Crafting Coastal Governance in a Changing World

CRC/USAID
The Coastal Resources Management Program

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The relationship between the U.S. Agency for International Development (USAID) and the Coastal Resources Center (CRC) at the University of Rhode Island has been a true partnership. Together we have faced the difficulties, surprises and successes that mark any attempt to apply new ideas to old problems. The knowledge that we are a single team working for the same goals, and defining together the changes in strategy required by our own learning and the changing circumstances in each country and the world at large, has been central to success of the Coastal Resources Management Program (CRMP).

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 filed 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
Director
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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.

PART ONE

INTRODUCTION

Stephen Bloye Olsen
Director
Coastal Resources Center

In the early 1980s, the late Molly Kux, a passionate and effective advocate for an environmental agenda within the U.S. Agency for International Development (USAID), saw that there were many similarities in the problems brought by the overuse and mis-use of coastlines in the United States and in the developing nations in which she had worked for many years. Individual coastal states, with the support of the federal Coastal Zone Management Act, had by the early 1980s begun to implement a first generation of U.S. coastal zone management programs. Close to Washington, the Chesapeake Bay Program was attracting national attention as is worked to address the degradation of the nation's largest estuary and to restore its grass beds, its fisheries and the quality of its waters. Could such experience be applied to similar problems in developing nations in the tropics? USAID contracted an expert team that

visited several nations where coastal problems were known to be significant. Rather than structuring an initial program around short-term technical assistance on selected topics in many nations, the team proposed investing in three four-year pilot projects at the national scale. These pilots would probe the feasibility of applying U.S. experience to social, institutional and environmental contexts where poverty and social instability are often dominant major issues. In 1983, a cable was sent to the USAID country missions soliciting their interest in hosting such pilots. The solicitation stated that the majority of the costs would be assumed by the Division of Science and Technology at USAID headquarters in Washington, but that contributions were expected from the mission and host country governments. Four missions responded positively: Ecuador, Sri Lanka, Thailand and Indonesia.

The next step for USAID was to select the organization that would design and administer the project. Since this was an experimental project, designed to explore a new idea, the project was designed as a partnership, structured as a Cooperative Agreement, rather than the more usual contract. This meant that the organization selected would most likely be a university or a non-governmental organization (NGO) that would invest some of its own resources in the project. A Cooperative Agreement allows greater flexibility than a contract. It is structured as a collaborative effort between USAID and an institution with complementary interests, and it does not require that precisely what will be accomplished and how it will be accomplished is defined in full detail before the work begins. The selection process proved to be arduous and it was not until early 1985 that the University of Rhode Island (URI) was declared the winner. At URI, the Coastal Resources Center (CRC) had agreed to lead the project.

CRC had been formed 15 years before to work with the state of Rhode Island, and subsequently throughout New England, in the design and negotiation of coastal management initiatives. This had included the drafting of Rhode Island's Coastal Zone Management Program, one of the first to win federal approval, the negotiation of detailed plans of

action for priority areas of concern (such as Rhode Island's coastal lagoons and decaying urban waterfronts in the capital city, Providence), and analysis for the four New England governors of the potential conflicts between fishing and anticipated offshore oil activities off New England.

CRC's experience in working at the boundary between a research and teaching institution and government agencies to assist in the negotiation of public policy on topics of concern to society had led CRC to formulate a distinctive approach. This features a form of issue analysis that probes the historical roots of present resource management issues and considers the long-term implications of trends in social and ecosystem change. By working with the people of a place to "tell their story" we found that it was then easier to help formulate visions for the future, identify specific priorities for both conservation and development, and to negotiate an agenda of actions that would be judged to be both fair and possible. Our work with a diversity of rural to urban communities and with state and federal agencies taught CRC the importance of selecting management tools and strategies that are within the capacity of implementing institutions to execute. We had also learned that is important when framing such agendas to strike a balance between actions likely to produce immediate and visible results with actions with a long-term payoff. Perhaps most important of all, CRC's experience in New England working with a great diversity of groups and institutions—often in competition with each other and sometimes in conflict—taught us the importance of being transparent about what we were attempting to accomplish and making sure that all parties had access to the same information and had ample opportunity to participate in all the phases of the management process. To succeed, a coastal management program had to win the trust and the respect of those who would be affected by its actions. We had learned that the breadth and sustained success in coastal management requires a base of informed constituencies who understand and believe in the program's goals and will work actively to support them. Such constituencies and active support must be created not only in communities along the coast but within government agencies at both the state and the national levels.

Responsibility to shape and implement USAID's Coastal Resources Management Program gave CRC the unique opportunity to apply what it had learned to countries where the pressures on coastal ecosystems are intense but the cultural setting is very different. The initial four-year agreement has led to a sequence of USAID-sponsored projects in almost a dozen countries in Latin America, Southeast Asia and East Africa. It has been an extraordinary voyage of discovery. This volume presents some of what we believe we have accomplished with our partners, what we have learned and what we believe should be done in the future to address the accelerating process of societal and ecosystem change along the world's coastlines.

Chapter 1

Coastal Stewardship in the Anthropocene

Stephen Bloye Olsen

Welcome to the Anthropocene

Human beings are changing the biosphere in a manner that was inconceivable a few decades ago. Large elements of society, including many important leaders, are unaware of the changes underway or do not believe that what is happening is possible. Yet the evidence is now incontrovertible that our species is changing the planet's climate and causing one of the greatest extinctions of fellow species since the death of the dinosaurs. We are altering the fundamental bio-geo-chemical cycles that govern the distribution of fresh water, the production of the nutrients that plants require, and destroying or degrading habitats critical to the functioning of life on this planet such as wetlands, coral reefs, estuaries and forests. These forces led Paul Crutzen and Eugene Stoermer in 2000 to coin the term "Anthropocene" to describe a geological epoch in which the combined forces of human activity equal or surpass those of nature in modulating the behavior of the planet. These changes are happening at a speed measured in decades and centuries, and not in the millennia that 50 years ago we comfortably assumed is the pace by which our planet evolves. Awareness that we are living in the Anthropocene has gathered momentum

only in the last few decades. In the late 1950s, two oceanographers (Revelle and Suess, 1957) hypothesized that the emissions from burning fossil fuels might be changing the chemistry of the planet's atmosphere. They suggested measuring carbon dioxide and other gasses at the Mauna Loa observatory in the north-central Pacific, far from any immediate sources of these products of the industrial era. The measurements were subsequently made and they have shown that the carbon dioxide concentration in the high atmosphere regularly increases in the spring and summer as plants throughout the Northern Hemisphere grow and respire. The concentrations decrease in the fall and winter when most plant life is dormant. The record shows that the planet as a whole breathes in and breathes out once every year. The record also showed a steady annual increase in the baseline of the amount of carbon dioxide in the atmosphere. This is attributed to the burning of fossil fuels. The Mauna Loa signal triggered a burst of research on climate change and then, increasingly, investigations into other dimensions of the Anthropocene. Beginning in 1991, the International Geosphere Biosphere Program (IGBP) has worked to synthesize the detailed quantitative science that multitudes of scientists have been producing. Box 1 contains their "big picture" conclusions and Box 2 documents graphically the enormity of contemporary ecosystem change at the global scale.

The Primary Human Habitat in the Anthropocene

A feature of the Anthropocene is that the planet's people, their infrastructure and their activities are becoming concentrated in a narrow band on the border of oceans, seas and great lakes. By 2000, nearly half the world's people lived within 150 kilometers of a coastline (Cohen et al., 1997). If we eliminate Antarctica and the lands in the Arctic (but not deserts and high mountains elsewhere), this is approximately 15 percent of the inhabited land-space. By 2050, demographers predict that the proportion of the world's people living in this coastal band will have increased to 75 percent. By 2000, 12 of the world's largest 15 cities were coastal. The increases in the density of coastal populations that are expected to be the result of both migration from inland and, in the tropics, population growth in these coastal regions, will transform greater portions of coastlines into sprawling

Box 1: The Big Picture Findings of the International Geosphere Biosphere Program

- The Earth is a system that life itself helps to control. Biological processes interact strongly with physical and chemical processes to create the planetary environment, but biology plays a much stronger role than previously thought in keeping Earth's environment within habitable limits.
- Global change is much more than climate change. It is real, it is happening now and it is accelerating. Human activities are significantly influencing the functioning of the Earth System in many ways; anthropogenic changes are clearly identifiable beyond natural variability and are equal to some of the great forces of nature in their extent and impact.
- The human enterprise drives multiple, interacting effects that cascade through the Earth System in complex ways. Global change cannot be understood in terms of a simple cause-effect paradigm. Cascading effects of human activities interact with each other and with local- and regional-scale changes in multidimensional ways.
- The Earth's dynamics are characterized by critical thresholds and abrupt changes. Human activities could inadvertently trigger changes with catastrophic consequences for the Earth System. Indeed, it appears that such a change was narrowly avoided in the case of depletion of the stratospheric ozone layer. The Earth System has operated in different quasi-stable states, with abrupt changes occurring between them, over the last half million years. Human activities clearly have the potential to switch the Earth System to alternative modes of operation that may prove irreversible.
- The Earth is currently operating in a non-analogue state. In terms of key environmental parameters, the Earth System has recently moved well outside the range of the natural variability exhibited over at least the last half-million years. The nature of changes now occurring simultaneously in the Earth System, and their magnitudes and rates of change, are unprecedented.

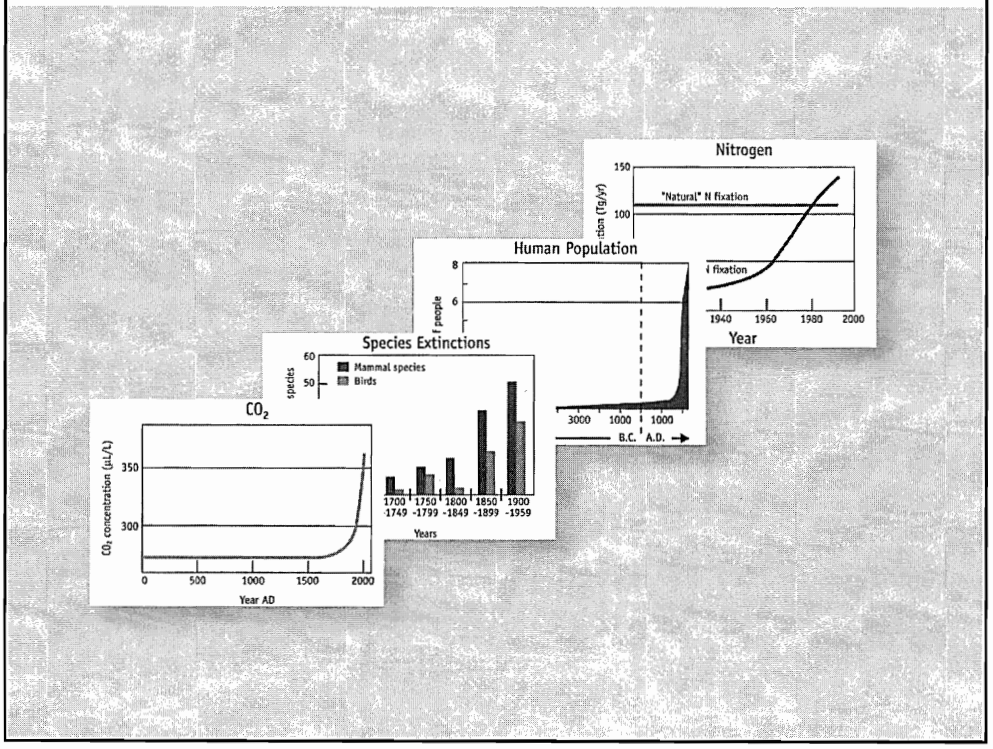
From: *IGBP, 2001*

cities. Such urban growth will be greatest in the tropics and in these areas we can expect that large portions of these urban dwellers will continue to live in poverty.

Why have coastlines assumed such prominence? It would appear that this is, at least in part, a consequence of a more interrelated global society in which the number of people who rely on resources from their immediate surroundings for their food and their livelihoods has diminished dramatically. The great bulk of the world's goods and fossil fuels are transported over water by ships, and the nodes in the distribution system are port cities. Industrial infrastructure and populations have clustered around these nodes. Since it is more efficient to transform such energy into goods and services close to their point of distribution, this, too, has contributed to the growth of coastal cities. But the reasons for the importance of coastlines to people can also be attributed to the natural wealth they contain. According to Costanza et al. (1997) the annual value of the goods and services produced by coastal ecosystems are more than four times greater than the per unit area value of terrestrial systems and 16 times greater than those produced by the open ocean. (See Box 3.) The reason is that water flows downhill, and runoff from the land, and the nutrients, sediments and other materials that it carries, are all released into estuaries and from there flow out along coastlines and across continental shelves. Waves, currents and tides vigorously mix the resulting stew. The consequence is extraordinarily high biological productivity in estuaries and coastal waters, deltas of rich deep soils, abundant freshwater, a climate in which temperature highs and lows are modulated by the buffering effect of a large water body and, very often, seasonally generous rainfall. The result is that coastal waters produce 90 percent of the world's fish production and coastal lands contain a high proportion of the best farmland. Before modern medicine, many coastlines in the tropics were made inhospitable by such diseases as malaria, yellow fever and typhoid. These constraints have been much reduced since the 1950s and made the urbanization of tropical coasts feasible.

BOX 2: THE NATURE OF GLOBAL CHANGE

Global change is much more than climate change. These expressions of change are accelerating and interact with each other and with social and environmental conditions at local and regional scales. (IGBP, 2001)



Today, coastal regions support three-quarters of the infrastructure for transportation, energy production and manufacturing. They are, therefore, also the places where the consumption of natural resources is highest—and consequently the places where the most wastes are produced and released into the environment. Last but not least, tourism has become the world's largest industry, and by far the greatest number of tourism destinations are coastal.

Box 3: Summary of Global Values of Annual Ecosystem Services Produced by Marine and Terrestrial Biomes

One of the most comprehensive studies estimated that the world's ecosystems provide goods and services worth at least $33 trillion a year, of which 63 percent—or $21 trillion—is contributed by the world's oceans. Over half of the oceans' contribution to planetary wealth is accounted for by coastal ecosystems, such as mangrove swamps, coral reefs and sea-grass beds.

Though there is little agreement among the scientific community on the "value" of ecosystem services and natural capital, these estimates nonetheless illustrate the relative magnitude of these resources. More importantly, economists and planners can at least get a rough idea, in economic terms, of what they are losing through non-sustainable development.

