Co-management and Valuation of Caribbean Coral Reefs: A Jamaican NGO Perspective

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Abstract

The Jamaican Government’s policy statements on protected areas give support to a co-management framework. In the 1990s, eight protected areas were declared and non-governmental organizations (NGOs) were given mandates to manage them. One of the difficulties faced by NGOs that have sought mandates to manage marine protected areas is that many of the threats to coral reefs remain beyond their control because they originate from outside the protected areas. This paper examines what has been achieved within the non-governmental sector in terms of protection of coral reefs, and what are the likely prospects given the current institutional framework. Within this context, an attempt is made to identify the extent to which coral reef valuation might play a role in the development of an effective coalition for the protection of coral reefs.

Jamaica’s coral reefs

On the north coast, Jamaica’s island shelf is less than 2 km wide but it stretches to a maximum of 25 km on the south coast. Coral reefs fringe most of the north, east and west coasts but are less common in the south. Since the early 1980s, Jamaica’s coral reefs have faced a significant decline. This decline is often attributed to the impact of hurricanes Allen (1980) and Gilbert (1989), but the consensus is that greater significance should be placed on the impact of the die off of the grazing sea urchin Diadema antillarum. This occurred throughout the Caribbean and has been traced to a water-borne pathogen. The decline in the reefs was made worse by locally generated factors, including high nutrients in the coastal waters, inappropriate landuse practices and long-term over-fishing. The loss of sea urchins and herbivorous fish fostered a macro algae bloom, while elevated nutrient levels promoted the growth of the macro algae.

Site-specific factors have also been at work. Stress on the reef imposed by tourists who engage in diving and other water sports is greater in the

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1 Jamaica is just under 100 km wide at its widest and 250 km at its longest. Its total area is just under 11 000 km². The land rises to a maximum height of just over 2250 m. The Island is centered roughly at 18°10’N and 77°25’W. For a summary of Jamaica’s geography, reefs and fisheries, see Klomp (2001) and Aiken and Kong (2000).
2 Jamaica also has significant offshore reef systems associated with oceanic banks within its maritime zone. The conditions within the coastal zone differ considerably from those offshore. It is not possible to deal with the latter within the scope of this paper.
3 After some delay Diadema is now showing signs of strong recovery (see Cho and Woodley 2003).
resort areas of the north (Montego Bay, Ocho Rios) and west (Negril) coasts than it is on the south (Portland Bight) coast. Spear fishers do less damage in the south, as reefs are further offshore. Destructive practices like dynamite fishing are not present in all areas. Nutrient loads and sedimentation vary depending on sewage treatment, settlement, agricultural and other landuse patterns. Tidal flows are more conducive to reef health in some areas, and hurricane damage varies from place to place.

Institutional framework

The Natural Resource Conservation Authority (NRCA) was established under the 1991 Natural Resource Conservation Authority Act and became the main body responsible for protecting the Jamaican environment. The NRCA has been augmented by the various policies and guidelines. These include the Jamaica National Environmental Action Plan (JNEAP) (NRCA 1995a), a green paper (NRCA 1995b), and a white paper (NRCA 1997) setting out a parks and protected areas policy. These policy documents called for a co-management partnership between “the Government…NGOs…community groups…private land-owners and government agencies with responsibility for the management of vast areas of land.” The NRCA was granted power to delegate certain management functions, including management plan implementation, user fee collection, and regulation enforcement within protected areas.

The white paper identified “over 150 areas … as possible … Protected Areas”. Up until 1999, eight had been declared, including three marine parks (Montego Bay, Negril and Ocho Rios), and two contain large marine areas (the Portland Bight and Palisadoes/Port Royal Protected Areas). Table 1 lists dates of declaration, the entities with an interest in managing the areas (or parts thereof) and their status as of August 2003. Regulations for parks were established simultaneously with the declaration of the first park (Montego Bay, June 1992). However, the delegation of management functions for this park was not effected until September 1996. Furthermore, this mandate has not been renewed since its initial three-year period expired in 1999. In fact, despite ongoing negotiations, only one other marine protected area (Negril) has been delegated. Nevertheless, protected areas have been declared, at times without any management plan or structure. Some NGOs have undertaken tasks associated with management before getting the legal authority to do so, while others have declined to accept delegation in the absence of guaranteed funding.

