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Sustainable Financing for Protected Areas: A Comparison of Parastatal and State-Funded Conservation Agencies in Africa and the Caribbean

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1. Introduction

Increasing the funding for conservation activities is a perennial issue in protected area management. Though data is scarce, there can be little question that most of the protected areas in the world are under-funded. Where reported, protected area agency budgets in the developing countries average only one third the level required to achieve their stated conservation objectives (James *et al.*, 1997). Examples of "paper parks", or government gazetted protected areas that have no administration or budget, are common in many parts of the world (IUCN, 1992; IUCN, 1994). As one study noted, "Budget constraints make it unlikely that a system will receive enough funding from the central government to effectively manage all protected areas" (Dixon and Sherman, 1990: 78). Thus, the chronically insufficient funding of protected areas contributes in no small part to the continuing threats to global biodiversity.

An alternative to the dependence on governments for conservation funding is offered by parastatal protected area agencies. A parastatal protected area agency is a semi-autonomous organization that receives a yearly grant from government, but also has the right to raise and retain its own revenues. Parastatals often take advantage of their greater financial independence by diversifying their sources of revenue beyond the collection of park fees and the provision of visitor services. Other sources of funds tapped by parastatals include investment and trust fund income, subscriptions and donations, and foreign assistance. Parastatal agencies typically pay no dividends or taxes, so surplus revenues from operations can be reallocated to conservation activities within the protected areas. Governmental control over parastatals is exercised through protected area legislation and by representation on a board of directors, which often includes a broad range of stakeholders.

Institutional theory provides a framework for analyzing the performance of protected area agencies. Institutional theory states that the incentives governing environmental performance, at any level, stem from three national characteristics: the formal or written laws (and property rights), the social conventions and constraints, and the level of enforcement of each. The interaction of the formal structures with the social codes of behavior create an institutional environment, which provides the set of incentives. When the formal laws, policies and programs are supported by the social expectations and conventions, and both receive adequate enforcement, an institutional incentive is created (UNEP, 1996; Presber-James, 1996; North, 1990). A parastatal agency is an example of the institutionalization of a new incentive structure for the management of national parks and protected areas, which depends upon both a formal change in the agency_s legal designation, and an informal change in the attitudes and strategies of the agency managers.

The difference in formal institutions between government and parastatal protected area agencies is embodied in the structure of property rights over the park revenues. A property right is the claim on the benefit stream arising from an asset, and which is enforceable over other individuals and organizations through a set of property rules (Bromley, 1992). In the case of a parastatal, the control over the stream of revenue arising from the operations of a protected area is a property right that has been transferred from the government to the conservation agency. The property right over protected area revenue creates the incentive to optimize the value of the benefit stream from the protected area assets. Optimization of the benefit stream requires that the managers of the parastatal agency maximize the revenues flowing from the protected areas subject to the constraint of maintaining adequate conservation of the biodiversity resources. This constraint is enforced formally through government regulation and oversight of the protected areas, and informally through the stewardship ethic of the park managers.

Thus, the creation of a parastatal protected area agency can be expected to result in a range of outcomes, depending upon the response of protected area managers to the institutional incentives. An improvement in financial performance can not be taken as a given once the property rights to the protected area revenues have been transferred to the agency. This modification of property rights is strictly a formal measure; its success in improving the financial performance depends upon the support of the informal rules and modes of operation within the conservation agency. Thus, this study will attempt to determine if, in practice, the creation of parastatal protected area agencies has resulted in better financial performance than comparable government funded conservation agencies. Whether or not financial performance translates into improved conservation results is not easily measured, and

remains outside of the scope of this analysis.

2. Methods

2.1 Data: A number of parastatal protected area agencies were identified in an ongoing project on national budgets for protected areas, conducted by the World Conservation Monitoring Centre (James *et al.*, 1997). These parastatal agencies, and a control group of government funded agencies, were sent a survey questionnaire requesting information on protected area funding. The survey questionnaire, reproduced in Annex 1, asked respondents for data on their annual budgets, including the total amount of funds allocated to protected areas, the sources of funds, and a self-assessment of the adequacy of funds relative to the agency_s stated conservation objectives. A total of 23 parastatal agencies and 29 government agencies, located in 30 countries, were contacted. Annex 2 contains a list of the surveyed countries and agencies.