Biome	Value per ha ($/ha/yr)
Marine	**577**
Open Ocean	252
Coastal	4,052
Estuaries	22,832
Seagrass/Algae Beds	19,004
Coral Reefs	6,075
Shelf	1,610
Terrestrial	**804**
Forest	969
Tropical	2,007
Temperate/Boreal	302
Grass/Rangelands	232
Wetlands	14,785
Tidal Marsh/Mangroves	9,990
Swamps/Floodplains	19,580
Lakes/Rivers	8,498
Desert	—
Tundra	—
Ice/Rock	—
Cropland	92
Urban	—

From: Costanza, et al., 1997

The Drivers of Accelerating Change

An analysis of the forces of human-induced change at the global scale reveals that the planet's people are divided into two large groupings with distinctly different characteristics (Kates et al., 2001). Both the causes of undesired change to the planet as an ecosystem and actions to mitigate or halt those forces must consider the differences between the two groups. One group, often referred to as "the North," contains about 25 percent of the planet's population and lives primarily in North America, Europe, Japan and such prosperous countries in the Southern Hemisphere as Australia and New Zealand. By 1990, the North was consuming 70 percent of the world's energy, 75 percent of its metals, 85 percent of its wood and 60 percent of its food (UNDP, 1992). A decade later, this imbalance shows no evidence of changing. By the turn of the 20th century, the population growth in the North had stabilized. But, its major characteristic is that its economy requires sustained growth and is based upon a culture of resource consumption. Its citizens, in fact, refer to themselves as "consumers."

"The South" contains three-quarters of the world's people and they, on average, are young, less educated and poor. While the North enjoys resource surpluses, the South suffers resource shortages. The North relies on technical knowledge and invests heavily in theory-driven research. In the South, traditional knowledge dominates.

Both groups are shaping the Anthropocene and both have major roles and major responsibilities in responding to the changes to the planet as an ecosystem that are underway. However, at least until now, the principal causes of global change lie in the North, while the impacts are most evident in the South (Kates et al., 2001). The scale of the differences between the two groups is great and poses enormous challenges to all attempts to develop the ethics and the global governance systems that the Anthropocene requires.

Coastal Management as a New Approach to Place-Based Planning and Decisionmaking

The problems posed by balancing demands for all the natural assets with the human activities that are concentrated along coastlines became an issue of national significance in the U.S. in the 1960s. The Stratton Commission (1969) made a famous analysis of the problems and the opportunities posed by the nation's policies towards the sea and the coast. It recognized that a "new approach" to planning and decisionmaking was needed in coastal zones if the multitude of pressures and the differences in the needs and institutional cultures of specific coastal places were to be managed effectively. The Stratton Commission made two recommendations to guide the "new approach." The first was to create the incentives that could produce a tiered management system for coasts that would clearly differentiate among the roles and responsibilities of state coastal zone authorities and the federal government while assuring that a common set of principles was applied across this governance hierarchy. The second was to recommend very large investments in the scientific and engineering studies that would generate the knowledge and the technologies needed to address current and future coastal problems and opportunities.

The Stratton Commission's recommendations became formalized in the Coastal Zone Management Act (CZMA) of 1972. This was launched as a federal program that offered the states two major incentives to analyze their coastlines and to re-think and restructure the policies and authorities by which coastal planning and decisionmaking occurs. The first incentive was federal funds for an initial phase of studies and planning. A second phase of more generous and sustained funding for program implementation would be triggered when a state's proposed CZM program addressed the topics defined as being in the national interest, met federal standards for clarity of purpose, and demonstrated that the state possessed the authorities and capacities necessary to implement the proposed CZM program. An approved program would be periodically reviewed to ascertain that it was indeed being implemented effectively and responding to new challenges as they materialized. The second incentive was unusual. It promised that the agencies of federal government would themselves abide

by the states' approved CZM programs. This became known as the "consistency clause." As states responded to the challenge, they found that the program was designed to give great attention to the *process* by which coastal management would unfold. There were detailed requirements for informing and involving the public in every step of the process. Each state was also required to consult with all potentially affected federal agencies—providing them the opportunity to specify their interest in that state's coastal zone and to define how that state agency or its policies would be accommodated within the state's CZM program.

Twenty years later, at the United Nation's Conference on Environment and Development held in Rio de Janeiro in 1992, similar ideas were put forward as integrated coastal management (ICM). The Conference's Chapter 17 in Agenda 21 drew upon the U.S. experience and early initiatives in some low-income nations to frame an approach that calls for integrating across the different sectors (for example, fisheries, agriculture, tourism, community planning) and involving the affected stakeholders in an integrated planning and decisionmaking process that addresses needs for both conservation and development. However, the system of incentives that had proved central to the success of the U.S. program was absent. Chapter 17 estimated the cost of implementing a global coastal management program at $6 billion, and called upon all coastal states to formulate and implement coastal management programs by the year 2000. There has indeed been a proliferation of ICM projects and programs since the Rio Conference. One estimate (Sorensen, 2000) identified 345 ICM efforts in 95 coastal nations and semi-sovereign states. Of these, 70 are "developing nations." Very few of these efforts, however, have proceeded beyond the phase of issue analysis and planning and most have been attempted as small-scale pilot projects.

For those working to promote "new approaches" to planning and decisionmaking in coastal regions, the insights of the Stratton Commission are holding up well. Experience is teaching that tailoring the principles and the practices to the socio-cultural and biophysical conditions of a specific place lies at the heart of success. We are also learning that some variables

are more important than others. At least three are emerging as particularly important: (1) the strength and resilience of the existing governance fabric; (2) the speed at which change is occurring; and (3) the prospects for sustained financial support for promising initiatives.

The most important of these variables is the baseline of conditions in governance capacity, authority and institutional structures, and the beliefs that frame the goals of governance. In the North, where nations are wealthy and politically stable, the rules by which the planning and decisionmaking unfold have been formalized and are widely accepted. With few exceptions, here society lives "within the law." In low-income, low-consumption "developing countries" the context is usually very different. Typically, a substantial proportion of the population lives in poverty and is struggling to extract food and marketable products from its immediate environment. Not infrequently, the majority of the society operates outside the law. Government may have little control over the activities that are changing the society and degrading coastal ecosystems. Not infrequently, corruption is rife and governments are willing partners in behavior that is destructive to the nation's natural assets, the people, or both. In the North, controls over land use through zoning, the designation of areas off-limits to development, and rules over where new activities may take place and how they are conducted are all present and generally accepted as "the rules of the game." They provide a framework within which a coastal management program can seek out a role and make a contribution to the common good. In the South, development and change are often occurring in a context of near anarchy under conditions that have been dubbed as "a cowboy economy." In the South, the first challenge is to assemble the institutional capacity, the collective will and the resources that are the preconditions to a viable program.

The second major variable is the pace of coastal change. In the South, the annual growth of unplanned urban development may be as great as 10 percent per year. If sustained, this produces a doubling in the population every seven years. Entire watersheds, coastlines and nearshore habitats can be transformed in a few years by the combined impacts of unregulated

Box 4: Coastal Management or Coastal Governance?

In this chapter the terms management and governance have both been used. What is the difference between these terms? Management is the process by which human and material resources are harnessed to achieve a known goal within a known institutional structure. We therefore speak of business management, or town management, or even conflict management. In the case of business management, for example, the goal is to deliver a certain product or products to the market and to make a monetary profit. Governance, on the other hand, sets the stage in which management occurs by defining—or redefining—the fundamental objectives, policies, laws and institutions by which societal issues are addressed. Governance is by no means only the purview of governments. In many settings the role of government in the governance of a coastal ecosystem is small. During the Anthropocene, the urgent need to redirect the forces of change in coastal ecosystems and promote stewardship of these critically important areas is most often a challenge of governance rather than of management.

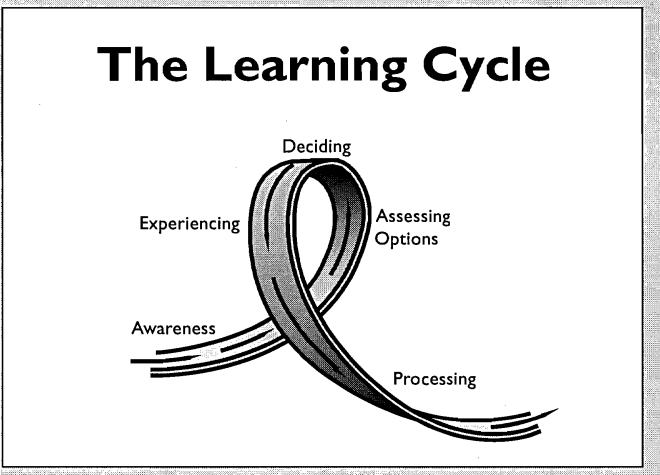
deforestation, construction of shrimp ponds, urban expansion, and the building of enclaves for foreign tourists. Such conditions amplify the weaknesses in governance capacity since the costs of destructive and non-sustainable forms of activity accumulate quickly and, not infrequently, bring social unrest.

The third variable lies in the sources of funding for a coastal management program. In the North, national and provincial (or state) governments have played a lead role in catalyzing programs and in maintaining progress through subsidies and other incentives. A "core" of governmental funds typically provides a base from which energetic programs can "leverage" additional resources for projects that contribute to their central mission. The U.S. Coastal Zone Management Program, the Chesapeake Bay Program, Australia's Great Barrier Reef Authority and Europe's Wadden Sea Program are all examples of this pattern (Olsen and Nickerson, 2003). In the South, most governments have many demands on a small budget. Provincial and municipal governments often have little or no tax revenue and depend on an uncertain trickle of funds allocated to them by the national treasury. In these conditions, external funds from an international donor or development banks are the only option for funding a coastal management program. Since there is no sustained source of core funds, and external funding usually flows for only three to six years, it is extremely difficult to maintain continuity of effort. International institutions that provide funds for a coastal management effort have different interests, different selection criteria and different administrative procedures. It is a context that produces many short-term projects but few programs. Since the changes required to address the fundamental forces of social inequity and resource misuse require years of sustained effort, this is both inefficient and ineffective.

Coastal Management as Learning and Adaptation

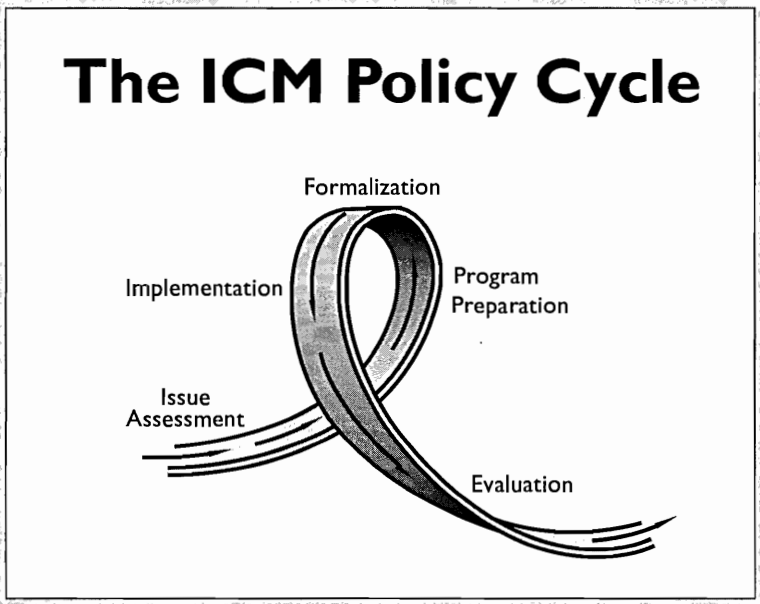
ICM is an expression of adaptive management. This means programs need to be viewed as a sequence of generations, each of which links issue analysis and planning with the implementation of a course of action. Sustainable forms of development are not achieved through a single and heroic leap. It is a goal that can be met only by a sequence of incremental steps. The process will be efficient and effective when it is grounded upon sustained learning that connects current and proposed actions to a thorough appreciation of what has succeeded and what has failed in previous management cycles in a given place.

Box 5: The Cycle of Conscious Learning at the Individual Scale



The learning process begins with awareness that some aspect of our behavior needs to change. For example, a person may realize that he is overweight. His doctor has told him that he should do something about this and he has noticed that a walk up the hill requires more pauses than it used to. This is Step 1. In Step 2, he considers his options. The person may read books by various experts and, very likely, get confused by the many, sometimes contradictory, strategies that they advocate for a diet. The most difficult step is to make the commitment to change behavior. In this case, he may announce that he has selected one of the many diets, and have signed up for an exercise class at the local gym. This is Step 3 and it may be greeted by some fanfare. Now comes the greatest challenge—to successfully implement the plan of action (Step 4). This step is often full of surprises. The requirements of the selected diet may have unexpected impacts on other members of the family and requires some adjustments to sustain harmony at the dinner table. For various reasons half the exercise classes are missed. Six months later, having lost only a fraction of the anticipated kilos, the person reflects on his experience and considers what to do next. This is Step 5.

BOX 6: THE CYCLE BY WHICH INTEGRATED COASTAL MANAGEMENT PROGRAMS EVOLVE



The five steps in the policy cycle (Step 1 Issue Assessment through Step 5 Evaluation) mirror those by which individual learning occurs.

In essence, the steps of conscious learning are the steps of the scientific method. Much learning is unconscious and emerges by slow trial and error, often over long periods of time. Conscious learning is more efficient and it is a foundation of our contemporary civilization. Rather than applying a set of beliefs or a dogma as an answer to a question, the scientific method calls for stating an idea for what the answer may be, designing a way to test this idea, carefully observing what happens, and then drawing conclusions. This objective and experimental way of learning was as radical a concept when it was developed by the ancient Greeks as it was when rediscovered during the European "enlightenment" that brought the soci-

etal transformations that shape today's world. It remains a radical idea when applied to how public policy is formulated and evaluated. Herein lie the many difficulties of making adaptive management an operational reality when developing systems of coastal governance.

In its pure form, the scientific method requires a hypothesis that clearly states what an individual thinks is going to happen and it requires experiments designed to demonstrate whether the hypothesis is affirmed or rejected by reproducible events. Experiments must have controls. Without them, it is difficult to prove if the variables that are being probed are the cause of the outcomes being observed. Adaptive management can seldom attain this level of rigor, but the basics of experimentation remain the same. Applying adaptive management to how coastal governance is practiced, therefore, requires:

- Stating clearly the assumptions that underlie a course of action and the expectations (or hopes) for what will happen as the result of those actions. This requires setting unambiguous goals

- Deciding what should be monitored to demonstrated progress—or its absence—towards those goals

- Since rigorous controls are not feasible, critically observing and acknowledging how the context is changing during a generation of management and engaging those involved in assessing these events and adapting to them

- Drawing conclusions as they relate to the goals that were set and the adaptations to the plan of action that were made along the way. As much can be learned from failure as from success. Soliciting the views of informed outsiders is essential when drawing conclusions. The conclusions invariably fall short of a watertight "proof," but this does not negate their value

- Setting the next round of goals and repeating the process

By far, the most radical departures from the usual practices are the last two. This is the heart of the scientific method, of science-based management, and of accountability and transparency in governing societies. But since so much public policy is shaped by beliefs and by values, this approach requires a degree of humility and flexibility that does not come easily to the bureaucracies that usually develop and implement public policy. As a result, the adaptive, learning-based approach is a difficult path to follow.

