

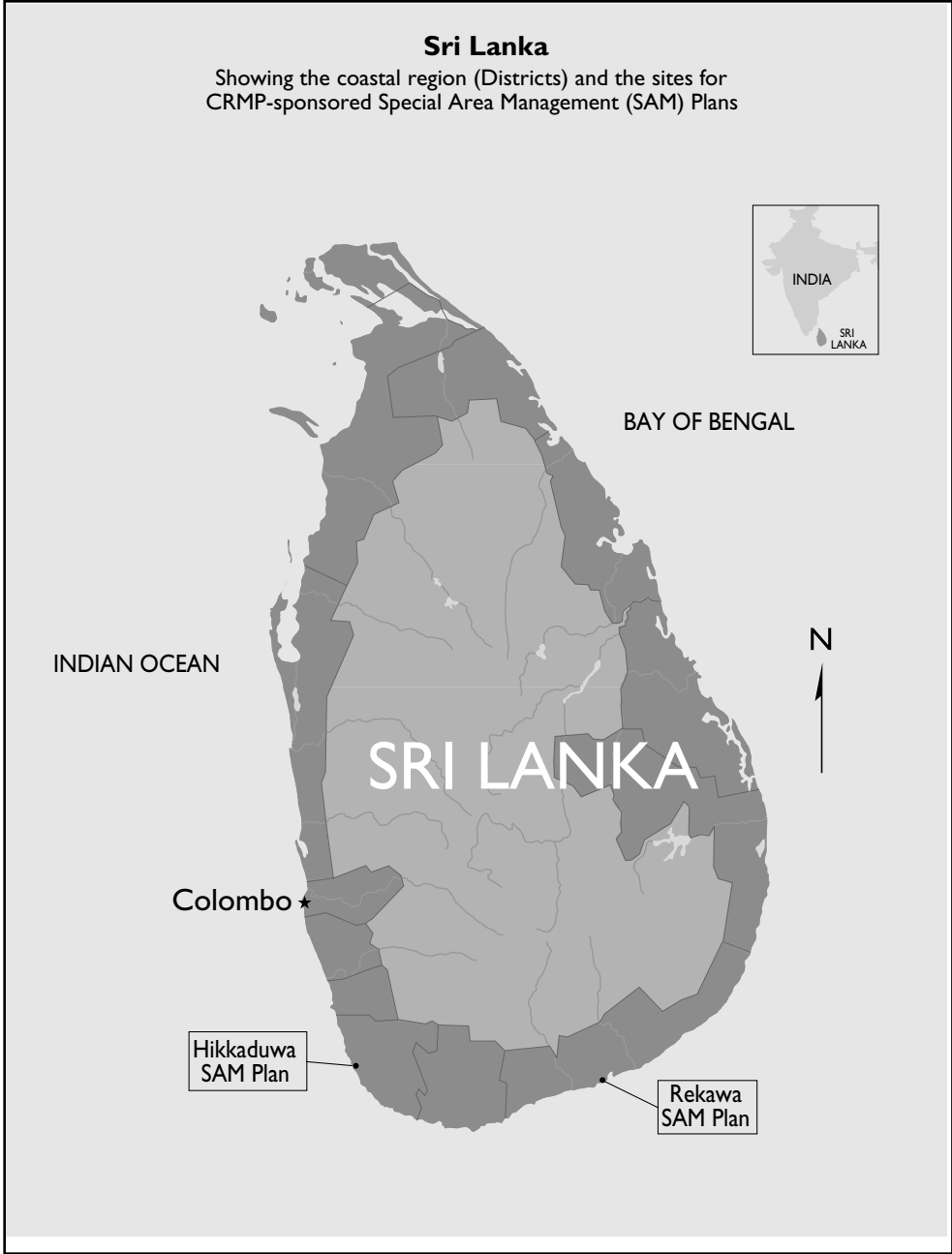
CHAPTER 4

THE EVOLUTION OF COASTAL MANAGEMENT IN SRI LANKA

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Sri Lanka, the mango-shaped island off the southern coast of India, is endowed with mangroves, estuaries, seagrass beds, coral reefs and other coastal resources that are among the most naturally productive ecosystems in the world (Coast Conservation Department, 1996). When defined to include the coastal tier of administrative divisions, Sri Lanka's coastal region includes 24 percent of the land but almost half of the population; industrial activities producing more than two-thirds of the national output; more than 80 percent of tourism facilities; and most of the nation's transportation infrastructure. The island's southwest coast is by far the most populated and intensely developed. It extends from the coastal lagoons that lie to the north of the capital, Colombo, to the southernmost tip of the island near the port city of Galle.

Seasonal monsoons have caused significant erosion and damage to homes, hotels and road along the southwest coast over time. Population growth in these areas has meant more building along the coast, resulting



in increasing interference with the natural processes of beach erosion and accretion, and greater risks to life and property. Increases in industrial activities, the proliferation of hotels and other tourist facilities along the southern coast, and clearing of wetlands and mangroves for urban expansion have all contributed to increasing threats to biodiversity and exposure to natural disasters.

By the mid-1960s, government officials and others began to see the need for a more comprehensive approach to the management of human activities affecting coastal conditions. Over more than three decades, what is today the Coast Conservation Department (CCD) has developed a coastal management program that has come to be recognized as a model for other tropical countries. The program combines centralized and decentralized regulation of development activities with education and advocacy, research, and community-level collective self-management. The core elements of the coastal management program that CCD staff designed and implemented in the 1970s when they were a unit in the Colombo Port Commission have remained constant for more than 30 years. At the same time, significant changes have been made to incorporate early lessons of management experience and the recognized need for greater community-level management. This case study outlines key elements of the CCD's efforts to design, implement, evaluate and re-design coastal management strategies to address management issues in an evolving social-economic context. It also probes how the USAID/CRC Coastal Resource Management Program (CRMP) contributed to the evolution of the program, and what was learned from personal involvement in this outstanding program.

