ISBN 978-92-64-03431-0
People and Biodiversity Policies
Impacts, Issues and Strategies for Policy Action

Chapter 8

Combining Institutional and Procedural Approaches: Community Involvement in Management Decisions

We now turn to the most profound method for handling distributive issues: the active involvement of indigenous and local communities in the management of biodiversity. This approach combines the procedural elements of communication and participation with the institutional elements of creating rights and ownership in the implementation of the policy. Such an approach dilutes the power and influence of the policy-maker to a significant extent: participation in or even devolution of ongoing management decisions to stakeholders mean that the policy-maker sacrifices control over policy implementation. This can even result in fundamental changes to the policy itself.

As we have seen, distributive problems can arise if nature conservation management is practised with the exclusion of local communities. Thus, many distributive issues can be overcome if local communities are involved in biodiversity management. Involvement and respect of local and indigenous communities in wildlife management are generally-accepted principles that are enshrined in the Convention on Biological Diversity (CBD, 1992, article 8j). There are important distributive impacts in those principles: local communities are able to influence the nature management decisions which affect their lives.

Local and indigenous groups, however, may not be homogenous in their interests. They may have different goals and social objectives that distinguish them regionally, nationally and even internationally. For example, in developing countries poverty reduction and meeting basic needs are likely to be more important than in developed countries, where reducing local unemployment, and sharing economic and other benefits of biodiversity management with the community, might be more important (Roberts and Gautam, 2003).

The requirements for successfully involving indigenous groups and local communities differ from those of other stakeholders in important ways, including:

- **Creating a supportive legal and policy framework** which can legitimise the involvement of local and indigenous communities in biodiversity-related management. Resource ownership, access and user rights, and management plans need to be addressed, as well as the potential for community involvement and collaborative management (Gawler, 2002). A

detailed policy plan or strategy for community involvement can also guide the implementation.

- **Training policy-makers, agencies and park managers** in working with local communities. Governments often lack close relationships with the affected groups and rely on local authorities and agencies that have closer contact with local communities. But these representatives of government authority are not always well-versed in the culture, traditions and working habits of these groups. Preparation for any policy initiatives might therefore include assurances that there is some ability to interact with, and respond to, these groups.
- **Building community capacity for involvement:** local communities may lack the sophistication to work with nature conservation agencies or national park directorates. Training and education may be required for the agency personnel in management and working techniques so there is a capacity to represent and act in the interest of the community.
- **Incorporating conflict resolution mechanisms:** since communities that are going to be involved in nature management may be heterogeneous and have different interests, it is worth understanding potential sources of conflict at an early stage. Understanding cultural and social characteristics of local groups is important for choosing appropriate strategies. In managing natural resources, traditional and local communities may have some issues that deserve attention, namely those surrounding gender, power and equity within the community, traditional ecological knowledge, and the tension between short and long-term goals.
  - **Gender issues:** In many traditional communities, women and men have roles and tasks that help give society its structure. They may also have different perceptions of the need and opportunity to engage in the management of natural resources. There are many factors that influence women's capacity to engage in public work: *e.g.* household status, employment, work related rights, double work burden, education and literacy, health, ability to control fertility, access to financial resources, existence of legal rights, traditions and cultural values, socialisation and self confidence (Buchy *et al.*, 2000). Participation of women in decision-making is usually a sensitive issue in traditional communities, and sufficient time is needed to overcome cultural barriers. However it has generally been associated with positive outcomes because women are more likely to rely on nature for their day-to-day activities.
  - **Power and equity within the community:** communities interacting strongly with nature often have hierarchical structures which mean that some people or families have better access to resources than others, *e.g.* chiefs, wealthier families, families with private property or animals

and households closer to the natural areas. These groups may thus enjoy greater benefits from the existence of a natural area and their positions allow them to act more strongly for their private interests. Therefore when involving local people in wildlife management, it is important to ensure that the poorer and more vulnerable groups have a voice in the decision-making bodies.

- **Traditional ecological knowledge:** local and indigenous communities may have specialised ecological knowledge and traditions that can be useful for biodiversity management. Knowledge of natural processes, species identification, seasonal productivity of certain species and influencing circumstances are often embedded in local culture. Traditional practices, *e.g.* voluntary restrictions on access and use of certain areas, sacred or no use sites, zoning, taboos in certain seasons, minimum size of stock to be saved, etc., may have evolved through long traditions of experimentation and experience (Berkes, 1999; Gawler, 2002). This valuable knowledge can be combined with modern scientific methods and form the basis for joint work and monitoring.
- **Short and long-term goals:** an important caveat to community or local management can be the problem of maintaining behaviour that is focused on long-term outcomes. For example, assigning private rights over a resource that had been public and where social norms had made that public resource sustainable, may induce shorter term behaviour centred on private interests. "Selling-out" to commercial interests may be in an individual's interest, but not in the community's – the rate at which cash-poor individuals discount the future will be higher than that of societies. This may lead to destructive land use (*e.g.* burning of forests to clear land, or selling it to private commercial interests, Chapin, 2004) that neglects the public aspect of the resource.

8.1. Forms of community involvement

There are many forms and degrees of involvement by communities. They are influenced by traditions within communities, systems of property rights, and even by the administrative authority within a country. In the following section we distinguish three main forms: community-based management, joint management of natural resources by communities and government agencies, and management by stakeholder bodies.

8.1.1. Community-based management

One response to the need for community involvement has been the implementation of community-based management or collective management in which land, or a biodiversity-rich resource, is a common resource managed

by the local community. For this to work well, good ties are needed between and within communities.

Community-based management is more common in developing countries, where a greater number of traditional settlements exist. Some examples can also be found in those OECD countries where Aboriginal or indigenous communities still live in reserves or in protected areas (*e.g.* Canada, USA, Mexico, Finland and Sweden). The rights of these people and their participation in management are key in many of these countries.

There are several ways that community-based management can be organised and implemented. Local administrative and management bodies (*e.g.* the village council) might be set up by local people to prepare and implement the management plan for the area. Access and user rights (*e.g.* fishing, hunting, collection of wood) can be created by the government where the administrative body is empowered with the assignment of these rights. In some cases, subsidies are also provided by the government to compensate for lost opportunities. Revenues from the area (*e.g.* tourism, trophy hunting) can be used to support conservation objectives.

Empirical evidence on equity and distributional benefits is rather mixed when it comes to respecting the rights of indigenous and local groups to manage resources themselves. It is important to specifically account for those who are included and excluded from the decision-making body. It is also important to delve into traditions of resource use and, where necessary, even put in place restrictions if economic incentives favour destructive use. It might be useful to explore other forms of land use such as private land for individuals from the community. The inclusion of poorer and/or vulnerable resource users (*e.g.* women and youth) in community management as well as decision-making bodies also has been shown to be important for equitable benefit sharing (Mahatny and Russel, 2002; Adhikari *et al.*, 2004).

8.1.2. Joint management of natural resources by community and governmental agency/park administration

In joint management of natural resources, local communities and administrative bodies share some management responsibilities. It is important that the tenure, ownership and user rights over the resource are clear. This form of management is most suitable when the area is under the direct control of the parties (Buchy *et al.*, 2000). The rights and responsibilities can be laid down in a contract between the conservation authority/body and the local communities. The time frame might be very long, *e.g.* 99 years for some Australian national parks.

Joint management committees can be set up which are responsible for drawing up management plans and making decisions about park

management (Reid *et al.*, 2004). They work best when there is rough equality of power and influence between the parties. Local or indigenous communities can take on certain management tasks, *e.g.* fire management, game management, monitoring of habitats. In return for these activities they are assigned certain rights, *e.g.* hunting, fishing, collecting wild plants or wood for subsistence use. In this way local knowledge and competence in nature management can be made best use of. It is important to acknowledge the difference between the working cultures of indigenous people and park managers when assigning tasks. The approach is likely to work best when local people are responsible for those tasks which are part of their culture.

Some examples of joint management are parks in South Africa and Australia (Reid *et al.*, 2004). There are also examples from North America, where more than two partners (*e.g.* the management body and local communities, plus recreational wildlife users and subsistence users) are involved in the management of the area (Buchy *et al.*, 2000).

8.1.3. Management by stakeholder bodies

Management by stakeholder bodies is another common way of involving local communities in the management of natural resources. In this case a set of stakeholders, including the representatives of governmental bodies, local businesses, local communities and civil organisations, form the advisory board of a natural area. They are usually responsible for making or revising strategic plans and for supervising the management of the area. The main characteristic of this form of management is that there is usually mixed ownership and no full control by any individual board member over the use of the resources (Buchy *et al.*, 2000).

This is a less intensive public participation method for biodiversity management than the other methods, but it also can be an effective way to provide benefits for the local community through assigning access and user rights, lowering entrance and user fees, selling local products and services from the area, employment possibilities or increased income. The interests and needs of local people can be expressed on the stakeholder board and through collaborative actions. This approach has been working in some countries, *e.g.* regional parks in France, watershed/catchment management in the USA.

Table 8.1 summarises the main characteristics of the three forms of community involvement; many of the examples are discussed in further detail below.

Table 8.1. **Main characteristics of the three forms of community involvement**

Characteristics	Community-based management	Joint management of community and governmental agency	Management by stakeholder bodies
Ownership of the area	Community ownership or state ownership but handing back the property or user rights to the communities	Community ownership (sometimes the land is leased back to the state) or state ownership with special community rights	Mixed ownership
Legal regulation required	For property rights, framework for community management	For property rights and need to sign a contract between the parties (may be a requirement of the contract as well)	Potential for stakeholder bodies
Degree of community involvement	The whole community participates	Large part of the community participates (both directly and indirectly)	Only part of the community participates (through representatives or with direct involvement in some activities)
Where is the balance of power crucial?	Within the community (poor, vulnerable groups, young people, women)	In the community as a whole, and within the community (poor, vulnerable groups, young people, women)	Between the stakeholders
Managing distributive issues	Fair and balanced representation is required in the decision-making body. Sometimes outside help is needed to overcome cultural barriers	Special rights need to be assigned to the community Fair representation is needed in the decision-making body	Fair and balanced representation is needed in the decision-making bodies
Examples	Saami villages, Sweden. Community-based participation in wetland conservation, West Kalimantan, Indonesia. CAMPFIRE Program of Zimbabwe	Co-management schemes in Aboriginal national parks (*e.g.* Kakadu, Australia)	Waswanipi Cree Model Forest, Canada Community forest partnership, England Watershed management with community participation (Conasauga River Watershed), USA Regional nature parks, France Wetland co-management in the Djoudj National Park, Senegal

8.2. Facilitating community involvement

There are many ways the government or its bodies can foster or facilitate community involvement in the management of natural resources. Some examples are as follows:

- **Technical assistance:** local communities may lack training in assessment, management or monitoring. Assistance can be provided with scientific knowledge, models, techniques (*e.g.* geographical information systems) or the use of modern equipment. Guidelines can be prepared and training can be organised to help the communities.

- **Co-ordination:** community involvement can be more effective if it is part of a nationally-organised framework: *e.g.* community forest programmes, watershed or catchment programmes or Aboriginal management programmes. Some examples include Canada's Model Forest Program, England's National Community Forest Partnership and the USA Watershed Protection and Restoration Program. When such national frameworks exist, experiences at the local level can be shared more widely, *e.g.* through regional and national discussion forums.
- **Financial assistance:** community-based, shared or stakeholder management can be aided by financial assistance. Large restoration projects especially might need financial support to be successful. Projects sometimes need seed money to start a co-operative operation (*e.g.* paying the members of the decision-making body). In some countries (*e.g.* the US or Canada) grant programmes are launched to help these community-based efforts. In other countries, benefits from the area partly go to local communities: *e.g.* park fees in Uganda, buffer zone fees in Nepal and tourist revenues in the CAMPFIRE programme, Zimbabwe.
- **Clearinghouse mechanism:** a clearinghouse mechanism can help spread information about local and regional experiences, or the results of projects or discussion forums.