Response to the survey was incomplete, but not out of line with previous WCMC experience in collecting data on protected area budgets. Completed questionnaires were received from eight out of the 30 countries contacted. Six parastatals provided detailed budgets along with comments on their financial activities. Four of the responding parastatals were located in the Caribbean region, and two in Africa. Due to the low survey turn-out, the data were supplemented with information on protected area budgets from other sources, primarily from previous WCMC protected area surveys (James *et al.*, 1997). As a result of the limitations on data, the study compares the financial performance of protected area agencies in the Caribbean and Sub-Saharan African regions only.

Financial performance is measured as the agency_s annual protected areas budget expressed on a per square kilometer (PSK) basis. Foreign funds have been excluded from the agency budgets because of incomplete and inconsistent data. However, the analysis does note where foreign assistance is known to have been significant. The agency budgets include both operating expenditure and capital expenditure. However, few countries reported significant capital expenditures, so the comparisons are, in practice, reflective of annual operating expenses. The protected area budgets, which pertain to a range of years in the mid 1990s, have been standardized to 1996 US dollars. The budgets have been converted to US dollars in the budget year reported by the agency, then scaled up to 1996 values with the US dollar deflator. The foreign exchange conversion rates and the US dollar deflator were taken from IMF (1997).

2.2 Basis of comparison: The Caribbean and Sub-Saharan African regions are treated separately in the analysis. Within these regions, account is taken of the fact that economic development and protected area size have a significant influence over conservation budgets (James *et al.*, 1997). Higher income countries can and do invest more in protected area conservation. Secondly, there exists a significant economy of scale in protected area management. Small protected areas are relatively expensive to administer because of high fixed costs and a large perimeter to area ratio. As a result, budgets for small protected areas can appear to be extremely high when expressed on a per square kilometer basis.

To remove these effects, parastatal and government agencies from groups of similar countries are compared. Each region is divided into three groups of similar countries. These smaller groups of comparable countries are selected based on their 1994 per capita income (PCI) as reported by the World Bank (1996), and mean protected area size as reported in the survey responses or internal WCMC sources.

In the Caribbean region, protected area agencies are grouped based primarily on mean protected area size. The mean area protected by the agencies in the Caribbean sample varies by four orders of magnitude, from 0.3 square kilometers to 504 square kilometers. As a result, the Caribbean region is divided into the following size classes: (i) mean area over 100 square kilometers; (ii) mean area from 10 to 100 square kilometers; (iii) mean area less than 10 square kilometers.

In the Sub-Saharan African region, both protected area size and economic development determine the groups of comparable countries. The countries are divided as follows: (i) medium sized protected areas, medium level of economic development; (ii) large areas, low level of development; (iii) large

areas, high level of development. The designations are relative to the African scale of development and geography. Thus, large protected area size refers to a mean area of over 2000 square kilometers, and higher level of development is above $500 in per capita income.

3. Results

3.1 Caribbean: The results for the Caribbean region are summarized in Table 1. On average, the parastatal protected areas in the Caribbean receive twice as much funding, $1886 PSK, as the government funded protected areas, $989 PSK. In two out of the three comparative groups, the parastatals exhibit higher PSK funding intensity than their government funded counterparts. In all of the groups, the parastatals have more diverse funding sources.

The large size class has only two agencies for comparison: the Bahamas National Trust, a parastatal, and the Directorate of National Parks in the Dominican Republic, a government funded agency. The parastatal agency invested $324 PSK, compared to $73 PSK by the government agency. The results should be viewed in light of the fact that the government funded agency has larger protected areas (504 vs. 209 square kilometer mean), and a lower per capita income ($1330 vs. $11 800), both of which tend to lower per square kilometer conservation budgets.

In the medium size class, the parastatal agencies are represented by two independently operated protected area systems on separate islands of the Netherlands Antilles, Bonaire and Saba. Five government protected area systems are included for comparison: Turks and Caicos, Dominica, Jamaica, Trinidad and Tobago, and St. Kitts and Nevis. The control group countries have a mean per capita income of $3568, compared to $8956 in the parastatal. The mean area of the government funded agencies is 29 square kilometers, compared to 18 square kilometers for the two parastatals.