THE EVOLUTION OF THE PROGRAM

What eventually became Sri Lanka's coastal management program started as a response to severe coastal erosion. Of the 1,562 kilometers of Sri Lanka's coastline, approximately 500 kilometers are subject to moderate to severe coastal erosion (CCD, 1986). The most severe coastal erosion

BOX 1: SRI LANKA'S PROGRESS IN COASTAL MANAGEMENT

In the more than two decades since its creation in 1981, Sri Lanka's Coast Conservation Department has:

- ❖ Recruited and organized training for a highly professional staff
- ❖ Developed an initial national coastal management plan (1990) and a revised plan (1997)
- ❖ Developed a regulatory process for evaluating government and private sector "development activities" within a 200-meter coastal zone, and reviewed more than 4,000 permit applications
- ❖ Developed a comprehensive strategy for coastal erosion management that involves constructing groins, revetments and other coast protection works in some built-up areas, established setback areas based on erosion rates and coastal geomorphology in other areas, and designated some "no-build" zones where coasts are particularly vulnerable to erosion
- ❖ Built more than 2,000 meters of new coastal protection works
- ❖ Organized an inter-agency process to review research on coastal habitats, identify threats to those habitats and develop habitat management priorities
- ❖ Organized and funded research on a wide variety of coastal management issues including sand mining, coral mining, and cultural and historic resources in the coastal zone
- ❖ Mobilized several million dollars in international donor assistance from Germany's Deutsche Gesellschaft fuer Technische Zusammenarbeit (GTZ), the Danish International Development Agency (DANIDA), United Nations Development Programme (UNDP), and U.S. Agency for International Development (USAID) to assist in the design and implementation of the management program

- ❖ Sent several key staff abroad for advanced degree programs related to coastal management
- ❖ Organized multiple workshops to review aspects of the coastal management program
- ❖ Devolved regulatory responsibility for minor development activities to district secretaries
- ❖ Participated in several significant internal and external evaluations
- ❖ Designed and implemented two key pilot projects to develop and test strategies for community-level co-management of coastal resources

occurs along the southwest coast, which is battered annually by seasonal monsoons. It is estimated that in the 1980s, between 95,000-165,000 square meters were being lost annually along the 137-kilometer coastal segment stretching from the mouth of the Kelani River, just north of Colombo, to Talawila on the Kalpitya peninsula in the south (CCD, 1990). Such erosion is of great consequence along a densely populated coast in which private properties may be a tiny “perch” of a few square meters containing a simple hut or a coconut tree. Both the coastal highway and the railroad were built more than a century ago a few meters inland of the beach. As a result, threats to the railbed and washouts across the highway became increasingly common as the shoreline migrated inland. Sri Lanka’s coastal erosion problems were exacerbated by sand mining, the illegal breaking of coral reefs to extract lime for construction, and the location and construction of jetties, breakwaters, and harbors in ways that interfered with naturally occurring long-shore coastal currents. By the 1960s and ‘70s, the government was spending millions of rupees annually in emergency and long-term coast protection structures—groins, jetties, revetments, and breakwaters—to protect this

BOX 2: KEY ATTRIBUTES OF SRI LANKA'S COASTAL ADMINISTRATIVE DIVISIONS

- ❖ Twenty-four percent of the land area
- ❖ Sixty-five percent of the urbanized land area
- ❖ Two-thirds of the total industrial output
- ❖ The nation's principal transportation infrastructure
- ❖ Eighty percent of the tourism-related sites and accompanying infrastructure
- ❖ The most significant sources of water pollution
- ❖ Fisheries that produce 80 percent of the total annual fish production, which in turn provides 30 percent of the animal protein crucial to the diet of the Sri Lanka populace
- ❖ Habitats critical to sustained fishery production, the maintenance of good water quality, and the scenic values important to quality of life for both residents and tourists. These habitats include coral reefs, sea-grass beds, mangroves, brackish wetlands, estuaries and lagoons. They contain some of the country's richest biodiversity reserves, substantial supplies of valuable minerals, broad expanses of agricultural lands, and sizable tracts of usable land that are not yet developed.

From: Olsen et al., 1992

vital transportation artery as well as the many hotels, homes, and other buildings that have been built over the decades along the seafront.

Government reports stressing the need for a stronger governmental approach to coastal erosion control had first appeared in the 1950s. In 1963, the government created the Coast Conservation Unit within the

Colombo Port Commission. S. R. Amarasinghe, a young coastal engineer who had just returned from postgraduate studies in the United Kingdom and Holland, was put in charge of the unit. In 1971, he prepared a report calling for a more comprehensive approach to coastal management. His recommendations were reinforced by recommendations in studies by international consultants and eventually embraced by government. In the late 1970s, the minister of fisheries encouraged Amarasinghe to establish a Coast Conservation Division within the Ministry of Fisheries. The core mission was to continue to address coastal erosion, but erosion control was to become just one element in a more comprehensive approach to coastal management.

The Coast Conservation Unit staff had begun to appreciate what few Sri Lankans recognized: Sri Lanka is an increasingly “coastal” nation. The ancient inhabitants of the country made little use of coastal lands. The country’s centers of civilization were in the interior. The coastal areas were primarily a buffer against invasions from abroad. By the mid-20th century, however, Sri Lanka’s population had migrated to the coast. The southwestern coastal districts from just north of Colombo to Galle constitute 15 percent of the total land area of the nation, but more than 40 percent of the country’s 18 million inhabitants live there. Indeed, much of the nation’s economy is derived from the coast. (See Box 2.)

Coast Conservation staff recognized that effective, long-term management would require more authority, more resources and more skills than they possessed at the start of the 1980s.

ELEMENTS OF A COMPREHENSIVE MANAGEMENT PROGRAM

Sri Lanka’s management success owes much to the ways in which they have responded to several key program design issues and challenges associated with on-going effective management endeavors:

- ❖ What **authority** does the program exercise? Is authority adequate to engage in effective management?

- ❖ Do CCD and local authorities have sufficient **capacity** to manage effectively? Are there significant management capacity deficits? How will they be addressed?
- ❖ What **resources** (e.g. personnel, equipment) are required for effective management? What resource issues emerge? How will they be addressed?
- ❖ How **committed** to program strategies are all those charged with management responsibilities? What will be done to coerce or induce commitment? How much political support is there for coastal management?
- ❖ What mechanisms have been established to **coordinate** management activities among agencies and among levels of government?
- ❖ What processes have been developed for monitoring, evaluation and **learning**?

The legal authority to engage in management, the technical skills and management resources possessed by implementing officials, as well as their understanding of and commitment to coastal management objectives and strategies, are among the critical variables that shape the effectiveness and sustainability of coastal management efforts (Lowry, 2002). The ability of CCD staff to recognize and address these issues accounts, in large part, for the success they have enjoyed.

MANAGEMENT AUTHORITY

Effective management requires that management agencies have sufficient authority to engage in all the regulatory, development and revenue-generating activities necessary for effective management. “Authority,” as used here, refers to the formal legal authority derived from Constitutional powers, statutes, or administrative guidelines. Authority is also related to political legitimacy—to the degree to which citizens regard laws, guidelines or other authoritative mandates governing coastal uses and activities as valid expressions of government authority (Lowry et al., 2002).

If the Coast Conservation Division (later Department), as it was known in the mid-1970s, was to take a more comprehensive approach to coastal management, CCD leadership recognized that they would have to get the legal authority to do so. Even a more comprehensive approach to erosion control would require more legal authority. CCD had a legal mandate to build groins, revetments and other structures to reduce threats of erosion, but it lacked the legal authority to prevent new hotels from being constructed in erosion-prone areas, or prohibit new fishing harbors or jetties that caused erosion by interfering with currents that transport sand along the beaches.

