I. Introduction

1. OECD work related to biodiversity focuses mainly on the linkage between economic analysis and the goals of the Convention on Biological Diversity (CBD). Implementing the commitments made within the CBD in a manner that provides the greatest social benefit has been at the core of that work. Motivating the OECD’s work in this area have been a number of Decisions adopted by the Conference of Parties (COP) to the CBD that called for biodiversity to be made compatible with economic growth and development. In particular, Article IV/10A of the Decisions adopted by the COP stressed the link between the assessment of biodiversity and the implementation of appropriate incentive measures:

   Recognizing that economic valuation of biodiversity and biological resources is an important tool for well-targeted and calibrated economic incentive measures,

   1. Encourage Parties, Governments and relevant organizations:

      (a) To promote the design and implementation of appropriate incentive measures, taking fully into account the ecosystem approach and the various conditions of the Parties and employing the precautionary approach ...;

      (c) To take into account economic, social, cultural and ethical valuation in the development of relevant incentive measures;

2. OECD work on biodiversity has been organised into three pillars intended to support the conservation and sustainable use of biodiversity. The first of those pillars is the development of incentive measures that make biodiversity compatible with market activity (OECD, 1999). The next is the valuation of non-marketed elements of biodiversity that improves opportunities to bring it into rational decision-making so that its use is more oriented toward the largest benefit of all concerned (OECD, 2002). The

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1 The opinions expressed and arguments used in this paper are those of the authors and do not necessarily reflect those of the OECD or the governments of its Member countries.
third pillar is geared toward outlining of explicit factors that help create markets for biodiversity, so that conservation and sustainable use become an integral part of economic activity (OECD, 2004).

3. All three of these pillars have important inter-linkages to the establishment and maintenance of parks. For example, the creation of a public park is a step taken by governments to reconcile conflicting economic and social agendas with respect to unique regions of its territory. By putting aside territory, the interests of current and future generations are explicitly recognized and accounted for in ways that private markets may not otherwise internalise. A park can be seen as a means to address social objectives in a manner made necessary by the social value of the resources in question. However, whether a park is created for features in its landscape or for its other attributes, the general impact on biodiversity can be significantly positive when it involves the maintenance of near-pristine areas. In such cases, a park represents a means of preserving and even sustainably using natural resources that benefit a wide array of people both directly and indirectly.

4. Establishing a park can be viewed as one element (though important) of the array of complementary instruments that are available to policy-makers in attempting to develop strategies for sustainable use. While creating a park would appear to be a measure that removes an area from standard economic considerations, it also recognises that, in some circumstances, markets need “guidance”. It may open up other channels for markets to assist in achieving sustainable financing – which will depend on creating the incentives and markets for some of the goods and services provided by parks.

5. This paper, therefore, looks at parks as an economic issue – considered within the context of the distribution of costs and benefits. It draws attention to some issues related to the financing of parks by considering a framework for allocating those costs and benefits and suggesting how those differences may be reconciled. It then discusses some case studies. It also points out that the policy issues that are engaged have implications at local, national and international levels. In Section II some economic implications of parks are explored which is then the basis of a discussion in Section III regarding the incidence of costs and benefits. Section IV provides a short empirical survey of distributional issues which is then followed by some concluding remarks in Section V.

II. The underlying economic context (theory)

6. From an economic perspective, creating a park can be seen as a necessary government intervention to correct a problem that markets, by themselves, would not be able to address. Understanding the reasons that make the intervention necessary can provide a clearer understanding of the issues behind sustainable financing.

Policy issues – foundation for action

7. An ecosystem (the area within a park) is difficult to integrate into policy objectives using policy instruments that are effective while at the same time being efficient; that is, instruments that achieve their goals in ways that reflect both the relative value of the protected area as well as the least-cost means of protecting it. Market-based instruments have traditionally been viewed as efficient (and under the right circumstances, effective), but in some cases they be difficult to apply. The reason for this is that ecosystems have characteristics – such as non-excludability and non-rivalry in consumption (or use) – that typify market failures (OECD, 2003). In public-policy terms, these characteristics define what are called public goods; i.e., those which are not easily traded in private markets.