8.3. Examples of different forms of community involvement

Below are just a few examples of the many different types of management and state assistance both in developed and developing countries.

8.3.1. Community-based management examples

Rights of Saami people in the World Heritage site, Lapponia, Sweden (summarised from Lusty, 2000)

The Lapponian Area covers almost 9 400 km^2 and lies in Norrbotten county, in the circumpolar zone of Northern Sweden. It is inhabited by the Saami people, who arrived in the area between 4 and 5 000 years ago. For thousands of years, the Saami lived mainly by hunting wild reindeer for fur and food. They led nomadic lifestyles, following the reindeers' annual grazing cycles. A few Saami families still migrate and maintain their summer residence in small cabins. The majority, however, now lives in villages. They have a rich folk culture with traditional handicrafts, clothing and music, which, together with their language, are distinctively different from those of other ethnic groups in Scandinavia. The Saami people's rights are protected by laws dating back to 1886. All reindeer breeders belong to a Saami village, which represents an administrative and economic unit. The members decide

how herds are to be managed within the confines of the Reindeer Husbandry Act (see Section 6.4.2), which sets a maximum allowance of 280 000 reindeer for the whole of Sweden. The Saami village can also decide how many reindeer each of their individual members is allowed to keep. There are government subsidies available for herdsmen, based on kilograms of meat. Saami also have fishing and hunting rights.

This is a good example of how an indigenous community can have rights to use and manage natural resources within the rules of the state (*e.g.* maximum allowances) and with the state's financial support (subsidies to herdsmen). Distributive issues are settled between the state and the community and also within the community (see also the conflict case in Section 6.4.2, which describes how these rights were violated).

Customary rules in community-based wetland conservation, West Kalimantan, Indonesia (Wickham, 1997)

The Danau Sentarium Wildlife Reserve comprises 125 000 hectares of lakes and temporarily and permanently flooded lowland forest in the north-central region of West Kalimantan, Indonesia. Water levels fluctuate during the year, and there are three months without any water at all. The reserve supports a diverse flora and fauna, and unique habitats. Around 3 500 people live in 40 permanent and seasonal villages within the watershed. Research in the area showed that customary rules and regulations for resource use and sanctions for breaking them have existed in the communities for centuries (Wickham, 1997). Those that are in line with current regulations could be an integral part of community-based nature conservation strategies relying on self-regulation. Around 40 such rules were identified in the research, some of which are listed in Table 8.2.

Table 8.2. **Overview of various regulated resources in Danau Wildlife Reserve**

Forest resources regulations	Fishing equipment regulations	Selected fish regulations
Honey	Fish nets (type/size)	Jelawat (*Leptobarus hoeveni*)
Rattan	Fish traps (type/size)	Betutuk (*Oxyeleotris marmorata*)
Hunting	Other fish equipment	Siluk (*Scleropages formosus*)
Forest fires	Fishing with electricity	Toman (*Ophicephalus micropeltes*)
Logging	Fishing with poison	

Source: Wickham, 1997.

This case is a good example of where traditional restrictions on the use of nature in a community can be used to set rules for community-based nature management. If these restrictions and self regulation are accepted by the community, no distributive problems are likely to arise.

Zimbabwe's CAMPFIRE Programme (Alexander and McGregor, 2000; Jones and Murphree, 2001; Mashinya, 2007)

Early conservation laws in Zimbabwe outlawed hunting and prohibited local communities from managing or benefiting from wildlife. Private farm owners were given the right as "appropriate authorities" to use wildlife on their land by the Parks and Wildlife Act of 1975, while users of communal lands* were not. This led to conflicts between the government who "owned" the wildlife on communal land, and the people residing on that land who were not allowed to use the wildlife for their subsistence, and who also suffered damage to their crops or livestock by wildlife. The Park and Wildlife Act was amended in 1982 to allow "appropriate authority" status to be granted to local rural district councils (RDCs), enabling them to legally exploit natural resources within their jurisdictions.

The CAMPFIRE programme (Communal Areas Management Programme for Indigenous Resources) was developed after this amendment to promote greater local control over the management and use of biological resources in communal areas. This programme sought the participation of local communities in generating wildlife revenues through sustainable use, rather than simply being the passive recipients of money via RDCs (Alexander and McGregor, 2000). Due to the previously rapid conversion of wildlife habitat to agriculture and grazing, there was interest in creating economic incentives for preserving wildlife and its habitat. The programme had several objectives, including voluntary participation by communities in developing long-term solutions to resource management problems; introducing new systems of group ownership and rights to natural resources for resident communities; providing appropriate institutions for resource management and exploitation by resident communities for their direct benefit; and providing assistance to communities wishing to join the programme. The project was also designed to provide money from tourists and both meat and revenue from trophy-hunters (Young *et al.*, 2001). At least 50% of these revenues were to go directly to communities (Jones and Murphree, 2001).

Despite the appealing goals of this programme, its implementation has been criticised (Alexander and McGregor, 2000). Recent research shows that after donor funding ended in 2000 and Zimbabwe's severe national political and economic crises began, the extent and quality of community participation has declined sharply and benefits were captured by local elites. The loss of NGO support has also had negative effects on the success of the programme (Mashinya, 2007).

* Areas which were held in trust by the government for indigenous tribes on a collective basis.

The CAMPFIRE programme was a brave attempt to revitalise community-based biodiversity management in a way that also addressed distributive issues (*e.g.* creating use and benefit-sharing rights). However, democratic instability and the withdrawal of international financial support can have important negative effects on both process and outcome.

8.3.2. Joint management between community and/governmental agency: some examples

Contracts with Aboriginal people in Kakadu National Park, Australia (Grady, 2000; Reid et al.*, 2004)*

Kakadu National Park (Table 8.3) is situated in the northern part of Australia and covers 19 804 km^2. It is also a World Heritage Site. Approximately 50% of the land in the park is held as inalienable freehold land by Aboriginal groups. The Aboriginal people have been continuously present in the area for more than 50 000 years. Having lost their lands to newcomers, they were reinstated in a 1976 act of government. The estimated number of Aboriginal people in the area was 1 200 in 1991. There are about 16 clans of traditional owners widely scattered throughout the park. New legislation, the *Environment Protection and Biodiversity Conservation Act (1999)*, recognises the critical role of indigenous people in the conservation and sustainable use of ecological resources, and in holding traditional knowledge.

Since the act came into force, contracts have been signed with the Aboriginal groups governing management of the area. Parks Australia (the governmental agency managing national parks) and the Aboriginal traditional owners jointly manage the park, and Parks Australia covers the cost of it. The role of the Aboriginal groups in the management and administration of the

Table 8.3. **Key characteristics of Kakadu National Park**

Characteristics	Values in Kakadu National Park
Contract signed and duration	Stage I. 1979, Stage II:1991, Stage III.1987,1989,1991 (100 years)
Size	1.9 million ha
Vegetation	Rainforest, grasslands, wooded savannas, eucalyptus forests and mangroves
Owners	Bininj/Mungguy traditional owners (about 200-300 people represented by three Aboriginal land trusts)
Conservation authority financial benefits and costs	Costs AUD 11 million to AUD 14 million per annum to manage and government provides 74% of the park budget
Financial benefits to landowners	Lease money and 39% of income from tourism (totalling AUD 1.3 million in 2000)

Source: Reid *et al.*, 2004.

park is laid down in the management plan. Their former advisory role has become a more formal management role. Five local Aboriginal associations are set up in Kakadu, representing the different political interests of different clans, and they oversee aspects of financial investment, local business, enterprise ventures and other businesses for their members. The Aboriginal people are involved in the management of fire, the native vegetation structure and habitats. Their traditional knowledge of land management is critical for sustaining the habitats. They are also able to practise their traditional rights of gathering native plants for food and handicrafts, and of hunting and fishing. They consult with governmental bodies about the sustainable take levels of different species (Grady, 2000; Reid *et al.*, 2004).

The operation of Kakadu National Park is a good example of co-management and benefit-sharing with the Aboriginal community. Distributive issues are settled in the contract (participatory management, rights to use the area and sharing the revenues).

8.3.3. Stakeholder management examples

Canada's Model Forest Program (Canadian Model Forest Network, 2006)

Canada's Model Forest Program was launched in 1992 by the Government of Canada through the Canadian Forest Service (CFS). The programme is one of the world's largest experiments in sustainable forest management. A model forest is an area where the latest forestry techniques are researched, developed, applied and monitored. It operates through a grassroots partnership that includes a variety of stakeholders who value the forest for different reasons. Canada's Model Forest Program currently involves 11 model forests ranging in size from just over 100 000 hectares to nearly 8 million hectares.

The main objectives of the programme are: *i)* to increase the development and adoption of sustainable forest management systems and tools within and beyond model forest boundaries; *ii)* to share knowledge gained through the programme at local, regional and national levels; *iii)* to strengthen model forest network activities in support of Canada's sustainable forest management priorities; and *iv)* to increase opportunities for local-level participation in sustainable forest management.

Model forests build partnerships with a wide range of individuals and organisations whose interests in the forest may vary, but who share the common goal of sustainable forest management. Partners include: scientists, Aboriginal communities, environmentalists, forest industry, community groups, landowners, national parks, academic institutions, governments, recreation enthusiasts and others interested in sustainable forest management. Partners invest significant time, effort and resources learning

about and appreciating each other's views and expertise. This allows consensus-driven partnerships where decision-making is shared to achieve social, environmental and economic sustainability in forest management.

Each model forest is managed by a partnership made up of local individuals and organisations. Their goal is to make sure that the forest continues to be a healthy and dynamic part of their community. Successes at the local level can then be shared with other model forests through Canada's Model Forest Network. The success of Canada's Model Forest Program has attracted worldwide attention. An International Model Forest is now in place, with 20 model forests in 15 countries. Several other countries have also expressed an interest in joining the network.

Canada's Model Forest Program is a good example of stakeholder management. The participatory decision-making method addresses distributive issues and helps find the best solutions for all stakeholders. Networking and information sharing are also useful elements of the programme.

Waswanipi Cree Model Forest, Québec, Canada (Roberts and Gautam, 2003; Pelletier, 2002)

In Canada there is a legal basis allowing local communities to sign forest management agreements with provincial governments to create a community forest. The Waswanipi are local tribes in Québec who successfully operate a community forest management system called the Waswanipi Cree Model Forest. Their vision is to link traditional tribal ties with the development of resource-based activities, such as forestry, tourism and recreation. It tries to combine traditional ecological knowledge with applied research and technologies to develop new sustainable forest management practices (Roberts and Gautam, 2003).

Located 800 kilometres north of Montreal, Waswanipi is the southern-most of the Cree communities in Québec. The people of Waswanipi have lived in the boreal forests since time immemorial. Their land base extends over 35 000 square kilometres and is divided into 52 ancestral family hunting territories, called trap-lines. The Crees have benefited from the boreal forest for millennia, while successfully maintaining a healthy and viable economy based primarily on hunting, fishing and trapping. It is only recently that outsiders have seen the potential for extracting natural resources and forestry companies have established a permanent presence in the area.

The Waswanipi Cree Model Forest is a special project where community participation, sustainable forest management and community/technology transfer play a major role. A Working Committee (of 20 people from 13 different organisations) was created to make strategic decisions for the

project. Crees favoured co-management, where they participate at all levels of forest management planning (laws and regulations, 25-year plan, 5-year plan, yearly plan) and monitoring. The co-management approach was accepted by the committee as a means of improving forest management planning. After setting the main tasks, a Development Team was created which involved representatives of three forestry companies, the Government of Québec, and local communities. The learning experience has been successful, and many problems (*e.g.* communication, balance of power, timing) have been gradually overcome or mitigated (Pelletier, 2002).