With UN-funded technical assistance, CCD staff reviewed a variety of legal models for management. CCD staff and consultants drafted legislation with several key features. The resultant Coastal Conservation Act:

- ❖ Designated a “coastal zone” that extends from two kilometers seaward to 300 meters landward from the mean high water line (and two kilometers upstream in rivers, streams, lagoons or “any other body of water connected to the sea either permanently or periodically”)
- ❖ Required that anyone proposing a “development activity” in this coastal zone apply for a permit from the director of CCD
- ❖ Required CCD to prepare a “comprehensive Coastal Zone Management Plan” within three years of the passage of the Act
- ❖ Required several technical studies and inventories as part of the plan preparation process
- ❖ Established a Coast Conservation Advisory Council comprised of government officials to advise CCD on the plan, environmental impact statements, and development activities within the coastal zone

- ❖ Authorized the CCD director to demolish non-conforming structures in the coastal zone after the passage of the Act (Government of Sri Lanka, 1981)

The Sri Lankan Parliament enacted the Coast Conservation Act in 1981, but the law did not go into effect until detailed regulations were developed and published in 1983. This meant that the coastal management plan had to be prepared by October 1986. CCD publicized the new law to encourage compliance with the permit requirements in the designated coastal zone. For an agency whose primary responsibility had been to organize and implement the construction of coastal works, the addition of regulatory responsibilities was initially difficult. Non-compliance was widespread, but CCD lacked the resources and the political status to identify all the major violators—including government agencies—and force compliance.

CCD staff recognized that one of the key development activities along the eroding southwest coast was the construction of new hotels. Beautiful beaches, lower air fares from Europe, and the growth of inexpensive package tours and the subsidence of the civil unrest that had begun in 1983 was fueling the rapid growth of tourism in the country. The most visible sign of that increase was the proliferation of new hotels and guesthouses along the coast. Most hotel developers were ignorant of or indifferent to the CCD permit requirements. CCD leadership reasoned that if they could get hotel developers to comply, they would both increase visibility of the new permit requirements while simultaneously regulating one of the potentially most important land use activities contributing to erosion. Recognizing that liquor licenses were regarded by hotel developers as critical to the economic success of any tourist facility, CCD staff went to the Ceylon Tourist Bureau, which issued these licenses, to persuade them to cooperate in CCD's regulatory efforts. Their informal efforts over a period of months paid off. The Ceylon Tourist Board began to require developers of new hotels in coastal areas to show that they were in compliance with the Coast Conservation Act prior to receiving a liquor license. Gradually, CCD began to be recognized by

major coastal users, non-governmental environmental groups and other government officials as an energetic and credible force for improved coastal management.

The Memorandum of Agreement for the joint U.S. Agency for International Development (USAID) and University of Rhode Island Coastal Resources Center (CRC) Coastal Resources Management Program (CRMP) for the Sri Lanka pilot site was negotiated in 1995 and signed on January 1, 1996. In sharp contrast to the Ecuador project, the objectives and the relationship of the pilot's activities to CCD's program were clear. The agreement stated the project objectives as follows:

1. Assist in preparing a Coastal Zone Management (CZM) Plan consistent with the CCD's legislative mandate
2. Assist in developing techniques to efficiently implement the CZM Plan
3. Enhance local expertise in planning for and managing coastal resources for sustainable use
4. Increase awareness among the Sri Lankan population for the value of coastal resources, and the need to effectively manage them
5. Assist CCD with expanding the scope and detail of their management efforts

The first year workplan was designed to focus all resources on meeting the October 1986 deadline for a full draft of the coastal plan. This required an intense effort by a joint CCD-CRMP team, but the deadline was met. However, changes in government and the mounting pressures of civil war delayed Sri Lanka Cabinet approval until 1990.

The comprehensive plan contained chapters on erosion control, habitat management, and protection of historic and cultural resources. It out-

lined a management system that combined public education on the need to control activities that adversely affect coastal resources, government construction of erosion control structures, environmental impact assessments, and research on questions important to the management process. Yet, the core of the management system was the regulation of development activities in the coastal zone. The regulatory system outlined in the plan had two key components: setback requirements and permits for development activities in the 300-meter coastal zone.

Setbacks are “no-build” zones extending inland from the shoreline. Setback requirements were established in order to “allow for the dynamics of seasonal and long-term fluctuations of the coastline and to ensure public access to the waterfront and visual access to it.” (CCD, 1990). The 1990 plan established variable minimum setback standards that differentiated among types of shoreline and proposed uses. The shoreline was divided into segments. Minimum standards were established for different types of uses, depending on the type of shoreline. Larger minimum setbacks were established for sandy beaches than for rocky shorelines. In addition, “low impact” uses, such as houses, had smaller minimum setbacks than commercial uses or hotels. These strategies drew heavily from CRC’s experience in the U.S.

While setbacks would prove to be an important—and controversial—management tool, it was the coastal permit system that was the backbone of Sri Lanka’s coastal management program. According to the 1981 legislation, permits were required for all development activities in the coastal zone, including houses, hotels, roads, mining, dredging, and breaching of sandbars, among others.

The plan provided a detailed rationale for regulatory activities that CCD staff had been implementing at a pilot scale in selected locations since 1983. But Cabinet acceptance of the plan shifted CCD’s emphasis from plan-making to plan implementation in the approximately one-third of the coastline over which the government exercised control. Plan implementation required balancing development imperatives with erosion

control and resource protection along some 150 kilometers of coastline. Prior to program approval, CCD had concentrated its management efforts on specific “hot spots” such as Brown’s beach, the inlet to Negombo lagoon and portions of the Galle Road. Once the plan was approved, the expectation was that the entire coast accessible to CCD would be actively managed. This was a major change requiring a significant increase in staffing, and reinforced the need to decentralize elements of the permit program. This balancing would occur in the case-by-case review of hundreds of permit applications if coastal management was to be more than just a set of policies outlined in a plan.

Before the Cabinet formally approved the initial plan in 1990, CCD staff were reviewing coastal permit applications; meeting with developers; enforcing coastal setback requirements; constructing coastal protection works; meeting with representatives of other agencies to review projects and to design collaborative management strategies; organizing coastal management awareness projects in schools; and engaging in a variety of other implementation activities. Among these, the key implementation activities were the regulation of development activities in the 300-meter coastal zone and the construction of erosion control structures.

While the plan was being prepared between 1983 and 1986, CCD relied on regulations issued formally by the minister of fisheries to determine whether a permit should be issued. These simple regulations required that permitted activities not infringe on the beach or reduce its quality, dislocate fishing activities, contribute to coastal erosion, or result in the discharge of “unacceptable levels of effluents or toxic substances.” The criteria specified in the plan required that development activities be consistent with all the policies in the plan regarding erosion, habitat management, protection of archeological resources and the like; that the proposed activity be consistent with setback standards and not interfere with existing fishing activities; and that formal environmental standards be met.