Making Adaptive Coastal Governance an Operational Reality

When coastal management initiatives are conceived as expressions of adaptive management, the many activities that contribute to a project or program can be arranged in a logical sequence. (See Box 6.) Clustering activities around the five steps in the learning process helps in making better judgements on when an initiative is ready to move to the next cluster of activities. It also helps in better understanding the interdependencies between the results and the learnings associated with each step (Olsen et al., 1997; Olsen et al., 1998; Olsen, 2002). (See Box 7.)

The Planning Phase: Steps 1 through 3

This phase begins by identifying the management issues that need to be addressed. Issues are both opportunities and problems. The first questions are "What are the problems, what are the opportunities that need to be addressed?" (Step 1). In the Anthropocene, these are similar in any coastal region, but the dynamics of inter-relationships among the issues, their causes and their tractability within a given culture and place are always different. These differences make this step a critical one. Selecting the issues to be addressed sets the foundation for all that will follow. Typically it starts with the preparation of "issue profiles," site assessments, and other methods for integrating information from a variety of sources on the problems of overfishing or shorefront construction or habitat loss or runaway shrimp pond development or whatever else may be calling for attention. It must be decided which questions require surveys or other forms of research in order to better understand the dimensions of the issues

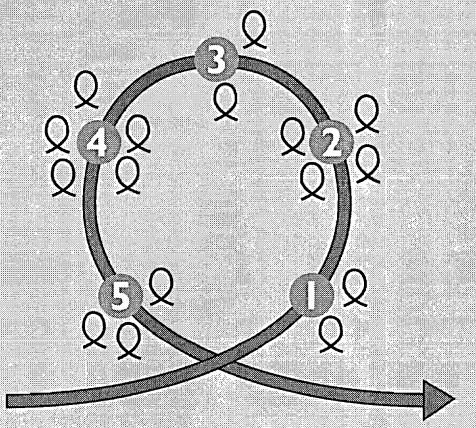
BOX 7: THE ICM LEARNING CYCLE AND THE ACTIONS ASSOCIATED WITH EACH STEP	
STEP	INDICATORS
Step 1: Issue Identification and Assessment	• Principal environmental, social and institutional issues and their implications assessed • Major stakeholders and their interests identified • Issues upon which the ICM initiative will focus its efforts selected • Goals of the ICM initiative defined • Stakeholders actively involved in the assessment and goal-setting process
Step 2: Preparation of the Plan	• Scientific research on selected management questions conducted • Boundaries of the areas to be managed defined • Baseline conditions documented • Action plan and the institutional framework by which it will be implemented defined • Institutional capacity for implementation being developed • Second Order behavioral change strategies at pilot scales tested • Stakeholders actively involved in planning and pilot project activities
Step 3: Formal Adoption and Funding	• Policies/plan formally endorsed and authorities necessary for their implementation provided • Funding required for program implementation obtained
Step 4: Implementation	• Behaviors of strategic partners monitored, strategies adjusted • Societal/ecosystem trends monitored and interpreted • Investments in necessary physical infrastructure made • Progress and attainment of Third Order outcomes documented • Participation of major stakeholder groups sustained • Constituencies, funding and authorities sustained • Program learning and adaptations documented
Step 5: Self Assessment and External Evaluation	• Program outcomes documented • Management issues reassessed • Priorities and policies adjusted to reflect experience and changing social/environmental conditions • External evaluations conducted at junctures in the program's evolution • New issues or areas for inclusion in the program identified

perceived as important. Since a coastal manager's concern lies with ecosystems and the people they contain, it is necessary to select ways to actively involve the people of the place in this process of listening and analysis.

When beginning to formulate a plan of action (Step 2), decisions must be made on the scope of the program and the goals it will achieve in an initial effort. This involves separating the ideal from the practically achievable. It requires matching the capacity of the coastal management program or project (as constrained by time, funds and the capabilities of the people and institutions involved) to the complexity of the issues that the initiative decides to address. The hundreds of coastal management initiatives undertaken in the 1990s all faced the same challenge—they needed to demonstrate how integrating approaches could be successfully applied in settings where they were untested and at the same time show tangible results within a few years. This led many of these programs to focus their efforts on pilot efforts at a small geographic scale. Indeed, the cases in Part 2 of this volume have relied on community-based management pilots (also known as demonstration projects) to introduce integrated approaches to coastal management and to discover which practices are more effective and which are less effective in that setting. There are always instructive exceptions. The Sri Lanka program (Chapter 4), for example, was structured from the start as a national program. It learned what to do and how to do it by focusing on the accessible reaches of coast close to the nation's capital, Colombo, and by limiting its efforts to a single issue (coastal erosion) within this constrained area. Community-based management was a feature of a later phase of this program.

Beginning with an agenda that is reasonably balanced with the capacity of those involved is critical—and a balance that too often is ignored or misjudged. Those who ignore it may claim that the necessary capacity can be imported from elsewhere but underestimate the difficulty of integrating that external capacity (and the beliefs and values that accompany it) into the host society.

BOX 8: LEARNING OCCURS SIMULTANEOUSLY AT MANY SCALES



When programs practice adaptive management, each step in their evolution is enriched by analysis and experimentation that traces through the steps of the learning process. Learning accumulates at many time scales simultaneously. Cycles of learning should be completed within each step of a program's evolution. It is particularly important to experiment during the planning step (Step 2) with the ideas being considered for full-scale implementation (Step 4). Such "practical exercises" have been an important feature of CRMP.

The planning and goal-setting step must not be a task relegated to planners and technicians working in offices. It must be an effort that engages the people and institutions that will be affected by the programs. In settings where coastal management is an untested approach and the success or failure of alternative strategies is difficult to assess, it is very important to apply the learning cycle at a small experimental scale during the planning process. (See Box 8.) In the Ecuador program (Chapter 3), these early tests were called "practical exercises" and they became the foundation for activities funded later at a much larger scale during program implementation. This approach has subsequently been a feature of the planning phase of all other CRMP field programs. It is important, however, not to confuse such "experiments" with the full-scale implementation of a formally endorsed program to which the society as a whole has committed itself. Winning such commitment is the challenge of Step 3.

How long does the planning phase take? In the U.S., the CZMA of 1972 created a federally administered and federally funded program that issued grants for up to three years to complete Steps 1 through 3 at the scale of individual coastal states. The planning phase culminated in: (1) obtaining the signature of the state's governor which signaled commitment from the highest executive officer to the program's policies and procedures; and (2) demonstrating that the institutional framework and implementing powers were sufficient to adequately implement the program. In the U.S., despite a stable political context and significant financial incentives, most states required considerably more than three years to meet the federal standards and graduate from the planning phase. In some cases the planning phase extended over 10 years or more.

Progress at smaller scales is usually more rapid. The issues may be less complex and the prospects of winning commitment to a plan of action are often—but by no means always—better, and the procedures less complex. At the village level, commitment to a plan of action may be expressed by a vote at a community meeting, the decision of a village head or mayor, or by the adoption of an ordinance. The time required may be a year or less. But, it is important that such commitments are not *pro forma* and do not

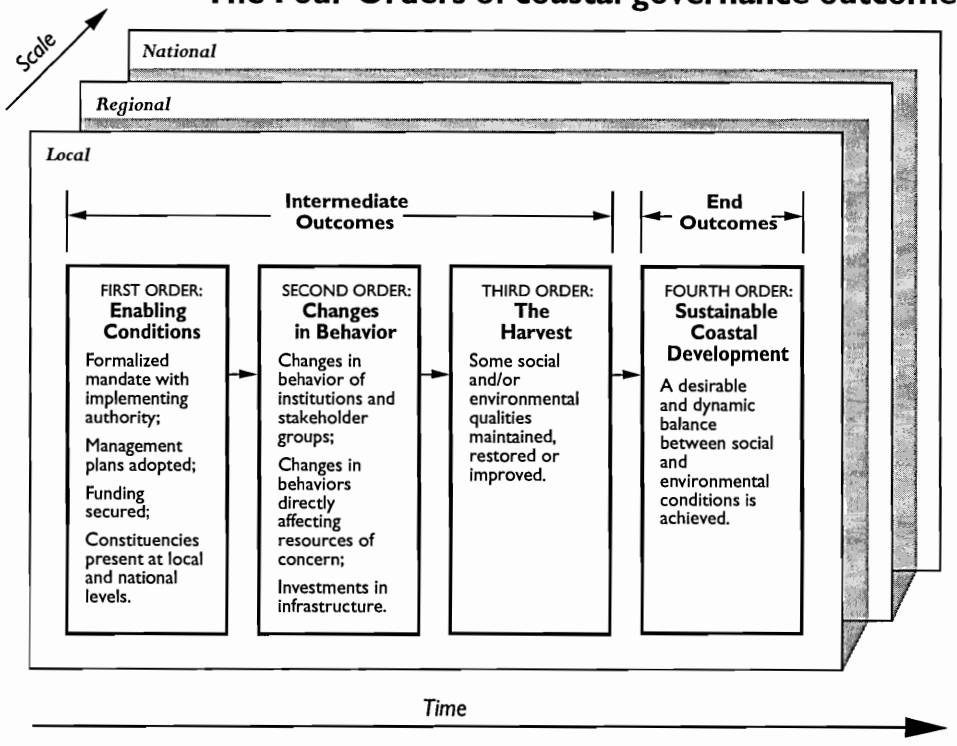
fall into the category of good intentions. The planning phase must engage the people affected and there must be a critical mass of people committed to its implementation (a constituency) if sustained action is to follow.

Implementation, Self-Assessment and Renewal: Steps 4 and 5

At the national or provincial (state) scale, the implementation of a coastal management program requires dedicated staff, supportive constituencies and funding, as well as a clear mandate. In poor and politically unstable nations, these are very difficult pre-conditions to meet. Poor countries see the priority as development—with development measured by economic growth, increased incomes and wage employment. Societal priorities are typically defined in terms of security, employment, education and public health. In this context, it can be difficult to make the case that investments in coastal management are worth the effort and the resources they require. Political scientists have examined the forces at play in such situations and describe the conditions necessary for gaining a place on the political agenda (for example, see Sabatier and Mazmanian, 1979 and 1981). Such analyses are helpful in understanding how a coastal management initiative can be designed and led during Steps 1 and 2 to maximize the chances for success at this critical juncture. The issues that are selected and how the program's goals are articulated in Step 1 and the institutions and other partners selected to help shape the programs policies and proposed actions in Step 2 will all have a major influence on the prospects for getting on the policy agenda and assembling the suite of enabling conditions that are required for success in full-scale implementation.

When ICM programs rely primarily on regulations to implement their policies, they risk becoming bureaucratic and rigid during Step 4. To counteract this tendency, it is essential that the identification and analysis of issues continue during Step 4, and that the program be alert to new problems and new opportunities and that it maintain the ability to respond to them. The program's constituencies must be sustained. They, too, will change as new issues emerge and the ones selected at the beginning of the program mature and become more or less salient.

Figure 1.
The Four Orders of coastal governance outcomes



Source: Adapted from Olsen et al., 1998

At smaller scales, the processes of governance are less formalized and less cumbersome. Practicing adaptive management may be easier. When a threshold of trust has been achieved among the parties involved, it is relatively easy to examine what is working well, what is working less well, and to make adjustments. The "generations of management" spin over more quickly than they do at larger spatial scales.

The Outcomes of Coastal Management

The policy cycle is useful as a simplified framework for understanding the process by which coastal management initiatives evolve. It is no less important to analyze and comprehend the outcomes that coastal management works to achieve. As with the ICM cycle, it is important from an

operational perspective to understand the sequences by which impacts accumulate. The Orders of Outcomes shown in Figure 1 groups the outcomes of coastal management along a trajectory that traces the advance to more sustainable forms of coastal development. This framework (Olsen, 2003) emphasizes that the first threshold is creating the enabling conditions that make integrated forms of coastal management feasible. The second threshold is to gauge the success of implementing an ICM program in terms of the changes in behavior that are required to meet its goals. Only after the requisite changes in behavior have been practiced for a sufficient period can improvements be expected in the environment and in the social benefits that may be attributable to a coastal management program.

Finally, achieving the ultimate goal of sustainable forms of coastal development requires a mosaic of environmental and social conditions that are as yet poorly understood and can only be defined in very general terms. In an operational sense, the ultimate goal of sustainable forms of coastal development is a "north arrow" that points in the direction needed to proceed. The most tangible and near-term outcomes lie in achieving the necessary enabling conditions and the forms of behavior that constitute coastal stewardship, and produce some—but not all—of the desired social conditions in a given place.

The First Order: Enabling Conditions

These are achieved when a program has succeeded in completing the first three steps of the ICM cycle. The crucial point is that this essential threshold requires that all five of the following outcomes be present:

1. Constituencies actively support the ICM initiative:
    - ❖ Within the user groups that will be most affected by the ICM program
    - ❖ Within the governmental institutions involved in the program
    - ❖ Within the general public

2. A formal governmental mandate for the program along with the authority necessary to implement a course of action are in place. This may take the form of:

- ❖ A law, decree or other high-level administrative decision creating an ICM program as a permanent feature of the governance structure
- ❖ The creation of commissions, working groups, user organizations and non-governmental organizations (NGOs) dedicated to the advancement of an ICM agenda
- ❖ The designation of protected areas and the enactment of land and water use zoning schemes

3. Resources, including sustained annual funding, that are adequate to implement the plan of action are made available.

4. A plan of action is constructed around clear goals.

5. The institutional capacity necessary to implement the plan of action is in place.

Often all five enabling conditions are not achieved in low-income nations because external grants in support of an initiative often evaporate once a program has been formally approved by government. As a result, many projects and programs never make the transition at the national scale to implementation. In these low-income nations, assembling the necessary funds may require a loan from a foreign institution, and already heavily indebted nations are rightfully reluctant to add to their debts. Similarly, the institutions that make such loans to governments usually require a clear demonstration that the benefits of the program will yield economic returns that make the payback economically justifiable. The long-term nature of coastal stewardship makes the demonstration of such short-term economic returns difficult and many important activities essential to the coherence and quality of the program may be judged as "not bankable."