In medium sized group, the parastatal administered protected areas received $10 828 PSK on average, compared to $619 PSK in the government funded agencies. The parastatal agencies would be expected to have higher PSK budgets, due to their higher income levels and smaller mean areas, though these differences are not great enough to explain the parastatals_ seventeen times higher rate of investment. Among the government funded agencies, the highest budget is recorded for St. Kitts and Nevis at $4441 PSK, still well below the parastatals_ budgets. Notably, St. Kitts and Nevis is also the most comparable government agency to the parastatals, in terms of mean size and income.

The small size class is the only group where the government agency reports higher protected area investment than the parastatals. In the small size class, the average budget of four parastatal agency budgets is $48 059 PSK, compared to $90 157 PSK for the government parks department in Bermuda. Bermuda is a highly developed country with a per capita income of $17 790, and has a highly fragmented system of small parks (111 protected areas averaging 1 square kilometer each). Unlike Bermuda, the parastatal countries have not attained developed country status, as their mean per capita income is $5090. Also, the parastatal agencies each have a larger mean area under protection, with the exception of St. Lucia. Hence, protected area investment in the parastatal agencies is biased downward by their protected area size and per capita income.

Perhaps the most comparable parastatal agency to Bermuda in terms of mean area is the St. Lucia National Trust, which operates 3 protected areas totaling 0.33 square kilometers. The St. Lucia National Trust_s protected area expenditures total $560 752 (equivalent to $1.68 million PSK), well in excess of the government budget in Bermuda. The three other parastatals in the small size class have smaller budgets than Bermuda, but only one fell short by a major amount. The parastatals include Antigua ($40 123 PSK), Barbados ($50 120 PSK), and Montserrat ($5220 PSK).

3.2 Sub-Saharan Africa: Table 2 presents the results for Sub-Saharan Africa. In African protected area systems, parastatal investment averages $556 PSK, compared to $38 PSK in government funded agencies. In each of the three comparative groups, the parastatals demonstrated both higher investment and more diverse funding sources.

In category (i), the Kenya Wildlife Service, a parastatal, is compared to Uganda, Zambia, and Malawi. These are roughly middle income countries with middle sized protected areas. The average per capita

income in the control group is $237, compared to $250 in Kenya. The mean protected area size administered by the Kenya Wildlife Service is 839 square kilometers, while the comparable government funded systems have an average area of 1424 square kilometers.

Kenya_s internally generated budget of $310 PSK is more than ten times greater than that of the control group, whose average investment is $29 PSK. In addition to the internally generated funds, foreign assistance to the Kenyan Wildlife Service contributes another $160 PSK in operating funds and a massive $739 PSK in capital investment, for a total budget of $1209 PSK. Kenya_s total investment is very nearly equal to that of South Africa, a considerably more developed country with the highest protected areas budget in Africa.

In category (ii), Tanzania_s parastatal agency is compared to the government agencies in Ethiopia, Sudan and Zaire. This group of countries is characterized by their very large protected areas and low level of economic development. Per capita income in Tanzania is $140, compared to $100 in Ethiopia; per capita income in Sudan and Zaire are not reported. Mean protected area size is 3358 square kilometers in Tanzania and averages 5025 square kilometers in the three government funded countries.

The Tanzania National Parks budget is $170 PSK, compared to an average of only $16 PSK for the group of government funded agencies. Tanzania National Parks derives almost all of its budget from tourism revenues. Donations amount to the equivalent of $3 PSK annually, and the agency receives no subsidy from the government. Instead the Tanzanian parastatal remits 50% of its annual surplus to the national treasury as a corporation tax.

In category (iii), the National Parks Board of South Africa and Zimbabwe_s Department of Wildlife and National Parks, both parastatals, are compared to the government funded conservation agencies in Botswana and Namibia. The parastatal agencies reported an average protected areas budget of $923 PSK, compared to $67 PSK in the government funded areas.