The application process was kept simple. The application form requires the name and address of the applicant, the nature and location of the proposed development activity, existing uses, and an indication of whether the area is subject to erosion. Applicants for the construction of houses, hotels, and other structures must provide a design of the proposed building foundation and three copies of a survey plan provided by a licensed surveyor that shows the location of the activity relative to the high water mark and to the permanent vegetation line.

Completed applications take about three weeks to review. However, many applications are not properly completed. Missing or incomplete design or survey plans are the most common omission delaying the completion of the review. A CCD staff member goes to the site as part of the review process. In cases involving the construction of a small house, planning officers frequently help the applicant prepare a sketch plan of the site to accompany the application.

Between the time when the coastal permit system went into effect in 1983 and 2002, CCD reviewed more than 4,000 permit applications, of which the CCD director approved approximately 95 percent. Sand mining and single-family houses are the primary development activities for which permits were sought. CCD Planning and Development Branch staff have sought to exercise control over development activities primarily by discouraging developers from proposing activities that are obviously inconsistent with the intent of the law; by attaching conditions to many of the applications they do approve; and, less frequently, by ordering the demolition of structures that are built without permits or that do not conform to conditions that have been attached to the permit.

By far, the dominant technique for minimizing environmental damage has been to attach conditions to approved permits to bring them into closer compliance with the Coast Conservation Act. Most conditions impose setback and sizing requirements. Hotel developers, in particular, regard setback requirements as a burden that deprive them of the full use of their sites. They frequently try to build as close to the beach as

possible without sufficient regard for the highly dynamic nature of Sri Lanka's shoreline.

Clearly, strong legal authority—and the way in which authority has been used—has been central to CCD's successes. The law gives CCD the power to prohibit development activities within the coastal zone. CCD staff have used that authority judiciously. First, working with staff from CRMP, they have drafted clear substantive and process guidelines for implementing the coastal permit system. Second, they have worked with permit applicants to show how they could comply with the law. When their negotiations failed, they imposed conditions designed to mitigate potential adverse impacts. They established a variance process for reviewing exemptions to particular requirements in the law. Finally, they engaged in rigorous enforcement, even to the point of ordering the demolition of buildings constructed without permits. The reputation of CCD staff for fairness, professionalism and efficiency has helped contribute to the perceived legitimacy of coastal management in Sri Lanka.

MANAGEMENT CAPACITY

One of the most frequently cited reasons for inadequate environmental management is lack of management "capacity." Capacity, as used in this context, usually refers to the technical skills required for analyzing coastal conditions and developing and applying appropriate management interventions. If implementing a policy or plan requires a particular technical skill, the organization will need personnel with that skill or the means to train people to develop it. Provision of that training is the narrowest and most obvious meaning of capacity building.

Technical capacity—and the personnel training and education required to develop it—is just one dimension of local capacity. A second important dimension is organizational strengthening. Organizational strengthening refers to strategies to alter management systems in ways that improve performance of specific tasks. Strategies for strengthening organizations include "improving recruitment and utilization of staff, introducing better management practices, restructuring work and authority

relationships, improving information and communication flows, upgrading physical resources, introducing better management practices, and decentralizing and opening decision-making processes” (Grindle, 1997).

CCD has continually worked to both enhance the technical skills of staff and to strengthen organizational processes to support improved management. CCD staff worked with CRMP staff to design and implement a multi-year planning process that incorporated extensive technical analysis. CRMP staff helped develop a process for reviewing coastal permits, including a variance procedure modeled on CRC’s experience in the U.S. The planning process and the regulatory process were key elements in the organizational strengthening of CCD. The agency also sought assistance for staff training. CRMP chose to invest heavily in training programs in Sri Lanka, as well as study tours to view coastal management initiatives in the U.S. and elsewhere, a masters degree education at an American university for a member of the planning staff, and attendance at various international conferences on coastal management. These investments encouraged the perception both within Sri Lanka and internationally that the Sri Lanka coastal program is a world class operation deserving of attention and support.

As important as it was in the planning process, the USAID-funded program was far smaller than the DANIDA-sponsored coastal engineering program that began in early 1980s. The DANIDA program supported a team of resident Danish engineers who worked with CCD’s engineering division to create a detailed coastal engineering master plan that specified needs for sand nourishment and construction of shoreline armoring facilities. The implementation of this program was estimated in 1995 at costing more than US \$7 million.

A third element in CCD’s organizational strengthening was the development of an ethos and procedure for self-evaluation and learning. CCD staff organized several public workshops on key features of the general permit system, and on controversial setback procedures in particular.

Critics, particularly hotel developers, argued that the setback procedures were arbitrary and should be relaxed. In response to these criticisms, CCD staff designed new procedures for identifying setbacks based, specifically, on the type of land form and historic erosion rates for each segment of the coastline.

One of the key intangible elements of CCD's management capacity has been the political will to engage in effective management. From the beginning of the implementation process, senior staff showed a willingness to deny or impose stringent conditions on applications for coastal permits even if the applicant was politically powerful. They were also active in trying to develop a stronger inter-agency approach to the management of aquaculture, and in designing strategies for reducing coral breaking. CCD developed a reputation as a highly effective advocate for careful coastal management.

RESOURCES FOR MANAGEMENT

Effective management requires adequate funds for staff as well as for planning and management activities, including technical analysis. Funds for CCD salaries and internal travel are part of the government budget process. CCD receives its funds as part of the budget of the Ministry of Fisheries.

As previously noted, CCD has been remarkably successful at augmenting its budget with international donor funds. Germany, Denmark, the U.S. and the UN have all provided assistance to CCD over the past 25 years. The Danes have provided hundreds of thousands of dollars for planning and construction of coastal protection works. USAID, through CRMP, has provided generous support, primarily to the development and implementation of Sri Lanka's coastal plans, but also to fund technical analysis and capacity development. CCD's recognized ability to use donor funds effectively makes it possible for them to continue to attract substantial resources for management.

DEVELOPING COMMITMENT

Research focusing on factors affecting the implementation of plans and programs has consistently identified the commitment of implementing officials as a key factor in determining the success of implementation activities (Mazmanian and Sabatier, 1983; May, 1995). Research also shows that commitment is likely to be higher when those responsible for implementation agree with the definition of the management problem and have been involved in the design of intervention strategies (Mazmanian and Sabatier). Because CCD staff worked with CRMP staff to design each component of the permit system, they both understood and were committed to the overall management strategy of focusing on coastal habitats, historic and cultural resources, and erosion—and to the use of a permit system, in particular. CCD leadership reinforced staff commitment by involving them in all aspects of the regulatory program including making recommendations and decisions on individual permits. In the late 1980s and early 1990s—after reviewing and making recommendations on hundreds of applications—staff initiated changes in the permit processes. This process of regulatory re-design also reinforced staff commitment.