Although the Waswanipi operate a community forest, this case shows that the operation can be improved by involving more stakeholders. Through negotiation and the participatory planning process, distributive issues have been raised and settled because the plans have been accepted by all the groups involved.

England's National Community Forest Partnership (www.communityforest.org.uk)

The National Community Forest Partnership is made up of 12 Community Forests in England with 58 local authority partners, the Forestry Commission and the Countryside Agency. The 12 forests are located in and around major towns and cities, with each forest working with the local authorities, government agencies and a variety of partners within their operating area. The Community Forests all benefit from a dedicated local team or organisation working with a variety of partnerships and delivery agencies to carry out projects in the area. They are particularly effective in the protection and management of sensitive areas like semi-natural woodland, moss-lands, heather moorland and wildflower areas, river systems, unimproved grassland, Sites of Special Scientific Interest, Sites of Biological Importance and Local Nature Reserves. Involvement of local people in planning and implementation and their training is an important part of the programme.

The community forests are good examples of stakeholder management, where local people participate as well. Local communities benefit from the improved state of local forests, and they probably voluntarily contribute to the costs of the projects.

Watershed management with community participation in the USA (EPA, 2001)

The Clean Water Action Plan was announced in the USA in 1998 to improve water quality nationwide. The action plan seeks to support existing local watershed partnerships to address critical local problems, develop

restoration strategies and implement solutions that improve the watersheds' health. A watershed (also known as a catchment or basin) is a geographical area in which all the falling water drains to a common water body, *i.e.* river, lake or stream. The watershed approach uses watersheds to co-ordinate the management of water resources. It integrates biology, chemistry, economics and social considerations into decision-making. A successful watershed approach includes the support, participation and leadership of local stakeholders and land users. A watershed approach recognises needs for water supply, water quality, flood control, navigation, hydropower generation, fisheries, biodiversity, habitat preservation and recreation, and recognises that these needs often compete. It addresses natural resource issues that cross jurisdictions and political boundaries (EPA, 2001; Clean Water Action Plan, 2000).

Seven themes of watershed management are commonly found: *a)* increasing public education and awareness; *b)* developing new partnerships and co-ordinating efforts; *c)* collecting necessary information through monitoring and research; *d)* establishing appropriate plans and priorities; *e)* obtaining funding and technical assistance; *f)* implementing solutions; and *g)* evaluating the results (EPA, 2001).

There are over 3 000 local watershed groups. Watershed partnership can include any person or group interested in watershed health, *e.g.* landowners, elected officials, representatives of federal, tribal, state and local government agencies, agricultural organisations, business organisations, environmental organisations, student groups and senior citizen organisations. It ensures that activities carried out are based on mutual understanding and consensus. Various federal agencies also encourage local watershed efforts with financial and technical support. A Regional Watershed Coordination Team was established by regional offices of federal government agencies in 12 river basins. It also helps the watershed groups by co-ordinating governmental efforts (EPA, 2001).

Wetland co-management in the Djoudj National Park, Senegal (Diouf, 2002 in Gawler, 2002)

The Djoudj National Park was created in the delta ecosystem of the Senegal River in 1971. The population of the area is characterised by dispersed settlements, and there are now eight villages around the park. The main socio-economic activities are raising livestock, agriculture, fishing, handicrafts, trading and hunting. The population was removed from the area when the park was initially established, but this exclusionary policy was changed after 1994 with the introduction of a new participatory management policy. The new policy aimed to give value to defined spaces, regenerate natural resources and restore the environment, define customary law, and

give value to local environmental knowledge. A five-year integrated management plan was developed through consultation with the relevant stakeholders (local populations, state technical services, NGOs, research institutes and international partners).

Four committees are responsible for the implementation of the management plan: Orientation, Scientific, Park Management and Village Conservator. The park's Orientation Committee was responsible for gathering support for the management plan, and for making the major decisions affecting the park: *e.g.* investments within the buffer zones. The Scientific Committee prioritises and approves scientific and technical research in the area and investments to be carried out within and around the area. The members of the Park Management Committee are the main stakeholders of the area, including two representatives of each village in the buffer zone. This committee influences the implementation of the management plan. Effective community involvement is secured by the operation of the Inter-Village Conservation Committee, which co-ordinates specialised committees on ecotourism, waterways, health and forestry/pastoralism. These consultation structures have facilitated a closer relationship between the local people and the park agents.

Change in the planning and operation of the Djoudj National Park illustrates how previously excluded local communities can be involved in the park's strategic planning and operation once again. Participation in all dimensions of decision-making can ensure that distributive issues are discussed and solved.

Residents' task force for water quality improvement in Korea (OECD, 2006)

The Daepho River is a 9 km-long stream flowing into the Nakdong River in Korea. Until the early 1970s, the Daepho could still be used as a source for potable water without treatment. But water quality deteriorated due to waste water discharge from nearby residential areas and local industrial firms, livestock enterprises and restaurants. In 1997, the local authority drew up a water management plan and announced its intention to designate the area as a water source protection area. Local residents protested against the restrictions, and after some negotiation an agreement emerged that if local residents could revive the river, the government might reconsider the designation.

As a result, the residents formed a "task force for water quality improvement" and started to voluntarily clean up the river. Each household contributed a certain amount of money every month to raise funds. Women's associations organised campaigns in each village to save water and reduce the

use of detergents. The city council installed settling tanks for every household and restaurant to prevent food waste discharge into the river. Livestock enterprises installed pre-treatment facilities. The task force also mechanically cleaned up the river. Artificial wetlands were planted with parsley dropwort to filter domestic waste water.

Within a year, these efforts improved the water quality of the Daepho to Class I. The previously cloudy water turned clear, enabling crayfish, endangered shellfish and other fish to return. The task force continued its efforts and in 2002 a voluntary agreement was signed in which the citizens made a commitment to maintain the water quality level and in return the government deferred the designation of the water source protection area.

The Korean case shows that voluntary joint action by citizens can be more effective than implementing a strict regulation. The final result is good water quality with increasing river biodiversity and good co-operation among citizens.

8.3.4. Benefit sharing with communities involved in nature conservation: some examples

In some developing countries, policy involves creating a protected area with restricted access and charging fees to visitors and other users for accessing the area's resources. The institutional innovation in these programmes is to channel parts of these revenues back to local communities as compensation. From a distributive perspective, the relationship of this compensation to the burden imposed on the local communities determines whether equity issues are adequately addressed. Additionally, these schemes are not unproblematic, since rather than receiving predictable streams of compensation, local communities receive flows that vary with the total revenues generated. If communities are risk-averse, the additional well-being generated by these funds will therefore be lower than their cash value.

Park fees channelled back to local communities in Uganda (Musinguzi, 2006)

The Mgahinga Gorilla National Park is home to a large variety of wildlife, including about half the world's critically endangered mountain gorillas. The government of Uganda passed a law in 1996 requiring the park authority to contribute 20% of the proceeds from park entrance fees to local communities adjacent to the park. The government did this in an effort to help local people appreciate the benefits stemming from the park and from gorilla tourism. In addition, communities near the park have had conservation training from some non-governmental organisations such as CARE. Grants have also been given for building primary schools, health clinics and improving roads.

Studies show that people's attitudes have generally improved since these initiatives were implemented.

Sharing buffer zone fees with local communities in Langtang National Park, Nepal (adapted from CBD, 2005: www.biodiv.org/doc/world/np/np-nr-me-en.doc)

In 1993, Nepal introduced an innovative management system by establishing buffer zones in and around protected areas and sharing revenue earned by national parks with local inhabitants. This was made possible by a provision made in the fourth amendment to the *National Parks and Wildlife Conservation (NPWC) Act (1973)*. According to the provision, the buffer zone communities are entitled to receive 30 to 50% of the total annual revenue generated from the protected areas.

Langtang National Park (LNP) is a good example of conservation and sustainable use of mountain biodiversity. The park, which covers 1 710 km^2, was declared in 1976 to conserve endangered species such as the musk deer (*Moschus chryogaster*), red panda (*Ailurus fulgens*), snow leopard (*Uncia uncia*) and their habitats (including the watersheds of Trishuli River and mountain pastures), as well as local cultural heritage. The other objective was to promote sustainable mountain tourism to benefit local people and improve their living conditions. The national park is located about 40 km north of Kathmandu, the capital of Nepal, and spread over three mountain districts.

The park's buffer zone was defined in 1998 and covers an area of 420 km^2, runs through three districts and includes 34 village development committees (VDCs). The government has been ploughing back 50% of the total revenue earned by the park into the buffer zone for community development activities. As of October 2005, the Buffer Zone Management Committee (BZMC) had mobilised NPR 14.1 million (1USD = NPR 71) for biodiversity conservation and socio-economic development programmes for buffer zone communities. Apart from government support, the legal provision also encourages conservation partners to complement the park's efforts. A number of national and international NGOs have also joined hands with the national park and buffer zone management council for community development activities.

This case is a good example of how distributive issues can be settled through a benefit-sharing programme. It helps raise the living standards of local communities whilst also making them more committed to biodiversity programmes.

ISBN 978-92-64-03431-0
People and Biodiversity Policies
Impacts, Issues and Strategies for Policy Action

References

Adger, W.N and C. Luttrell (2000), "Property Rights and the Utilisation of Wetlands", *Ecological Economics,* 35 (2000) 75-89.

Adger, W.N. *et al*. (1997), "Property Rights and the Social Incidence of Mangrove Conversion in Vietnam", *CSERGE Working Paper* GEC 97-21.

Adhikari, B. (2002), "Household Characteristics and Common Property Forest Use: Complementarities and Contradictions", *Journal of Forestry and Livelihoods,* 2: 3-14.

Adhikari, B. (2005), "Poverty, Property Rights and Collective Action: Understanding the Distributive Aspects of Common Property Resource Management", *Environment and Development Economics* 10: 7-31.

Adhikari, B., S. di Falco and J.C. Lovett (2004), "Household Characteristics and Forest Dependency: Evidence from Common Property Forest Management in Nepal", *Ecological Economics*, 48:245 257.

Aggarwal, R.M. and T.A. Narayan (2004), "Does Inequality Lead to Greater Efficiency in the Use of Local Commons? The Role of Strategic Investments in Capacity", *Journal of Environmental Economics and Management* 47, 163-182.

Alavalapati, J.R.R., W.L. Adamowicz and W.A. White (1999), "Distributive Impacts of Forest Resource Policies in Alberta", *Forest Science* 45(3), 342-348.

Albers H.J. and E. Grinspoon (1997), "A Comparison of the Enforcement of Access Restrictions Between Xishuangbanna Nature Reserve (China) and Khao Yai National Park (Thailand)", *Environ. Conserv.* 24:351-62.

Aldred, J. and M. Jacobs (2000), "Citizens and Wetlands: Evaluating the Ely Citizens' Jury", *Ecological Economics*, 34:217 232.

Alexander, J. and J.-A. McGregor (2000), "Wildlife and Politics: CAMPFIRE in Zimbabwe", *Development and Change* 31(3), 605-627.

Alix-Garcia, J., A. de Janvry and E. Sadoulet (2004), "A Tale of Two Communities: Explaining Deforestation in Mexico", *World Development* 33(2), 219-235.

Allali-Puz H., E. Béchaux and C. Jenkins (2003), "Governance et democratic locale dans les Parcs Naturels Régionaux de France", *Policy Matters* 12:225-237.

Allegretti, M. (1990), "Extractive Reserves: An Alternative for Reconciling Development and Environmental Conservation in Amazonia", in Anderson, A. (ed.) (1990) *Alternatives to Deforestation: Steps Toward Sustainable Use of the Amazon Rain Forest*, Columbia University Press, New York.