8. In the case of parks there are three distinct, but complementary, aspects to the policy issue in addressing the public good characteristic. The first is that of creating a zone of exclusion by setting aside
(or restricting the use of) the territory of the park. While this may seem to run counter to the goal of using markets to achieve efficient outcomes, it may indeed be fully consistent with efficiency. The restriction can be viewed as an economic response (i.e., the least-cost option) to a desire to preserve some characteristic of a region. While other policies could be used to achieve the same goals, for example, through economic incentives, these might be costly to monitor and enforce.

9. The second aspect of the policy issue concerns access once the park has been established. Park fees may be regressive for low-income individuals. Moreover, they create the economic context of “clubs”. Clubs can go part of the way toward solving the problem of a public good, but they still leave outcomes that can be improved upon.

10. The third aspect is related to the rights of individuals who are affected directly and indirectly by the establishment of the park. Parks may infringe on rights that were pre-existing within local communities. In extreme cases, this can amount to a confiscation of their livelihoods. Since the support of the local communities is often crucial for the viability of the park, the interests of local groups have to be taken into account – the incentives the park offers to local groups must be made to be in the best interests of the protected area.

**Distributive issues – welfare analysis**

11. A simple illustration will demonstrate the distributive issues that arise. When protecting a region implies restricting access or activities, there is a limitation to the quantity of a good or service that can be used/consumed. This leads to a loss of surplus (economic welfare) for those who were previously benefiting from its availability (Figure 1). The horizontal axis represents “quantities” of goods and services an individual may receive from a region (assume that any one individual does not have much impact on availability, which allows the analysis to not have to consider a “supply curve”). The demand curve then becomes a schedule that shows “implicit” benefits from all the resources that that person would have expected to obtain. If the individual could engage in another activity that gave a return of \( w_0 \), the point \( b_0 \) would illustrate the person’s use of the region. The benefit to the individual would be the combined areas \( c \) and \( a \).

12. When a limitation is imposed that restricts the individual to a level of resources (\( b_1 \)) the loss to individual \( i \) is the area \( a_i \). A more binding restriction could cause the individual to lose as much as the
entire areas $c$ and $a$. Notice also that other forms of policy may shift the demand curve downward or increase its slope, without imposing the explicit restriction conjectured here. This would happen with policies that were more market-oriented. In that case, the loss to the individual would be seen as the difference between the area under the demand curve illustrated in Figure 1 and the area under the new demand curve. The sum of losses for all individuals for a particular source of biodiversity represents the total loss to a group from restricting free access. For the policy illustrated in Figure 1, this loss can be represented as $A = \Sigma a_i$.

13. There is an analogy to Figure 1 for individuals who derive indirect benefits from the existence of the region’s resources, but who do not pay for those benefits (indirect consumption such as pleasure from the pure existence of the landscape, see OECD, 2002). Figure 2 illustrates their situation. On the vertical axis it shows how much they would have been willing to pay for the indirect benefits they derive from region.

14. The gain to individuals who receive indirect benefits, therefore, is also the area under their demand curves much as it was for the direct users. However, since they presumably have no costs, their surplus is the complete area under the curve to the horizontal axis (for an individual it is the combined areas $g$ and $f$). As the amount of park services (indirect) is reduced by direct users (the individuals of Figure 1), this indirect user will suffer a loss of welfare – this area can be designated $g_j$, and is analogous to a above. The sum of losses by all individuals is the total value to society of preserving the region. It can be represented by the sum $G = \Sigma g_j$. When $G$ is larger than $A$, society gains from conservation.

15. Important issues of redistribution arise relating to whose rights should be recognised. If the rights to the region’s resources are seen as belonging to individuals in the vicinity, then they are entitled to compensation for the amount $A$. Alternatively, if they are seen as having used the resources but having no right to them, they may not be given any compensation at all. Even in the case where their rights are fully recognised, the actual amount to be given to them is difficult to determine a priori. Economic analysis gives no guidance beyond noting that it should be at least $A$, but no more than $G$.

16. It should be noted that $G$ represents the global reduction in welfare from the loss of that particular region’s resources. It can be separated into two parts to reflect the domestic reduction in welfare from lost resources ($G_d$), as well as the international reduction ($G_i$); that is, $G_d + G_i = G$. Since governments can redistribute resources within their national jurisdictions, when $G_d > A$, it is clearly in the interest of public policy within that country to conserve the region. However, when $G_d < A$, the country’s domestic best interests are served by allowing the region to be used. Moreover, when $G_d < A$ but $G_d + G_i > A$, it is clearly welfare improving to find an international mechanism to ensure that compensation for $A$ is provided. Additionally, when the gain to the direct user of the region is greater than both the domestic or international loss (i.e., $G < A$), it is best to permit the direct use of the source of region.