The Second Order: Changes in Behavior

These fall into three broad categories:

1. Changes in the behavior of institutions and interest groups:

- ❖ Collaborative planning and decisionmaking through task forces, commissions, civic associations and the like
- ❖ Successful application of conflict mediation activities
- ❖ Evidence of functional public-private partnerships
- ❖ Collaborative actions by user groups
- ❖ Use of new school curricula on ICM topics

2. Changes in behaviors directly affecting resources of concern. For example:
   - ❖ Elimination of destructive fishing practices and over-harvesting
   - ❖ Land use practices that reduce contamination of water and sustain freshwater inflows to estuaries
   - ❖ Adoption of construction setbacks and other controls over shorefront development

3. Investments in infrastructure supportive of ICM policies and plans. For example:
   - ❖ Construction and maintenance of shoreline protection works
   - ❖ Construction of port facilities and other transportation-related infrastructure
   - ❖ Waste disposal and pollution reduction infrastructure including sewage treatment facilities and sanitary landfills
   - ❖ Infrastructure to enhance and protect public access to the shore including rights of way, boardwalks, and signage programs
   - ❖ Investments in habitat protection and restoration including purchase of protected areas and conservation easements, and replanting of mangrove wetlands

The third category, investments in physical infrastructure, is the most readily quantifiable and often the easiest to justify on a budget sheet. On the face of it, there are fewer unknowns. If sewage treatment plants or water systems have been shown to work elsewhere and competent firms can be contracted to build them, the problems are relatively tractable and the "good practices" for the administration of such projects are widely

known. But such apparent simplicity can be deceiving. A poor institutional capacity assessment and insufficient attention to the human dimensions of successful use and adequate maintenance may mean that a few years later the fishing port lies empty, the sewage treatment plant has broken down, or the water system no longer delivers water to the people who still need it.

The "outcome mapping" techniques (Earle, Carden and Smutylo, 2001) disseminated by the International Development Research Centre (IDRC) are a powerful means for defining, documenting and analyzing behavioral changes. The method calls for identifying the "boundary partners" that a program selects to work with directly in order to instigate the societal change required to attain its ultimate (harvest) goals. The changes in relationships, activities, actions or behaviors of boundary partners that can be logically linked to the ICM program's activities are carefully negotiated. A graduated set of indicators of changed behaviors are then developed and monitored. Periodic self-assessments provide the feedback loops that encourage the program and its partners to learn and adapt as the program proceeds.

The Third Order: The Harvest

The harvest is the reward for adequate and sustained achievements in institutional and behavioral change. Water quality improves, there are more fish, the quality of life improves, income levels rise, and target communities' engagement in supplemental livelihoods stabilizes or improves.

The changes that indicate Third Order outcomes are invariably the result of multiple events and forces. At anything larger than a local scale it is only occasionally that an ICM program can confidently claim sole responsibility for a positive change in the environment or in social well-being. The more complex the program, the more difficult it is to establish valid cause and effect relationships. A second difficulty is that the benefits of Third Order changes in behavior may be reflected in improvements in coastal conditions over the long term, but not in the short term. A third difficulty in documenting Third Order outcomes often lies in ICM pro-

grams having avoided inappropriate development or in modulating forms of development that have negative impacts on coastal conditions. These are difficult to quantify and place on a balance sheet.

Greater equity and social welfare is one of the important socioeconomic outcomes of ICM. ICM strengthens systems of participatory democracy and brings order, transparency and equity to decisionmaking and to the manner in which resources are allocated. By modeling standards of participatory democracy, ICM programs bring hope, a greater sense of security and belief that the governance system can respond to public needs. ICM-induced changes in behavior can increase the standard of living of coastal residents by improving food security and improving opportunities to generate income through traditional and supplemental employment. Properly managed, diversified income-generating activities that improve economic welfare can be related to improvements in the condition of the environment. In summary, Third Order outcomes fall into two broad categories:

1. Improvements in some coastal ecosystem qualities. For example:
    - ❖ Sustained conservation of desired qualities within the areas subject to ICM
    - ❖ Halting or slowing of undesired trends such as overfishing, sand and coral mining, and/or eutrophication
    - ❖ Restoration of lost qualities, for example, through re-establishment of water flows to wetlands, sufficient diminution of sediment or nutrient loads to permit light penetration to corals or seagrass beds, and/or control of overexploitation of living resources

2. Improvements in some societal qualities. For example:
    - ❖ Increases in indices of quality of life, such as the Human Development Index
    - ❖ Reduced poverty, greater life expectancy and literacy
    - ❖ More equitable access to coastal resources and distribution of benefits from their use
    - ❖ Greater order, transparency and accountability in how planning and decisionmaking processes occur

- ❖ Greater security, including food security
- ❖ Greater confidence in the future and hope

It is within Third Order outcomes that the wisdom of Second Order investments in physical infrastructure can be assessed. Sometimes the results are disappointing. Often failures are attributable to an absence of the governance capacity required to successfully administer the facilities that have been built. The case can often be made that this translates into inadequate investments in building the base of First Order outcomes required to sustain the Third Order prize.

Far more effort has gone into developing, refining, and monitoring Third Order outcomes than either First or Second Order outcomes. This has contributed to a very major problem with the designs of most ICM initiatives in developing nations. Most investments in ICM set their "bottom line" targets in Third Order terms even when experience should have made it abundantly clear that these lie beyond the time scales of the usual donor or development bank funded "project." Programs designed and funded for the high-income North countries are more realistic. The more successful, such as the Chesapeake Bay Program, and the Great Barrier Reef Authority, have taken two or more decades to achieve their Third Order goals. In developing nations in the tropics, most Third Order outcomes that are attributable, at least in part, to ICM initiatives are currently limited to small demonstration sites. In the U.S., the documentation of Third Order achievements potentially attributable to the coastal zone management programs of coastal states has been frustrated by an absence of baselines and adequate monitoring protocols (Hershman et al., 1997).

The Fourth Order: Sustainable Coastal Development

The difference between Third and Fourth Order outcomes is that sustainable development requires achieving yet-to-be defined equilibria among both social and environmental qualities. Sustainable development has not been achieved if, for example, the condition of the coral reefs of a place are sustained or improved but the people associated with them continue to live in poverty. Similarly, sustainable development has not been achieved

if some measures of quality of life are high but such achievements are eroding the resource base or require the exploitation of other social groups. The challenge is vastly complicated by the imperative of defining an acceptable balance in terms of both intergenerational equity and a planetary perspective on both societal and environmental conditions and trends.

There is a long way to go to defining in specific terms the balance among societal and environmental qualities that could be considered sustainable in given coastal places. Recognizing that all living systems are in a constant process of change, sustainable forms of development will be dynamic, not static, and must be capable of responding to the surprises that Mother Nature delivers.

It is important to recognize that some expressions of First, Second and Third Order outcomes will accumulate concurrently within a given time period. While there are causal relationships between the three orders they are not, and should not, be achieved in a strictly sequential progression. For example, many successful programs experiment at a small geographic scale before attempting to apply new management practices at the national scale. Thus the First Order threshold may only be achieved at the national scale when Second and Third Order outcomes have accumulated at one or more demonstration sites.

Conclusion

This chapter has made the case that coastal governance must be seen as a response to the challenges of the Anthropocene. Since coastal ecosystems are of unique importance to humanity, their governance should be a critical concern. Beginning in the early 1970s in the U.S., coastal management has emerged as a "new approach" to planning and decisionmaking that considers the interactions and the interdependencies of the webs of the ecosystem process and human activities. It is the "I" in ICM that makes it both unusual and significant. Because it works to understand and to influence systems, coastal governance is complex and its benefits accumulate gradually. The second half of this chapter presented simple frameworks for visualizing how the processes of coastal governance unfold and how progress and learning can be documented and evaluated. These frameworks are applied to the case studies presented in Part 2 of this volume.

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CHAPTER 2

COASTAL GOVERNANCE IN DONOR-ASSISTED COUNTRIES

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BACKGROUND

The Coastal Resources Management Program (CRMP) has pioneered an approach to assisting developing countries progress towards better governance and use of their coastal resources. Through this 18-year initiative, the Coastal Resources Center (CRC) at the University of Rhode Island has had the privilege to assist a wide array of countries to make progress in coastal management. CRMP has worked with a range of nations to do a better job of allocating, using, developing and conserving coastal resources for the purpose of improving the well-being of the people of the place, the development of the nation, and the health and quality of the environment. The countries in which CRMP has worked are diverse. They range from small, very poor but relatively peaceful and stable nations like Tanzania, to middle-income countries like Mexico and Thailand, to nations experiencing political transformations and social turmoil like Indonesia and Ecuador, and to nations in a longstanding civil war like Sri Lanka. In each place,

CRMP has worked with a wide range of partners to make substantial forward progress. The program has also tried to take what has been learned —place by place, year by year—and have an impact on how coastal issues are defined and addressed at larger regional and global scales. These lessons are also used to shape how the profession of coastal management evolves by integrating what is learned into training materials and publications that document and analyze that experience. This chapter is a reflection on some of what was learned through the experience of leading this major coastal management program. (See Box 1.)

As pointed out by Lowry (2002), learning from experience can occur through a wide range of activities, and the practice-relevant conclusions may be expressed along a scale that ranges from anecdote to statistically significant conclusions. What follows are lessons drawn from insights from project implementation, from discussions with colleagues, and from CRC's participation in the evolving field of coastal management. They are offered to complement the more analytical pieces on aspects of the practice that CRC and CRMP have produced over the last decade. This repertoire can be accessed through the papers in this volume and CRMP's *World of Learning in Coastal Management: A Portfolio of Coastal Resources Management Program Experience and Products* report with an accompanying compact disc, which contains over 100 CRMP-generated documents (CRC, 2002).

CRMP's Foundation of Beliefs, Values and Concepts

When CRMP began, CRC had developed through its work in New England a number of principles as to how to successfully launch and sustain coastal programs. (See Box 2.) The Center believed that for such programs to succeed they must be supported by the people of the place—that a program constituency is essential (Olsen, 1993). CRC believed that an unwavering focus on participation, relevance and results is critical to building such support. The process through which a program is developed is as important as the reliable knowledge or technical information on which it is based. Successful programs need to enjoy strong national support but must produce tangible results in specific places. CRC knew that local leadership was essential, and that government, universities, non-governmental

Box 1: The Coastal Resources Management Program (CRMP)

Goals and Objectives

CRMP I (1985 to 1995)

Goal: Demonstrate that the principles and practice of integrated coastal management (ICM) can be usefully applied to critical coastal issues and geographic areas in developing countries.

Objectives

1. **Pilot ICM programs.** Assist three pilot nations—Ecuador, Sri Lanka and Thailand—establish ICM programs (1985-95)
2. **Capacity building and outreach.** Widely disseminate approaches, techniques and learning from the pilots (1991-95)
3. **Leadership.** Contribute to U.S. leadership in advancing a global ICM agenda (1993-95)
4. **Institutional Capacity.** Build sustained capacity at the University of Rhode Island Coastal Resources Center in international coastal management (1985-95)

CRMP II (1995-2003)

Goal: Increased conservation and sustainable use of coastal resources.

Objectives

1. **Improved management of coastal resources in key USAID countries.**
   - ❖ Provide field support to ICM programs in participating countries—Indonesia, Mexico, Tanzania, Kenya
   - ❖ Catalyze increased USAID mission interest in ICM
   - ❖ Promote interaction and learning among USAID-supported ICM programs
2. **Global technical leadership in ICM.**
   - ❖ Participate in global initiatives and build strategic partnerships
   - ❖ Develop and disseminate ICM tools
   - ❖ Build global capacity for ICM, especially among practitioners

organizations (NGOs), the private sector, and resource users must all be active participants in coastal planning and implementation.

Over the 18-year period of CRMP, these beliefs have been tested, not only by CRC but by many others as the number of ICM projects and programs around the world have proliferated (Sorensen, 2000). During this period, the basic values and beliefs that underlie CRMP's work have remained unchanged. However, CRMP's approach to coastal management has been adapted and modified over the years to reflect lessons learned through experience—both its own and others. CRMP staff have generalized from their experience to develop a number of basic concepts and tools to guide programs in their design, implementation and assessment. These concepts and tools are set forth in some detail both in CRC's *Manual for Assessing Progress in Coastal Management* (Lowry, Olsen and Tobey, 1999) as well as in a number of papers (Olsen, 2002; Olsen 2003; Olsen and Christie, 2000; Olsen et al., 1998; Hale et al., 1998).

The essential aspects of the approach are:

❖ Recognition that the scope of ICM must include a *definition of ICM* that includes both conservation and development. CRMP embraces the definition of ICM as used by the United Nations Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) (1996): "(A) continuous and dynamic process that unites government and the community, science and management, sectoral and public interests in preparing and implementing an integrated plan for the protection and development of coastal ecosystems and resources."

❖ Recognition that while ICM's fundamental purpose is to move towards more sustainable forms of development, progress is made through a *linked sequence of outcomes.* (See Chapter 1.)

❖ Recognition that *ICM is a governance process* that goes through a policy or project development cycle with each cycle representing a "generation." (See Chapter 1.) It is through completion of successive generations, with each generation building on the accomplishments and lessons of the previous one but expanding in scope and scale, that ICM programs will begin to achieve Second and Third Order outcomes at significant scales. The policy cycle and the essential actions that need to occur at each step of the process provide a road map for sustained progress.

Translating CRMP Goals and Objectives into Sustained Progress

While CRMP goals and objectives have evolved over the course of the last two decades, in each nation where program staff works their primary objective is to advance the ICM governance process towards more sustainable forms of development. How this broad objective gets translated into an effective program in a specific place is at the core of designing and implementing donor-assisted projects. For CRMP, that translation is guided by values which explicitly recognize the country and its people as its primary "client," the program's underlying concept of how ICM programs progress, and a pragmatic integration of the preceding with the objectives of the USAID mission sponsoring the work.

At a practical level, CRC analyzes the complex development, environmental and governance situations. The Center also pays careful attention to assessing the demand and capacity for ICM, as well as reviewing a place's previous experience with ICM. These two factors are of particular interest and concern. Since progress is most important, CRMP wants to capitalize on potential building blocks (e.g. existing and completed projects). At the same time, work is done to develop an appreciation for how the current coastal management issues have evolved. Lastly, a realistic assessment of capacity for undertaking an ICM governance initiative is essential. It has been CRMP's practice to balance the complexity of a program's design and aspirations with local capacity. Absent this balance, local ownership and sustained progress are unlikely. In this way, program staff try to shape a

Box 2: Good Practices for Initiating and Sustaining Effective Coastal Management

The Coastal Resources Management Program has identified good ICM practices that can be adapted to the unique contexts of different nations and sites:

- Recognize that coastal management is essentially an effort in governance. Coastal programs follow a policy process where the challenge lies in developing, implementing and adopting sustainable solutions to resource use problems and conflicts
- Work at both the national and local levels, with strong linkages between levels
- Build programs around issues that have been identified through a participatory process
- Develop an open, participatory and democratic process, involving all stakeholders in planning and implementation
- Build constituencies that support effective coastal management through public information/awareness programs
- Utilize the best available information for planning and decisionmaking. Good ICM programs understand and address the management implications of scientific knowledge
- Commit to building national capacity through short- and long-term training, learning by doing, and forming long-term partnerships with host country colleagues and institutions based on shared values
- Complete the loop between planning and implementation as quickly and frequently as possible, using small projects that test and demonstrate the effectiveness of innovative policies. Recognize that programs undergo cycles of formulation, implementation and refinement, with each cycle building on prior experience, and program cycles expanding in scope and detail to address new or more complex issues
- Set explicit goals and targets, monitor and self-evaluate performance

From: Olsen, et al., 1998

course of action that navigates among competing interests, and sets realistic intermediate project objectives to assist a nation in advancing a governance process that can lead to more equitable, and environmentally and socially sustainable patterns of coastal resource use.

