wildlife management schemes; establishing small processing plants for natural products derived from the wild. Available evidence from multilateral projects evaluated 5 to 10 years after completion shows that where institutional development has been important the flow of benefits has risen or remained constant (Cernea, 1987). Past experience therefore suggests that if this type of institutional development is ignored in conservation policies, economic rates of return will decline markedly and conservation objectives may not be met. Outside interventions must be designed in such a way that at the end of the project cycle there are local institutions and skills in place to ensure the continuation of natural resource management, without further need for external inputs.

#### **Locally available resources and technologies to meet fundamental human needs.**

Community based conservation that seeks to provide benefits for local and national economies should give preference to informal innovation systems, reliance on local resources and local satisfiers of human needs. Preference should be given to local technologies by emphasising the opportunities for intensification in the use of available resources. Sustainable and cheaper solutions can often be found when groups or communities are involved in identification of technology needs and then the design and testing of technologies, their adaptation to local conditions and, finally, their extension to others. The potential for intensification of internal resource use without reliance on external inputs is enormous. Greater self reliance and reduced dependency on outside supplies of pesticides, fertilisers, water and seeds can be achieved within and around protected areas, by complicating and diversifying farming systems with locally available resources.

Similarly, health, housing, sanitation, and revenue generating activities (e.g. tourism) based on the use of local resources and innovations are likely to be more sustainable and effective than those imposed by outside professionals. There are nevertheless opportunities to combine the strengths of modern science and local traditions of knowledge in some contexts. The advantages and skills of professionals (at the micro and macro levels) can be effectively combined with the strengths of indigenous knowledge and experimentation by empowering people through a modification of conventional roles and activities. This participatory research and development (R&D) would permit the generation of diverse, locally-controlled technologies which may be more sustainable in the long-term than the products of the classical transfer of technology approach.

### **Economic incentives and policies for the equitable sharing of conservation benefits.**

Many of the schemes designed to compensate or/and provide local economic incentives for community based conservation need to pay greater attention to equity and human rights issues. Community wildlife management and participatory protected area management have little chance of success where benefits are not distributed equitably among various members of the community. « Equity » should entail the sharing of benefits in a way that is commensurate with the varying sacrifices and contributions made or damages incurred in the community (e.g. through lost access to resources, damage to crops and through the physical danger presented by many wild animals). The distribution of benefits within the community should also be administered by a local institution that carries out its activities in a transparent way and is accountable to the community. Unfortunately in many well publicised « community based » ecotourism and bioprospecting schemes, benefits have tended to be one sided, going mainly to external groups interested in conservation and not to local people.

*Eco-tourism.* Like in the case of classical tourism, eco-tourism schemes are not integrated with other sectors of the national or regional economy; and little earnings generated actually reach or remain in the rural areas (Ghimire and Pimbert, 1997, Mclvor, 1997; Koch, 1997). More importantly, the majority of the rural population is frequently bypassed economically even where some earnings remain in the tourist location, as they are used up by the related administration or appropriated by local elites and businesspersons. At the same time, traditional livelihood sources and cultures become negatively affected in nearly all cases. Koch, assessing the potential of ecotourism in the reconstruction rural South Africa, concludes that generating economic benefits and empowering rural people is only feasible when many wide-ranging reforms such as restoration of land rights to local communities, support for new forms of land tenure, strengthening of community institutions, investment in technical and managerial skills of people, and mandatory impact assessments of all ecotourism schemes are carried out (Koch, 1997). Structural political and economic changes along these lines are difficult as much in South Africa as in many other countries.

*Biodiversity prospecting and commercial leases.* Biodiversity prospecting (or bioprospecting) is the exploration, extraction and screening of biological diversity and indigenous knowledge for commercially valuable genetic and biochemical resources. It has become an integral part of the R&D of large industrial corporations which market new natural products such as oils, drugs, perfumes, waxes, dyes, biopesticides (Reid et al, 1993; UNDP, 1994; Baumann et al, 1996). The financial stakes are very high for the growing number of pharmaceutical corporations, biotechnology companies and their intermediaries who comb the forests, fields and waters of the developing world in search of biological wealth. For example, it is conservatively estimated that medicinal plants and microorganisms from the biodiversity rich developing countries contribute at least US\$ 30 billion a year to the developed world's pharmaceutical industry (UNDP, 1994).