This situation is symptomatic of the fact that environmental policy has not been central to the political process in Jamaica. The drive to place the environment on the national agenda has come, in large part, from the global arena. It has not emerged as a front line political issue. International agreements (including some that have emerged in the Caribbean) have played a pivotal role. In addition, various multilateral and bilateral funding agencies have insisted that attention be paid to the environment. These pressures have fostered the growth of institutions and programs within the Jamaican state, and provided NGOs with funding opportunities. The small but energetic NGOs have taken advantage of opportunities to place the environment on the agenda. At the same time, the technical staff members within the state agencies have played a similar role, and the scientific community, with its long record of research, has also sought to raise relevant issues.

In recent decades, Jamaica has faced a wide range of problems, including a stagnating official economy, periods of sharp political conflict, and high crime rates. Given the very tight budgetary situation, environmental concerns have been seen as a drag on development possibilities rather than central to the creation of solutions that are sustainable. Ironically, it was the budgetary constraints that encouraged the government’s interest in a co-management approach. Driven by the global context to deal with environmental protection, the Jamaican state was faced with the problem of funding protected areas. Delegation of management, which was actively sought by

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4 The system still remains quite unwieldy. NCOCZM (2001) lists 27 laws and seven regulations/orders relevant to coastal zone management. The NRCA has recently become part of a more comprehensive National Environment and Planning Agency (NEPA) that includes Town Planning.
5 NCOCZM (2001) has a list (incomplete) of 20 national policies and guidelines relevant to coastal zone management.
6 For more details on the development of protected areas in Jamaica see Miller (1999) and Smith (1995).
7 The original stimulus that eventually led to the Council on Coastal Zone Management came from issues relating to Jamaica’s exclusive economic zone, territorial seas and disputes with neighboring countries. Attention to inshore waters and coastal management came later. Financial conditionality appears to have been the main reason for the declaration of two protected areas, one of which was not even in the original list of 150 proposed parks and protected areas. A third example is the Black River area, which has not yet been declared a protected area even though it has been declared a Ramsar site.
some NGOs, held out the prospect of new resources, including funds not available to state agencies. There have been two problems with this approach. First, the state has tended to hand over the management rather than enter into genuine co-management with the NGOs. This has been unsatisfactory, as the NGOs do not have adequate resources to do the job. In addition, with two brief exceptions in the 1990s and, more recently, three in 2003, the NGOs have not been given legislative backing in the form of the delegation of management authority. The development of specific instruments, such as user fees regulations, which would allow the NGOs to obtain necessary resources from the protected areas that they manage, has also been slow. A small start has been made with the agreement to allocate 25 per cent of beach license fees from within the boundaries of the Montego Bay Marine Park to that park. There has also been some, albeit inadequate, direct funding to parks.

The lack of a deep philosophical commitment to co-management has been a second problem. The handing over of protected areas to NGOs might have appeared a convenient expedient. Yet, when the implications are considered more carefully, delegation becomes problematic for sections of Jamaica’s state leadership. Institutions accustomed to fast-tracking their pet projects do not wish to be constrained. Agencies associated with water resources, forestry and urban development face potential conflicts with the protected areas managers, as do large-scale business enterprises engaged in tourism, industry and agriculture. In light of these difficulties, negotiations on new delegations have been protracted.

The technical staff members within the National Environment and Planning Agency (NEPA – formerly NRCA) are now more aware of the limitations of NGOs and of the need to play a larger role with respect to protected areas. The NGOs are also more conscious of the need to have stable funding and have pressed the government to provide them with core funding and with the authority to collect user fees. However, the major players within developmental agencies that might come into conflict with protected area managers have also been pressing their case with the government. Ten years into the development of Jamaica’s parks and protected areas system, there are many unresolved issues and, consequently, limited successes.