Effective management requires more than the ideological commitment of staff. CCD sought to win the support of personnel in other agencies through education about the coastal management program, advocacy and creating opportunities for co-management. Staff organized workshops, such as a 1986 habitat management workshop, and participated in numerous task forces and working groups related to coastal management. They also sought to raise public awareness through education programs, videos, school poster contests and similar efforts.

Not all commitment building was based on education or incentives. Vigorous enforcement of the permit system—including demolition of non-complying structures—was part of the effort to show that CCD regulations were real.

Developing commitment to management was also a major theme in the pilot community level co-management projects. Part of the project re-design was the development of two pilot Special Area Management (SAM) plans to deal with local-level overuse of resources. These SAM plans were designed to encourage local co-management by government agencies, local non-government organizations, fishers and other resource users. One SAM plan was developed to deal with overuse of the marine protected area at Hikkaduwa, 100 kilometers south of Colombo. The other was designed to deal with over-fishing and the construction of a small dam that was interfering with the passage of fish and shrimp between the sea and the lagoon at Rekawa, further south along the coast beyond Galle. A lengthy SAM planning process at each site was supported by CRMP staff and resources. A central challenge at both sites was to encourage commitment to local self-management by coastal resource users. Part of the strategy for building commitment was to involve local stakeholders in designing a local co-management strategy. When the planning process was completed at each site, specific actions were identified that could be accomplished quickly with modest resources as a way of building confidence in the process of community co-management.

At both the national and local levels, CCD officials were aware that commitment is not static. Finding means to build and sustain commitment is a continuing challenge in Sri Lanka's management efforts.

INTERAGENCY COORDINATION AND COLLABORATION

Effective coastal management requires interagency coordination, collaboration and conflict resolution. In Sri Lanka, CCD does not have exclusive jurisdiction in coastal areas. At the national level, it shares management authority with the Urban Development Authority, Department of Irrigation, Department of Wildlife Conservation, National Aquatic Resources Agency and other agencies. The emphasis in CCD's first coastal plan was erosion control. However, coastal habitat management and protection of cultural and historic resources in coastal areas were

also management objectives in the first national plan. All objectives required coordination with other agencies.

CCD's efforts to broker inter-agency agreements regarding habitat management responsibilities provide one example of their ongoing collaborative efforts. To clarify agency management roles for habitat management, CCD convened a weeklong habitat management workshop in 1986. The workshop brought together staff of all agencies with habitat management responsibilities, representatives of non-governmental environmental advocacy groups and academics. CCD had commissioned a technical paper on coastal habitats that summarized the status of existing habitats, research needs, threats to each type of habitat and existing management jurisdictions (CCD, 1990b). Workshop participants used the paper as a basis for establishing management and research priorities and helped clarify which agencies would exercise jurisdictions for specific resource use threats.

A second example of CCD's efforts to establish a multi-agency collaborative approach to an issue involved aquaculture. In the late 1980s, a number of large corporate aquaculture operations proposed several large-scale conversions of mangrove and portions of lagoons to aquaculture operations. These proposals caused some conflict between agencies promoting economic development and those, such as CCD, concerned about appropriate resource use. Those promoting aquaculture complained that the regulatory requirements were confusing and review processes were lengthy and inefficient. CCD convened several meetings of corporate officials and agency representatives in order to identify all the information agencies would need to make regulatory recommendations and to design a coordinated agency review process. CCD staff also participated in numerous other collaborative processes aimed at improving mangrove management, lagoon management, and other coastal and resource use issues.

CCD's success in developing processes is due in part to Sri Lanka's relatively small size, the concentration of national agency officials in Colombo and the fact many of those involved in co-management know

and respect each other. While these factors are important there are other salient variables. First, CCD has been willing to share funds and staff to encourage collaboration. These incentives have encouraged other agencies to work together. Second, the professionalism and commitment of CCD staff have encouraged other agency personnel, academics and non-governmental organization (NGO) staff to collaborate with CCD officials.

MONITORING AND EVALUATION

A successful coastal regulatory program requires periodic monitoring to ensure that those involved in development activities subject to regulation are applying for permits and that approved activities comply with the conditions of their permit. The 1996 plan outlines several key monitoring activities:

- ❖ Periodic inspection to examine key stages of approved projects by CCD officials using a standard checklist
- ❖ An information network for detecting violations compiled through formal and informal complaints which will initiate enforcement action against violators
- ❖ Annual permit monitoring compliance surveys
- ❖ Cumulative Impact Assessment Monitoring emphasizing the impacts of numerous individual permit decisions spread over time and space in each coastal segment
- ❖ Required development reports, surveys, and tests stipulated by Central Environment Authority or any other agencies relevant to the development activity
- ❖ Required certificates of conformity from local authorities or other designated agencies that assure the permit conditions have been adhered to (CCD, 1996)

In practice, CCD staff have found it difficult to conduct regular monitoring programs, primarily because of a lack of time or access to vehicles. Monitoring tends to be combined with other work assigned to the planning staff or organized in response to reports of violations by citizens.

A survey of permits carried out by CCD in 1994 (in the Galle and Matara districts) and in 1996 (in the Hambantota, Kalutara, Colombo, Negombo and Puttalam districts) focused on two types of conditions regarded as particularly important: setback requirements and sewage disposal (Katupotha, 1994). The survey indicated that only about 14 percent of the permits reviewed had violated permit conditions regarding setbacks. Most of the non-complying behavior involved violations such as constructing buildings or seawalls in the setback area. However, nearly half the permits reviewed had violated permit conditions regarding proper sewage disposal. Most houses and small commercial facilities discharge sewage into septic tanks or seepage pits. The analysis indicated that most such facilities were being located in the setback area and sometimes very near the beach, thus increasing the probability of fecal contamination of nearshore waters.

Unauthorized construction in coastal areas is a more serious compliance problem. From 1983-1995 more than 450 unauthorized coastal development activities were identified by CCD or reported to them (Katupotha, 1994). In spite of numerous public awareness campaigns, not all residents know about the coastal program or comply with the permit system if they do know. "Unauthorized structures" include numerous huts and sheds as well as some permanent structures, including extensions to existing facilities. Although CCD has the legal authority to order demolition of non-complying structures, staff have frequently chosen not to enforce the law with regard to squatter huts and fishing sheds, both because those structures are temporary, and because of the poverty of the people who construct and live in them. Permanent structures, on the other hand, pose a more difficult problem. To date, only a few demolitions have been carried out because of problems with enforcement and political interference. During 1994, increasing numbers of unauthorized

structures along the beaches in and around coastal resorts led to public calls for more vigorous enforcement. Fishermen also protested that these structures obstructed their use of the beach. This led to an increase of enforcement activities and several demolitions.