It is argued that bilateral bioprospecting agreements offer positive local economic incentives for conservation and sustainable use. But available evidence indicates that benefits shared with countries in which collections took place represent a small fraction of the annual R&D budget of the corporations involved (UNDP, 1994; RAFI, 1994). Moreover, indigenous and local people only receive a minuscule proportion of the profits generated from sales of products that embody their knowledge and resources. For example, Posey (1990) estimates that less than 0.001% of the market value of plant based medicines have been returned to indigenous peoples from whom much of the original knowledge came. And whilst various codes of conduct have been developed to ensure greater equity, compensation and fair sharing of benefits between bioprospecting companies and local communities (e.g. FAO, 1993 ; WWF, UNESCO and Kew Gardens in Cunningham, 1993; Shelton, 1995), none are internationally legally binding instruments or a protocol to the Convention on Biological Diversity

Commercial contracts and other bilateral agreements for access to biodiversity are based on "mutually agreed terms" between the national government and the bioprospecting firm. Whilst the Convention on Biological Diversity also recognises "the knowledge, innovations and practices of indigenous and local communities" and specifically "encourage[s] the equitable sharing of benefits arising from the utilisation of such knowledge, innovations and practices", the Convention and national legislations do not require that bioprospecting agreements be subject to the prior informed consent of local people. Negotiations at the international level are after all carried out by national elites on behalf of their people and bilateral agreements signed by the "contracting parties" make little or no references to local actors involved in biodiversity management, -, farmers, pastoralists, forest dwellers, herbalists and other rural people.

The Convention's language on intellectual property rights (IPRs) is subject to varying interpretations but does not compromise patent and intellectual property right systems based on Western concepts of property. It "is constructed round the notion of the author as an individual, solitary and original creator, and it is for this figure that its protections are reserved. Those who do not fit this model, -custodians of tribal culture and medical knowledge.....or peasant cultivators of valuable seed varieties, for example-, are denied intellectual property protection" (Bellagio Declaration, 1993).

This cultural bias is selectively useful for institutions and private corporations based in developed countries who seek access to tropical biodiversity to develop, first and foremost, patented and profitable products. Patents and other IPRs are after all key elements in global industrial strategies for monopoly control over biological materials, knowledge and markets (Crucible, 1994). By institutionalising a form of theft that has come to be known as biopiracy, IPRs provide few or no economic incentives for community based conservation.

And whilst there is considerable pressure to extend Northern style IPRs to as many countries as possible through international negotiations in the World Trade Organisation (WTO), indigenous peoples groups and NGOs are making use of the GATT-TRIPS agreement, -which calls for the development of *sui generis* legislation for IPRs-, to propose more equitable systems of protection and benefit sharing. Some of these, such as the concept of Traditional Resource Rights (Posey and Dutfield, 1996) go far beyond other *sui generis* (unique or special) models in that they seek to protect not only knowledge relating to biological resources but also indigenous people's right to self determination. The original FAO concept of Farmers Rights' is also being reinterpreted in the language of human rights, stressing farmers' collective right to *directly* control access to and receive benefits from commercial uses of traditional plant and animal resources (GRAIN, 1995).

These struggles over the meanings of IPRs and *sui generis* systems are critical for the design of equitable benefit sharing schemes and economic incentives. Serious advocates of community based conservation must therefore actively shape the outcome of these policy debates.

**Codes of conduct for outside conservation agencies and professionals.** Powerful conservation agencies and individuals, with their close contacts with national elites have tended to design socially insensitive conservation schemes in most developing countries. The absence of any obligation to promote the livelihood interests of local communities directly dependent on natural resources simply means that, even when the potential for local social development is stated in the project documents, this is not at all implemented in a consistent manner. Much of this is used for attracting foreign funding which can eventually be used for non-social items (e.g., flora-fauna surveys, patrolling, official buildings and vehicles) or creating *ad hoc* development projects. Conservation organizations and influential natural scientists neither need to interact directly with the local population that is being affected, nor have to forego any negative electoral consequences. For instance, there exists no legal or political framework that will permit local populations to seek to judge any international or national conservation organizations and

environmentalists for causing social conflicts and misery. This has in many ways allowed conservation organizations and individuals to put exclusive emphasis on narrowly defined environmental protection and neglect social needs,- even in so called community based conservation schemes.