17. The intuitive explanation of the foregoing discussion is that those who gain should, in principle, be sufficient in number to compensate those who lose – accounting for both domestic and international beneficiaries (direct and indirect). However, it is also important to note that many parks exist all over the world. There are few, if any, countries that do not have some feature that is valued by others beyond the local inhabitants. This will impact on the amount that should be transferred to compensate for local (domestic-country) conservation.

18. To see why, consider a world where the demand for the services and facilities that parks make possible were spread evenly everywhere, and where the supply of parks was also spread evenly everywhere. The solution to global equity (and efficiency) would be straightforward. It would require each country to supply a certain level of park services that would amount to their per-capita share of the global demand. Sustainable finance would be assured because each country’s government would be responsible for supplying their part of the global optimum. It would involve each country establishing more (or larger) parks than are strictly necessary for the domestic population (this is also more than would be supplied with financing that came only from entrance fees). To make this more concrete, consider a
situation where there are two countries in the world. Assume that each country has some unique regions that are of interest for non-marketed values. If each country takes into account only its own population, then the global (i.e., two-country) supply of park services would be too low. A co-operative solution would have each supplying a sufficient level for the domestic population as well as the foreign population (assuming, of course, that domestic parks are not full substitutes for foreign parks). When each country accounts for the global population in its decisions, global welfare will be at its best level without any transfer of money between them. In other words, in that case the right set of global institutions can achieve sustainable financing without requiring international financial mechanisms.

19. When the world is highly heterogeneous this observation is no longer valid. Differing levels of endowment and differing incomes will imply that when all countries account for global demand for non-marketed amenities within their borders, substantial disparities will emerge. There will be winners and losers whose global distribution will depend on the net benefits to domestic populations. Without a good deal of altruism, the right supply of parks and their services will not be provided unless additional steps are taken to reconcile the winners and losers.  

20. The distribution of costs and benefits of parks will depend on a number of criteria. For example, since leisure is considered a “luxury” good in an economic context (i.e., demand for leisure increases disproportionately with income), and parks have a strong association with leisure activity, income will be a strong determinate of a country’s desire to have parks – adding to the factors determining winners and losers. Also, some parks may have particular significance in local cultures and may therefore not be as highly valued elsewhere. Such considerations affect the net contribution that is being made by that park to the global community.

21. In sum, the sustainable financing of parks at an international level needs to be put in a context of understanding the global demand (i.e., value) of parks for all of their facets to all countries. Knowledge of the value people put on parks is a first step in addressing the (international) distributive aspects of parks management. Even within a country, it would be the basis for determining the level of national support that should be given to the establishment and maintenance of various parks.

22. Finally, returning to Figure 1, the lost surplus $a_i$ also represents the incentive that individual $i$ has to circumvent a given conservation policy. When this incentive is large, and the policy is easily avoided (i.e., the expected penalty of ignoring the policy is less than $a_i$), it is unlikely the policy will work. To deal with this problem, government policy may be used in one of two ways: either provide a positive incentive (reward) for not engaging in park-depleting activities, or provide penalties for violators. In either case, monitoring coupled with the potential loss if caught will have to be strong enough to provide a net disincentive. In the case of a reward, paying it out on a regular basis could provide a strong disincentive if the loss income from being caught was sufficiently high.

**Building coalitions**

23. In choosing how to make a park sustainable, the task may be facilitated by the potential to build coalitions within the local community. For example, in the case of establishing a national park, a coalition may occur if the park brings employment to local communities, which was not previously available. The jobs, along with additional funding or organisational assistance from government, could be the basis for creating a substantial group in favour of the park. Moreover, while tourism operators or park managers are the direct beneficiaries of such jobs, secondary and tertiary industries may also result which can create employment opportunities. For example, when a park is established to protect a forested area, the

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2 A Coasian solution (Coase, 1960) could occur but, given the large number of countries with important natural features and the lack of information regarding the existence and value of those features, it is unlikely that such an outcome would occur autonomously.
regions just outside the park may increase in value due to increased scarcity of resources available for commercial use (e.g., Berck and Bentley, 1997). The possibility of limited harvesting is another important potential for economic gain that can be used to the advantage of the park’s maintenance by creating opportunities for including local groups. As discussed below, the CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) program in Zimbabwe creates wealth for local communities, by permitting the culling of herds that are economically valuable.