CCD's willingness to engage in vigorous enforcement discouraged activities that contributed to coastal erosion and thus strengthened the credibility of the management program, but it imposed some costs on program staff. The CCD planning staff is small, and enforcement activities take up a substantial amount of staff time that could be spent on other management efforts, such as public education. Strict enforcement also created a small, but significant political backlash, particularly among supporters of the coastal tourism industry who argued that CCD was "anti-development" and impeding legitimate economic growth activities that would earn needed foreign exchange.

In addition to the monitoring activities, in 1989 CCD and CRMP undertook a major examination of the first decade of coastal management in Sri Lanka. This review, called *Coastal 2000*, began with a critical review of coastal conditions. Two basic ideas were central to *Coastal 2000*. The first was to carry out a meaningful self-assessment of the first generation coastal management plan to examine what was working well, what aspects of the program were not succeeding, and how Sri Lanka's coastal program should be expanded to address a broader array of issues and human needs. The second idea was to examine specific options for a more comprehensive coastal management program. CCD and CRC commissioned 19 papers on topics including agriculture, mining, nutritional status, fisheries and population.

The wide-ranging study contained several findings regarding CCD's management (Olsen, et al., 1992). First, the study concluded that many coastal residents didn't perceive coastal management as critical to their needs. Many of the inhabitants of coastal areas live at subsistence levels. Many households subsist on a combination of part-time wages, fishing, and very small-scale agricultural activities. Coastal management

initiatives such as the control of sand mining, beach encroachment control and the prohibition on coral mining limit their economic opportunities even though CCD believes they would benefit from such management over time. Second, the report found that CCD's primary emphasis on management by means of regulation had limited its effectiveness. More than a decade of attempts to halt illegal coral mining and uncontrolled sand mining demonstrated that CCD could not improve coastal resources primarily by means of regulation. Enforcement required the support of the Sri Lankan police. Recognizing the poverty of many coastal residents, many police were unwilling to participate in strict enforcement. Third, the report concluded that more effective management required both greater decentralization of authority for issuing minor permits and greater emphasis on community level collective self-management. This review, published in 1992, provided the substantive basis for the 1997 revised coastal plan.

Coastal 2000 was the most prominent, but by no means the only, reflective self-study in which CCD was involved. For example, as part of its self-evaluation activities, CCD conducted a 1992 workshop on setback requirements, one of the issues that had been most contentious (CCD, 1992). *Coastal 2000* and these workshops led to several significant changes in CCD's management approach. First, CCD revised its setback designation procedures. In brief, it established a technical procedure for establishing variable setback lines based on coastal conditions in each coastal segment. Second, it delegated responsibility for minor permits to divisional secretaries, leaving the national CCD office the responsibility for major permits. Third, and most importantly, it developed a new concept of community-level co-management of resource issue. This led to the pilot community level projects in Rekawa and Hikkaduwa described above.

LEARNING FROM THE SRI LANKA EXPERIENCE

Program success—or failure—can rarely be attributed to any single cause or condition. It is usually the result of the interaction of multiple factors:

program leadership, skilled and dedicated staff, sufficient resources, and a focus on issues important to both citizenry and political leadership; among others. In addition to these obvious attributes, “success” depends on the many strategic choices program staff makes as they design and implement management programs. Moreover, success is not static. The elements that create the alchemy of success at one moment can change. It is worth remembering that program management staff have only limited influence over some of the key conditions that contribute to program success. They cannot be responsible for economic conditions in the country, for the political climate in which they work, or for natural disasters. But program staff do make choices about which coastal issues should be addressed, the types of management programs they create, about how they build support for the program, and about the management tools they employ and how they implement them. While recognizing that no two management situations are exactly alike, we can learn from the issues program managers confront, the options they consider and the choices they make. Summarized below are some the key choices made in the Sri Lanka program that contributed to its success.

CCD leadership chose to initially concentrate on developing sufficient legal and political authority to be able to exercise influence over coastal uses that were degrading or depleting coastal resources

The three-year process of developing the Coast Conservation Act and lobbying for parliamentary enactment was a critical part of ensuring CCD had sufficient legal authority to manage. CCD staff recognized that the regulatory authority in the Act was necessary—but not sufficient—for successful management, . During this period, they also sought to build political credibility through their highly professional approach to erosion control, by providing engineering and other technical assistance to other agencies, and by participating in numerous interagency planning and management efforts. With the coastal Act in place, CCD staff worked closely with CRC staff to create practical regulations to implement the Act.

CCD leadership chose to invest primarily in technical analysis that served immediate management objectives

Technical analysis can be a very expensive component of program development. Since many program managers are trained in specialties such as engineering and marine biology, there is an inevitable tendency to invest heavily in technical research. Investments in technical analysis can be justified as part of the scientific culture because there is so much that is unknown and because such expenditures are relatively uncontroversial. While the Coast Conservation Act required CCD to invest in particular inventories and studies, CCD staff made several critical decisions regarding technical analysis. First, where possible they chose less expensive research strategies such as hiring university students to do labor-intensive research tasks, such as resource inventories. Second, they sought limited donor assistance for specific analytic tasks. As a consequence, they remained in control of their research agenda. They could describe how specific research tasks would inform their management activities. Third, and most importantly, they sought to identify critical uncertainties, such as erosion rates at particular coastal sites, and to focus research on those uncertainties.

Although there are several important coastal management issues in Sri Lanka, CCD leadership chose to base the first generation management plan around their core mission: erosion control

CCD staff aspired to a comprehensive approach to coastal management; one that would allow them to address habitat loss, loss of historic and cultural resources in coastal areas, water pollution and other issues. However, they chose to make erosion control the primary focus of first generation management for several reasons. First, they saw it as a way of addressing a well-recognized coastal problem using some new management tools, including both regulation and public education. Second, they recognized that successful erosion control could give them the political credibility to manage other coastal problems. Third, they feared they lacked the resources and expertise to address some other issues immediately.

While erosion control was the primary focus in the first generation plan, it was not the sole emphasis. The plan also included sections on coastal habitats and historic, scenic and archeological resources. CCD's management strategy for these two issues involved using the permit system to prohibit or to modify applications for uses likely to result in significant adverse impacts on these resources. They also initiated public education processes and interagency efforts to increase awareness and coordinate management efforts.

CCD leadership chose to make regulation the primary basis for management in the first generation plan, but they also emphasized education, research and coastal works as management tools

Effective coastal management programs are based on explicit assumptions about who is responsible for implementing program activities, about how program or project activities will change the behavior or attitudes of coastal resource users, and how changed behavior or attitudes will lead to improved resource conditions and, ultimately, better livelihood conditions for coastal residents. CCD staff reasoned that their historic approach to coastal erosion was reactive: build coast protection works in erosion-prone areas. The new plan allowed for a more proactive approach to erosion control: using the permit system to control the location and siting of buildings or activities likely to contribute to erosion control, and developing a greater public understanding of how erosion occurs and how it can be minimized through processes of public education.