Some indigenous and local communities have spelt out how outside organisations and professionals interested in the biodiversity on their lands should behave, and what their rights and obligations are towards local people. For example, the Kuna of Panama and the Inuit Tapirisat of Canada have established guidelines to ensure that research carried out on their territories is controlled by the local communities and based on their prior informed consent. The Kuna produced an information manual which includes guidelines for scientific researchers as well as a presentation of Kuna objectives with respect to forest management, conservation of biological and cultural wealth, scientific collaboration and research priorities. Such Community Controlled Research (CCR) may allow indigenous peoples to better control access and use of, for example, ethnobotanical knowledge which is increasingly targeted by bioprospectors working for pharmaceutical companies (Posey et al, 1995).

More generally, there is a clear need for a legally binding code of conduct to ensure that outside professionals are more accountable to local communities. The adoption of a policy of reciprocal accountability (governments <=> Donor <=> local communities) by conservation agencies could potentially open spaces to do things differently in the future. For example, the concept of downward accountability implies shifting more direct control over decision making and funds to local communities. Local recipients of the funds could then decide what this money should be spent on and by whom. The donors legitimate demands for accountability could still be met if accountability were framed in terms of long term process objectives that seek to reconcile conservation with sustainable local livelihoods. Locally negotiated conservation agreements and the long term success of community based conservation partly depend on the development and enforcement of such codes of conducts.

**Negotiated agreements and enabling policies for local action.** The success of people-oriented conservation will hinge on promoting socially differentiated goals in which the differing perspectives and priorities of community members, and local communities and conservationists, must be negotiated. Signed agreements between external institutions and local community organisations could promote responsible and accountable interaction. Examples include Joint Forest Management, Joint Protected Area Management (Sarkar et al, 1995) and wildlife co-management schemes based on more equitable power and benefit sharing. But in all cases, long term success may depend on culturally sensitive and equitable action in the following areas:

1. In the case of indigenous peoples, national protected area and conservation policies need to be brought in line with internationally recognised human rights: they should allow indigenous peoples to represent their own interests through their own organisations and not through consultative processes controlled by conservation organisations. International law and other agreements already provide clear principles which professionals working for conservation should observe in dealing with indigenous peoples such as ILO 169, Chapter 26 of Agenda 21 of the UNCED agreements and parts of the Biodiversity Convention (Colchester, 1994).
2. Attitudinal change and respect for cultural diversity. Joint management schemes for forest use have had some notable success in India and elsewhere. But on the whole, the attitudes and behaviour of many forest officers remain paternalistic and profoundly disempowering. For example, informal comments by foresters working at different levels in the Forest Department hierarchy of the state of West Bengal (India) often describe tribal people and their Forest Protection Committees as "ignorant", "primitive", "underdeveloped in all respects"

and "economically irrational"(Pimbert, 1994). Such negative attitudes clearly undermine the mutual trust needed for successful JFM and other co-management schemes. They also partly explain the discrimination and implicit racism embedded in some conservation policies. Today, many local communities dependent on the forests for their livelihoods have insecure rights and are aware that Forest Departments may take back the forests once they are regenerated and productive again. The need for attitudinal change among professionals can no longer remain a taboo subject in modern conservation.

3. Seeing stakeholders' claims historically. Examples from two internationally important wetland sites in Pakistan and India show that a central challenge facing policy makers is to consider claims to resources in their historical context. In and around Keoladeo National Park (India) for example, the needs and rights of the tourist industry are not comparable with those of the resident communities. Whereas private firms need only worry about increases in their profits, local peoples' stakes hinge around basic subsistence and adequate nutrition. Moreover, the ways non-resident parties got their stakes in the first place can no longer be ignored in the light of information elicited during the participatory dialogues (PRAs). Both tourism in Keoladeo National Park and private-owned fishing in the freshwater lake of the Ucchali complex (Pakistan) take place precisely in those areas from which previous residents have been expelled and denied of their prior rights of access and use. Huge differences in the scale of opposing stakes and claims were revealed as village voices reconstructed the local social and ecological histories of the wetlands for outsiders. Joint Management agreements thus need to acknowledge that some stakeholders' claims to resources are illegitimate, -they ignore previously existing rights of long time local residents. Enabling policies for joint protected area management will need to address larger questions of land alienation and land scarcity (Ucchali ) and grazing rights (Keoladeo). For the villagers these are the crucial policy issues. Should they be left out of the policy reform, inequities will perpetuate the conflicts which the proposed joint management schemes attempt to mediate (Pimbert et al, 1996).