The cost of protected area management may be a little lower in the government control group, but their higher levels of income imply a greater availability of funds for conservation. Botswana (PCI $2800) and Namibia (PCI $1970) are both high income countries by African standards, suggesting greater means for government conservation investment. The parastatal countries, South Africa ($3040) and Zimbabwe ($500), actually have a lower average per capita income than the Botswana and Namibia. In terms of mean areas, the protected areas in Botswana and Namibia are larger and located in areas of less population density than in South Africa and Zimbabwe, implying lower funding requirements. These offsetting factors suggest roughly similar government and parastatal conservation budgets; instead, the parastatals_ PSK investment rate is fifteen times higher.

5. Discussion

5.1 Caribbean: Diversification of revenue sources has enabled the higher parastatal funding of protected areas in the Caribbean region. The incentive created by revenue retention within the agencies has led to efforts to develop new sources of funds. These efforts have taken the form of more and better services on offer, and new charges for formerly free services. All of these efforts represent a greater realization of the economic value of a country_s environmental assets, and the reinvestment of these values into conservation activities. The high volume of tourism to the Caribbean raises the marketable values of the protected areas, and the parastatal agencies appear to be well positioned to take advantage of this financial opportunity. This section briefly reviews the steps taken by the Caribbean parastatal agencies to increase and diversify their revenues.

The parastatal agency in the large size class, the Bahamas National Trust, receives only $11 PSK from the government. By comparison, this allocation is only a fraction of the $73 PSK received by the Dominican Republic_s parks agency. The Bahamas National Trust adds another $313 to their conservation budget from revenues raised and retained in park operations. Subscriptions and donations also contribute a small amount.

In the medium size class, the parastatal agencies on the islands of Bonaire and Saba in the

Netherlands Antilles are largely independently financed protected areas. Bonaire receives 3% of its annual budget from the government, and Saba receives nothing. Both earn the majority of their revenues from visitor fees, primarily from diving fees and boat moorings. Both actively seek donations from visitors, and manage trust funds which make yearly contributions of interest income. In Bonaire, donations contributed $104 PSK, and the trust fund income added $398 PSK; Saba received the equivalent of $805 PSK in donations and $186 PSK in investment interest. Though contributing only a small proportion of the budgets in Bonaire and Saba, donations and trust fund income alone amount to a funding base roughly equivalent to the control group budgets ($619 PSK).

Further, both Bonaire and Saba are actively taking steps to increase their revenues from visitor services, their main source of funding. For example, Bonaire has proposed to the government that their diver fee be extended to cover all users of the marine park, including the yachters, windsurfers and snorkerlers who currently pay nothing. Additionally, they plan to begin charging a yearly fee to the owners of private and commercial moorings in the park. Saba, unlike Bonaire, earns a significant proportion of its yearly budget from souvenir sales (equivalent to 23% of operating funds), and plans to expand such sales. In both cases, the incentives provided by financial independence have resulted in the diversification of revenue sources and a greater capture of the financial value of their environmental assets.

Also in the medium size class is the Department of Environmental and Coastal Resources (DECR) of the Turks and Caicos islands, a British dependency. The DECR is a government funded agency struggling for greater financial independence. The government funded budget is only $225 PSK, considerably below the $619 PSK average for medium sized government conservation agencies in the Caribbean. The DECR estimates that their current budget allows them to meet less than half of their stated conservation objectives. In response, the agency has taken steps to increase their self-sufficiency, but notes that "At least ten proposals regarding self-financing in protected areas have been unsuccessfully presented to the government" (Garland, 1997). To provide extra funding for protected areas, the DECR has proposed implementing a diving fee, boat license fees, and an increase the hotel accommodations tax. To date, only the boat license fees have been approved by government, but the revenues must be returned to the treasury. The agency notes that the government greatly opposes the "ring fencing" of park revenues, which they perceive as government funds.

In the small size class, St. Lucia is the only one of four parastatals that reported a larger budget than Bermuda_s parks department. The St. Lucia National Trust budget is comprised in nearly equal parts government grant and internally generated revenues; donations and subscriptions add only 1% to total budget. On the basis of revenues raised internally, the St. Lucia National Trust spends nearly $750 000 PSK on protected areas, well in excess of the level of funding in Bermuda.

The other parastatals in the small size class have each taken steps to raise their revenue bases. For example, the Antigua National Parks authority has developed a marketing plan "in order to sensitize and attract more visitors to the parks" (Martin, 1997). Antigua has recently upgraded its services to attract more visitors, and has introduced an all inclusive fee to the parks. In Barbados, fees for use of the protected areas have traditionally not been charged. However, the parastatal management currently has a proposal for the implementation of user fees before the government. This proposal would enable the Barbados National Conservation Commission to reduce its current dependence on government funds for about 90% of its budget.