CCD staff sought to encourage compliance with the regulatory program both through incentives and coercion

Regulation is one of several key management strategies in most coastal programs. Because regulatory programs seek to prohibit or modify coastal uses or activities likely to degrade or deplete resources, they are frequently resisted by those who are subject to control. Resistance occurs because compliance is frequently expensive and time-consuming. Such resistance often takes the form of simple non-compliance, but it may

involve efforts to manipulate regulators through political processes, bribes or threats.

CCD has succeeded where other programs have failed, in large part because they were able to create an organizational culture in which staff supported each other in their regulatory efforts. They worked with permit applicants, showing them how to fill out application forms, indicating what information was needed and, when necessary, showing them how they could make their proposed project comply with the regulatory requirements. They sought to provide a technical basis for their regulatory efforts. Because they believed in each other and the importance of the regulatory work they were doing, they could be tough on those who did not comply with permit requirements. On several occasions, when negotiations to encourage compliance failed, they sought and received permission to demolish non-complying structures.

After several years of implementation, CCD leadership encouraged a process of reflection and evaluation leading to program refinement and redesign

In the early 1990s, CCD and the CRMP convened a process of reviewing the status of coastal management in Sri Lanka. This process, called Coastal 2000, occurred over several months. CCD commissioned several studies on coastal resource use issues. These reports were synthesized in a major study. In addition, numerous other in-house workshops and meetings were convened to review the status of the program and to set goals for a plan revision process. One of the major conclusions of this review process was that the regulatory strategy that had been the primary management technique should be supplemented by other management strategies. In particular, CCD chose to initiate a community-level resource management effort. This decision to undertake a major program review, to identify and debate lessons from the first generation of management, and to identify some possible new program directions is a primary example of learning from experience—and seeking to act on those lessons. Moreover, staff involvement in every aspect of planning, imple-

mentation, review and revision ensured their understanding and ownership of the changes.

Partnerships have been central to CCD's effectiveness

Over the years, CCD has sought and made strategic use of partnerships with international donor agencies, other Sri Lankan agencies, NGOs, universities and other partners. Their effectiveness in building and maintaining partnerships can be attributed to the clarity of their mission, their reputation for acting in support of that mission, and their obvious commitment to learning and adaptive management. Starting in the late 1970s, UNDP, DANIDA, GTZ and later USAID staff all saw the benefits of working with CCD. Leadership at CCD was committed to seeking better management of coastal issues. They had accomplished much on their own. Partnerships with donors, NGOs and others led to visible products, such as plans, and changes in management processes. CRC's 15-year experience working with CCD is typical. CRMP's international and local staff worked closely with CCD leadership as true partners, collaborating on a variety of initiatives such as the development of the first and second generation coastal plans, *Coastal 2000*, and the design and implementation of the two community-level coastal management pilot projects. In all these partnerships, CCD made strategic use of the resources, experience and expertise offered by partners, but maintained control of its own management agenda.

The key strategic choices that Sri Lanka's CCD made—ensuring adequate authority for management, focusing initially on a few key problems, building outward from core competencies, using rigorous enforcement, and engaging in a complex process of program review and renewal—are not necessarily the same choices that all programs confront. They are, however, a reminder that program success involves more than well-trained personnel, good technical information and adequate budgets.

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CRAFTING COASTAL GOVERNANCE IN A CHANGING WORLD

STEPHEN BLOYE OLSEN, EDITOR

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TABLE OF CONTENTS

ACKNOWLEDGMENTS	v
PREFACE	vii
PART 1: FROM PRINCIPLES TO PRACTICE	
INTRODUCTION	i
Chapter 1: Welcome to the Anthropocene	5
CHAPTER 2: Coastal Governance in Donor-Assisted Countries	37
PART 2: CASE STUDIES FROM THE CRMP	
INTRODUCTION TO CRMP I COUNTRY CASE STUDIES	61
CHAPTER 3: Ecuador	75
CHAPTER 4: Sri Lanka	117
INTRODUCTION TO CRMP II COUNTRY CASE STUDIES	149
CHAPTER 5: Tanzania	167
CHAPTER 6: Indonesia	205
CHAPTER 7: Mexico	243
PART 3: PRIORITY THEMES FOR THE NEXT GENERATION OF COASTAL GOVERNANCE	
INTRODUCTION TO THEMES	273
CHAPTER 8: Nested Systems of Governance	277
CHAPTER 9: Refocusing with a Gender Lens	305
CHAPTER 10: Conservation and Integrated Coastal Management	325
CHAPTER 11: Integrated Coastal Management and Poverty Alleviation	343
CHAPTER 12: Freshwater Management in Coastal Regions	359
Chapter 13: A Critical Path to Desirable Coastal Futures	367

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A great many people in USAID, in CRC and in the countries where we have worked have contributed to what has been achieved and learned. The authors of this volume thank everyone involved for their creativity, their energy and their leadership in addressing the complex issues in coastal regions. Most especially we thank our in-country teams and our partner institutions who taught us how what was being learned elsewhere could be appropriately applied to their own cultures and the needs of their countries. We have not attempted to list all those that have contributed to the ideas and the experience presented in this volume. To do so would require several long paragraphs.

While so many contributors to the program, one name stands out: Lynne Hale, former associate director of CRC. Lynne left CRC in the last year of the program—but only after setting in motion the drafting and redrafting that has resulted in this volume of reflections, experience and future directions. Lynne was CRC's point person with USAID. She led the design of the CRMP II field programs and made sure that they capitalized on what had been learned from the first set of field programs. Throughout the 18 years of the program Lynne's passion, perseverance and perception made it the success it became. All who have contributed to this volume thank her and wish her well in the next stage of her career.

PREFACE

OCEANS, COASTS, WATER, AND THE EVOLVING USAID AGENDA

By Bill Sugrue

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Since 1985, the U.S. Agency for International Development (USAID) has partnered with the University of Rhode Island Coastal Resources Center (CRC) in carrying out the Coastal Resources Management Program (CRMP). CRMP is a pioneering initiative working with developing countries around the world to advance the principles and practices of integrated coastal management (ICM). During this 18-year partnership, USAID and CRC, together with partners in the field, have learned a great deal about the complexities and challenges of better managing our coasts. This has included learning how to balance the need for ecologically healthy coasts with the need to promote a better quality of life for those who live and work there. Throughout this process, CRC has been an instrumental force in promoting a “learning agenda” for (ICM). In the selected CRMP stories included in this book, you will share in some of that learning. Let me summarize here some of the key principles that underlie the ICM learning agenda.