## Conclusions

Sustainable and effective conservation calls for an emphasis on community-based natural resource management and enabling policy frameworks. These are not the easy options. Contemporary patterns of economic growth, of modernisation and nation building all have strong anti- participatory traits. The integration of rural communities and local institutions into larger, more complex, urban centred and global systems often stifles whatever capacity for decision making the local community might have had and renders its traditional institutions obsolete. This paper has nevertheless tried to identify some of the key social issues and processes that could be acted upon to decentralise control and responsibility for conservation and natural resource management.

It should be emphasised here that the devolution of conservation to local communities does not mean that state agencies and other external institutions have no role. A central challenge will be to find ways of allocating limited government resources so as to obtain widespread replication of community initiatives. Understanding the dynamic complexity of local ecologies, honouring local intellectual property rights, promoting wider access to biological information and funds, designing technologies, markets and other systems on the basis of local knowledge, needs and aspirations call for new partnerships between the state, rural people and the organisations representing them.

Building appropriate partnerships between states and rural communities requires new legislation, policies, institutional linkages and processes. Community based conservation is

likely to be more cost effective and sustainable when national regulatory frameworks are left flexible enough to accommodate local peculiarities. It requires the creation of communication networks and participatory research linkages between the public sector, NGOs and rural people involved in protected area and wildlife management. Legal frameworks should focus on the granting of rights, access and security of tenure to farmers, fishermen, pastoralists and forest dwellers. This is essential for the poor to take the long term view. Similarly, the application of appropriate regulations to prevent pollution and resource degrading activities is essential to control the activities of the rich and powerful e.g timber, bioprospecting and mining companies. Economic policies should include the removal of distorting subsidies that encourage the waste of resources; targeting of subsidies to the poor instead of the wealthy, who are much better at capturing them; and encourage resource enhancing rather than degrading activities through appropriate pricing policies.

Such changes will not come about simply through the increased awareness of policy makers and professionals. They will require shifts in the balance of social forces, power relations and economic organisation. Indeed, the implementation of community based conservation invariably raises deeper political questions about our relationship with nature and how we organise society,- towards more centralisation, control, uniformity and coercion or towards more decentralisation, democracy, diversity and informed freedom?

## References

Absalom, E., Chambers, R., Francis, S., Gueye, B., Guijt, I., Joseph, S., Johnson, D., Kabutha , C., Rahman Khan, M., Leurs, R., Mascarenhas , J., Norrish, P., Pimbert, M.P., Pretty, J.N., Samaranayake,

M., Scoones, I., Kaul Shah, M., Shah, P., Tamang, D., Thompson, J., Tym, G., Welbourn, A, 1995. Sharing our concerns, - looking into the future. PLA Notes, 22:5-10, London.

Alcorn, J.B., 1994. Noble savage or noble state? Northern myths and southern realities in biodiversity conservation. *Ethnocoologica*, 2 (3): 7-20.

Apffel Marglin, F. and P.C. Mishra (1993) "Sacred groves: Regenerating the Body, the Land, the Community", in Sachs, W. (ed.) *Global Ecology. A New Arena of Political Conflict*, Zed Books, London.

Arnold, J.E.M. and Stewart, W.C., 1991. Common property resource management in India. *Tropical Forest Papers*. No 24. Oxford Forestry Institute, Oxford.

Bahuguna V.K. (1992) *Collective Resource Management. An Experience of Harda Forest Division*, Regional Centre for Wastelands Development, Bhopal.

Baumann, M., Bell, J., Koechlin, F. and Pimbert, M.P., 1996. *The life industry. Biodiversity, people and profits*. Intermediate Technology Publications, London .

Bawden, R.J., 1994. Creating learning systems: a metaphor for institutional reform for development. In Scoones, I. and J.Thompson (Eds.), *Beyond Farmer First: Rural People's Knowledge, Agricultural Research and Extension Practice*. Intermediate Technology Publications, London, pp.258-263.

Bellagio Declaration, 1993. Statement of the Bellagio Conference (presented at conference entitled « Cultural agency/cultural authority: politics and poetics of intellectual property in the post colonial era », Bellagio, Italy, 11 March 1993.

Borrini-Feyerabend, G., 1996. Collaborative management of protected areas: tailoring the approach to the context. IUCN, Gland.

BOSTID, 1986. Proceedings of the conference on common property resource management, April 21-26, 1985, Annapolis, Maryland. National Academy Press, Washington, DC.