24. Building coalitions can alter the policy context to one whose objective is: how to create a large enough group whose self-interest would be consistent with the creation and maintenance of the park? There is a considerable literature dealing with the subject of coalition building (see Carmignani, 2000, and the references therein), looking at it as an economic problem. In environmental policy-making, there may be important nuances on that work that need to be considered. For example, environmental externalities caused by the coalition’s activities need to be accounted for — they impact the stability of the coalition (Yi, 1997). When there is a negative externality, the last members who helped form the coalition’s majority could be persuaded to abandon it by those outside the coalition. This is because non-members would be willing to pay an amount equivalent to the effect the negative externality has on them to get coalition members to abandon it.

25. Coalition building is an international; as well as a domestic, issue. This is particularly true for parks where the benefits are distributed globally. As was outlined earlier, preservation and sustainable use may rely on getting benefits from its indirect use to be realised by direct users. The central problem for coalition building is that international links are rather weak, so the cost of getting a coalition established may be prohibitive.

III. Distributional issues in costs and benefits of parks

26. The preceding section can be summarised by the observation (made in Dixon and Sherman, 1990) that the establishment of a park entails a number of costs: direct, indirect and opportunity costs. Direct costs include the actual "budget outlays" related to a given action: for example, establishing and managing a conservation area. Indirect costs pertain to adverse impacts of the policy: for example, damage caused by protected wildlife to crops outside a protected area. Opportunity costs refer to the loss of potential benefits associated with any land or resource use other than protection. This latter issue is of particular importance for its distributional impact. For people living close to the region of interest — or individuals who may have a local commercial concern — something they had previously taken for granted may not be available to them. Moreover, the resources that region makes possible may have been historically available to them throughout past generations. In other words, they may feel they have a right to the resource (or its services) — in the same way others have used (and modified) their own local environments for economic advantage. For people who have traditionally used the resource, attempts to conserve it will often directly impact their livelihoods. In some cases, this may involve a small re-orientation of activities, but in others, the adjustment may be more profound.

27. These costs and benefits, therefore, will be distributed over different groups and over different time horizons. The discussion earlier focused on the geographic dispersion of costs and benefits but there will also be an inter-temporal element in the choice to create and maintain a park. Decisions made now will affect the well-being of future generations, and so the manner (i.e., criteria) in which those decisions are made will have important consequences.

28. It is worth noting that distributional issues related to policy are not limited to parks per se. Any circumstance where rights are implicit rather than explicit will engender the same issues; that is, any policy that affects property rights (read property "value") will engender winners and losers in some way. In societies where property rights are well-defined, these issues may be more easily resolved. For example, if society emphasises private ownership of property, there may be a predisposition in the legal system to acknowledge the rights of individuals who are being affected by a particular policy. In that case,
compensation in some form may have to be provided. An obligation of the legal system in those situations is to ensure that developments which have obvious benefits for major portions of the population are not unreasonably obstructed by a few. In other societies, where the emphasis is on collective rights, the obligation of those favouring collective action may be less onerous and extend only to proving that a greater good is served by impinging on the traditional rights of small groups. An interesting footnote to this discussion is to observe that, in some cases, societies which carefully define property rights may make it easier to enact certain types of policies. For example, the purchase of real estate in some OECD countries gives owners broad rights to do more or less as they wish with the land. In other countries, however, the purchase of real estate gives only a well-defined limited set of rights, which provide very tight constraints on the “owner”. The government then has greater scope in acting in those areas where rights have been retained.

IV. Selected empirical literature

29. This section presents a selection of available literature that addresses distributive issues related to some national parks. More specifically, it summarises some preliminary conclusions that have emerged in the following areas:

   a) property, or resource rights;
   
   b) the level of economic incentives, both at household and community levels;
   
   c) the form that the economic benefits take;
   
   d) the management of resources (including the power of to take management decisions).