Allegretti, M. (2002), *A construção social de políticas ambientais: Chico Mendes e o Movimento dos Seringueiro,* Centro de Desenvolvimento Sustentável, Universidade de Brasília PhD Thesis, Brasília, Brazil.

Allgood, S. and A. Snow (1998), "The Marginal Cost of Raising Tax Revenue and Redistributing Income", *Journal of Political Economy* 106(6), 1246-1273.

Alston, L. *et al.* (1999), "A model of rural conflict: violence and land reform policy in Brazil", *Environment and Development Economics* 4, 135-160.

Amend, S. and T. Amend (1995), *National Parks Without People? The South American Experience,* IUCN, Gland, Switzerland.

Amiel, Y., J. Creedy and S. Hurn (1999), "Measuring Inequality Aversion", *Scandinavian Journal of Economics* 101 (1), 83-96.

Andersen, I.-E. and B. Jaeger (1999), "Danish Participatory Models: Scenario Workshops and Consensus Conferences: Towards More Democratic Decision-making", *Science and Public Policy*, 5: 331-340.

Angelsen, A., and S. Wunder (2003), *Exploring the Forest-Poverty Link: Key Concepts, Issues and Research Implications,* Center for International Forestry Research, Bogor, Indonesia.

Arnot, C., P. Boxall and S.B. Cash (2006), "Do Ethical Consumers Care About Price? A Revealed Preference Analysis of Fair Trade Coffee Purchases", *Canadian Journal of Agricultural Economics/Revue canadienne d'agroéconomie* 54 (4), 555-565.

Arrow, K.J. (1950), "A Difficulty in the Concept of Social Welfare", *Journal of Political Economy* 58(4) (August, 1950), 328-346.

Asheim, G.B., W. Buchholz and B. Tungodden (2001), "Justifying Sustainability", *Journal of Environmental Economics and Management* 41(3), 252-268.

Atkinson, A. and F. Bourguignon (1982), "The Comparison of Multi-Dimensioned Distributions of Economic Status", *Review of Economic Studies* 49 (1982), 183-201.

Atkinson, A.B. (1970), "On the Measurement of Inequality", *Journal of Economic Theory* 2, 244-263.

Baland, J.-M. and J.-P. Platteau (1997), "Wealth Inequality and Efficiency in the Commons Part I: The Unregulated Case", *Oxford Economic Papers* 49, 451-482.

Baland, J.-M. and J.-P. Platteau (1998), "Wealth Inequality and Efficiency in the Commons Part II: The Regulated Case", *Oxford Economic Papers* 50, 1-22.

Balmford, A. *et al.* (2000), "Integrating Conservation Costs into International Priority Setting", *Conservation Biology* 11, 597-605.

Balmford, A. *et al.* (2001), "Conservation Conflicts Across Africa", *Science* 291 (30 March), 2616-2619.

Balmford, A., *et al.* (2003), "Global Variation in Terrestrial Conservation Costs, Conservation Benefits, and Unmet Conservation Needs", *Proceedings of the National Academy of Sciences of the United States of America* 100, 1046-1050.

Balmford, A. and T. Whitten (2003), "Who Should Pay for Tropical Conservation, and How Could the Costs be Met?" *Oryx* 37, 238-250.

Bannon, I. and P. Collier (2003), "Natural Resources and Conflict: What We Can Do", in *Natural Resources and Violent Conflict: Options and Actions*, World Bank, Washington, DC.

Barbier, E.B. and M. Cox (2004), "An Economic Analysis of Shrimp Farm Expansion and Mangrove Conservation in Thailand", *Land Economics* 80(3), 389-407.

Barbier, E.B., and M. Rauscher (1995), "Policies to Control Tropical Deforestation: Trade Intervention *versus* Transfers", in C. Perring *et al.* (ed.), *Biodiversity Loss: Economic and Ecological Issues*, Cambridge University Press, Cambridge.

Bardhan. P. (1996), "Efficiency, Equity and Poverty Alleviation: Policy Issues in Less Developed Countries", *Economic Journal* 106, 1344-1356.

Barrett, C.B., D.R. Lee and J.G. McPeak, (2005), "Institutional Arrangements for Rural Poverty Reduction and Resource Conservation", *World Development,* Vol. 33(2), 193-197.

Baumol, W.J. and W.E. Oates (1988), *The Theory of Environmental Policy*, Cambridge University Press, Cambridge.

Bedunah D.J. and S.M. Schmidt (2004), "Pastoralism and Protected Area Management in Mongolia's Gobi Gurvansaikhan National Park", *Dev. Change* 35(1): 167-91.

Bellon, M.R. and J.E. Taylor (1993), "Folk Soil Taxonomy and the Partial Adoption of New Seed Varieties", *Economic Development and Cultural Change*, 41(4), 763-786.

Bergstrom, T.C. and R.P. Goodman (1973), "Private Demands for Public Goods", *American Economic Review,* 63(3), 280-296.

Bergstrom, T., L. Blume and H. Varian (1986), "On the Private Provision of Public Goods", *Journal of Public Economics* 29, 25-49.

Berkes, F. (1999), *Sacred Ecology: Traditional Ecological Knowledge and Resource Management*, Taylor and Francis, Philadelphia, USA.

Beukering, P.H. van, H. Cesara and M.A. Janssen (2003), "Economic Valuation of the Leuser National Park on Sumatra, Indonesia", *Ecological Economics* 44(1), February 2003, 43-62.

Bingham, G. (1986), *Resolving Environmental Disputes, A Decade of Experience,* The Conservation Foundation, Washington DC.

Bojo, J. and R.C. Reddy (2002), *Poverty Reduction Strategies and Environment: A Review of 40 Interim and Full Poverty Reduction Strategy Papers*, World Bank, Washington D.C.

Borcherding, T.E. and R.T. Deacon (1972), "Demand for Services of Non-Federal Governments", *American Economic Review*, 62(5), 891-901.

Borrini-Feyerabend, G. *et al.* (2004), *Sharing Power: Learning by Doing in Co-management of Natural Resources Throughout the World*, IIED and IUCN/CEESP/CMWG, Cenesta, Tehran.

Bovenberg, A.L. and B.J. Heijdra (1998), "Environmental Tax Policy and Intergenerational Distribution", *Journal of Public Economics* 67, 1-24.

Boyce, J.K. (2002), *The Political Economy of the Environment*, Edward Elgar, Cheltenham, UK

Brainard, J.S. *et al.* (2006), "Exposure to Environmental Urban Noise Pollution in Birmingham, UK", in: Serret and Johnstone (eds.), *The Distributional Effects of Environmental Policy*, Edward Elgar, Cheltenham, UK.

Brett, C. and M. Keen (2000), "Political Uncertainty and the Earmarking of Environmental Taxes", *Journal of Public Economics* 75, 315-340.

Brooks, N and R. Sethi (1997), "The Distribution of Pollution: Community Characteristics and Exposure to Air Toxics", *Journal of Environmental Economics and Management*, 32, 233-250.

Broome, J. (1992), *Counting the Cost of Global Warming*, White Horse Press, Cambridge.

Brown, K. (1998), "The Political Ecology of Biodiversity, Conservation and Development in Nepal's Terai: Confused Meanings, Means and Ends", *Ecological Economics* 24(1), 73-87.

Brown, K. and S. Rosendo (2000), "Environmentalists, Rubber Tappers and Empowerment: The Politics and Economics of Extractive Reserves", *Development and Change*, 31: 201-227.

Brown, K. *et al.* (2001), "Trade-off Analysis for Marine Protected Area Management", *Ecological Economics*, 37: 417-434.

Bruner A. *et al.* (2001), "Effectiveness of Parks in Protecting Tropical Biodiversity", *Science* 291(5501): 125-28.

Buchanan, J.M. (1963), "The Economics of Earmarked Taxes", *Journal of Political Economy* 71(5), 457-469.

Buchy, M., H. Ross and W. Proctor (2000), *Enhancing the Information Base on Participatory Approaches in Australian Natural Resources Management*, Commissioned Report to the Land and Water Resources Research and Development Corporation, Canberra.

Bueno de Mesquita, B. *et al.* (2003), *The Logic of Political Survival,* MIT Press, Cambridge, Mass.

Bulte, E. and C. Withagen (2006), *Distributive Issues in a Dynamic Context: an Issues Paper*, OECD, Paris.

Bulte, E.H., R. Damania and R.T. Deacon (2005), "Resource Intensity, Institutions, and Development", *WorldDevelopment* 33(7), 1029-1044.

Burnham, P. (2000), *Indian Country God's Country: Native Americans and National Parks*, Island Press, Washington, DC.

Burton, P.S. (2004), "Hugging Trees: Claiming *de facto* Property Rights by Blockading Resource Use", *Environmental and Resource Economics* 27, 135-163.

Campbell, B. *et al.* (2001), "Challenges to Proponents of Common Property Resource Systems: Despairing Voices from the Social Forests of Zimbabwe", *World Development* 29: 589-600.

Canadian Model Forest Network (2006), *Canadian Model Forest Network: Achievements*, Natural Resources Canada, Ottawa.

Carruthers J. (1995), *The Kruger National Park: A Social and Political History,* Univ. Natal Press, Pietermaritzburg, South Africa.

Carson, L. and K. Gelber (2001), *Ideas for Community Consultation: A Discussion on Principles and Procedures for Making Consultation Work*, NSW Department of Urban Affairs and Planning, Sydney, Australia.

Catton T. (1997), *Inhabited Wilderness: Indians, Eskimos, and National Parks in Alaska,* Univ. N. Mex. Press, Albuquerque.

Cavendish, W. (2000), "Empirical Regularities in the Poverty-Environment Relationship of Rural Households: Evidence from Zimbabwe", *World Development*, 28, (11), 1979-2003.

CBD (Convention on Biological Diversity) (1992), *Convention on Biological Diversity*, *http://sedac.ciesin.org/entri/texts/biodiversity.1992.html*.

CBD (2005), *Thematic Report on Mountain Ecosystems, Nepal*, *www.biodiv.org/doc/world/np/np-nr-me-en.doc*.

Cernea, M.M. and K. Schmidt-Soltau (2006), "Poverty Risks and National Parks: Policy Issues in Conservation and Resettlement", *World Development* 34(10), 1808-1830.

Chakraborty, R.N. (2001), "Stability and Outcomes of Common Property Institutions in Forestry: Evidence from the Terai Region of Nepal", *Ecological Economics* 36, 341-353.

Chapin, M. (2004), "A Challenge to Conservationists", *World Watch Magazine*, November/December 2004, 17-31.

Chatty, D. and M. Colchester (eds.) (2002), *Conservation and Mobile Indigenous Peoples: Displacement, Forced Settlement and Sustainable Development,* Berghahn Books, New York.

Chichilinsky, G. (1996), "An Axiomatic Approach to Sustainable Development", *Social Choice and Welfare* 13, 231-257.

Chichilnisky, G. and G. Heal (1994), "Who Should Abate Carbon Emissions? An International Viewpoint", *Economics Letters* 44, 443-449.

Chobotova, V. and T. Kluvankova-Oravska (2006), *Community-based Management of Biodiversity Conservation in a Transition Economy. Application of Multi-Criteria Decision Aid to the Nature Reserve Šúr,* case study prepared for OECD, OECD, Paris.

Clark, C.W. (1973), "Profit Maximization and the Extinction of Animal Species", *Journal of Political Economy* 81(4), 950-961.

Clean Water Action Plan (2000), *Watershed Success Stories: Applying the Principles and Spirit of the Clean Water Action Plan*, USA

Cleary, D. (2006), "The Questionable Effectiveness of Science Spending by International Conservation Organizations in the Tropics", *Conservation Biology* 20(3), 733-738.

Clippel, G. de (2005), *Equity, Envy, and Efficiency under Asymmetric Information*, Working Paper, Rice University, Houston.