On the positive side, the need for protected areas has been recognized and a number of the most important ones identified or actually declared. A policy has been set down and regulations established. Experience has been gathered with respect to the workability of various management models. The Protected Areas Branch of NEPA, although still very small (seven persons full-time), is larger than it used to be. Monitoring programs and research are ongoing. On the negative side, the funding for protected areas remains unresolved. The Environmental Foundation of Jamaica has provided a small facility for core funding to which NGOs can apply, but this is

<table>
<thead>
<tr>
<th>Area</th>
<th>Date</th>
<th>Entity</th>
<th>Delegation status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montego Bay Marine Park</td>
<td>5 June 1992</td>
<td>Montego Bay Marine Park Trust</td>
<td>Was delegated 1996-99 (still to be renewed)</td>
</tr>
<tr>
<td>Blue and John Crow Mountains National Park</td>
<td>26 February 1993</td>
<td>Jamaica Conservation and Development Trust</td>
<td>1 October 2002 for ten years</td>
</tr>
<tr>
<td>Negril Environmental Protection Area</td>
<td>28 November 1997</td>
<td>Negril Area Environmental Protection Trust</td>
<td>-</td>
</tr>
<tr>
<td>Negril Marine Park</td>
<td>4 March 1998</td>
<td>Negril Coral Reef Preservation Society</td>
<td>9 October 2002 for five years</td>
</tr>
<tr>
<td>Palisadoes/Port Royal Protected Area</td>
<td>18 September 1998</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Coral Spring – Mountain Spring Protected Area</td>
<td>18 September 1998</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Portland Bight Protected Area</td>
<td>22 April 1999</td>
<td>Caribbean Coastal Area Management Foundation CCAM, and Urban Development Corporation</td>
<td>18 July 2003 for five years to CCAM</td>
</tr>
<tr>
<td>Ocho Rios Marine Park</td>
<td>16 August 1999</td>
<td>Friends of the Sea</td>
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Source: Protected Areas Branch, NEPA
unlikely to make a major impact on the problem. Some progress has been made with the promulgation in 2003 of procedures for the collection of user fees in terrestrial national parks, but the comparable regulations for marine parks have not yet been produced. The political will to protect the environment remains weak and the issues relating to overlapping and conflicting jurisdictions among state agencies are still unresolved. Meanwhile, the NGOs remain small, with weak organizational capacity. They are often highly dependent on the skills and vision of a few if not one key individual. It has even been suggested, ironically, that what we have is unsustainable organizations promoting sustainable development.

Problems for coral reef protection

As a part of the International Coral Reef Initiative, a consultation process on the Jamaica Coral Reef Action Plan (JACRAP) was initiated in 1995 (NRCA 1999). Had this comprehensive plan received the support it needed to be effective, it would have provided a framework within which the protected areas could play a crucial role in the management of coral reefs. However, like many other Jamaican environmental policy documents, JACRAP has remained a paper plan. Yet the absence of an effective national program is not the only factor limiting the NGOs. Definitely one and quite likely two of the main factors that led to coral reef degeneration are outside the control of any human agency (this is in addition to the possible impact of global warming). These are hurricane damage and the various diseases affecting corals and Diadema. It is possible that there are anthropogenic elements at work in the cycle of susceptibility and disease, but there is no evidence for this. More broadly, in as much as the factors that maintain coral reef health are not fully understood, this constitutes a third factor that is beyond the capacity of the individual NGOs.