Bromley, D.W. and Cernea, M.M., 1989. The management of common property natural resources. Discussion paper no.57. The World Bank, Washington, D.C.

Bruggemann, J. National parks and protected area management in Costa Rica and Germany: a comparative analysis. In: Ghimire K.B and M.P. Pimbert (Eds) *Social change and conservation*. UNRISD and Earthscan, London.

Cernea, M.M. (1993) "Culture and Organisation: The Social Sustainability of Induced Development", *Sustainable Development*, 1(2) 18-29.

Chambers, R. 1992. *Rural Appraisal: Rapid, Relaxed and Participatory*. Discussion paper No311, Institute of Development Studies, Brighton, UK.

Chambers, R. 1993. *Challenging the professions. Frontiers for rural development*. Intermediate Technology Publications, London, UK.

Chandrakanth, M.G. and J. Romm, (1991) "Sacred Forests, Secular Forest Policies and People's Actions", *Natural Resources Journal*, 31 (4): 741-756.

Colchester, M., 1994. Salvaging nature. Indigenous peoples, protected areas and biodiversity conservation. UNRISD-WRM-WWF. UNRISD Discussion Paper No.55, Geneva.

Crucible Group, 1994. *People, plants and patents: the impact of intellectual property rights on trade, plant biodiversity, and rural society*. IDRC, Ottawa.

Cunningham, A.B., 1993. *Ethics, ethnobiological research and biodiversity. Guidelines for equitable partnerships in new natural products development*. WWF-International, Gland.

- Hackel, J.D., 1993. Rural change and nature conservation in Africa: a case study from Swaziland. *Human ecology*, 21:295-312
- Harmon, D., 1991. National Park residency in developed countries: the example of Great Britain. in P.C West and S.R.Brechin (eds.) *Resident People and National Parks: social dilemmas and strategies of international conservation*, University of Arizona press, Tucson, pp.33-39.
- Haverkort, B. and Millar, D., 1994. Constructing diversity: the active role of rural people in maintaining and enhancing biodiversity. *Ethnoecologica* 2(3): 51-64.
- Hinchcliffe, F., Gujit, I., Pretty, J.N. and Shah, P., 1995. *New Horizons: the economic, social and environmental impacts of participatory watershed development*. Gatekeepers Series, No.50. Sustainable Agriculture Programme, IIED, London.
- IIED, 1995. *Whose eden? An overview of community approaches to wildlife management*. London.
- Indigenous peoples, *Environment and Development*, 1995. International conference, May 1995, Zurich, Switzerland.
- IUCN, 1994a. *Guidelines for protected area management categories*. IUCN, Gland.
- IUCN, 1994b. *1993 United Nations list of National Parks and Protected Areas*. IUCN, Gland.
- FAO, 1993. *International code of conduct for plant germplasm collecting and transfer*. United Nations Organisation for Food and Agriculture, Rome, Italy.
- Finger, A. and Ghimire, K., 1997. Local development and parks in France. In: Ghimire K.B and M.P. Pimbert (Eds) *Social change and conservation*. UNRISD and Earthscan, London.
- Forster, R.R., 1973. *Planning for man and nature in national parks*. IUCN Publications, new series No 26. Morges, Switzerland.
- Fortmann, L. and J.W. Bruce (eds.) (1988) *Whose Trees? Proprietary Dimensions of Forestry*, Westview Press, Boulder.
- Ghimire, K.B. and M.P. Pimbert, 1997. *Social change and conservation. Environmental politics and impacts of national parks and protected areas*. Earthscan and UNRISD, London.
- Gomez-Pompa, A. and A.Kaus, 1992. Taming the wilderness myth. *Bioscience*, 42 (4): 271-279.
- GRAIN, 1995. Towards a biodiversity community rights regime. *Seedling*, 12(3): 2-14.
- Gujit, I., Hinchcliffe, F., Melnyk, M., Bishop, J., Eaton, D., Pimbert, M.P., Pretty, J.N. and Scoones, I. 1995. *The Hidden Harvest. The value of wild resources in agricultural systems*. IIED, London, 23pp.
- Kempf, E. (ed.) (1993) *Indigenous Peoples and Protected Areas -- The Law of Mother Earth*, Earthscan Publications Ltd, London.
- Kiss, A. (Ed.), 1990. *Living with wildlife: wildlife resource management with local participation in Africa*. Technical Paper No.130, World Bank, Washington, DC.
- Koch, E., 1997. Ecotourism and rural reconstruction in South Africa: reality or rhetoric? In: Ghimire K.B and M.P. Pimbert (Eds) *Social change and conservation*. UNRISD and Earthscan, London.
- Kothari, A., P. Pande, S.Singh and R. Dilnavaz,, 1989. *Management of national parks and sanctuaries in India.*, status report, Indian Institute of Public Administration, New Delhi.
- Jodha, N.S., 1990. *Rural Common Property Resources: contributions and crisis*. ICIMOD, Kathmandu.