Cobham, A. (2007), *Tax Evasion, Tax Avoidance and Development Finance*, University of Oxford, Department of International Development, Oxford.

Coomes, O., B. Barham, and Y. Takasaki (2004), "Targeting Conservation-Development Iniatives in Tropical Forests: Insights from Analysis of RainForest Use and Economic Reliance among Amazonian peasants", *World Development* 55, 47-64.

Cooperative Conservation America (2005), *Faces and Places of Cooperative Conservation*, report of White House Conference on Cooperative Conservation, St. Louis, Missouri, August 29-31, 2005, US Department of the Interior, Washington DC.

Cork, S. (2002), "What are Ecosystem Services?", *RIPRAP* (River and Riparian Lands Management Newsletter), Land and Water Australia, Canberra, 21, pp.1-9.

Costanza, R. *et al.* (1997), "The Value of the World's Ecosystem Services and Natural Capital", *Nature* 387, 253-261.

Cowell, F.A. and K. Gardiner (1999), "Welfare Weights", *STICERD, London School of Economics, Economics Research Paper* 20, Aug 1999, LSE, London.

Crosby, N. (1996), *Creating an Authentic Voice of the People: Deliberation on Democratic Theory and Practice*. Midwest Political Science Association, Chicago, USA.

CSIRO (Commonwealth Scientific and Industrial Research Organisation) (2003), *Natural Values: Exploring Options for Enhancing Ecosystem Services in the Goulburn Broken Catchment*, Ecosystem Services Project, CSIRO, Canberra, Australia.

Dasgupta, P. (2000), "Valuing Biodiversity", in Levin, S. (ed.) *Encyclopedia of Biodiversity*, Academic Press, New York.

Datta, S.K. and S. Kapoor (1996), *Collective Action, Leadership and Success in Agricultural Cooperatives – a Study of Gujarat and West Bengal*, Oxford and IBH Publishing, Oxford and New Dehli.

Day-Rubinstein, K. and G.B. Frisvold (2001), "Genetic Prospecting and Biodiversity Development Agreements", *Land Use Policy* 18(3), 205-219.

Deacon, R.T. (2006), "Distributive Issues Related to Biodiversity: The Role of Institutions", presentation prepared for the *OECD Workshop on Distributive Issues Related to Biodiversity*, Oaxaca, Mexico, April 26-27, 2006.

Declerck, S. (2003), "Restoration of Lake Kraenepoel in Belgium, a Case Study Prepared for the BIOFORUM Project", in: Young, J. *et al.* (eds.), *Conflicts Between Human Activities and the Conservation of Biodiversity in Agricultural Landscapes, Grasslands, Forests, Wetlands and Uplands in Europe*, Report of the BIOFORUM projects, August, 2003, 116-119, BIOFORUM, Centre for Ecology and Hydrology, Edinburgh.

Demsetz, H. (1967), "Toward a Theory of Property Rights", *American Economic Review* 57(2), Papers and Proceedings, 347-359.

Department of Sustainability and Environment (DSE) (2005a), *Southern Victoria BushTender: Information Sheet No.* 5, Victorian Government Department of Sustainability and Environment, Melbourne.

DSE (2005b), *Southern Victoria BushTender: Information Sheet No.* 6, Victorian Government Department of Sustainability and Environment, Melbourne.

DSE (2005c), *Southern Victoria BushTender: Information Sheet No. 7*, Victorian Government Department of Sustainability and Environment, Melbourne.

Diamond, J. (2005), *Collapse: How Societies Choose to Fail or Succeed*, Viking, New York.

Dietz, T., E. Ostrom and P.C. Stern (2003), "The Struggle to Govern the Commons", *Science* 302, 1907-1912.

Dixit, A.K. and J.E. Stiglitz (1977), "Monopolistic Competition and Optimum Product Diversity", *American Economic Review*, 67(3), 297-308.

Dixon, J.A. and P.B. Sherman (1990), *Economics of Protected Areas: A New Look at Benefits and Costs*, East-West-Center Center, Island Press, Washington DC.

Dixon, J.A. and P.B. Sherman (1991), "Economics of Protected Areas", *Ambio,* 20(2), 68-74.

Drazen, A. (2001), *Political Economy in Macroeconomics*, Princeton University Press, Princeton.

Drechsler, M. *et al.* (2007), "An Agglomeration Payment for Cost-Effective Biodiversity Conservation in Spatially Structured Landscapes", *UFZ Discussion Papers* 4/2007, March 2007, UFZ Centre for Environmental Research Leipzig, Germany.

Dressler, W.H. (2006), "Co-opting Conservation: Migrant Resource Control and Access to National Park Management in the Philippine Uplands", *Development and Chance* 37(2), 401-426.

Drèze, J.P. (1998), "Distribution Matters in Cost-Benefit Analysis: Comment on K-A. Brekke", *Journal of Public Economics* 70 (3): 485-88.

Drèze, J.P. and N. Stern (1987), "The Theory of Cost-Benefit Analysis", in A.J. Auerbach and M. Feldstein (eds.) *Handbook of Public Economics* 2, North-Holland, Amsterdam.

Droege, S. and B. Soete (2001), "Trade-Related Intellectual Property Rights, North-South Trade and Biological Diversity", *Environmental and Resource Economics* 19, 149-163.

Dublin, H., C. Volonte and J. Brann (2004), *GEF Biodiversity Program Study,* Washington, D.C.: Monitoring and Evaluation Unit, Global Environment Facility Secretariat.

Easterbrook, G. (2003), *The Progress Paradox,* Random House, New York.

Emerton, L., J. Bishop and L. Thomas (2005), *Sustainable Financing of Protected Areas: A Global Review of Challenges and Options*, IUCN, Gland, Switzerland and Cambridge, UK.

Engel, S., R. Lopez and C. Palmer (2006), "Community–Industry Contracting over Natural Resource use in a Context of Weak Property Rights: The Case of Indonesia", *Environmental and Resource Economics* 33(1), 73-93.

Environment Canada (2005), *The Canadian Ecological Gifts Program Handbook 2005: A Legacy for Tomorrow, a Tax Break Today*, available at: *www.cws-scf.ec.gc.ca/ecogifts/hb_toc_e.cfm*.

Environmental Defense (2000), *Progress on the Back Forty: An Analysis of the Three Incentive Based Approaches to Endangered Species Conservation on Private Lands*, Environmental Defense, New York.

EPA (US Environmental Protection Agency) (2001), *Protecting and Restoring America's Watersheds: Status, Trends, and Initiatives in Watershed Management*, EPA-840-R-00-001, US EPA, Washington DC.

Eskeland, G. and C. Kong (1998), "Protecting the Environment and the Poor: A Public Goods Framework Applied to Indonesia", *World Bank Policy Research Working Paper* No. 1961, World Bank, Washington, DC.

European Commission (2005), *Agri-environment Measures: Overview on General Principles, Types of Measures, and Application,* study of the European Commission Directorate General for Agriculture and Rural Development, Unit G-4, Evaluation of Measures applied to Agriculture, available at: *http://ec.europa.eu/agriculture/publi/reports/agrienv/rep_en.pdf*.

Fearnside, P.M. (2003), "Conservation Policy in Brazilian Amazonia: Understanding the Dilemmas", *World Development* 31(5): 757-779.

Feinerman, E., A. Fleischer and A. Simhon (2004), "Distributional Welfare Impacts of Public Spending: The Case of Urban *versus* National Parks", *Journal of Agricultural and Resource Economics* 29(2): 370-386.

Ferraro, P.J. (2002), "The Local Costs of Establishing Protected Areas in Low-Income Nations: Ranomafana National Park, Madagascar", *Ecological Economics*, 43: 261-275.

Ferraro, P.J. and D. Simpson (2002), "The Cost-Effectiveness of Conservation Payments", *Land Economics* 78(3), 339-353.

Fisher, M. (2004), "Household Welfare and Forest Dependence in Southern Malawi", *Environment and Development Economics* 9: 135-154.

Fisher, M., G.E. Shively and S. Buccola (2005), "Activity Choice, Labor Allocation, and Forest Use in Malawi", *Land Economics* 81 (4), 503-517.

Fisher, R., W. Ury and B. Patton (1991), *Getting to Yes: Negotiating Agreement Without Giving In*, Penguin Books, New York.

Fishkin, J. and R.C. Luskin (2004), "Experimenting with a Democratic Ideal: Deliberative Polling and Public Opinions", paper prepared for presentation at the *Swiss Chair's Conference on Deliberation*, The European University Institute, Florence, Italy, May 21-22, 2004.

Flores, N. and R. Carson (1997), "The Relationship Between the Income Elasticities of Demand and Willingness to Pay", *Journal of Environmental Economics and Management* 33, 287-295.

Fraga, J. (2006), "Local Perspectives In Conservation Politics: The Case of the Ria Lagartos Biosphere Reserve, Yucatan, Mexico", Landscape and Urban Planning, 74(3-4), 285-295

Frank, G. and F. Müller (2003), "Voluntary Approaches in Protection of Forests in Austria", *Environmental Science and Policy*, 6: 261-269.

Frederick, S., G. Loewenstein and T. O'Donoghue (2002), "Time Discounting and Time Preferences: A Critical Review", *Journal of Economic Literature* 40, 351-401.

Freudenburg, W., L. Wilson and D. O'Leary (1998), "Forty Years of Spotted Owls? A Longitudinal Analysis of Logging Industry Job Losses", *Sociological Perspectives* 41(1), 1-26.

Gale, D. (1973), "Pure Exchange Equilibrium In Dynamic Economic Models", *Journal of Economic Theory* 6, 12-36.

Gaston, K. (2005), "Biodiversity and Extinction: Species and People", *Progress in Physical Geography* 29(2), 239-247.

Gatti, R. *et al.* (2004), "The Biodiversity Bargaining Problem", *Cambridge Working Papers in Economics*, No. 0447, Faculty of Economics, University of Cambridge, Cambridge, UK.

Gawler, M. (ed.) (2002), "Strategies for Wise Use of Wetlands: Best Practices in Participatory Management", in proceedings of a workshop held at the *2nd International Conference on Wetlands and Developments* (November 1998, Dakar, Senegal), Wetlands International, IUCN, WWF publication No. 56, Wageningen, Netherlands.

GEF (Global Environment Facility), 2006, "The Role of Local Benefits in Global Environmental Programs", *Evaluation Report No.* 30, Global Environment Facility Evaluation Office, Washington DC.

Geisler, C. and de Sousa, R. (2001), "From Refuge to Refugee: The African Case", *Public Adm. Dev.* 21: 159-70.

Gerlagh, R. and M.A. Keyzer (2001), "Sustainability and the Intergenerational Distribution of Natural Resource Entitlements", *J. Public Econom.* 79 (2001) 315-341.

Gibson, C.C., J.T. Williams and E. Ostrom (2005), "Local Enforcement and Better Forests", *World Development* 33(2), 273-284.

Gjertsen, H. (2005), "Can Habitat Protection Lead to Improvements in Human Well-Being? Evidence from Marine Protected Areas in the Philippines", *World Development* 33(2), 199-217.

Gjertsen, H. and C.B. Barrett (2004), "Context-Dependent Biodiversity Conservation Management Regimes: Theory and Simulation", *Land Economics* 80(3): 321-339.

Goeschl, T. and D. Igliori (2004), "Reconciling Conservation and Development: A Dynamic Hotelling Model of Extractive Reserves", *Land Economics* 80(3), 340-354.

Goeschl, T. and D. Igliori (2006), "Property Rights for Biodiversity Conservation and Development: Extractive Reserves in the Brazilian Amazon", *Development and Change* 37(2), 427-51.

Gollier, C. (2002a), "Time Horizon and the Discount Rate", *Journal of Economic Theory* 107(2), 463-473.