Most of the landuse practices that impact on the coral reefs take place beyond the purview of the managers of marine protected areas. The nutrient levels in coastal waters, for example, are in large part the result of the absence or ineffectiveness of sewage treatment, exacerbated by agricultural runoff. With respect to sewage treatment and water quality, there has been a reluctance to accept standards that are higher than those generally imposed by public health authorities in the developed world. Yet coral reefs require higher water quality standards than do humans and, in dealing with sewage, the developed world does not face the same challenges of coral reef protection and can arguably tolerate lower standards. While most of the damaging landuse practices take place far from the marine protected areas, an exception is the Negril Environmental Protection Area, which goes “from ridge to reef” and includes the Negril Marine Park. In many areas, managers must focus on negative practices within the immediate coastal zone. Among these are practices that disturb mangroves and upset the dynamic relationship between mangroves, seagrass and coral reefs. Limiting the unsustainable harvesting of mangroves and landfilling in wetlands can contribute to healthier coral reefs. But this will have little benefit in areas degraded as a result of increased runoff and sedimentation caused by deforestation and unsustainable agricultural practices in the uplands.

Perhaps the main way in which the NGOs can help to protect the coral reefs is by altering the behavior of tourists, fishers and others whose interaction with the reefs is most direct. Before examining these and other ways in which reef health might be improved it is necessary to lodge two caveats. The difficult economic situation in Jamaica has, in recent years, left tourism as one of the few areas of the economy showing some buoyancy. Policy-makers are, therefore, not inclined to support measures that impose what are seen as additional constraints on the sector. Similarly, widespread rural unemployment and poverty leave the government disinclined to enforce stringent measures against fishers, or to restrict access to fisheries, even where it is very clear that a decline in fishing effort is likely to improve output.

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8 This is a debt for environment entity set up through an agreement between the Jamaican and US governments. It has a mandate to fund NGO projects. The Jamaica National Park Trust Fund was established under a similar arrangement to provide funding for the first two parks that were declared.

9 I emphasize the need for further research at a number of points in my discussion. It is important to be clear that, although more research would improve our ability to protect coral reefs, the state of current research is by no means the binding constraint. Current action is lagging far behind current knowledge. Although scientists may disagree on the precise impact of the various factors, there is a broad consensus that simultaneous effort be directed at the various stress factors. The relative importance of every factor for each site may in fact be important when it comes to protecting a particular coral reef. The design and implementation of the kind of research program that can provide answers for knotty questions, such as the role of climate change and the causes of coral disease, are well beyond the scope of the individual NGO.

10 Australia and Florida, USA, represent two exceptions from which the Caribbean might well learn.
Jamaica is not a country where laws and regulations are treated with an unquestioned respect. Law enforcement is often weak, if not completely absent. Even where offenders are brought before the courts they do not always feel the full force of the law, as the environment is not an issue of deep concern to many judges. The Jamaican state does not evince a high level of legitimacy among ordinary citizens, and there are concerns with respect to corruption, political bias, and unfairness in the award of permits, licenses and state contracts. This context makes the introduction of effective resource use regulation difficult and underlines the importance of participatory co-management approaches if regulation is to succeed.

**Achievements and prospects**

Despite a less than enabling environment, a number of NGOs have made considerable strides. They have often obtained funding and begun to take steps towards the management of the protected areas prior to delegation. The NGOs have helped to promote research and monitoring of site-specific threats. Surrounding communities and resource users have been educated. In some cases a considerable effort has been made to connect with specific resource users in a structured way that embodies co-management ideals. The effort made to involve the fishers and their organizations in the process of drafting regulations for the Portland Bight fisheries is one case in point (Figueroa and Espeut 1996). In Negril, resource users now see the value of mooring buoys for tourist and other boats visiting the reefs.

Nevertheless, with few exceptions and despite approaches, especially from the NGOs, commercial enterprises have failed to respond to the environmental challenge. This is true even for industries such as tourism and coffee that are very dependent on extremely fragile natural environments. There has been some support for research, and considerable interest in projects such as the creation of artificial reefs, but the environment has not become a central concern even where there are win/win choices that have been proven in other countries. More recently, the tourist sector has taken an interest in international certification that would enable it to participate in the market for environmentally conscious tourists. Yet, the response to the Environmental Audits for Sustainable Tourism project was not overwhelming.