Cases from non-OECD countries

30. Many of the cases from non-OECD countries that have been reviewed in this paper apply an approach known as “Community Conservation”. Because local residents bear such a large component of the costs of conservation in the case of protected areas, there has been a growing awareness of the requirement for integrating the needs of local communities and social and economic development with conserving biodiversity, which Community Conservation attempts to address. This approach to conservation came about because of the experience of conservationists who found an attitude of hostility towards conservation efforts among local rural populations in poorer countries that threatened to make conservation projects ineffective. Community Conservation generally involves the following approaches: allowing people living near protected areas to participate in land-use policy and management decisions; giving people ownership over wildlife resources; and providing local people with economic benefits from the conservation projects (Hackel, 1999). As these approaches are distributional in nature, this paper refers to several Community Conservation projects in order to illustrate how the distributional factors introduced above impact the success of conservation.

a) Property and resource rights

31. The implementation of “fortress style” or protectionist conservation in many countries was based on the idea of creating islands of undisturbed habitat which could be protected from encroaching industrial development, and resulted in the forced relocation of land users by governments (Young and Boehmer-Christiansen, 2001). Prior to the initiation of CAMPFIRE, there were examples of groups in Zimbabwe whose land had been expropriated to permit activities such as dam construction (e.g. River Tonga people). Displacement to communal land areas had led to the division of communities, deprivation
of traditional lands, and disruption of livelihood and security. People had been encouraged to take up agricultural activities in communal lands, which are often surrounded by wildlife sanctuaries. The conflict engendered by the expropriation of land without compensation was exacerbated by outlawing the killing of park wildlife, either for subsistence or to prevent damage to crops and livestock. The link to the first part this paper is clear in this discussion. There was a severe redistribution from those who used the biodiversity resource for livelihoods to those who used it for their pleasure or indirect consumption. These were, however, traditional lands so the question of property rights and who held them is relevant.

32. Similar situations existed in other countries. Namibia experienced a history comparable to Zimbabwe, where the state appropriated control over wildlife and allowed hunting only by settlers and sport-hunting visitors. This led to alienation of local people who were prohibited from traditional uses of wildlife. Conversion of both private land and communal land to agriculture, and illegal exploitation of wildlife led to declines in wildlife numbers (Jones and Murphree, 2001). In East Africa, most conservation initiatives historically were based on protected areas that were established by displacing local resource users without compensation (Barrow, Gichohi and Infield, 2001). Loss of habitat and plunging wildlife numbers were also experienced in India, for example, with the creation of Nagarhole National Park which displaced local peoples from communal lands without compensation (Young and Boehmer-Christiansen, 2001). The hostility felt by local people toward the governments that had displaced them, combined with difficulties in maintaining livelihoods has, in some cases, resulted in projects of massive wildlife destruction and sabotaging of parks in order to eliminate the problem. In Uganda in 1985 during a period of civil strife there were sentiments expressed that “if the game could be killed off, government would let the land be used for farming and grazing and abandon the idea of conservation.” (Hulme and Infield, 2001)

33. As a response to early policies in which residents were displaced, many Community Conservation programmes were created, based on policies which allowed local people to gain some rights over wildlife through the formation of conservancies, or common property resource management institutions (Gichohi and Infield, 2001). This increase of rights has increased the benefits to local residents through rights to own certain species, limited rights to use other species, and permits to buy and sell game. However, rights to land have not been granted, and it has been proposed that “[w]ithout secure land tenure, conservancy land-use regimes may be undermined by the influx of people and livestock from elsewhere” (Jones, 2001). This issue may be particularly relevant where high levels of intra-rural migration exist. Rights to use natural resources also impact upon perceived responsibility to manage them. For example, in Mahenye, one of the most successful CAMPFIRE wards, as the rights of local populations to wildlife became clearer, community control and influence over resource use improved (Murphree, 2001). The success of CAMPFIRE in Mahenye has been partly attributed to the fact that the community is fairly discrete and homogeneous. The bestowing of wildlife rights to a single cohesive community may optimize the community’s influence on individuals, who may be more likely to act in the best interest of the whole group (Dixon and Sherman, 1990).

34. The Annapurna Conservation Area Project in Nepal has also been very successful in promoting a sense of responsibility for resource management among local residents. This project was designed to integrate conservation and development, in order to manage tourism and nature conservation while avoiding resistance from local people, most of whom live at subsistence levels or below (Gurung and De Coursey, 1994). The approach taken by project leaders was to provide a designation for the area that would allow multiple use of the area’s resources by residents. Local people participate significantly in the planning, decision-making, implementation and management of the area, which enables them to maintain control over local resources. Management activities include forest zoning, establishing forest nurseries and planting seedlings, as well as community development. In addition, the programme promotes the integration of sustainable resource management by local people into traditional practices, and local villagers can thus gather wood, graze livestock, and hunt in the area.