Context and Capacity Matter

In considering how the principles and practice of coastal management can help address coastal problems and opportunities in any country, it is necessary to look at its unique context for management. The aspects of country context that matter are many—from size, to governmental system, to relative significance of the coast to the country, to the degree, amount and distribution of wealth, to literacy, to scientific expertise, to traditions of democracy, to religion. As mentioned above, a nation's previous experience with ICM is crucial.

Governance context

Since ICM is a governance process, and one that was initially developed in the U.S., differences in governance context and capacity are important to understand. The U.S. is a wealthy nation, with a relatively high degree of social stability with multiple institutionalized mechanisms to balance individual and societal rights. The U.S. has multiple levels of government, and while they often have different objectives and different capabilities, they provide a relatively stable structure for coastal management. There are also well-developed organizations within civil society that can represent stakeholder interests, from environmental advocacy groups, to business associations, to fishermen's associations, to labor unions. There are democratic traditions, checks and balances among the branches of government, and a free press. A "social contract" exists between people and their government. In many donor-assisted nations, these structures and traditions are lacking. The impact is that programs attempting to advance ICM in such nations must devote considerable time and attention to creating the context, or enabling conditions, that allow an ICM governance initiative to succeed. This means it is likely to take longer to reach sustainable outcomes—even First Order outcomes—in USAID-assisted countries than it did in the U.S.

Why is creation of enabling conditions both so important and so challenging for ICM initiatives? ICM is about promoting social equity as interests are balanced and resource allocation decisions are made. Balancing the many interests that need to be considered when making significant coastal management decisions—decisions that are often about common property resources—requires inclusive, transparent processes, facilitated by effective institutions. Such processes are difficult to carry out even in places with democratic traditions. In countries where poor people and other major segments of society, such as women and youth, are too often "voiceless" and powerless, initiating such processes is challenging, time consuming and not without risk. The disparity in power—and therefore influence—over decisionmaking among interest groups in CRMP countries is great. Prior to CRMP, there were often no mechanisms for bringing groups and their concerns regarding coastal resources to the table. The Coastal Zone Management Act (CZMA) mandated substantial public and inter-governmental participation in coastal program formulation and implementation. This mandate was initially resisted by some government agencies, particularly those with a "command and control" tradition of management. Such participation is now the norm in America's environmental management. It is useful to remember that coastal management programs were at the forefront of this transformation in the U.S..

Overcoming the implementation gap is the greatest challenge

There is always a gap between what laws and plans say and what happens in the real world. The magnitude of that gap, however, is almost always orders of magnitude greater in the countries where CRMP works than in the U.S. In America, one has a full suite of management tools to apply—laws, regulations, voluntary actions, financial incentives, education, and public works projects, as well as access to financial resources and well-trained personnel. In CRMP countries, many of these tools are ineffective (as in the equitable application of regulatory processes) and/or too expensive. Meaningful implementation is difficult to achieve without a full set of tools, without sustained commitment and without sustained funding. This has led not only to greater challenges, but frequently to great innovation in developing new approaches to implementation.

Continuity of effort is essential for program learning, evolution and growth

Coastal management issues are never "solved" once and for all, nor is an effective coastal management program a static one. Successful coastal programs are developed incrementally, they learn from their own and others' experience, and they develop institutional mechanisms that allow them to identify and address new issues, to innovate, to sustain and re-invent themselves (Olsen, 2003). Achieving program continuity is often challenging in donor-assisted countries. ICM efforts are too often a disconnected group of donor-funded projects rather than contributions to a coherent, country-driven program, in which different donors fund different elements of a national program. In the 1980s and 1990s donors favored working with NGOs, often excluding governments completely from their environmental and biodiversity conservation programs. Very rarely are promising beginnings passed on for continued support from another donor. Too frequently, the assumption is that once a program has been designed, implementation is the responsibility of the national government or that individual initiatives must become financially self-supporting. In other words, that it is time for "graduation." Yet we have learned in all programs—whether in the U.S. or in a donor-assisted nation—that continuing financial support is essential to the implementation and sustained success of a program.

The issues that ICM programs address

There is a great commonality in coastal issues around the world. With few exceptions, most coastal nations are experiencing the environmental problems of habitat loss, pollution, and declining resources, as well as the social problems that accompany such issues, including resource use conflicts and the governance issues raised by poor planning and decisionmaking on major development actions. (See Box 3.) But this apparent similarity masks important differences among countries. Because poor nations and poor people are heavily dependent on the natural resources around them and have few-to-no options when local natural resources decline or vanish, ineffective management produces dire consequences. A decline in fisheries means that people go hungry, a loss of mangroves means no shellfish to eat and no fuel wood for cooking, water quality deterioration means that

BOX 3: ENVIRONMENTAL AND DEVELOPMENT ISSUES IN THE UNITED STATES AND CRMP COUNTRIES

COASTAL ISSUES	*U. S.*	*ECUADOR*	*SRI LANKA*	*INDONESIA*	*KENYA*	*TANZANIA*	*MEXICO*
MARICULTURE	◍	●	◍	●		●	●
THREATS TO CRITICAL AREAS AND HABITAT	●	●	●	●	◍	●	●
DECLINE IN COASTAL FISHERIES	●	●	●	●	●	●	●
TOURISM	◍	●	●	◍	●	●	●
URBAN DEVELOPMENT	●	●	●	◍	◍	●	●
LAND-BASED SOURCES OF POLLUTION	●	◍	●	◍	◍	◍	◍
WATER SUPPLY AND SANITATION	◍	●	◍	◍	●	◍	◍
EROSION/ACCRETION/HAZARDS	◍	◍	●	◍	◍	◍	◍
SHOREFRONT DEVELOPMENT	◍	●	●	◍	●	◍	●
LOSSES IN HISTORIC, SCENIC AND ARCHEOLOGICAL SITES	◍	◍	●	◍	◍	◍	◍
PUBLIC ACCESS	●	●	●	◍	●	◍	◍

● CRMP priority ◍ Issue present, but not a CRMP priority to date

people get sick and, too often, die. A second difference is in the rate of transformation of the landscape and the changes in resource condition. When development happens—whether explosive shrimp mariculture growth in Ecuador, Indonesia or Mexico, or tourism development in Mexico, Thailand or Zanzibar—its pace usually far exceeds the capacity of society to steer the process of change to desirable ends.

Finding the conservation/development balance

While in the U.S. ICM is not a "green program," internationally it is often viewed as such. In all USAID-assisted countries, conservation and biodiversity protection are rarely high on the political agenda. Instead, the priority is on economic growth and livelihood development. Yet a healthy ecosystem is crucial to such development. ICM programs are most successful when they are seen as encouraging appropriate, sustainable development and not as a tool for promoting a one-sided conservation agenda. For example, in both Tanzania and Mexico, the ICM programs

feature strategies and activities that encourage sustainable resource-dependent economic development that benefits local communities. At the same time, ICM and biodiversity conservation programs are already complementary and would benefit by being even more closely linked. (See Chapter 10.)

CRMP Outcomes

Over the five- to eight-year life of CRMP II programs (1995-2003), substantial and important First Order outcomes (adopted policies, strategies, order and laws) and Second Order outcomes (changed institutional and individual behaviors) have been achieved at multiple scales. These provide the foundation for larger-scale Second and ultimately Third Order outcomes. In addition, CRMP II has documented Third Order outcomes—i.e. changes in environmental and or socioeconomic conditions at a number of demonstration sites—but at a relatively small scale. These outcomes are discussed in the case studies in Part 2 of this volume.

This progress is substantial and is consistent with the rate of progress made by start-up ICM programs in the U.S. after passage of the CZMA. In the CZMA, coastal states are eligible for three years of federal planning funds to develop a plan for approval to the national government (First Order outcome). In reality, the state program development process has ranged from four years to more than a decade. Once programs are approved and begin implementation, achieving significant Third Order outcomes has required many years of sustained effort.

Key CRMP Strategies in the Focus Countries

Tailoring the principles of ICM practice to local circumstances is central to CRMP. Through the stories presented in each country case study in Part 2, the art and science of "tailoring" projects is demonstrated. In this section, the focus is on five key strategies that have been central across the portfolio of CRMP programs, and how the application of each strategy has been different in each country.

Catalyzing and sustaining the coastal management process—the critical partners

Moving away from "business as usual," and advancing towards more sustainable forms of coastal governance requires both a catalytic spark and a sustained effort. The individuals and organizations that begin programs and sustain their progress vary widely across CRMP countries. In Sri Lanka, Thailand, and Tanzania, CRMP had a single, strong government agency as the primary partner from the beginning. In Ecuador and Indonesia, there were multiple, designated government partners, and it took time to develop their central role in project planning and implementation. In Mexico, CRMP worked primarily through NGOs and universities, and relationships with government have been less direct. Regardless of which institution plays the initial catalytic role, in all CRMP projects government, universities, NGOs, the private sector and resource users must all play strong roles. Below, selected examples of approaches that proved particularly successful are highlighted; additional examples are found in the country case studies.

Government

Government is, of course, crucial. Government sets policy, has legal authority over common property resources, regulatory control over private property and development, maintains a civil service system, and has recurrent budgetary funds (however limited). Government is the entry point for many (but certainly not all) donors. It has been CRMP's approach to work closely, but not exclusively, with governmental agencies. In working directly with government, the program has also experienced the normal challenges and frustrations. Corruption is a reality in many CRMP countries; civil servants are often so underpaid that they must work multiple jobs to survive, and the lack of operating funds often results in capable people sitting in non-functioning offices doing routine paperwork rather than carrying our activities that would lead towards meaningful results.

For CRMP, as for other projects, there is not a single strategy for overcoming these problems. Rather, a number of strategies have proven effective in harnessing the capability of government for real progress. For example, in

Tanzania, inter-departmental working groups were the primary means for getting work done. These groups provided a positive venue for government employees to contribute. Individuals were formally "seconded," or loaned, to the working group for a percentage of their time. Working groups had budgets that allowed individuals the opportunity to work on well-supported activities, and CRMP's well-equipped office (computers with Internet access, etc.) provided secretariat support and a welcoming atmosphere that substantially increased professional commitment and motivation.

Non-governmental organizations

NGOs have been key partners for CRMP in Mexico and Ecuador. In both these Latin American countries, strong NGOs existed, and USAID encouraged NGO partnerships. In both countries substantial investment was made in strengthening the capacities of existing NGOs to provide ICM services. In other CRMP countries, NGO involvement at the beginning of the programs was relatively small. This was a result of multiple factors—primarily the relatively underdeveloped ICM-relevant NGO community, and government counterpart suspicion of NGOs. In both Indonesia and Tanzania, CRMP has worked to strengthen selected NGO capacity for engagement, and provide venues where NGO involvement would be positively viewed by governmental counterparts.

Universities

CRMP has consistently sought out university partners in focus countries as it recognizes these partners can and often do play a crucial role in both catalyzing and supporting ICM (both technically and from a process perspective). For example, in Indonesia, CRMP contributed to the establishment and growth of a Center for Coastal and Marine Resources Studies (CCMRS) at the nation's leading fisheries and agricultural university. CCMRS now serves as a national repository for learning on the many ICM projects ongoing in the nation, helps build capacity of ICM practitioners, and provides research results and technical advice to CRMP programs. CCMRS has also helped establish a national network of coastal universities that could ultimately provide similar services across the vast expanse of Indonesia.

A central issue surrounding university involvement in ICM programs has been the tension between academic and practical approaches to engagement in what is—at its core—a political process. In Indonesia, Mexico, Thailand and Ecuador, CRMP has worked with centers within universities that have a "service" and/or "extension" mission. Such centers have full-time professional staff (not tied to the academic calendar/teaching schedule) and can offer sustained services to governmental and community groups working to advance ICM. In addition, such centers can be brokers in identifying, managing and incorporating university-based research and knowledge into the ICM process. However, there are many challenges to the sustained viability of such centers within universities. Among the greatest obstacles is the reward system for faculty members, which typically values research and publication over extension and service.

Despite the reality of the challenges of sustained practical engagement of universities in the ICM process, CRMP remains a strong advocate for their continued involvement. Their ability to act as "neutral ground" and

BOX 4: THE ROLE OF CRC TECHNICAL ASSISTANCE

CRC is not a primary actor for ICM in the various nations where it operates. Rather, CRC is a secondary actor working to strengthen and influence the people of the place to better manage their coastal resources. CRC believes that its role is largely to motivate, verify and coach in-country professionals. It brings expertise and experience from elsewhere about how the coastal governance process can progress, as well as options for how to address the typical coastal development and conservation issues.

Providing this knowledge can stimulate local creativity and adaptation, thereby accelerating progress. It is CRC's strong conviction—a belief reinforced by its CRMP experience—that the verification, motivation and coaching roles, built on trust and mutual respect that develops over the course of a five- to seven-year project, have played a critical role in helping in-country coastal managers achieve success.

provide respected advice on contentious issues in many but not all countries—in many Latin American countries universities are highly politicized—their relative stability as institutions, and their recognized and accepted role in education, training, research and extension make them essential partners for progress.

A capacity-building approach to ICM

Inadequate capacity to practice ICM, and to design and implement strategies that lead to more sustainable forms of coastal development are well-recognized problems. Building the capacity of individuals and institutions to successfully lead, catalyze and support coastal management efforts is, therefore, central to the work of CRMP.

CRMP's primary approach to building human capacity is through "learning by doing." In-country work is largely implemented by host country nationals through in-country staff, consultants, working groups and other partners who undertake project activities and develop products that advance the country's ICM initiatives. Local practitioners are frequently "accompanied" by advisers from CRC.

Capacity is also strengthened by building national, regional and international networks of ICM practitioners that actively share experience and develop the professionalism of participants. These vehicles range from participation in professional conferences to preparation of journal and newsletter articles.