Cooperation between Jamaican NGOs has not been as effective as it might have been. Initially there was not a great deal of cooperation. Subsequently, the NGOs that pioneered the management of protected areas formed a network through which to share experiences and form common positions. However, at the time of writing, this network was no longer an active force. The protected area managers have cooperated with the technical staff within the state sector and have contributed to the various environmental policies, regulations and legislative drafts. Indeed, the NGOs can claim, at minimum, joint authorship for a number of government documents. They can also take credit for the somewhat more participatory style that is now adopted by the state when developing new policy instruments. (Although it has been suggested that this can lead to the slower decision-making of which the NGOs often complain.)

Despite the weaknesses in national policy, the representatives of the non-governmental sector appear confident that, with a bit more support, they could achieve a significant reduction in reef damage. The experience at Negril with mooring buoys could be applied in other areas – including Ocho Rios and Port Royal. Lessons learnt with respect to the education of resource users and the general public could also be applied more broadly. Best practices can be shared throughout the protected areas system.

The reduction in fishing effort and improved fisheries management is another major focus for protected area managers. The potential for improvement in fish catches where effort is reduced (Sary et al. 1997) and reserves created (Woodley and Sary 2003) has been well documented. This experience could be applied in all the protected areas if fishing regulations were developed and rigorously enforced. The importance of enforcement can be seen from the Portland Bight area, where approximately 3 000 fishers operate. Of these, it is estimated that less than one per cent employ nets that are very destructive to the reefs and seagrasses or use explosives. Those with destructive nets have also expressed their willingness to offer them up in a gear exchange. Owners of small size mesh traps and nets have also expressed their willingness to exchange if a comprehensive fisheries management plan is launched and fairly enforced. Potential fish sanctuaries have been identified and a consensus reached on the use of permits along with a “three out one in” system to further reduce fishing effort. All of this is set down on
Economic valuation and coalition building

The techniques of economic valuation have been applied to Jamaican (and other Caribbean) reefs and to related marine and terrestrial areas. (See, for example, Wright (1995) and EMU (2001).* These studies have employed well-known techniques to develop valuations of various coastal resources along lines similar to those adopted in other countries. No attempt is here made to review or critique these studies from a technical point of view. Instead I reflect on the questions that valuation studies might seek to answer if they are to assist in the process of building coalitions for coral reef protection.

In building a coalition it is necessary to identify potential allies and opponents. Among the former are those who might currently be suspicious or even hostile to proposals for the protection of the environment, but whose long-term interest lies with coral reef protection. For those who are already convinced of the need for coral reef protection, the issue is “what paths lead to coral reef restoration?” There are four groups (not counting the relevant Jamaican regulatory agencies and their staff) who are firmly in the camp of coral reef protectionists. These are (1) scientists researching in relevant disciplines; (2) environmentalist, their organizations, and other NGO or community-based organizations that have championed coral reef protection; (3) water sports enthusiasts, especially divers who have witnessed the deterioration of coral reefs; and (4) international organizations, including bilateral funding agencies, that have taken a stand in favor of and/or provided funding for projects that promote coral reef protection. The first three groups identified do not need any economic arguments to convince them of the need for coral reef protection. Indeed many of them are quite suspicious of the application of economic valuation to the environment and might well fall into the category of those who offer zero protest bids in contingent valuation studies (Splash 2000).

Economists may need to convince members of these three groups of the merits of economic valuation. In attempting to do so it would be very important to make it clear that economic valuation does not establish absolute values for the environment. Whatever figure is estimated constitutes a lower bound, as it usually only captures the most obvious and most easily calculated values. Many issues, such as those relating to option and non-use and, indeed, non-economic values, make it impossible to capture the value of the environment in dollars and cents. Failure to concede this point is likely to alienate many of the most enthusiastic supporters of coral reef protection. At the same time, many of these same people are happy to receive a positive endorsement from valuation studies, particularly where it is possible to demonstrate that the potential benefits that are derived from their work (even when valued at the lower bound) exceed the financial cost of supporting their actions. Cost-benefit analyses are the bread and butter of group four, agencies engaged in projects and/or funding; they need no convincing of the importance of valuation.