35. An approach to conservation policy that may be even more successful – through the maintainence of local peoples’ rights to land and resources – is one that is based on stewardship and
voluntary participation by land owners. An example is found in Belize, with the Community Baboon Sanctuary (Hartup, 1994).³ Individual participants living along the Belize River, many of whom are longtime community residents practicing farming, hunting and collection of forest resources, pledged voluntarily to conserve portions of their farm land and to use sustainable management practices in order to support the native habitat of the black howler monkey (Alouatta pigra; “baboon” in Creole). The site has become a research station, educational facility and tourism draw. Benefits from the tourism activities have been of a small scale, however positive attitudes regarding the indirect benefits of tourism and nature protection have been expressed in surveys of participating landowners (Hartup, 1994). Nevertheless, more tangible benefits, an issue addressed in the next section, are viewed as necessary for the continued success of the Community Baboon Sanctuary.

b) Level of economic benefits

36. In a recent study of 93 protected areas in 22 tropical countries, the existence of direct compensations to local communities was found to correlate well with park effectiveness assessed in terms of preventing land clearing within the park boundaries and the condition of the park relative to surrounding areas (Bruner et al. 2001). Because conservation policies such as the establishment of protected areas result in some activities or resource uses being restricted or completely banned, there will be a loss of income for local residents who must give up these activities. In order to avoid hostility and to maintain an equitable situation, it is often recognized that these residents should be compensated either directly or through alternative opportunities for generating income (Lovett, 2001). Furthermore, studies of various conservation projects in Africa have shown that not only should the benefits from wildlife conservation to the communities exceed the costs, but in addition benefits of participating in community approaches should exceed the opportunity costs of activities foregone for that participation, and benefits must accrue as real financial and livelihood benefits in order for the project to be successful (Emerton, 2001). A broad, context-specific understanding of the community’s relationship with its natural resource base is therefore necessary, and must consider the level and form that benefits take, as well as the degree of community control over wildlife management.

37. The level of economic benefits also seems to have been closely linked to the success of CAMPFIRE programmes in Zimbabwe. The most successful cases within CAMPFIRE in terms of community acceptance are those in which, among other factors, the levels of benefits and revenues have been high, such as in Masoka Ward (Murphree, 2001; Murombedzi, 2001). In Mozambique, the Tchuma Tchato (“Our Wealth”) initiative involved increased community participation in decision-making through democratically elected community councils. These councils were involved in wildlife management, including the control of illegal hunting, and revenue distribution. The project was able to triple the trophy fees for safari hunting (increasing the amount of benefits available to the community) and this resulted in almost complete cessation of illegal hunting.

38. Benefits from nature tourism in several cases from diverse areas (Africa, Asia, Mexico) have been found to generate large amounts of revenue. However, local people often receive only a small proportion, and this is generally not sufficient to result in popular support for the park areas (Wells and Brandon, 1992; Gossling, 1999). In Mgahinga Gorilla National Park in Uganda, for example, agriculture is a dominant activity for the local population, although this is constrained by issues of land scarcity and poverty. The national park was created and included areas of residence and community centres, as well as areas heavily used by local people for forest product collection and livestock grazing. The establishment of the reserve outlawed all human activities and the area was depopulated with compensation provided for physical structures, permanent crops and trees, but not land. The Community Conservation project implemented to deal with the resulting negative feeling towards the park involved

See also, RARE Center for Tropical Conservation: www.rarecenter.org
education and public relations, building of a boundary to keep in the park wildlife that raid adjacent cropland, community infrastructure programs, and sharing of revenue from visitor fees to the gorilla park. However centralization of the granting of tour permits and revenue re-allocation has led to little immediate economic benefits to local communities adjacent to the park. The revenues generated are unlikely to be sustainable, and poverty and scarcity of land is increasing. After implementation of the conservation program, illegal activities by neighboring communities in the park have decreased however the inadequacy of compensation continues to foster resentment among local people (Adams and Infield, 2001).