CRMP also builds individual capacity through education and training. In 1995, CRMP convened a conference in Rhode Island entitled "Educating Coastal Managers" (Crawford et al., 1995). This conference identified and described approaches to building human capacity and defined the knowledge, skills and attitudes most critical for ICM. CRMP conducts several types of training—international short courses, regional courses and in-country courses—for coastal management practitioners, government officials and decisionmakers, universities, local communities and other

stakeholders. Over the course of the last 18 years, CRMP, just through its international training courses, has helped raise the skills of nearly 400 men and women from 68 countries worldwide. Many of these individuals now play an important role in national and local ICM programs around the globe. Adding individuals trained through country and regional courses, study tours and seminars, the number increases to nearly 20,000.

While much emphasis has been placed by both CRMP and others on building individual capacity, it is now widely recognized that such effort is necessary, but is certainly not sufficient. Overall capacity development requires that individuals operate within an enabled environment—within institutions that function well and support values and goals conducive to sustainable coastal development. CRMP's explicit institutional capacity-development activities, have, however, been relatively modest and limited to targeted NGO and university partners.

Linking projects to advance programs

When CRMP began in 1985, the countries where CRC worked were just beginning in coastal management and there were at most one or two donor-assisted ICM projects in each. At that time the distinction between an ICM project and a nation's ICM program was small. Now, in every CRMP country, there are multiple ICM and ICM-related projects, but too frequently there is little connection among them and they seldom add up to a national program. Both Sri Lanka and Tanzania are notable exceptions to this pattern.

Creating and sustaining nested systems of governance to advance ICM

The need to link and promote synergy between national and local coastal management initiatives is well recognized in many of the coastal management guidance and lessons-learned documents which have emerged over the last five years (e.g. Cicin-Sain and Knecht, 1998; World Bank, 1998). All essentially recognize the need for a "two-track" approach to coastal management (Olsen, 1993; Olsen et al., 1998; Hale et al., 1998) that links "top-down" with "bottom-up" planning and management. A top-down approach focuses upon central government, its policies, procedures and

structures. A bottom-up approach works to enable change at the site, community, and local government level, with the hope that success can solve urgent problems, encourage resource users to become resource managers, and produce good practice models that can be transferred and replicated across a nation.

The two-track strategy combines both approaches by simultaneously and incrementally building capacity both within central government (national and provincial) and at selected geographic sites. National and local governments, in partnership with communities and resource users, are involved in the analysis of development issues and in taking responsible action. The power of the two-track approach lies in creating linkages between the tracks and promoting a sense of shared purpose at all levels. The challenge lies in the fact that different levels of government typically do not work easily together. When national government is the program initiator, it is not uncommon for local government to be resistant and even hostile to the program. This is especially true if local government perceives that they will lose power or authority, that their discretion will be constrained, and/or that they will be required to do more work or incur costs without commensurate benefits. Similarly, when local levels of government initiate coastal programs, resistance sometimes occurs if central government believes locals are becoming too powerful or independent, or that national interests are being compromised. Similar tensions and pitfalls have occurred when trying to launch co-management regimes at the local level, with similar strategies being used to overcome resistance.

As elaborated in Chapter 1, CRMP country programs have typically (but not always) followed the same sequence—the establishment of tangible ICM demonstrations at the local level which are recognized and supported by national government, then the creation of enabling frameworks at the national level that support and sustain local initiatives, as well as address coastal issues of larger-than-local concern. In Sri Lanka, initial work concentrated on the development of a national ICM program, one with substantial regulatory authority. A second, local track of special area management (SAM) plans was added in a second generation to make the coastal

BOX 5: DEMONSTRATION SITES: BUILDING BLOCKS OR DEAD ENDS?

The proliferation of "demonstration" projects as an effective strategy for launching larger-scale ICM programs and ultimately achieving larger-scale impacts is being questioned. Among the legitimate questions are just what is being demonstrated and at what cost? Once external investment at a site has ended, what impacts are sustained? Does the work continue to develop and grow? Do pilot sites get replicated or have an impact on how similar situations are addressed in other locations within the country or elsewhere. Do demonstration projects actually inform national policy, making it more effective? Both CRMP and experience reviewed at the Xiamen Conference in China (Olsen et al., 1997) strongly suggest that site examples of successful ICM are crucial. (See Chapter 8) However, as illustrated in the country case studies in Part 2, how site work is designed, how it explicitly connects to national initiatives, and how program implementers work with other projects and players determines both site sustainability as well as the potential for replication.

program a more proactive and positive force for improving the environment and lives of coastal people. In Ecuador, after an extensive, coast-wide consultation process, a national program was created that focused implementation in five local-level SAM sites. In Thailand, Kenya, Indonesia and Mexico, CRMP focused on establishing demonstration sites that then inspired and informed policy formulation at higher levels of government. In Tanzania, CRMP was able to build directly on the existing, ongoing local-level ICM projects, especially the Tanga Project, an initiative supported by Irish Aid and implemented by the World Conservation Union-IUCN (Torell et al., 2000). This enabled CRMP to focus its resources on the creation of the country's National Integrated Coastal Environment Management Strategy.

Promoting rapid and effective program implementation

For ICM programs to achieve their goals, they must be implemented. In the policy cycle, the time to choose implementation strategies is after

issues have been selected and agreement on management objectives reached. While there are a vast number of management tools, they can be broadly categorized as regulatory and non-regulatory. In CRMP country programs, with the exception of Sri Lanka, the emphasis has been on instituting primarily non-regulatory interventions to address the selected issues.

While non-regulatory initiatives have proven extremely effective for building a foundation and constituencies for management, it is clear that to achieve Third Order outcomes, such measures must be complemented by codification and enforcement of guidelines of existing policies, or promulgation and enforcement of new regulations. The dilemma is that while the need for regulation is recognized, getting effective enforcement of regulations in most developing countries is difficult, and the consequence of ineffective regulations can be especially damaging to an emerging coastal program. Regulatory tools that are not enforced create only cynicism and frustration that together lead to a loss of credibility for a young ICM program. Such a loss will then undermine a program's constituency. Lastly, the cross-sectoral and cross-institutional nature of ICM programs seldom yield a new institution with direct regulatory power. More typically, ICM programs are "networked," meaning they rely on existing sectoral agencies to apply and enforce their regulations in a manner that is supportive of coastal management strategies.

Staying on the political agenda

CRMP programs take an issue-based approach. The majority of coastal management projects have been initiated as a response to the deterioration of coastal resources. These typically are expressed as losses in such important habitats as coral reefs and mangroves, and threats to public health and livelihoods brought about by such factors as declining water quality, the inappropriate siting of infrastructure, or losses in biodiversity. ICM programs are recognizing, especially since the World Summit on Sustainable Development in 2002, that they must also address basic development issues such as poverty alleviation and equity if they are to be salient to the societies they serve and remain on the political agenda. At the same time, donors and ICM professionals recognize that to address

many issues in coastal regions (e.g., land-based sources of marine pollution, water scarcity) requires moving farther up the watershed and linking upstream and downstream management initiatives.

Coupled with the recognition that ICM program scope must be broadened, CRMP also recognizes that given the limited capacity of most coastal programs, success is most often found by focusing planning and implementation efforts on a relatively narrow set of issues. This presents an operational dilemma.

Concluding Thoughts

Over the last 15 years, there has been a convergence and an emerging consensus as to the basic concepts and principles that underlie ICM, and what it will take to advance towards more sustainable forms of coastal development. At the same time, CRMP experience and that of others reinforces that despite such consensus, there is no formula or recipe for ICM. The art, and the crucial determinant of success or failure, is in how these broad principles are tailored to the particular social, cultural, political and environmental conditions of a place. Given this convergence, CRMP's practitioners have refrained from making new lists of success factors or "lessons learned." Such lists already exist—both from CRMP and from others. Instead, the program can share a number of key messages that have emerged from its collective experience. Given that the approach or philosophy of ICM—that of integration, participation and transparency—is increasingly recognized as the approach to many of the complex problems in our society[1], it is hoped that these messages are heard both within and outside the ICM community.

There is an urgent need to define, support and sustain the ICM agendas of coastal nations and to escape the tyranny of short-term projects.

Nations need well-articulated, results-oriented, integrated programs to

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[1] For example, ICM is the approach called for by a wide range of international declarations and treaties on topics relevant to coastal areas—from wetlands, coral reef and biodiversity conservation, to adaptation to global climate change and sea level rise, to controlling land-based sources of marine pollution.

which individual projects contribute if meaningful progress towards more sustainable forms of coastal development is to be made. There is a need to build on each other's work. Those involved in coastal management need to thread together the many individual projects that now exist in almost every location, to make the whole equal more than the sum of its parts. All partners—donors, secondary organizations and the many primary actors within each country—need a greater willingness to learn from each other and work together, share credit, and to vest program ownership where it belongs: in the hands of coastal people and nations.

Longer-term commitments to places and programs must be made to achieve implementation on a meaningful scale.

A second message is that past investments in creating the enabling conditions for ICM have been essential. It does take years, not months, to develop trust among key players, envision a positive coastal future that is different from today's conditions, and then build the capacity, commitment, constituencies and programs for carrying that vision forward. In many countries these conditions are now in place. This is not the time to "graduate" such programs. Rather, this is the time to harvest the investment—to move to meaningful implementation at scale with a full array of management tools. This means that more mature programs need to be willing to go beyond approaches that rely exclusively on voluntary compliance. While attaining high levels of societal support for and compliance with ICM programs is crucial, this approach must be increasingly supplemented by strengthened legal frameworks and enforcement measures.

While ICM must remain a locally centered endeavor, a major effort is needed to create enabling and supportive frameworks at larger scales to sustain and support these local initiatives and address the root causes of coastal degradation at larger scales.

This third message is directed to those engaged in the debate as to which level or what scale should be the primary target for investments in ICM. CRMP's collective experience reinforces the notion that ICM must be rooted at the local level. However, it also stresses that unless positively reinforcing governance systems are created at larger scales—at regional,

provincial, national and even international levels—those local efforts cannot and will not be sustained over the long term. CRMP has also concluded that the strategy of investing in demonstration projects remains an important and powerful strategy for launching ICM programs. They can and do inspire and inform action at other locations and at larger scales. Explicit attention and strategies are needed to ensure they do not become expensive dead ends.

Capacity development remains central to ICM, but one must tackle the full set of capacity-development challenges, and not focus exclusively on individual training and education.

Since coastal systems are among the most dynamic on earth, coastal programs must be able to adapt to both predictable changes as well as inevitable surprises. To do so requires a full suite of capable players—individuals who are willing and able to work together to solve problems. All of the central players (at both the individual and institutional level)—from government to universities to NGOs to the private sector to resource users and communities—must embrace their role and have the capacity to fulfill it.

If ICM is to achieve its long-term goal, it must form multiple new partnerships and address human development needs head-on.

The last and perhaps strongest message is that as ICM practitioners, it is necessary to get out of the coastal management box. One can no longer separate fisheries management or biodiversity conservation or integrated water resources management from ICM. Nor, if one truly believes that ICM must address issues that are most salient to coastal societies, can poverty alleviation or the basic governance issues of equity and transparency be ignored. While recognizing this need for a much expanded scope for ICM programs, initiatives must remain focused if they are to be successful and achieve results. This calls for an unprecedented expansion of the number and type of partnerships that coastal programs seek.

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Part Two

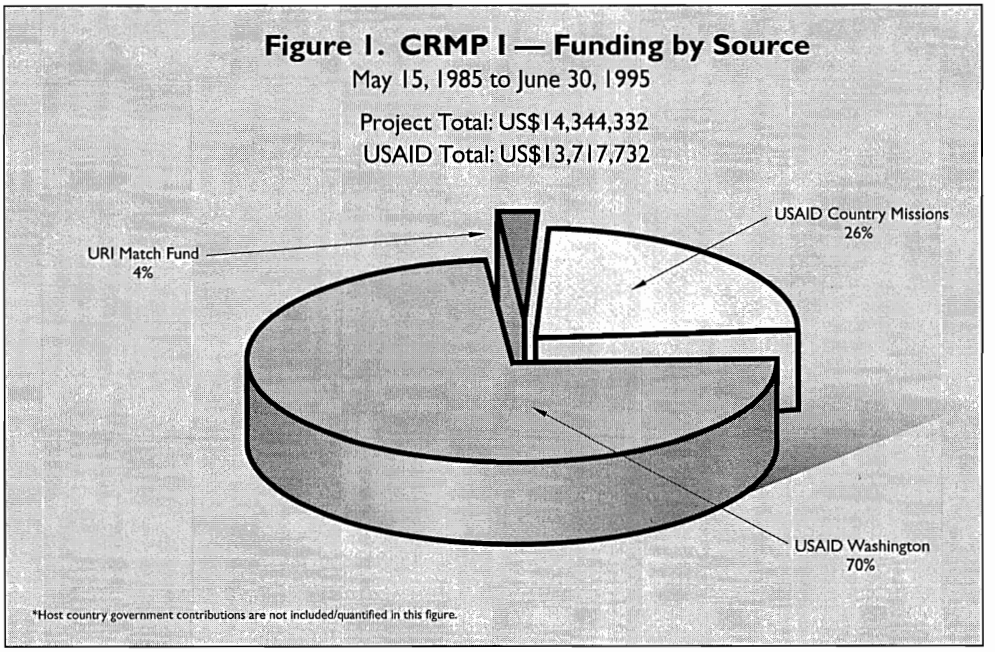
Introduction to CRMP I Pilots

Stephen Bloye Olsen

The goal of the Coastal Resources Management Program (CRMP) was defined by the U.S. Agency for International Development (USAID) in 1984 as:

> "To assist less developed countries to develop and better manage their coastal resources on a sustainable basis through integrated approaches to regional planning and development."

The Project Paper, the document that details the design and anticipated results of the project, ends with a section entitled "Expected End of Project Status." This states that within four years USAID anticipated having replicable methods for "facilitating improved coastal management." Each of three pilot countries—Ecuador, Sri Lanka and Thailand—would be applying "institutional and technical solutions to coastal conflicts," and an interagency working group would "regularly



review development proposals for coastal resources." Finally, it was anticipated that in these three countries the skills of the professionals involved in coastal management would have been improved and that the results of research on coastal management issues would be being actively applied to the coastal management planning and decisionmaking process.

CRMP generated a level of progress and enthusiasm in the pilot countries that led to a series of program and funding extensions which continued until 1995. Between the start of CRMP I in 1985, and its conclusion in 1995, several new elements were added to the initial design. One of these was a training and capacity building program that subsequently became a central feature in the CRMP approach to coastal management. Beginning in 1990, the CRMP training unit was offering intensive, two- to four-week training courses at the University of Rhode Island (URI) and, for regional participants, in two of the three pilot countries.

CRMP I received over US $14.3 million during its 10-year life-of-project (Figure 1). Over US $13.7 million came from USAID Washington and its in-country missions, while more than half a million dollars was contributed by The University of Rhode Island (URI) as matching funds. Seventy percent of the USAID funds were invested in the three pilot projects. Country governments contributed from 10 to 25 percent of the funds expended to support CRMP activities in each of the countries.