ADVANCE INTEGRATED WATER AND COASTAL RESOURCES MANAGEMENT FOR IMPROVED ENVIRONMENTAL PROTECTION AND MANAGEMENT

It is essential that ICM and integrated water resources management (IWRM) be mainstreamed into sustainable development efforts. ICM and IWRM are essential foundations for improvements in health, food security, economic development, democracy and governance, and biodiversity conservation. We must recognize the interdependence of these development goals. The interdependence of human health, food security, governance and the other human activities is obvious. How development objectives are pursued in these sectors can have dramatic impacts on biodiversity, and on the biosphere. The biosphere is currently in free-fall, so the significance of these impacts is not trivial. Conversely, biodiversity conservation programs, properly conceived, can significantly support CRMP objectives in economic development, food security, governance and other areas. The challenge to development assistance organizations is to ensure that they move beyond single sector responses to more integrated, cross-sectoral approaches that do justice to the exceedingly complex and interrelated factors that shape our world. Principles of integration as practiced in ICM and IWRM must be given the commitment of time and resources that they deserve.

CREATE STRONG GOVERNANCE AT ALL LEVELS

Good governance is more than just good government. It encompasses a range of processes in which public, private and civil societies organize and coordinate with each other to make decisions, and distribute rights, obligations and authorities for the use and management of shared coastal resources. A central operating principle of the CRMP has been that effective governance systems are what create the preconditions for achieving sustainable environmental and social benefits. We have learned that good coastal governance functions best when it exists as part of a nested system—that is, one that operates simultaneously at scales ranging from the local to the global. For example, sub-national and community-based management efforts stand the best chances to be effective and to be sustained

over the long term when they are supported by policies and institutional structures at the national level. Meanwhile, national-level initiatives build capacity for ICM governance across spatial and sectoral scales, providing support to local initiatives while addressing coastal development and conservation of more wide-ranging national interest.

PROMOTE PRIVATE AND PUBLIC PARTNERSHIPS

Participatory approaches to conservation are now recognized as one of the few means to ensure sustainable management of ecosystems and natural resources while also meeting local peoples' livelihood needs. This participation is most effective when it includes both the public and private sectors. ICM and IWRM are too complex for one institution or group of constituencies to "go it alone." Forging carefully selected, strategic private-public partnerships can help.

Eco-tourism is just one of the issues around which coastal programs are testing such partnerships. The hope is that by partnering with the private tourism sector, chances improve for achieving environmentally sound, financially sustainable, and culturally appropriate coastal tourism development. When these partnerships succeed, eco-tourism can have significant, positive impacts on local economies and can provide strong incentives for sound environmental protection and management. A caution is that "environmentally sound" and "culturally appropriate" cannot be throwaway lines. They need to be taken seriously. Not all eco-tourism is very "eco," and unless there is true and transparent participation—i.e. the local community is fully engaged, not simply consulted—the impact of tourism on local communities can be destructive economically, socially, and culturally, and the impact on the environment catastrophic and permanent. It is not easy to do this right—but it is essential to do so.

EMPOWER COASTAL COMMUNITIES TO SELF-MANAGE THEIR RESOURCES

This must be done while promoting alternative livelihood and food security objectives. In cases where local social and economic networks are

already well established and thriving, even at relatively low income levels, poorly conceived outside interventions can be extremely and negatively disruptive. Since poverty is not solely a function of income, but also of control of assets, empowerment, and control over one's fate, even the most well-intentioned efforts at poverty reduction or economic growth can have the opposite effect on people if existing arrangements are not taken fully into account. This is especially worthy of consideration in the case of indigenous communities. In such cases, poverty prevention, rather than poverty reduction, may be the appropriate goal. In this way, intact communities with essentially sound traditions of resource management may best be assisted by simply strengthening and supporting their control over local resources. Only modest, incremental initiatives aimed at ensuring continued food security and additional income streams may be called for; but here again, full engagement of the community, not simply consultation, must be the norm.

ADVANCE INSTITUTIONAL STRENGTHENING AND CAPACITY BUILDING AT BOTH THE NATIONAL AND LOCAL LEVELS

Inadequate capacity to practice ICM and to design and implement strategies that lead to more sustainable forms of coastal development remains a primary factor limiting progress in ICM. Too often, development projects bring in external expertise and funding without a parallel effort to build and strengthen in-country partner organizations—leaving partner organizations and the larger ICM effort vulnerable to failure when outside assistance ends. CRMP has used a different approach. Its preference has been to strengthen institutions over extended periods of time and to transfer the skills and the responsibilities for implementation to CRMP collaborating organizations. This approach is grounded in the belief that long-term collaborative relationships with partners maximizes learning and increases the probability that productive efforts will be sustained over many years.

The CRMP experience has also demonstrated the value to be derived from cross-portfolio learning. For example, we have seen how communities in the Philippines that developed community-based marine sanctuaries were able to provide useful insights to Indonesian practitioners attempting to

establish their own marine reserves. Similarly, experience in Ecuador and Sri Lanka in the development of shoreline management guidelines helped CRMP undertake the process more efficiently in Tanzania.

While USAID, through its overseas missions, presently supports coastal and marine activities in over 40 countries, only a small handful of those USAID missions have been able to invest in a more comprehensive ICM approach, with broad attention to all of the general principles cited above. The challenge remains to enhance the dialogue between development agencies and national governments on the economic, social and environmental values of marine and coastal resources, and the proper level of investment to maintain these resources as national and local assets. These priority challenges, which must be faced, and which will help guide USAID's future directions include the need to:

- ❖ Mainstream applied fisheries research and management into ICM programs, and promote effective governance of commercial, artisanal, and subsistence capture and culture fisheries. Science and technology advances must influence decisions on coastal resource management in a context of good governance. Both are crucial.
- ❖ Establish networks of marine protected areas with substantial ecological reserves in all regions, while ensuring the sustainability of these activities through the development of alliances and partnerships. Conservation groups and their allies in government and the private sector have made good progress over the past 20 years in establishing parks and reserves to preserve terrestrial biodiversity. The scientific basis for defining these reserves, and managing and linking them, has grown more sophisticated. The number and variety of partners supporting these efforts has grown as well. Coastal and marine reserves need to catch up. Strong partnerships among conservation groups, government, the private sector, and local communities will be essential.

- ❖ Enhance coastal and nearshore water quality through partnership programs to control both point and non-point sources of marine pollution, while addressing the impact of the growing number of coastal megacities. There has been little meaningful engagement in a significant way with the challenges of coastal resource management in the context of megacities. This is a huge challenge that needs to be confronted for reasons of human welfare and environmental quality.
- ❖ Reduce the vulnerability of coastal populations and their infrastructure to the growing threat of flooding, storm surge, and coastal erosion due to climate change and rising sea levels. Mitigation efforts are essential. A great deal remains to be done that has not yet been done. But serious—even drastic—efforts in mitigation do not eliminate the need to undertake, simultaneously, ambitious initiatives in adaptation because sea level rise and other effects of global climate change seem inevitable.

What is next? Clearly, coastal and freshwater management challenges and needs will not abate in the foreseeable future. World leaders reaffirmed at the 2002 World Summit on Sustainable Development in Johannesburg the central role that these resource issues will continue to play in the sustainable development agenda. USAID is in full agreement with that affirmation and remains committed to full engagement on these issues.