c) Form of economic benefits

39. Various approaches with regard to the form of benefits provided from conservation initiatives have been used, ranging from monetary compensation for opportunity costs of parks on one side of the spectrum, to reciprocal agreements in terms of support for projects of social infrastructure (schools, dispensaries, wells, etc.) in return for helping the park authority to meet their management objectives on the other. In the latter case, the social services in the agreement may be those that the government is not able to provide (Bergin, 2001). This reciprocal approach, when combined with communication, education and awareness-raising has led to development of a positive relationship between the park and the surrounding community. However, the provision of community facilities does not make up for the loss of income that may have been experienced by opportunity losses due to limiting allowed activities in the protected area (Dixon and Sherman, 2001). It has been recommended that other income-generating activities should be provided as substitutes for prohibiting the use of resources. Examples include providing agricultural inputs in order to improve crop yields and thus lower the need to damage the park area, and developing alternative sources of wood or wildlife to reduce illegal timber harvesting or poaching. These would provide alternative opportunities for local residents who are prevented from exploiting natural resources due to conservation/sustainable use policies.

40. Substituting sustainable for non-sustainable methods or levels of harvesting of resources from the same protected area is an approach that engages the resident population even more to maintain control over resources. As described earlier, the successful Annapurna Conservation Area Project allows multiple use of the conservation area, and supports integration of sustainable practices into traditional methods of resource use. Similarly, in Matobo National Park in Zimbabwe, the controlled harvesting by local people of grass for thatching purposes is allowed, in order to provide compensation for limiting access to the park while maintaining strict management of the resources. The program is also supported by an agreement that those people benefiting from the program do not poach, trespass into the park with their livestock, or set fires in the park. The thatching grass brings increased income to participants and furthermore results in fewer problems with human encroachment into the park (Dixon and Sherman, 2001).

41. Often, the distribution of benefits from conservation initiatives varies between households. Generally, those benefiting the most are employed by the program or are successful entrepreneurs (Hulme and Murphree, 2001). Job opportunities for residents have been found to generate substantial economic contributions and create considerable goodwill (Wells and Brandon, 1992). In the design of management plans for protected areas, one method recommended for maximizing direct economic benefits to the community includes providing as many employment opportunities as possible for residents, in order to link the continued existence of the park and continued means of livelihood (Dixon and Sherman, 2001). Nature-based tourism is a potential source of employment for conservation areas, however it has been stressed that, as with other forms of resource-based income-generating activities, monitoring is necessary to ensure that damage to the area is avoided.

42. In one highly tourism-based area (Annapurna Conservation Area Project) benefit distribution has been based on the principle of requiring at least 50% local cash or in-kind contribution in order to assure resident participation and commitment to social development services (Wells and Brandon, 1992).
Participation in decision-making, whereby communities are able to gain control over the management of a resource as well as the distribution and allocation of the derived revenues, helps to ensure that the form of benefits provided matches the needs of local households (Jones and Murphree, 2001). Control over resources and benefits have been found by some researchers to be the two critical variables that determine community involvement in conservation (Anstey, 2001), which is linked to the success and acceptability of a conservation project.

d) Management of resources

43. The approach taken for managing threatened natural resources, from banning their use altogether, to allowing sustainable use by local populations, to devolving decision-making in management to resident communities, impacts upon the relationship with local people, and thus on the success of the policy.

44. Devolution of responsibility in management issues has been implemented in many Community Conservation programmes through policies allowing residents of communal lands to gain rights over wildlife through the formation of conservancies, or common property resource management institutions (Jones and Murphree, 2001). Management of resources in programs in Zimbabwe and Namibia included allowing communities to define themselves for the purposes of the conservancy, setting up community game guard networks, and enabling communities to participate in decision-making in order to develop a greater sense of responsibility for wildlife. The initial involvement of residents involved monitoring of poaching and other suspicious activities through the appointment of local individuals who acted as community game guards reporting to local “headmen”. This increased participation had been linked to improved wildlife numbers in Kunene, Namibia (Jones, 2001). The devolution of decision-making later extended a little further towards determining who should benefit from levies from tourism activities and how these should be distributed, based on resident surveys. With support and training from the Ministry of Environment and Tourism of Namibia and a local NGO, devolution of management moved from receiving government hunted surplus game to being allowed to hunt themselves within set quotas, and eventually from receiving tourism levies to running tourism campsites within the park.