Loita Naimana Enkiyo Conservation Trust (1994) Forest of the Lost Child. A Maasai Conservation Success Threatened by Greed, 8pp. Narok, Kenya.

Max-Neef, M., A. Elizalde, M. Hopenhayn, F. Herrera, H. Zemelman, J. Jataba, L. Weinstein (1989) "Human Scale Development: An Option for the Future", *Development Dialogue*, 1989 (1): 5-80.

McIvor, C., 1997. Management of wildlife, tourism and local communities in Zimbabwe. In: Ghimire K.B and M.P. Pimbert (Eds) *Social change and conservation*. UNRISD and Earthscan, London.

McNeely, J.A., 1988. Economics and biological diversity: developing and using economic incentives to conserve biological resources. IUCN, Gland, Switzerland.

McNeely, J.A. 1993. *Parks for Life: report of the IVth World Congress on National Parks and Protected Areas*. IUCN, Gland.

McNeely, J.A. 1994. Lessons from the past: forests and biodiversity. *Biodiversity and Conservation* 3(4).

Morrison, J., 1997. Protected areas, conservationists and aboriginal interests in Canada. In: Ghimire K.B and M.P. Pimbert (Eds) *Social change and conservation*. UNRISD and Earthscan, London.

Munthali, S.M., 1993. Traditional and modern wildlife conservation in Malawi,- the need for an integrated approach. *Oryx* 27:185-187.

Murphree, M.W., 1994. The evolution of Zimbabwe's community-based wildlife use and management programme. *Tanzanian Community Conservation Workshop*, 8-11 Febuary, 1994, mimeo.

Niamir, M. 1990. Community forestry: herders' decision making in natural resource management in arid and semi-arid Africa. *Community Forestry Note 4*, FAO, Rome.

Ntiamo-Baidu, Y., L.J. Gyamfi-Fenteng, W. Abbiw, (1992) *Management Strategies for Sacred Groves in Ghana*, a report prepared for the World Bank and EPC Ghana.

Ostrom, E., 1990. *Governing the commons: the evolution of institutions for collective action*. Cambridge University Press, New York.

Pearce, D., Markandya, A. and E. Barbier, 1989. *Blueprint for a green economy*. Earthscan, London.

Peterson, J.H., 1994. Sustainable wildlife use for community development in Zimbabwe. In Freeman M.M.R. and Kreuter U.P (Eds.) *Elephants and whales. Resources for whom?*

Phillips, A., 1995. Cultural landscapes: an IUCN perspective. In: Droste B. Von, Plachter, H. and Rossler, M. with Semple, A. (Eds). *Cultural landscapes of universal value: components of a global strategy*. Fisher-Verlag (in press).

Pimbert, M.P., 1994. Field observations on Joint Forest Management in West Bengal and report on an international workshop on JFM co-organised by the Ford Foundation, the WWF-UNESCO-Kew Gardens People and Plants initiative, the Government of West Bengal, the Indian Institute of Biosocial Research and Development and the Society for the Promotion of Wastelands Development, 7-18 November 1994, WWF-International, mimeo.

Pimbert, M.P. and Pretty, J.N., 1995. Parks, people and professionals. Putting "participation" into protected area management. UNRISD-IIED-WWF. UNRISD Discussion Paper No.57., Geneva.60pp.

Pimbert, M.P. and Toledo, V., 1994. Indigenous people and biodiversity conservation:myth or reality? Special issue of *Ethnoecologica*, 2 (3). Mecico, 96pp.

Pimbert, M.P., Gujja, B and M.K. Shah, 1996. Village voices challenging wetland management policies: PRA experiences from India and Pakistan. *PLA Notes* 27: 37-41. IIED, London.

Poole, P.J. (1993) Indigenous Peoples and Biodiversity Protection, in Davis, S.H., *The Social Challenge of Biodiversity Conservation*, Working paper No.1, Global Environment Facility, pp 14-25.