Gollier, C. (2002b), "Discounting an Uncertain Future", *Journal of Public Economics* 85, 149-166.

Googch, G.D., G. Jansson and R. Mikaelsson (2003), *Results of Focus Groups Conducted in the River Basin Area of Motala Ström, Sweden*, River Dialogue Project, Department of Management and Economics, Political Science, Linköping University.

Grady, S. (2000), "Kakadu National Park, Australia, Case study 11", in Beltran, J. (ed.), *Indigenous and Traditional Peoples and Protected Areas: Principles, Guidelines and Case Studies*, IUCN, Gland, Switzerland.

Grimble, R. *et al.* (1995), "Trees and Trade-Offs: A Stakeholder Approach to Natural Resource Management", *Gatekeeper Series* No. 52., International Institute for Environment and Development, London.

Groier, M. (2004), "Socioeconomic effects of the Austrian Agro-Environmental Program. Mid-Term Evaluation 2003", *Facts and Feature* 27. Bundesanstalt für Bergbauernfragen, Vienna.

Groom, B., *et al.* (2005), "Declining Discount Rates: The Long and the Short of it", *Environmental and Resource Economics* 32(4), 445-493.

Hamilton, J.T. (2006), "Environmental Equity and the Sitting of Hazardous Waste Facilities in OECD Countries", in Serret and Johnstone (eds.), *The Distributional Effects of Environmental Policy*, Edward Elgar, Cheltenham, UK.

Hanley, N. and C. Spash (1993), *Cost Benefit Analysis and the Environment,* Edward Elgar, Cheltenham.

Hardin, G. (1968), "The Tragedy of the Commons", *Science* 168(3859), Dec. 13th 1968, 1243-48.

Harford, T. (2003), "Fair Trade Coffee Has a Commercial Blend", *Financial Times*, 12 Sept. 2003, 15.

Haro, G.O., G.J. Doyo and J.G. McPeak (2005), "Linkages Between Community, Environmental, and Conflict Management: Experiences from Northern Kenya", *World Development* 33(2), 285-299.

Heady, C. (2000), "Natural Resource Sustainability and Poverty Reduction", *Environment and Development Economics*, 5: 241-258.

Heal, G. (1999), "Markets and Sustainability", *The Science of The Total Environment* 240(1-3), October 1999, 75-89.

Hegan, R.L., G. Hauer and M.K. Luckert (2003), "Is the Tragedy of the Commons Likely? Factors Preventing the Dissipation of Fuelwood Rents in Zimbabwe", *Land Economics* 79 (2): 181-197.

Hepburn, C. (2006), "*Use of Discount Rates in the Estimation of the Costs of Inaction with Respect to Selected Environmental Concerns*", Working Party on National Environmental Policies, OECD, Paris.

Herrera, A. and da Passano, M.G. (2006), "Land Tenure Alternative Conflict Management", *FAO Land Tenure Manuals* No. 2, Food and Agriculture Organisation of the United Nations, Land Tenure Service, Rural Development Division, Rome.

Hiedanpää, J. (2002), "European-Wide Conservation Versus Local Well-Being: The Reception of the Natura 2000 Reserve Network in Karvia, SW-Finland", *Landscape and Urban Planning* 61: 113-123.

HM Treasury (2003), *The Green Book – Appraisal and Evaluation in Central Government – Treasury Guidance*, TSO, London.

Hökby, S. and T. Söderqvist (2003), "Elasticities of Demand and Willingness to Pay for Environmental Services in Sweden", *Environmental and Resource Economics*, 26, 361-383.

Homma, A.K.O. (1992), "The Dynamics of Extraction in Amazonia: A Historical Perspective", in Nepstad, D.C. and S. Schwartzman (eds.), *Non-Timber Products from Tropical Forests: Evaluation of a Conservation and Development Strategy*, Advances in Economic Botany 9: 33-42, The New York Botanical Garden, New York.

Horne, P. (2004), "Forest Owners' Acceptance of Incentive Based Instruments in Forest Biodiversity Conservation – A Choice Experiment Based Approach", paper presented at the *48th Annual Conference of the Australian Agriculture and Resource Economics Society*.

Horne, P. and A. Naskali (2006), *Voluntary Scheme for Forest Protection on Private Land as Part of the METSO Programme in Finland*, Finnish Forest Research Institute, case study prepared for OECD, Paris.

Horowitz, J.K. and K.E. McConnell (2003), "Willingness to Accept, Willingness to Pay and the Income Effect", *Journal of Economic Behavior and Organization*, 51(4), 537-545.

Horton, B., *et al.* (2003), "Evaluating Non-Users' Willingness to Pay for the Implementation of a Proposed National Parks Program in Amazonia", *Environmental Conservation* 20(2), 139-146.

Howarth, R. (2000), "*Normative Criteria for Climate Change Policy Analysis*", Redefining Progress, San Francisco.

Hubacek, K and W. Bauer (1999), *Economic Incentive Measures in the Creation of the National Park Neusiedler See Seewinkel*, OECD, Paris.

Humphreys, D. (2001), "Forest Negotiations at the United Nations: Explaining Cooperation and Discord", *Forest Policy and Economics*, 3: 125-135.

Islam, M and J.B. Braden (2006), "Bio-economic Development of Floodplains: Farming Versus Fishing in Bangladesh", *Environment and Development Economics* 11, 95-126.

James, R.F. (1999), "Public Participation and Environmental Decision-Making – New Approaches", paper presented at the *National Conference of the Environmental Institute of Australia*, 1-3 December, 1999.

James, R.F. and R.K. Blamey (2000), *A Citizens' Jury Study of National Park Management, Canberra*, Australian National University, Canberra, available at: *http://cjp.anu.edu.au*.

Jepson, P., F. Momberg and H. van Noord (2002), "A Review of the Efficacy of the Protected Area System of East Kalimantan Province, Indonesia", *Nat. Areas J.* 22(1): 28-42.

Johannesen, A.B. and A. Skonhoft (2004), "Property Rights and Natural Resource Conservation. A Bio-Economic Model with Numerical Illustrations from the Serengeti-Mara Ecosystem", *Environmental and Resource Economics* 28(4), 469-488.

Johansson-Stenman, O. (2005), "Distributive Weights in Cost-Benefit Analysis – Should We Forget About Them?", *Land Economics* 81(3), 337-352.

Jones, B. and M. Murphree (2001), "The Evolution of Policy on Community Conservation in Namibia and Zimbabwe", in D. Hulme and M. Murphree (eds.) *African Wildlife and Livelihoods: The Promise and Performance of Community Conservation*, James Currey, Oxford.

Just, R.E., D.L. Hueth and A. Schmitz (2004), *The Welfare Economics of Public Policy*, Edward Elgar, Cheltenham, UK.

Just, R.E. and D.L. Hueth (1979), "Multimarket Welfare Measurement", *American Economic Review* 69(5), 947-54.

Justino, P., J. Litchfield and Y. Niimi (2004), "Multidimensional Inequality: An Empirical Application to Brazil", *PRUS Working Paper No.* 24, Poverty Research Unit, Department of Economics, University of Sussex.

Kahn, M. and J. Matsusaka (1997), "Demand for Environmental Goods. Evidence from Voting Patterns on California Initiatives", *Journal of Law and Economics* 40, 137-173.

Kakwani, N.C. (1977), "Measurement of Tax Progressivity: An International Comparison", *Economic Journal* 87(345), 71-80.

Kalter, R.J. and T.H. Stevens (1971), "Resource Investment, Impact Distribution, and Evaluation Concepts", *American Journal Agricultural Economics*, 53(2), 206-215.

Kelly, B., M. Brown and O. Byers (eds.) (2001), *Mexican Wolf Reintroduction Program,Three-Year Review Workshop: Final Report*, IUCN/SSC Conservation Breeding Specialist Group, Apple Valley, MN, USA.

Kenyon, W. and C. Nevin (2001), "The Use of Economic and Participatory Approaches to Assess Forest Development: A Case Study in the Ettrick Valley", *Forest Policy and Economics* 3: 69-80.

Khare, A. and D. Bray (2004), *Study of Critical New Forest Conservation Issues in the Global South,* Ford Foundation, New York.

Kishor, N. and R. Damania (2006), "Crime and Justice in the Garden of Eden: Improving Governance and Reducing Corruption in the Forestry Sector", in J. Edgardo Campos and S. Pradhan (eds.), *The Many Faces of Corruption: Tracking Vulnerabilities at the Sector Level,* The World Bank, Washington, DC.

Kolm, S. (1977), "Multidimensional Egalitarianisms", *Quarterly Journal of Economics* 91 (1977), 1.

Konisky, D.M. and T.C. Beierle (2001), "Innovation in Public Participation and Environmental Decision Making: Examples from the Great Lakes Region", *Research Note, Society and Natural Resources* 14: 815-826.

Kontogianni A. *et al*. (2001), "Integrating Stakeholder Analysis in Non-Market Valuation of Environmental Assets", *Ecological Economics* 37: 123-138.

Koopmans, T. (1965), "On the Concept of Optimal Economic Growth", in: Pontificiae Academiae Scientiarium Scriptum Varia (ed.): *The Economic Approach to Development Planning,* North-Holland, Amsterdam.

Kothari A. (2004), "Displacement Fears", *Frontline,* 21(26), 18-31 Dec., India. Available at *www.frontlineonnet.com/fl2126/stories/20041231000108500.htm*.

Kooten, G.C. van and E.H. Bulte (2000), *The Economics of Nature: Managing Biological Assets*, Wiley-Blackwell Publishing.

Kramer, R. and E. Mercer (1997), "Valuing a Global Environmental Good: US Residents' Willingness to Pay to Protect Tropical Rain Forests", *Land Economics* 73, 196-210.

Krautkraemer, J.A. and R.G. Batina (1999), "On Sustainability and Intergenerational Transfers with a Renewable Resource", *Land Economics* 75, 167-184.

Kriström, B. (2006), "Framework for Assessing the Distribution of Financial Effects of Environmental Policy", in Y. Serret and N. Johnstone (eds.), *The Distributional Effects of Environmental Policy*, Edward Elgar, Cheltenham, UK.

Kriström, B and P. Riera (1996), "Is the Income Elasticity of Environmental Improvements Less Than One?"*Environmental and Resource Economics*, 7, 45-55.

Krüger O. (2004), "The Role of Ecotourism in Conservation: Panacea or Pandora's Box?"*Biodivers. Conserv.* 14(3): 579-600.

Krutilla, J.V. (1967), "Conservation Reconsidered", *American Economic Review* 57(4), 777-786.

Kumar, S. (2002), "Does Participation' in Common Pool Resource Management Help the Poor? A Social Cost-Benefit Analysis of Joint Forest Management in Jharkhand, India", *World Development* 30: 763-782.

Lake, D. and M. Baum (2001), "The Invisible Hand of Democracy: Political Control and the Provision of Public Services", *Comparative Political Studies* 34(6), 587-621.

Langholz, J.A. and W. Krug (2004), "New Forms of Biodiversity Governance: Non State Actors and the Private Protected Area Action Plan", *Journal of International Wildlife Law and Policy*, 7, 9-29.

Lawrence, D. (2000), *Kakadu: The Making of a National Park,* Melbourne Univ. Press, Melbourne, Australia.

Leakey, R.E., and R. Lewin (1995), *Sixth Extinction: Patterns of Life and the Future of Humankind,* Anchor Books, New York.

Lee, D.R. and C.B. Barrett (2001), *Tradeoffs or Synergies? Agricultural Intensification, Economic Development and the Environment*, CABI Publishing, Wallingford, UK.

Libecap, G.D. and J. Smith (2002), "The Economic Evolution of Petroleum Property Rights in the United States", *Journal of Legal Studies* 31(2), 589-608.