5.2: Sub-Saharan Africa: Tourism revenues make a major contribution to the conservation budgets of the African parastatal agencies. Much of the funding advantage the parastatals have over their government funded counterparts stems from the retention of revenue from visitor services and park entry fees. Here again, the incentive created by revenue retention appears to lead agencies to increase and diversify their funding sources. The African experience with parastatals shows that developing countries with substantial tourism can realize a greater proportion of the economic value of protected areas through the creation of parastatal agencies.

In category (i), the Kenya Wildlife Service has positioned itself well to benefit from the country_s large share of the region_s tourism, much of which is attracted to the wildlife parks. The agency has

successfully increased revenues through raising entry fees, improving the visitor services, and successfully promoting and marketing the parks. The parastatal has also been extremely effective in attracting foreign donors, as noted. Kenya is one of the best examples of successful institutional change, as the improved financial performance has been a direct result of the creation of the parastatal structure to manage the nation_s protected area system.

By contrast, Zambia has modified the institutional structure of protected area resource management in a different direction. The Luangwa Integrated Resource Development Project (LIRDP) oversees the sustainable use of the wildlife resources around the country_s most visited national parks in the Luangwa valley. In addition, a sustainable use projects within nearby Game Management Areas have been initiated. The projects_ objective is to achieve the sustainable utilization of wildlife in the region through transferring some of the property rights over the wildlife resources to the local communities (Lungu, 1990). The LIRDP receives a substantial amount of foreign assistance from both bi-lateral and NGO donors. Some of the revenues of the LIRDP are passed on to the national parks in the area. In 1993, support from LIRDP added $41 PSK to the budget of South Luangwa National Park and an adjacent game management area (Dublin *et al.*, 1995). As a sustainable use project, LIRDP may help to reduce the poaching problem in the parks, but is unlikely ever to produce the revenues needed to achieve adequate protected area conservation.

In category (ii), Tanzania, like Kenya, receives a large amount of the East African wildlife tourism. However, its internally generated revenues are 50% less than the Kenya Wildlife Service. As a result, the achievement of conservation objectives, such as the control of poaching, is dependent upon foreign funding to a greater extent in Tanzania than in Kenya (e.g. Dublin *et al.*, 1995). The shortfall in its financial performance relative to Kenya suggests that the institutional incentives in Tanzania National Parks may not be fully taken advantage of. This may relate to the informal institutions within the agency, such as a reluctance to raise park entry fees or to change other modes of operation. It is not possible to determine the reasons for the weaker financial performance without closer study, as informal institutions are subtle and not easily quantified.

In category (iii), the South Africa National Parks Board_s high level of financial resources is the result of a diversified revenue base. The annual government allocation to the parastatal is equivalent to $312 PSK, only about 10% of the total budget. The National Parks Board takes a proactive approach to revenue generation, by developing visitor services (68% of budget), generating investment income (8% of budget), and soliciting donations (1% of budget). The Board is currently seeking $100 million in financial assistance from foreign and domestic sources to expand the country_s network of protected areas.

The incentives provided by financial independence are also driving greater efficiency in the National Parks Board_s operations. The agency management notes that certain "commercial operations which have been performed in house are being (or will be) outsourced to professional companies" (Fearnhead, 1997). If a contractor can perform an operation more efficiently than the Board, then outsourcing the operation will reduce the agency_s total costs. The reduction in the Board_s operating costs increases the surplus available to fund conservation activities. Thus, the South Africa National Parks Board appears to be another example, along with Kenya, of a successful response to the incentives created by financial independence.

The Zimbabwe Department of National Parks and Wildlife Management (DNPWM) has recently been converted into a parastatal agency. Their internally generated budget of $302 PSK is similar to that of Kenya. Of this amount the government contribution is equivalent to $134 PSK, and foreign assistance adds another $92 PSK, for a total annual expenditure of $528 PSK. Before the parastatal structure was created in Zimbabwe, the DNPWM had a budget of $144 PSK (Martin, 1993). Since the change, government support for protected areas in Zimbabwe has remained roughly constant, but the new infusion of funds from protected area operations has resulted in a tripling of the conservation budget. The management of the DNPWM notes that they are now "reviewing tariffs so that they are consistent with those on the market. Ours were much lower" (Machena, 1997). The agency is also taking steps to increase the range of services offered to visitors.