There are groups that should be on the side of coral reef protection but which, through ignorance or shortsightedness, are in an ambiguous position. Among these are the main resource users, including fishers, water sports operators, hoteliers and others with tourism interests. At the national level the Ministry of Finance and Planning, various regulatory agencies and the country’s leadership within all walks of life should be included. For the resource users, there is no doubt that a sustainable relationship with the coral reef ecosystem is in their best interest, but many are yet to understand or be convinced that such an approach can work. The pressing resource situation and demands for solutions to developmental problems encourages
short-term approaches. Those who engage in development, planning and finance, are also unconvinced of the ability of coral reef protection to ease resource constraints over time. Winning over these groups is essential if an effective coral reef coalition is to be created, but doing so requires a targeted approach.

Neither small-scale artisanal resource users nor hard-nosed capitalists are likely to be convinced by abstract or general valuations of coral reefs and the like. The small-scale users need to be convinced of the benefits of behavioral change in a very concrete way. In the circumstances of open access resource use, they need to be convinced that free riders will be effectively excluded. They may also need subsidies to tide them over periods when resource use may have to be curtailed, or to finance a shift to less destructive methods of harvesting. Economic valuation is of less use in winning their support than it might be in convincing financial decision-makers that subsidies are worthwhile investments.

The tourist sector is one that, by its very nature, is globally competitive. The sector is, therefore, very sensitive to anything that it sees as imposing an additional cost. If economic valuation is to convince the shrewd businessperson in tourism it will have to address some very specific questions. It also needs to rest on a firm base of science. Beach, sand and water quality are central to Jamaica’s nature-based tourist product. Yet the precise role of the coral reefs and related ecosystems in this process is still inadequately understood. For example, hoteliers routinely clear seagrass beds to improve the swimming experience of their guests. The long-term impact of this practice is not clearly understood by ecologists, nor is it clear what might be the best compromise that allows the current visitor to enjoy the beach while ensuring a similar experience for future visitors.

To convince hoteliers that they should modify practices, economic valuation has to be refined considerably. Hoteliers need to see the relationship between specific environmental goods and services and the demand for their product. They need to see the relationship between the impact they cause and the damage to the environmental goods or services that are at the foundation of their product. Demonstrating the relationship between water quality and tourism arrivals or between reef health and sale of reef tours may be methodologically challenging, yet, in the absence of such concrete connections, tourism interests are not likely to be spurred by economic valuation to accept the necessary short-run costs to secure their long-run interests.

The Ministry of Finance and Planning and other planning agencies are more accustomed to use micro data than macro data. Carefully prepared economic valuations might help to order priorities in favor of resource conservation. In convincing planners, however, general asset valuation is not enough; cost-effective considerations are also important. An integrated approach, such as that alluded to in Gustavson and Huber (2000), is likely to be more convincing. Given the formidable array of interests that are potential opponents to measures for coral reef protection, such an approach is important. At the same time, in balancing economic costs and benefits, we need to be clear that optima arrived at based on economic valuation techniques are not necessarily overall optima.

Large and small-scale agriculture, industrial enterprises, and the construction, mining, transportation and water sectors all impact negatively on the coral reefs. The imposition of more stringent landuse practices on agriculture, and the enforcement of tougher pollution standards on industry and the water sector, would reduce nutrient loads in coastal water and help to prevent sedimentation. This would also impose additional costs on these sectors and would be likely to be resisted. Carefully prepared economic valuations may help to convince decision-makers that the imposition of costs on these sectors is justified given the benefits to be derived by sectors that are dependent on coral reef health.

Decisions to protect coral reefs imply shifts in resource allocation that can have far-reaching implications. Those engaged in economic valuations need to be aware of the range of political variables and social dynamics that impinge on the decision-makers. Where it is demonstrated that a net benefit can be derived from coral reef protection, the question that arises is “who will actually benefit?” Is it predominantly the majority (poor, rural, local

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11 An area worth exploring is the making of claims against shipping companies and insurers where ships run aground on coral reefs. Unfortunately, the reefs in many ports are so degraded that it may be difficult to achieve high awards in some cases.
small-scale producers and workers who stand to benefit), or the minority (the better-off, urban, local elite, often from a racial minority), or foreign tourists? Distributional issues relating to residence and occupation as well as race, class and gender are never far from the surface and cannot be avoided if economic valuation is to help convince the national leadership to pay more attention to coral reef protection.