Li, C.Z. and K.G. Löfgren (2000), "Renewable Resources and Economic Sustainability: A Dynamic Analysis with Heterogeneous Time Preferences", *Journal of Environmental Economics and Management* 40, 236-250.

Lind, R.C. (1995), "Intergenerational Equity, Discounting, and the Role of Cost-Benefit Analysis in Evaluating Global Climate Policy", *Energy Policy* 23: 379-389.

Linde-Rahr, M. (1998), *Rural Reforestation: Gender Effects on Private Investments in Vietnam*, Working Paper, Department of Economics, Goteborg University, Sweden.

Lopez, T.T. de (2003), "Economics and Stakeholders of Ream National Park, Cambodia", *Ecological Economics* 46: 269-282.

Luck, G. *et al.* (2004), "Alleviating Spatial Conflict Between People and Biodiversity", *Proceedings of the National Academy of Sciences* 101(1), 182-186.

Lusty, C. (2000), "The Lapponian Area, Sweden", Case study 5, in Beltran, J. (ed.), *Indigenous and Traditional Peoples and Protected Areas: Principles, Guidelines and Case Studies*, IUCN, Gland, Switzerland.

Lybbert, T.J., C.B. Barrett and H. Narjisse (2002), "Market-based Conservation and Local Benefits: The Case of Argan Oil in Morocco", *Ecological Economics* 41, 125-144.

Lynch, L. and S. Lovell (2003), "Combining Spatial and Survey Data to Explain Participation in Agricultural Land Preservation Programs", *Land Economics* 79 (2): 259-276.

Maasoumi, E. (1986), "The Measurement and Decomposition of Multi-Dimensional Inequality", *Econometrica* 54 (1986), 991-997.

Mahatny S. and D. Russel (2002), "High Staked: Lessons from Stakeholder Groups in the Biodiversity Conservation Network", *Society and Natural Resources*, 15: 179-188.

Maikhuri, R.K. *et al*. (2000), Analysis and Resolution of Protected Area-People Conflicts in Nanda Devi Biosphere Reserve, India, *Environmental Conservation* 27(1): 43-53.

Marcouiller, D.W. and J.C. Stier (1996), *Modelling the Regional Economic Aspects of Forest Management Alternatives*, research paper, McIntere Stennis Program of USDA, University of Wisconsin, Medison, USA.

Margulis, S. (2004), "Causes of Deforestation of the Brazilian Amazon", *World Bank Working Paper* No. 22, The World Bank, Washington DC.

Markandya, A. (2001), "Poverty Alleviation and Sustainable Development: Implications for the Management of Natural Capital", prepared for the International Institute for Sustainable Development (IISD) *Workshop on Poverty and Sustainable Development*, 23rd January, Ottawa.

Marsiliani, L. and T.I. Renström (2000), "Time Inconsistency in Environmental Policy: Tax Earmarking as a Commitment Solution", *Economic Journal* 110, 123-138.

Mashinya, J. (2007), *Participation and Devolution in Zimbabwe's CAMPFIRE Program: Findings from Local Projects in Mahenyeand Nyamiyami*, Faculty of Graduate School of the University of Maryland, USA.

McLean, J. and S. Straede (2003), "Conservation, Relocation and the Paradigms of Park and People Management – A Case Study of Padampur Villages and the Royal Chitwan National Park, Nepal", *Soc. Nat. Res.* 16: 509-26.

McNeely, J.A. and S.J. Scherr (2003), *Ecoagriculture: Strategies to Feed the World and Save Wild Biodiversity*, Island Press, Washington, DC.

Menezes, M. (1994), "As Reservas Extrativistas como Alternativa ao Desmatamento na Amazônia", in Arnt, R. (ed.) *O Destino da Floresta: Reservas Extrativistas e Desenvolvimento Sustentável na Amazônia*, Relume Dumará, Rio de Janeiro.

Meyer, S. (2001), "Community Politics and Endangered Species Protection", in: Shogren, J. and J. Tschirhart (eds.), *Protecting Endangered Species in the United States. Biological Needs, Political Realities, Economic Choices* Cambridge University Press, Cambridge.

Millimet, D. and D. Slottje (2000), *The Distribution of Pollution in the United States: An Environmental Gini Approach*, working paper, Southern Methodist University, Dallas, Texas.

Mirrlees, J. (1979), *The Implications of Moral Hazard for Optimal Insurance*, mimeo, seminar given at the conference held in honor of Karl Borch, Bergen, Norway.

Moore, C. (1996), *The Mediation Process – Practical Strategies for Resolving Conflict*, 2nd edition, Wiley/Jossey-Bass publishers, San Francisco.

Moore, L, L. Michaelson and S. Orenstein (2000), *Designation of Critical Habitat National Project, Digest of the Process and Results*, Institute of Environmental Conflict Resolution, Tuscon, Arizona.

Morris, C. (2004), "Networks of Agrienvironmental Policy Implementation: A Case Study of England's Countryside Stewardship Scheme", *Land Use Policy*, 21: 177-191.

Mourmouras, A. (1993), "Conservationist Government Policies and Intergenerational Equity in an Overlapping Generations Model with Renewable Resources", *Journal of Public Economics* 51, 249-268.

Mowat, S. (2006), *The Design and Implementation of the Entry Level Scheme in England, DEFRA, UK*, case prepared for the OECD.

Musgrave, R.A. (1959), *The Theory of Public Finance*, McGraw Hill, New York.

Musinguzi, M. (2006), "Making Partnerships for Sustainable Gorilla Tourism in Mgahinga Mountain", *Mountain Forum Bulletin*, Volume VI, Issue 1, January 2006, pp. 4-5 *www.mtnforum.org*.

Naidoo, R. and W.L. Adamowicz (2005), "Biodiversity and Nature-Based Tourism at Forest Reserves in Uganda", *Environment and Development Economics* 10: 159-178.

Naidoo, R. and W.L. Adamowicz (2006a), "Mapping the Economic Costs and Benefits of Conservation", *Public Library of Science-Biology* 4(11), 2153-2163.

Naidoo, R. and W.L. Adamowicz (2006b), "Modeling Opportunity Costs of Conservation in Transitional Landscapes", *Conservation Biology* 20, 490-500.

Nath, S.K. (1969), *A Reappraisal of Welfare Economics,* Routledge, London.

National Round Table on the Environment and the Economy (2005), *Boreal Futures: Governance, Conservation and Development in Canada's Boreal,* National Round Table on the Environment and the Economy, Ottawa.

Natural Resources Canada (2005), *First Nations Forestry Program – Success Stories,* Natural Resources Canada, Canadian Forestry Service, Ottawa (online: *www.fnfp.gc.ca/index_e.php*)

Neary, J.P. (1999), "Comment on Venables (1999) Economic Policy and the Manufacturing Base: Hysteresis in Location", In: Baldwin, R. E., Francois, J. F. (eds.), *Dynamic Issues in Commercial Policy Analysis*, Cambridge University Press, Cambridge, 196-200.

Nepal S..J. (2000), "Wood Buffalo National Park, Canada", Case study 4, in Beltran, J. (ed.), *Indigenous and Traditional Peoples and Protected Areas: Principles, Guidelines and Case Studies*, IUCN, Gland, Switzerland.

Neumann, R. (2004), "Moral and Discursive Geographies in the War for Biodiversity in Africa", *Polit. Geogr.* 23: 813-37.

Nijkamp, P., P. Rietveld and H. Voogd (1990), *Multi-criteria Evaluation in Physical Planning*, North Holland, Amsterdam.

North, D.C. (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge University Press, Cambridge.

O'Connor, M. (2000), "The VALSE project – an introduction", *Ecological Economics* 34: 165-174.

O'Leary, R. and L. Bingham (2004), *The Promise and Performance of Environmental Conflict Resolution*, Resources for the Future, Washington DC.

OECD (Organisation for Economic Co-operation and Development) (1996), *Saving Biological Diversity: Economic Incentives*, OECD, Paris

OECD (1997), *Evaluating Economic Instruments for Environmental Policy,* OECD, Paris.

OECD (1999), *Handbook of Incentive Measures for Biodiversity: Design and Implementation* OECD, Paris.

OECD (2002), *Handbook of Biodiversity Valuation: A Guide for Policy Makers*, OECD, Paris.

OECD (2003), *Harnessing Markets for Biodiversity Towards Conservation and Sustainable Use*, OECD, Paris.

OECD (2004), *OECD Environmental Performance Reviews: Sweden*, OECD, Paris.

OECD (2006), *OECD Environmental Performance Reviews: Korea*, OECD, Paris.

Ohl, C. *et al.* (2006), "Managing Land Use and Land Cover Change in the Biodiversity Context with Regard to Efficiency, Equality and Ecological Effectiveness", *UFZ-Discussion Papers* 3/2006, February 2006, UFZ Centre for Environmental Research Leipzig, Germany.

Okun, A.M. (1975), *Equality and Efficiency: The Big Tradeoff*, The Brookings Institution, Washington DC.

Ostrom, E. and R. Gardner (1993), "Coping with Asymmetries in the Commons: Self-Governing Irrigation Systems Can Work", *Journal of Economic Perspectives*, 7(4), 93-112.

Pagiola, S., A. Arcenas and G. Platais (2005), "Can Payments for Environmental Services Help Reduce Poverty? An Exploration of the Issues and the Evidence to Date from Latin America", *World Development* 33(2), 237-253.

Pearce, D. (1983), *Cost-Benefit Analysis,* Second edition, MacMillan, London.

Pearce, D. (1998), "Cost-benefit Analysis and Environmental Policy", *Oxford Review of Economic Policy*, 144, 84-100.

Pearce, D. (2006), "Framework for Assessing the Distribution of Environmental Quality", in Serret, Y. and N. Johnstone (eds.), *The Distributional Effects of Environmental Policy*, Edward Elgar, Cheltenham, UK.

Pearce, D. and D. Moran (1994), *The Economic Value of Biodiversity,* IUCN and Earthscan, London.

Pearce, D. and R.K. Turner (1990), *Economics of Natural Resources and the Environment,* Johns Hopkins Press, Baltimore.

Pearce, D. and D. Ulph (1995), "A Social Discount Rate For The United Kingdom", *CSERGE Working Paper* No. 95-01, School of Environmental Studies University of East Anglia, Norwich, UK.

Pearce, D., G. Atkinson and S. Mourato (2006), *Cost Benefit Analysis and the Environment: Recent Developments*, OECD, Paris.

Pearce, D. *et al.* (2003), "Valuing the Future – Recent Advances in Social Discounting", *World Economics* 4(2), 121-141.

Pelletier, M. (2002), *Enhancing Cree Participation by Improving The Forest Management Planning Process,* a project of the Waswanipi Cree Model Forest, Natural Resources Canada, Canadian Forest Service, Ottawa.

Peluso, NL. (1993), "Coercing Conservation: The Politics of State Resource Control", *Glob. Environ. Change* 3(2): 199-218.

Perrings, C. *et al.* (eds.) (1995), *Biodiversity Loss: Economic and Ecological Issues,* Cambridge University Press, Cambridge.

Pezzey, J. (1992), *Sustainable Development Concepts: An Economic Analysis*, World Bank, Washington, DC.

Pretty, J. (2003), "Social Capital and the Collective Management of Resources", *Science* 302 (12 Dec. 2003), 1912-1914.

Proctor, W. (2000), "Towards Sustainable Forest Management, An Application of Multi-criteria Analysis to Australian Forest Policy", paper presented at the *Third International Conference of the European Society for Ecological Economics,* 3-6 May 2000, Vienna, Austria.

Proctor, W. and M. Drechsler (2003), "Deliberative Multicriteria Evaluation: A case study of recreation and tourism options in Victoria Australia", paper presented at the *European Society for Ecological Economics, Frontiers 2 Conference*, Tenerife, 11-15 February 2003.