6. Summary and Conclusion

The results of this study suggest an asymmetry in the value of park revenues to protected area agencies and their value to national treasuries. The revenues arising from protected areas are quite small relative to national government budgets, but can be very large relative to protected area budgets. The parastatal agencies reviewed here show that the retention of protected area revenues makes an enormous contribution to conservation budgets. Further, this study has shown that control over the revenue stream creates an incentive to increase revenue generation and diversification, thereby maximizing the financial value of a country_s protected areas. Conversely, government management of protected areas may fall short of fully realizing the potential financial values because of the insignificance of park revenues to the national treasury. Due to this asymmetry of values, a parastatal protected area agency can achieve major conservation benefits at little cost to governments.

The parastatal structure creates an "institutional incentive" to improve the financial performance of national protected area agencies. For such an institutional change to produce better results, however, the informal modes of operation with the agency must be compatible with the new incentives. This requires a willingness on the part of agency managers to take the steps necessary to raise revenues, reduce costs, and attract foreign support, while keeping biodiversity conservation as the primary objective. Not all agencies will have such conducive informal institutions. For example, the Tanzanian parastatal appears not to take full advantage of the opportunities provided by financial independence, and this may be a reflection of organizational expectations and traditions. On the other hand, Kenya_s experience shows that the creation of the parastatal agency can bring about a change in institutional behavior, as evidenced by the vigorous measures taken to improve both financial and conservation performance. The balance of the evidence presented in this study suggests that the creation of parastatal agencies does appear to improve financial performance.

An important variable not explicitly quantified in the analysis is tourism expenditure. Many countries in the Caribbean and Sub-Saharan Africa receive a substantial amount of foreign tourism, and it is probably not a coincidence that many of these countries also manage their protected areas through parastatal agencies. The quantity of tourism to a country can create a large financial advantage over relatively less visited countries, which may distort the analysis presented here. However, it may still be true that a parastatal is better positioned to maximize the revenues received from tourism services, due to the incentive provided by financial independence. It remains an open question as to how much better a given country might do in attracting tourism if they turned their protected areas over to a parastatal agency. However, in a country that receives a substantial amount of foreign tourism, a parastatal structure is unlikely to hurt financial performance. The outcome depends upon the extent to which the protected area managers take advantage of the incentives.

Tourism expenditure is usually distributed evenly among a country_s protected area system. Inevitably, in any country, some protected areas are more marketable than others. Conversely, some protected areas may be valuable as reserves for biodiversity conservation, but not attractive to tourists. Hence, there is a case for treating the funding and management of national protected area networks as a single operating unit and redistributing funds among protected areas. A redistribution of funds can take place within a parastatal agency, if it had a mix of financially attractive and non-revenue earning protected areas under its authority. Alternatively, a parastatal might manage the most marketable areas in a country, and redistribute some of its surplus to government managed areas. Either way, the pooling and redistribution of funds in an equitable manner should be a stated objective of parastatal agencies in order to further a country_s biodiversity conservation objectives.

Finally, there is the possibility that the implementation of a parastatal protected area agency could be harmful for protected area conservation. The danger lies in the possibility that governments might abandon their responsibility for biodiversity conservation after creating a financially independent conservation agency. For example, in Tanzania, the government contributes nothing to the parastatal protected area budget. Not all protected areas will be able to achieve financial self-sufficiency, and it is questionable whether Tanzania has done so. It seems likely that a large proportion of the world_s protected areas will not be able to attract enough tourism, or other sources of funds, to ensure consistent and adequate conservation budgets. There is public good aspect to much of the global protected area system, due to the non-excludability and non-rival nature of the benefits of biodiversity

(Swanson, 1992). For this reason, governments should not turn to the parastatal structure to remove their financial responsibility for environmental protection. Parastatal agencies may best be implemented where the marketable values of the protected areas are high enough to ensure long term financial viability.

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