Posey, D.A. 1993. The importance of semi-domesticated species in post contact Amazonia: effects of Kayapo indians on the dispersal of flora and fauna. In Hladik C.M., Hladik, A., Linares, O.F., Pagezey, H., Semple, A. and Hadley, M. (Eds). *Tropical forests, people and food: biocultural interactions and applications to development*. Man and Biosphere, Vol 13, UNESCO, Paris, p. 63-71.

Posey, D.A., 1995. Indigenous peoples and traditional resource rights: a basis for equitable relationships? Proceedings of a workshop held at the Green College Centre for Environmental Policy and Understanding, 28th June 1995, Oxford, UK.

Posey, D.A. and Dutfield, G., 1996. Beyond intellectual property rights: towards traditional resource rights for indigenous and local communities. IDRC and WWF-International, Ottawa and Gland.

Posey, D.A., 1990. Intellectual property rights and just compensation for indigenous knowledge. *Anthropology Today*, 6(4): 13-16.

Pretty, J.N. (1994) "Alternative Systems of Inquiry for Sustainable Agriculture", *IDS Bulletin* 25(2): 37-48, IDS, University of Sussex.

RAFI, 1994. Bioprospecting/Biopiracy and Indigenous Peoples. RAFI Communique. Rural Advancement Foundation International, November 1994, Ottawa, Canada.

Reichhardt, K.L., Mellink, E., Nabhan, G.P. and Rea, A., 1994. Habitat heterogeneity and biodiversity associated with indigenous agriculture in the Sonoran desert. *Ethnoecologica*, 2(3): 21-34.

Reid, W.V., Laird S.A., Meyer C.A., Gamez, R., Sittenfeld, A., Janzen, D.H., Gollin, M.A. and Juma, C., 1993. Biodiversity prospecting: using genetic resources for sustainable development. WRI, Washington.

Salick, J. and Merrick, L.C., 1990. Use and maintenance of genetic resources: crops and their wild relatives. In: Carroll, R.C., Vandermeer, J.H., and Rosset, P.M. (Eds.) *Agroecology*. McGraw-Hill, New York, pp.517-548.

Sarkar, S., Singh, N., Suri, S. and Kothari, A., 1995. Joint management of protected areas in India. Indian Institute of Public Administration, New Delhi, India.

Sayer, J., 1991. Rain forest buffer zones: guidelines for protected area managers. IUCN, Gland, Switzerland.

Scoones, I., Melnyck, M. and Pretty, J.N., 1992. *The Hidden Harvest: wild foods and agricultural systems. A literature review and annotated bibliography*. IIED and WWF-International, London and Gland.

Scoones, I. and Thompson, J. (Eds.), *Beyond Farmer First: Rural People's Knowledge, Agricultural Research and Extension Practice*. Intermediate Technology Publications, London, 301pp.

Shengji, P. (1991) "Conservation of Biological Diversity in Temple-Yards and Holy Hills by the Dai Ethnic Minorities of China, *Ethnobotany*, 3: 27-35.

Shelton, D., 1995. Fair play, fair pay: laws to preserve traditional knowledge and biological resources. WWF-International, Gland.

Stone, R.D., 1991. *Wildlands and human needs; reports from the field*. World Wildlife Fund, Washington, DC.

Thompson, J., 1995. Participatory approaches in government bureaucracies: facilitating the process of institutional change. *World Development*, Vol. 23, in press.

UNEP-CBD, 1994. Convention on Biological Diversity. Text and annexes. UNEP Interim Secretariat for the Convention on Biological Diversity, Geneva, Switzerland.

UNESCO, 1994. Operational guidelines for the implementation of the World Heritage Convention. Paris, UNESCO.

UNDP, 1994. Conserving indigenous knowledge: integrating two systems of innovation. UNDP, New York, USA.

Uphoff, N., 1992. Learning from Gal Oya: Possibilities for participatory development and post-Newtonian science. Cornell University Press, Ithaca.

WCMC (World Conservation Monitoring Centre), 1994. Data sheet compiled by the WCMC, Cambridge.

Wells, M. and Brandon, K. with Hannah, L., 1992. People and parks: linking protected area management with local communities. World Bank, WWF-US and US Agency for International Development, Washington, DC.

West, P.C. and Brechin, S.R., 1991. Resident People and National Parks: social dilemmas and strategies of international conservation, University of Arizona press, Tucson.