Quang, D.V. and T.N. Anh (2007), "Commercial Collection of NTFPs and Households Living in or Near the Forests: Case study in Que, Con Cuong and Ma, Tuong Duong, Nghe An, Viet Nam", *Ecological Economics*, forthcoming.

Radner, R. and J. Stiglitz (1984), "A Nonconcavity in the Value of Information," in M. Boyer and R. Kihlstrom (eds.) *Bayesian Models in Economic Theory*, Elsevier Science Publishers, New York.

Ramsey, F.P. (1928), "A Mathematical Theory of Saving", *Economic Journal* 38, 543-559.

Rangarajan, M. (1996), *Fencing the Forest: Conservation and Ecological Change in India's Central Provinces 1860-1914,* Oxford University Press, New Delhi.

Rao, M., A. Rabinowitz and S.T. Khaing (2002), "Status Review of the Protected-Area System in Myanmar, with Recommendations for Conservation Planning", *Conserv. Biol.* 16(2): 360-68.

Reardon, T. and S.A. Vosti (1995), "Links Between Rural Poverty and the Environment in Developing Countries: Asset Categories and Investment Poverty", *World Development* 23(9), 1495-1506.

Reddy, S.R.C. and S. P. Chakravarty (1999), "Forest Dependence and Income Distribution in a Subsistence Economy: Evidence from India" *World Development* 27(7), 1141-1149.

Reid, H. *et al.* (2004), "Co-management of Contractual National Parks in South Africa: Lessons from Australia", *Conservation and Society*, 2, 2: 377-409.

Reiling, S.D., H. Cheng and C. Trott (1992), "Measuring the Discriminatory Impact Associated with Higher Recreational Fees", *Leisure Science* 14(1992): 121-137.

River Dialogue (2003), *River Dialogue Newsletter* 1, September 2003, *www.riverdialogue.org*.

River Dialogue (2004), *River Dialogue Newsletter* 2, April 2004, *www.riverdialogue.org*.

Roberts, E.H. and M.K. Gautam (2003), *Community Forestry Lessons from Australia: A Review of International Case Studies*, research report presented to Faculties Research Grant Scheme 2002-2003, The Australian National University, School Resources, Environment and Society, Canberra, Australia.

Russell, C. and W. Vaughan (1982), "The National Recreational Fishing Benefits of Water Pollution Control", *Journal of Environmental Economics and Management,* 1982, 328-354.

Saberwal, V., M. Rangarajan and A. Kothari (eds.) (2000), *People, Parks and Wildlife: Towards Co-Existence,* Orient Longman Limited, Hyderabad, India.

Sachs, J.D. and A.M. Warner (1997), "Fundamental Sources of Long-Run Growth", *American Economic Review*, 87(2), 184-88.

Schläpfer, F. and N. Hanley (2003), "Do Local Landscape Patterns Affect the Demand for Landscape Amenities Protection?" *Journal of Agricultural Economics* 54(1), 21-35.

Schläpfer, F., A. Roschewitz and N. Hanley (2004), "Validation of Stated Preferences for Public Goods: A Comparison of Contingent Valuation Survey Response and Voting Behaviour", *Ecological Economics,* 51(1/2), 1-16.

Schmidt-Soltau, K. (2003), "Conservation-related Resettlement in Central Africa: Environmental and Social Risks", *Dev. Change* 34: 525-51.

Schneider, F. (2005), "Shadow Economies of 145 Countries All over the World: What Do We Really Know?" *Crema Research Working Paper* 2005-13. Center for Research in Economics, Management and the Arts, Basel.

Schou, J.S. and J.C. Streibig (1999), "Pesticide Taxes in Scandinavia", *Pesticide Outlook* 10, Dec. 1999, 127-129.

Sen, A.K. (1997), *Choice, Welfare and Measurement*, Harvard University Press, Cambridge, MA.

Serret, Y. and N. Johnstone, (2006), *The Distributional Effects of Environmental Policy*, Edward Elgar, Cheltenham, UK.

Shyamsundar, P. and R. Kramer (1997), "Biodiversity Conservation – At What Cost? A Study of Households in the Vicinity of Madagascar's Mantadia National Park", *Ambio*, 26(3), 180-184.

Simpson, R.D., R.A. Sedjo and J.W. Reid (1996), "Valuing Biodiversity for Use in Pharmaceutical Research", *Journal of Political Economy* 104(1), 163-185.

Smith, R.J. *et al.* (2003), "Governance and the Loss of Biodiversity", *Nature* 426(6962), 67-70.

Smith, S. (1995), "*'Green' Taxes and Charges: Policy and Practice in Britain and Germany*", The Institute of Fiscal Studies, London.

Smyth, D. (2001), "Joint Management of National Parks in Australia", in Baker, R., Davies, J. and Young, E. (eds.), *Working on Country, Contemporary Indigenous Management of Australia's Lands and Coastal Regions*, Oxford University Press, Oxford, United Kingdom.

Solow, R.M. (1974), "The Economics of Resources or the Resources of Economics", *American Economic Review* 64(2), 869-877.

Southgate, D. (1998), *Tropical Forest Conservation: An Economic Assessment of the Alternatives in Latin America*, Oxford University Press, Oxford.

Southgate, D. *et al.* (2000), "Markets, Institutions and Forestry: The Consequences of Timber Trade Liberalization in Ecuador", *World Development* 28(11), 2005-2012.

Spence M. (1999), *Dispossessing the Wilderness: Indian Removal and the Making of the National Parks,* Oxford Univ. Press, New York.

Start, D. and I. Hovland (2004), *Tools for Policy Impact, A Handbook for Researchers,* Research and Policy Development Programme, Overseas Development Institute, London.

Stern, N. (1997), *Macroeconomic Policy and the Role of the State in a Changing World; Development Strategy and Management of the Market Economy*. Volume 1, Oxford University Press, Clarendon Press for the United Nations, Oxford and New York.

Stern, N. (2006), *Stern Review on the Economics of Climate Change*, HMS Treasury, London

Stoll-Kleemann, S. (2001), "Reconciling Opposition to Protected Areas Management in Europe: The German Experience", *Environment* 43(5), 32-44.

Suman, D., M. Shivlani and J.W. Milon (1999), "Perceptions and Attitudes Regarding Marine Reserves: A Comparison of Stakeholder Groups in the Florida Keys National Marine Sanctuary", *Ocean and Coastal Management*, 42: 1019-1040.

Sunderlin, W.D. *et al.* (2005), "Livelihoods, Forests, and Conservation in Developing Countries: An Overview", *World Development* 33, 9, 1383-1402.

Swanson, T. (1994), "The Economics of Extinction Revisited and Revised: A Generalized Framework for the Analysis of the Problem of Endangered Species and Biodiversity Losses", *Oxford Economic Papers* 46, 800-821.

Swanson, T. (ed.) (1995), *The Economics and Ecology of Biodiversity Decline,* Cambridge University Press, Cambridge.

Swanson, T. (1996), "The Reliance of Northern Economies on Southern Biodiversity: Biodiversity as Information", *Ecological Economics* 17(1), 1-8.

Taylor, D.F. (2001), "Employment-based Analysis: An Alternative Methodology for Project Evaluation in Developing Regions, with an Application to Agriculture in Yucatán", *Ecological Economics*, 36: 249-262.

Taylor, D.F. and I. Adelman (1996), *Village Economies: The Design, Estimation and Use of Village-wide Economic Models*, Cambridge University Press, Cambridge.

The Economist (2006), "Shots Across the Stern", *The Economist,* Economics Focus, 13 Dec. 2006.

The Economist (2007), "Conservation in Colorado", *The Economist,* 1 Feb. 2007.

Theil, H. and R. Finke (1983), "The Consumer's Demand for Diversity", *European Economic Review*, 23(3), 395-400.

Tikka, P.M. (2003), "Conservation Contracts in Habitat Protection in Southern Finland", *Environmental Science and Policy*, 6, 271-278.

Torell, D.J. (1993), "Viewpoint: Alternative Dispute Resolution in Public Management", *Journal of Range Management* 46 (6), November, 70-73.

Trannoy, A. (2003), "About the Right Weight of the Social Welfare Function when Needs Differ", *IDEP Working Papers* 2004 0304, Institut d'economie publique (IDEP), Marseille, France.

US Department of Interior, US Fish and Wildlife Service and Environmental Defense (2005a), *Conservation Profiles: Landowners Help Imperiled Wildlife*, US Fish and Wildlife Service, Washington DC.

US Department of Interior, US Fish and Wildlife Service, National Association of Conservation Districts, USDA, American Forest Foundation and Environmental Defence (2005b), *Working Together: Tolls for Helping Imperiled Wildlife on Private Lands*, US Fish and Wildlife Service, Washington DC.

UNDP (United Nations Development Programme) (1990), *Human Development Report 1990*, United Nations Development Programme, United Nations, New York.

Unsworth, R. *et al.* (2005), *Mexican Wolf Blue Range Reintroduction Project 5-Year Review, Socio-economic Component,* US Fish and Wildlife Service, Arlington, Virginia.

Warr, P.G. (1983), "The Private Provision of a Public Good is Independent of the Distribution of Income", *Economics Letters* 13, 207-211.

Wätzold, F. and M. Drechsler (2005), "Spatially Uniform *versus* Spatially Heterogeneous Compensation Payments for Biodiversity-Enhancing Land-Use Measures", *Environmental and Resource Economics* 31, 73-93.

Weimer, D.L. and A.R. Vining (1998), *Policy Analysis – Concepts and Practice*, third edition, Prentice Hall.

Weitzman, M.L. (1998), "Why the Far Distant Future Should be Discounted at its Lowest Possible Rate", *Journal of Environmental Economics and Management* 36, 201-208.

Wells, M. (1992), "Biodiversity Conservation, Affluence and Poverty: Mismatched Costs and Benefits and Efforts to Remedy Them", *Ambio* 21(3), 237-243.

Wells, M., K. Brandon and L. Hannah (1992), *People and Parks: Linking Protected Area Management with Local Communities,* The World Bank, Washington DC.

Wick, K. and E.H. Bulte (2006), "Contesting Resources – Rent Seeking Conflict and the Natural Resource Curse", *Public Choice* 128: 457-476.

Wickham, T. (1997) "Community-based Participation in Wetland Conservation: Activities and Challenges of the Danau Sentarium Wildlife Reserve Conservation Project, Danau Sentarium Wildlife Reserve, West Kalimantan, Indonesia", case study 5, in Claridge, G. and O'Callaghan (eds.), *Community Involvement in Wetland Management: Lessons from the Field*, Proceedings of Workshop 3. Wetlands, Local People and Development, International Conference on Wetlands Development, 9-13 October 1995, Kuala Lumpur, Malaysia, Wetlands International, Kuala Lumpur.

Willig, R.D. (1976), "Consumer's Surplus without Apology", *American Economic Review* 66(4), 589-97.

Wilson, R.K. (2003), "Community-Based Management and National Forests in the Western United States- Five Challenges", *Policy Matters* 12: 216-224.

World Bank (2002), *Operational Policy 4.12: Involuntary Resettlement*, The World Bank, Washington, DC.

World Bank (2006), *Strengthening Forest Law Enforcement and Governance: Strengthening a Systemic Constraint to Sustainable Development*, report No. 36638-GLB, The World Bank, Washington, DC.

Young, Z, Makoni, G and Boehmer Christiansen, S. (2001), "Green Aid in India and Zimbabwe – Conserving Whose Community?" *Geoforum* 32, 299-318.

Zbinden, S. and D.R. Lee (2005) "Paying for Environmental Services: An Analysis of Participation in Costa Rica's PSA Program", *World Development* 33(2), 255-272.

Table of Contents

List of boxes

List of tables

List of figures