The three pilots allocated their budgets among similar categories of activities. These included funds for:

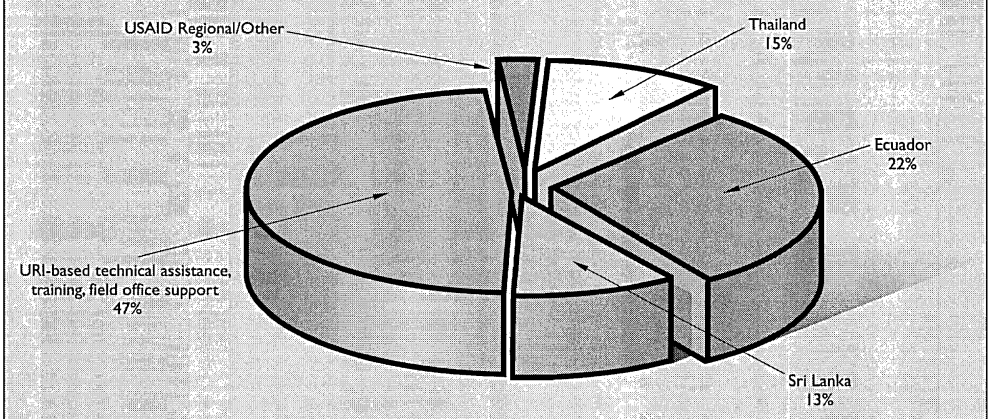
- The operation of a project office
- Development of national coastal policies and an institutional framework for their implementation
- Activities at special area management sites
- Training and public education activities

Figure 2. CRMP I — Funds Distribution

May 15, 1985 to June 30, 1995

Project Total: US$14,344,332

USAID Total: US$13,717,732



*Of the US$6.2 million reported as distributed to URI-based activities, approximately US$1.9 million (30%) was spent in direct support of coastal field programs for technical assistance, training, and other in-country support.

Figure 2 shows how USAID project funds were allocated during CRMP I. The three country programs received similar levels of total funding that together absorbed half of the total budget. Almost US $7 million was assigned to URI-based activities of which over US $2.5 million went to fund staff, activities, and operating costs directly related to providing technical assistance to the field. All technical assistance staff was based at the URI office. Adding the URI-based funds designated as "in direct support of field operations" to the funds sent directly to the field offices shows that 70 percent of the total life-of-project funding was devoted to the pilot countries.

Once the pilots were operating successfully, the training program encouraged the project team to begin codifying what it was learning and develop models that helped visualize the inter-relationships among the many activities required by the practice of integrated resource management. By 1990, the CRMP I was using a version of the learning cycle as a means for visualizing the different phases in the evolution of a coastal management program. A refined version of this integrated coastal management (ICM) policy framework is described in Chapter 1. The training program adopted adult learning techniques utilized by the Peace Corps and by USAID-supported public health programs, in particular those designed and administered by Management Sciences for Health.

CRC interpreted USAID's somewhat vague project goal and anticipated outcomes as described in the CRMP I Project Paper as the equivalent of the planning phase of state-level coastal zone management programs in the United States. This meant setting the target for each pilot as establishing an "up and running" ICM program at the national scale. For CRC, this meant that a pilot country's coastal management program had been formally constituted as a permanent element of national government; that the program's policies and plans had been formulated and approved; that in-country capacity was present to implement the program; and that funding had been secured for an initial phase of program implementation. Such "enabling conditions" are described as First Order outcomes in Chapter 1. These "restated" goals were ambitious, and they

guided the efforts of the CRC and its in-country partners. The formal agreements that framed each pilot and the annual workplans that set targets for each year were more cautious.

By the end of CRMP I in 1995, the three pilots had made significant advances. These can be summarized as follows:

In **Sri Lanka**, the nation's Cabinet approved the national Coastal Zone Management Plan in 1991, and in 1992 the government substantially increased the staffing and budgets of the implementing agency, the Coast Conservation Department. Follow-on activities were being funded by the USAID mission, the German Agency for Technical Cooperation (GTZ) and the Danish International Development Agency (DANIDA) at annual levels substantially greater than those provided by CRMP I.

In **Ecuador**, the Programa de Manejo de Recursos Costeros (PMRC) became a formal government of Ecuador program administered by the Office of the president in 1989. Detailed plans for the full-scale implementation of the five special area management zones were formally approved at the community and national levels in 1991 and the funding of these plans was declared a top national priority later that year. A US $15 million Inter-American Development Bank loan that was expected to begin in 1993 had been negotiated for this initial phase of implementation of the PMRC program.

In **Thailand**, the Thai Cabinet had formally approved a special area management plan for Phuket Province in 1989; the Cabinet adopted a National Coral Reef Management Strategy in 1991 and US $2 million in government funds were appropriated for its initial implementation. The Thailand USAID mission was funding follow-on activities focused on launching a coastal management training and research center at Prince of Songkla University.

TABLE 1: CHARACTERISTICS OF THE COASTAL REGIONS OF THE THREE CRMP I PILOT COUNTRIES

COASTAL CHARACTERISTICS OF CRMP I COUNTRIES

	SRI LANKA	ECUADOR	THAILAND
TOTAL POPULATION IN 2002 (THOUSANDS OF PEOPLE)	19,287	13,112	64,344
POPULATION WITHIN 100 KM OF THE COAST (PERCENT IN 1995)	100	61	39
GDP PER CAPITA (1995 US DOLLARS)	880	1,425	2,712
TOTAL COASTLINE LENGTH (KM)	2,825	4,597	7,066
CLAIMED EXCLUSIVE ECONOMIC ZONE (KM^2)	500,750	283,560	176,540
COASTLINE ADDRESSED IN CRMP I PROJECT (KM)	150	244	49

SOURCES: Exclusive Economic Zone data for Ecuador from the CIA *World Fact Book Book, 2003*. All other data from the World Resources Institute, Earth Trends, The Environmental information Portal Country Profiles, 2003.

KEY COUNTERPART AGENCIES

Sri Lanka: Coast Conservation Department, Ministry of Fisheries

Ecuador: Directory of the Environment, Ministry of Energy and Mines (1985-1989); Office of the President (1990-1994)

Thailand: Office of the National Environment Board (1986-1991)

Structuring the CRMP I Pilots as Partnerships

A defining feature of coastal management initiatives in the U.S. is that they are structured as partnerships between a federal agency and individual state governments. Within individual states, initiatives may be further decentralized to respond to the different needs and capabilities in counties or municipalities and to apply strategies tailored to special management areas. Such "nested" structures are central to the governance of all complex systems and are described in Chapter 8. Building on its U.S. experience, CRC made a major effort to structure its relationship with its counterpart governmental agencies in the CRMP I pilot countries in a way that would build truly collaborative partnerships, including the sharing of power. Successful partnerships are characterized by trust and mutual respect among the partners—attributes of great importance when together facing uncertainties and conflicts.

With these ideas in mind, the formal agreements governing each pilot were structured so the CRMP I project director and his in-country counterpart were designated as co-directors. The co-directors oversaw the preparation of annual workplans and together presented them for approval by the USAID in-country mission, USAID Washington, and the national agency with oversight responsibilities for foreign assistance. The agreements stipulated that the co-directors would concur on significant changes in the pilot program's annual budget and would consult with each other before contracting both in-country staff and external technical experts. From the beginning, CRMP I strove to make the pilot in Ecuador an Ecuadorian program; in Sri Lanka, a Sri Lankan program; and in Thailand, a Thai program. The U.S. experience had driven home repeatedly that management initiatives neither flourish nor survive if the people of the place do not "own" them. The preference was that CRMP I's resident representative in each pilot country be a local hire selected on the advice of the in-country co-director. This arrangement worked well in both Ecuador and Sri Lanka, where in-country directors played sustained and important roles for years after the program's inception.

In 1986, USAID selected Thailand as the third pilot. This experience drove home the frequently repeated lesson that each initiative must be tailored to the conditions in each country. In Thailand, the model of hiring a local CRC representative worked less well. The CRMP I team's inability to speak Thai made it difficult or impossible to interpret the dynamics at the many national and local-level meetings. USAID's support for this pilot was truncated abruptly in 1991 by a coup d'etat. U.S. law stipulates that USAID foreign assistance must be suspended when a government changes in this manner. The CRMP's five years of involvement in Thailand produced a rich body of experience at the national level, in Phuket Province, and in launching CORIN, the Coastal Resources Institute at Prince of Songkla University. These experiences, however, are not the subject of a case study in this volume. Some insights on the thailand program can be gained from Lemay, Ausavajitar and Hale (1991), and Hale and Olsen (1993).

Differences in Contexts for Coastal Management in Sri Lanka and Ecuador

Sri Lanka was selected by USAID in the belief that its capable and well-established national program could serve as a model for other tropical nations. It soon became evident that while Sri Lanka had much that could inform and inspire, its traditions of governance were so remarkably different from those in Ecuador that the two countries had to proceed toward integrated forms of resource management using quite different strategies.

Sri Lanka, as a former British colony, has a professional civil service. This provided for a degree of professionalism and continuity in government agencies that contrasted dramatically with Ecuador. In Ecuador, ministers seldom retained their position for more than 18 months and each change in minister brought in a new cadre of senior officials. The only exception to this was in the armed forces, which is one reason for the critically important role played by naval port captains along Ecuador's coast. In Ecuador, presidents serve for a single four-year term, and each

new administration brings an even greater change in personnel and policies. In contrast, the core staff of the Sri Lanka Coast Conservation Division (CCD), all of whom were government civil servants, remained essentially the same over a 30-year period. The minister of fisheries in Sri Lanka changed once in this same period. With a dedicated, technically competent and creative staff, CCD, as a small Sri Lankan agency, could over time accomplish a great deal. On the other hand, less competent and less motivated agencies could make it very difficult to bring about the changes in behavior that integrated forms of resource management require. The Sri Lanka case study details the evolution of a regulatory program within a society where government exercises considerable control over the process of development and coastal change.

In Ecuador, government was playing a very minor role in managing the processes of coastal development and coastal ecosystem change. Its principal contribution was to build the transportation infrastructure that made previously isolated stretches of coastline accessible. In the absence of planning and resource management, this too often brought a rapid stripping of exportable natural assets. As described in the Ecuador case study, the representatives of governmental agencies at the community level initially opted out of a collaborative planning and decisionmaking process. In this context, the strategies for advancing coastal management adopted by Sri Lanka's CCD would have had little or no impact. While CCD could influence the siting of hotels by holding hostage their liquor licenses, the development process in Ecuador proceeded by the rules of an open frontier. In El Oro Province, for example, where the shrimp farm boom began in the late 1970s, three-quarters of the farms were still operating in public lands in 2000 without the permits required by law.

At the beginning of both pilot projects, neither Sri Lanka nor Ecuador involved the public in the coastal planning and decisionmaking. In Ecuador, such participation became a defining feature of the program during the USAID-funded phase, but subsided as the program returned to the traditions of top-down governance in 1996. In Sri Lanka, the strong desire among the CCD staff to invest in public education and

public involvement was truncated by civil war. When the political situation along the southwest coast stabilized in 1991, the program experimented with special area management and succeeded in demonstrating the effectiveness of locally driven resource management. This approach attracted considerable attention and was adopted by other programs that addressed the problems of lagoon management on the western coast north of Colombo, the nation's capital.

The Outcomes of the Sri Lanka and Ecuador Pilots

Figures 3 and 4 chart the advance of the two programs through the steps of generations of coastal management as described in Chapter 1. In both Ecuador and Sri Lanka, the first generation of the national program evolved in two distinct phases. The initial effort completed some, but not all, of the five steps of a generation of coastal management. We have termed this a "seed cycle" that is concerned primarily with securing a formal mandate (Step 3) and achieving an initial threshold of institutional capacity and funding. These seed cycles are diagramed as double loops. In all cases a darkened number indicates a completed step and a darkened thread signals sustained progress through all steps in a generation of management.

When the outcomes of the two pilots are grouped by the three orders discussed in Chapter 1, it is evident that both national programs made substantial advances in terms of First and Second Order outcomes. In Ecuador, the four enabling conditions required for a full-fledged period of implementation were briefly present at the end of the USAID-funded phase. In Sri Lanka, this threshold was attained with the adoption of the National Coastal Management Plan in 1990. In both cases, however, the scope of these national programs was limited to a small segment of each nation's coastline. (See Table 1.) During the USAID-funded period in Sri Lanka, CCD's activities were limited to approximately 150 kilometers of coastline in the vicinity of Colombo. Within this limited area the CCD's regulatory program has, with great difficulty, controlled three forms of behavior that exacerbate the problems of coastal erosion. These are the

inappropriate siting of tourism facilities and transportation infrastructure (roads and small harbors), the illegal breaking of coral reefs for the production of lime, and sand mining in the rivers. The successes of these regulatory actions are major accomplishments. In addition, through such efforts as the preparation of the extensive, two-volume resource management strategy, *Sri Lanka 2000*, and the negotiation of two special area management plans, the program has succeeded in successfully integrating the ideas and the energies of many governmental agencies. The special area management efforts have brought together the coastal users and have succeeded in instigating voluntary collaborative actions that signal better coastal stewardship.

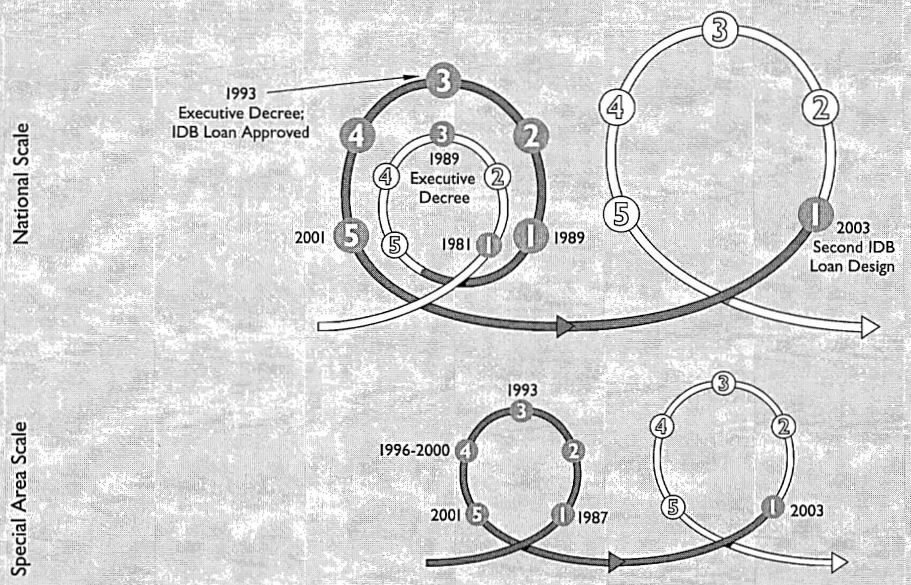
In Ecuador, the five special area management zones (Zonas Especiales de Manejo, or ZEMs) together accounted for 180 kilometers, or 8 percent of that country's coast. The Ecuador case study details major changes in behavior among governmental agencies—the Ranger Corps and the National Commission—that instigated a surge of self-help initiatives within the five management zones.