**Conclusion**

The main elements of an effective co-management framework for the protection of coral reefs have not yet been established in Jamaica. A small number of NGOs have developed valuable experience in working with their various communities to prepare for a genuine co-management approach. But, co-management is not an easy task in Jamaica, because many of the socio-cultural attributes of the country, as well as its political history, have been built on an ethic that disempowers people through authoritarian structures, and discourages them from taking responsibility for their world. In addition, there is a legacy that leads to a disregard for laws and regulations, and a state that fails to command a high level of legitimacy. These tendencies – and they are more marked in Jamaica than most other Caribbean countries – pose very difficult problems for building the consensus that is required for effective bottom-up co-management regimes. It also poses difficulties for enforcement that are less acute in most other Caribbean countries.

The NGOs have, with experience, developed a deeper understanding of what is involved in managing protected areas. The technical leadership of the NRCA/NEPA has also gained useful insights into what it can expect from the NGOs. The NEPA staff is now more committed to the view that, if co-management is to work, then the organization will have to be a more active participant and provide central services to support the protected area managers in the field. It will need to set and monitor measurable goals for protected areas. Other state agencies, such as the Fisheries Division and the Forestry Department, will also have to be active agents in co-management. All now recognize the need for a genuine system of protected areas rather than a set of isolated delegations. The local and foreign research communities and the international agencies remain supportive, but there is a limit to what contribution they can have in the absence of a fully developed national system.

The time taken to make decisions that are vital to the protected areas is unacceptable. If this were due merely to a lack of resources or bureaucratic inertia, it would be bad enough. The reality is that there is no unity of purpose within the state sector that stands behind the philosophy of co-management and the goal of effective environmental management. A number of state agencies that have been accustomed to doing their own thing are resistant to features embodied in the policy framework for protected area management. Vested interests are always a threat to environmental management, and there is an absence of strong political will to make the kind of breakthroughs that are required to transform the way Jamaican society relates to its natural environment. The commercial sector, the opinion-leaders and the general public have yet to understand concepts of sustainable development, let alone take steps to integrate them into their daily lives at work, at home and within their communities.

In the absence of an effective national program for the protection of coral reefs in Jamaica, there is a limit to what can be achieved within the protected areas. Yet, there is much that can be done to limit the damage caused by those who most directly interact with the reefs and related ecosystems within the protected areas. The protected area managers have already produced some positive results and can continue to do so even if left to their own devices. But what they can achieve without support is far from adequate. More significant changes will require urgent action to conclude negotiations, promulgate regulations and create a system that guarantees adequate core funding to protected areas.  

Building a momentum for the protection of coral reefs requires the formation of a coalition that includes all those who are already convinced, along with all those whose long-term interests are directly associated with the health of the coral reefs. It will be necessary to persuade the national leadership that the sacrifices that other sectors need to make in order to protect the coral reefs are a necessary price to pay for the greater benefits that will rebound from the recovery of the reef ecosystems. In building such a coalition,

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12 At the time of writing work was ongoing on a new systems plan for protected areas scheduled for completion in June 2004.
economic valuations can play a role – but to have a greater impact they need to be refined to the point where they can address the concerns of the target audiences, which are susceptible to an appeal to pecuniary calculations.

In terms of practical environmental management, Jamaica has some catching up to do in comparison with other countries such as St. Lucia and Belize. Protected area management in St. Lucia has been singled out as a successful case study in co-management. Similarly Belize, which has always had more effective fisheries management (including enforcement), is embarking on an integrated coastal zone management program with funding from the Global Environment Facility. Unfortunately, despite its long history as a research site and its more developed technical infrastructure compared with its smaller neighbors, Jamaica is often cited as an example not to be followed.

References