45. Even further, the Annapurna Conservation Area Project has engaged significant participation of local residents in the planning, decision-making, implementation and management of such activities as forest zoning, establishing forest nurseries and planting seedlings as well as community development. Thus, local people maintain control over the resources they use, which has generated popular support and has contributed to the success of the project (Gurung and De Coursey, 1994). In order for resource management to be effective, the devolution of authority should extend to the local community level as far as possible, and not to a pre-existing “intermediate structure”. In the cases where management of resources and revenues occurs at higher levels, communities do not view resources as being within their own control. Furthermore, it has been noted that traditional management institutions for decision-making, if they exist, should be used to avoid alienation of local communities (Murombedzi, 2001).

**Examples from OECD countries**

46. The following case study examples come from OECD countries, and demonstrate similar distributive characteristics to those summarised above for non-OECD countries.

**Austria**

47. The National Park Neusiedler See-Seewinkel was established in 1983 and was the first national park in Austria to be recognized as an IUCN category II (Natural monument or Natural landmark). A reed
belt within the park is recognized as a UNESCO biosphere reserve and the wetlands are recognized as internationally important under the Ramsar Convention. Prior to establishment of the park, landowners as well as other stakeholders used the land for agriculture, hunting, fishing, the reed industry and tourism. Compensations were provided to land owners ceding lands for the new park, entitled hunters whose access was restricted, and members of the fishing industry for ceasing to stock the lake with non-native fish species. These compensations operated as incentives for biodiversity conserving behaviour and, at least in the case of farmers, were determined by negotiation with the intention to meet opportunity costs (Hubacek and Bauer, 1999). In addition, financial penalties for disregarding the laws applied within the park were introduced. Extensive monitoring of the ecological state of the National Park has been underway, but the receipt of reports of the data from the relevant Austrian agencies is pending. At least one species, Ferruginous Duck (*Aythya nyroca*) which had declined to effective extinction in the 1980s at Seewinkel, has recolonised the site (Dvork, *et al*., 1997), suggesting that habitat improvements have occurred. In this example, negotiated compensations were used, implying that stakeholders were probably provided with adequate economic benefits to meet their opportunity costs. Negatives incentives were also used. If the state of habitats for other species is indeed improving, these approaches have been successful in meeting their biodiversity conservation objectives.

**Mexico**

48. The Calakmul Biosphere Reserve was initially established in the forests of Campeche in southeastern Mexico without consultation of local populations including those residing in the area that was designated as the core of the reserve (Acopa and Eckart, 1998). The biosphere reserve concept includes zoned and managed core and buffer areas and requires participation of local populations in the management of the reserve. There is a regional development strategy associated with the biosphere reserve concept that that is based on existence of economic incentives for the sustainable use of resources. This requires land use mapping and zoning based on “agreement among stakeholders to establish specific rules of conduct and resource use” (Acopa and Eckart, 1998). Sustainable management of timber as well as nontimber forest resources, in chicle and allspice production, beekeeping and agroforestry crops, as well as ecotourism by local peasant organizations is being promoted to an increasing extent based on the Plan Piloto Forestal (PPF) methodology used in other Mexican states. The methodology is based on “training local people to carry out sustainable silvicultural practices, to reforest, and to manage their own forest industries…[using] a multiple-use strategy that includes both timber and nontimber forest products.” (Acopa and Eckart, 1998) There is a strong devolution of decision-making in resource management to the local organizations. Although an assessment of the success of the program is not yet available, the approach used suggests that wide support among the local community for the initiative is likely.

V. **Concluding remarks**

49. The literature on the subject of distributive issues in parks is still in its early stages of development. There are, however, some early lessons that can be drawn from policy initiatives in both Member and non-Member countries. Some broad lessons are that: (1) the level at which benefits accrue should be the level at which management occurs; and, (2) tenure over natural resources should be delegated to the lowest level of social scale possible. The overview also permits some nuanced observations to be made. These include: (1) that poverty, coupled with increasing populations in poorer countries, will require adequate forms and levels of benefits at both household and community levels; and (2) that policies need to be context-specific.

50. The preliminary work outlined in this document represents an initial contribution to discussing distributive issues in parks policy. It has selectively overviewed the available empirical literature related to parks and presented a formal treatment of the subject from an economic perspective. That framework is a
useful starting point but could be developed further to include explicit consideration of the feasibility of using certain types of policy instruments in specific contexts. This would give it more direct relevance to the empirical work in the rest of the paper. It should also be used to create specific examples in quantifying costs and benefits and illustrating how the prescriptions implied in that analysis might be applied. In this context, the empirical work could then be used to draw some concrete lessons for implementing policy such that it was more sensitive to distributional issues.

References