In both Sri Lanka and Ecuador, the harvest of improved societal and environmental conditions (Third Order outcomes) during the period of the USAID-funded pilots was modest. In Ecuador, the participatory, issue-driven management process inspired and brought hope to many of the poorest of the poor in the five ZEMs. "Practical exercises" in voluntary collaborative action generated new livelihoods, better living conditions and some localized improvements in the condition of beaches and mangrove wetlands. The program slowed but did not halt the further construction of shrimp ponds in mangrove wetlands.

In Sri Lanka, after years of effort, the CCD did manage to win the support of local politicians and police in controlling the lucrative practice of producing lime from coral extracted from living reefs. This, combined with the controls on sand mining and shorefront construction, has reduced coastal degradation. The CCD's defense of public access to the

FIGURE 3. CRMP I — Ecuador

The evolution of the national coastal program in Ecuador and of CRMP-supported Special Area Plans (ZEMs)

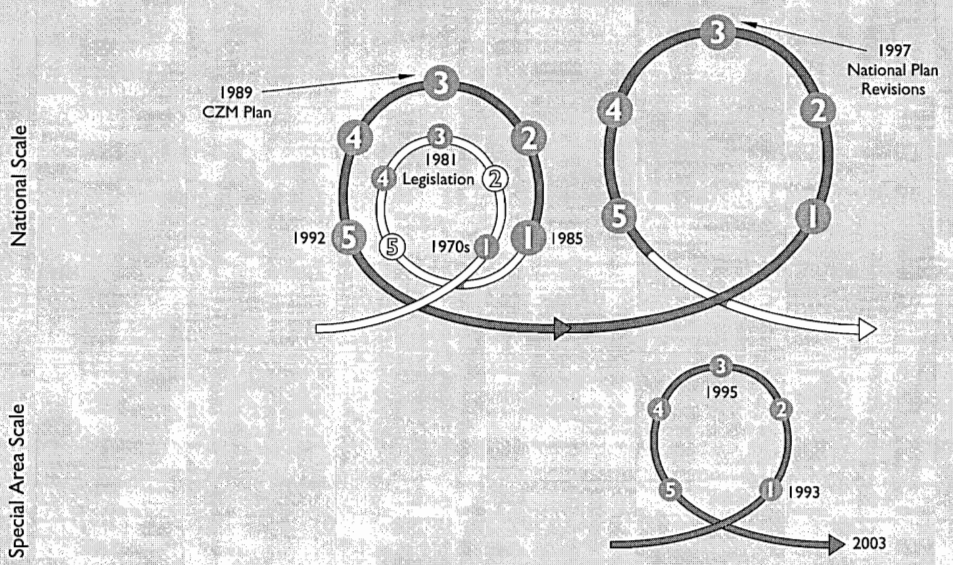


Ecuador's national coastal management program was formally created by executive decree in 1989. By the close of CRMP I, five detailed plans had been formally approved and a loan had been negotiated with the Inter-American Development Bank (IDB) to fund the implementation of these plans and further strengthen the national program. By 2003, the design of a second IDB loan was underway.

shore has benefited artisanal fishers, and the two special area management efforts have brought benefits to the communities of very poor people in these areas. Unfortunately, such benefits, in both Ecuador and Sri Lanka, were not quantified in CRMP I.

FIGURE 4. CRMP I – Sri Lanka

The evolution of the national coastal program in Sri Lanka and of CRMP-supported Special Area Plans



In Sri Lanka, a national coastal management program was formally created by legislation adopted in 1981. CRMP I focused upon the preparation of the plan called for by the legislation. This broadened the scope of the Coast Conservation Department's planning, regulatory and educational activities from coastal erosion to a more holistic approach. By 1992, an initial phase of implementation was evaluated. The evaluation led to a number of program refinements that can be considered a second generation.

In 1993, the program initiated two special area management efforts. These plans were formally approved and in the initial stages of implementation when CRMP I support ended in 1995.

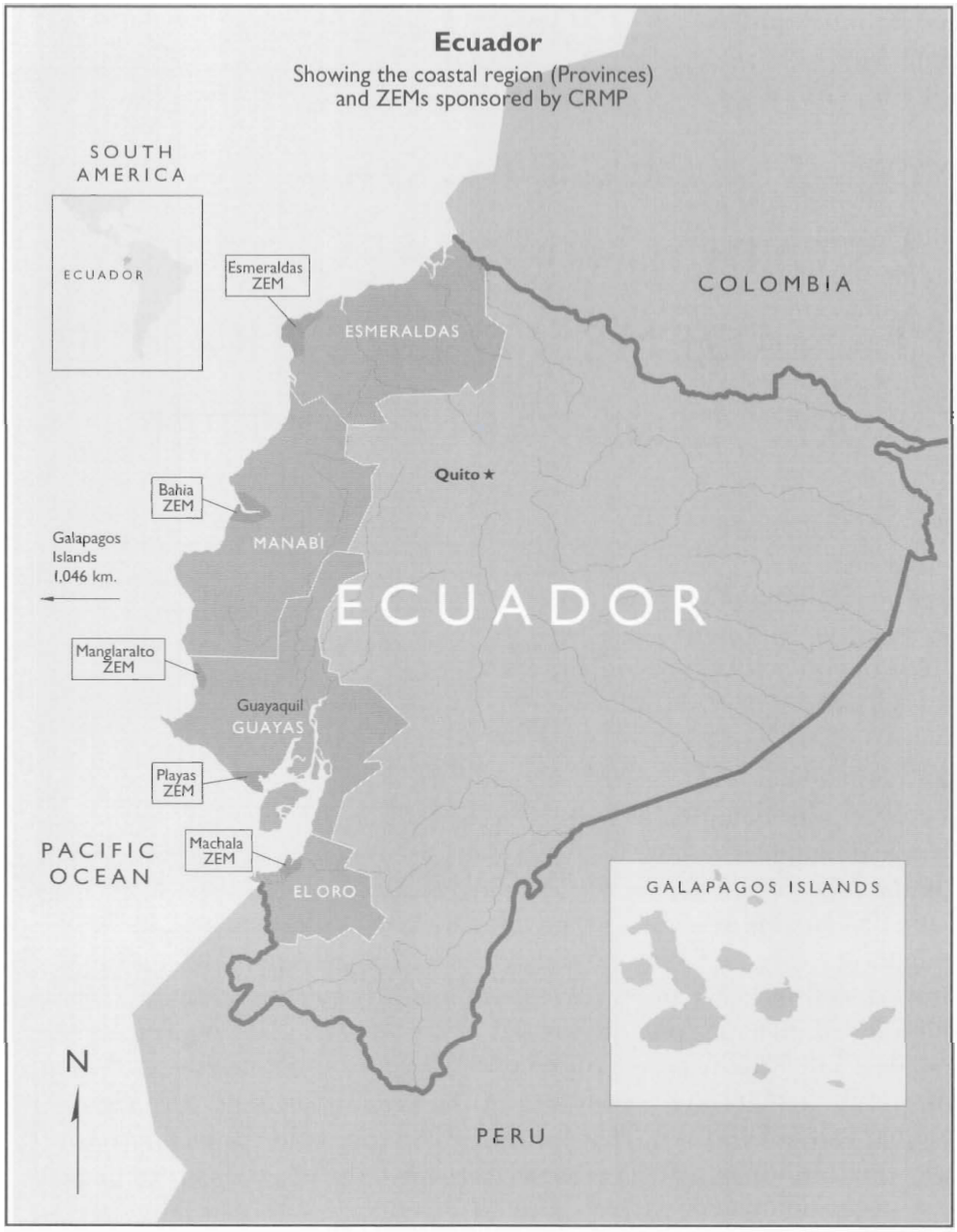
CHAPTER 3

ECUADOR: ESTABLISHING A COASTAL MANAGEMENT PROGRAM IN AN UNSTABLE SYSTEM

Stephen Bloye Olsen, Emilio Ochoa and Donald D. Robadue

DESIGNING THE FIRST PILOT PROGRAM

Ecuador and Sri Lanka were selected by the U.S. Agency for International Development (USAID) as the first pilots to be sponsored by the new Coastal Resources Management Project (CRMP). In 1983, the USAID Ecuador mission and government of Ecuador had assembled a persuasive case that featured the promise of 50 percent matching funds from an enthusiastic, pro-environment mission, and commitments for high-level collaboration with several important Ecuadorian governmental agencies. The mission's proposal built upon a high-profile workshop on coastal management sponsored by the Ecuadorian Navy and the United Nations in 1981. This had prompted discussion of an approach to natural resource management that spanned the usual sector-by-sector planning and decisionmaking, and reviewed the issues posed by the explosive growth of shrimp farms. An approach to coastal management


Ecuador
Showing the coastal region (Provinces)
and ZEMs sponsored by CRMP
SOUTH AMERICA
ECUADOR
Esmeraldas ZEM
ESMERALDAS
COLOMBIA
Quito ★
Bahia ZEM
MANABI
Galapagos Islands 1,046 km.
ECUADOR
Manglaralto ZEM
Guayaquil
GUAYAS
Playas ZEM
Machala ZEM
PACIFIC OCEAN
EL ORO
GALAPAGOS ISLANDS
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that integrated across the major forces of change was appealing to a progressive government and to a USAID mission that had previously focused its attention on issues in the highlands. (See Box 1).

By 1985, the long delays in selecting the lead U.S. institution to implement the CRMP project had produced a far less receptive setting. The expectation of USAID was that the CRMP Cooperative Agreement would be in place in six weeks. Instead, crafting the Joint Project Agreement that defined the objectives, the implementing strategies of the pilot, and the roles and responsibilities of USAID, the University of Rhode Island Coastal Resources Center (CRC), the USAID Ecuador mission and the government of Ecuador required 13 months of intense negotiations.

What had changed? In the U.S., President Ronald Reagan had been elected to his second term. His administration had little sympathy for environmentalists and no interest in exporting "environmental" programs overseas. Similarly, in Ecuador the liberal administration of Oswaldo Hurtado and been succeeded by President Leon Febres-Cordero, a right-of-center former mayor of Guayaquil—Ecuador's largest city—who was referred to in the press as a "Reagan clone." The USAID mission's primary objective was to encourage exports—particularly non-traditional exports—such as the shrimp produced by a new farmed shrimp industry along the coast. Only one member of the team that had prepared the mission's response to the USAID solicitation in 1983 was still present.

For the new mission leadership, CRC's experience in cross-institutional resources management, building constituencies through public participation in planning and decisionmaking, and investments in public education was of little interest. Within Ecuadorian government, there was also no top-level support for the concept of a comprehensive approach to both the development and the conservation of the coast. But, there was vigorous competition over what agency would benefit from the funds that the project would bring. Ultimately, the choice was the Office of the

Box 1: The Importance of Ecuador's Coastal Ecosystems

Ecuador's coastal region, when defined to include the western provinces that encompass the lowlands between the Pacific Ocean and the Andes, has emerged as the stronghold of progress and development for the country. Ecuador's future economic development in large measure depends upon how its coastal ecosystems are utilized and managed.

The recent boom in shrimp mariculture along the coast has made this the largest private sector activity in the country—second only to petroleum—in the value of goods exported. The estuaries provide critical habitat for fish and shellfish populations that support more than one hundred thousand artisanal fishermen who produce a critically important source of protein for the region's rapidly growing population. Ecuador's coastal ecosystems contain the nation's best farmland and produce virtually all of the nation's agricultural exports. The condition of Ecuador's coastal ecosystems is, today, more important than ever since the population in these lowland provinces has more than doubled since 1950. The growth is most rapid in coastal cities where birth rates are the highest in the nation. Guayaquil, the nation's largest and most quickly growing city, is the center for banking, industry and a thriving seaport.

It is of the utmost importance that the resource base that could indefinitely produce a rich bounty of agricultural products, lumber, fisheries and cultured seafood is not needlessly degraded and loses its ability to produce the goods and benefits that are of central importance to Ecuador's economy and political stability.

Today, both the opportunities and problems posed by how the coast is managed has reached a critical juncture. Once-luxuriant coastal forests that supported a booming shipbuilding and lumber export trade a century ago have virtually all been replaced by low-yielding, frequently eroding, pastures. The construction of over 120,000 hectares of shrimp ponds has brought the almost complete eradication of mangroves in many estuaries.

Conflicts among incompatible activities—such as fish processing and tourism—poor siting of coastal structures and the ill-conceived

development activities that abound along coasts around the world are also all too apparent along Ecuador's 3,000 kilometer shoreline. Not only are such mistakes expensive and avoidable, but they threaten to undermine the potential for tourism that is attempting to capitalize on the sandy beaches and scenic bays of this extraordinarily diverse coastline. The situation is further complicated by major new activities such as the search for petroleum hydrocarbons in the Gulf of Guayaquil and in some areas of the continental shelf.

From: Matuszeski, Perez and Olsen, 1988

Environment (DIGEMA) in the Ministry of Energy and Mines, a small agency concerned primarily with oil drilling in the Amazon and with little experience and few contacts along the coast. The agreement, however, was that DIGEMA would open an office in Guayaquil, and would hire a full-time director who would be the counterpart of the resident project manager provided by CRMP I. The DIGEMA co-manager was Dr. Luis Arriaga, a person with several decades of experience in fisheries and former director of the Southern Pacific Commission. Two years later he became CRMP I's in-country director, and served in that capacity until the USAID-supported phase ended in 1995.

Initial visits to the coast and many meetings with officials in a variety of agencies in Quito, Ecuador's highland capital, repeatedly reinforced to the CRC team that they were embarking on a journey into the unknown. What could a pilot program hope to accomplish in four years? CRC invited the DIGEMA director, who had just earned a Ph.D. at Vanderbilt University in the U.S., to observe U.S. coastal zone management (CZM) programs in action. He recognized the benefits of the state CZM model. The planning phase for U.S. state programs was targeted at not more than four years and he thought this a reasonable timeframe to establish a

comparable program in Ecuador—a country about the size of West Virginia—with a coastline of approximately 4,500 kilometers. Thus, the Joint Project Agreement followed the U.S. model and defined as its objective the establishment of an inter-agency working group that would review major development proposals and oversee a permit program for specified forms of coastal use. Permit decisions would be based upon environmental impact statements. Other objectives called for zoning the coast for different intensities of use, and for enforcing construction standards for major shorefront developments.

The CRMP team had no basis for judging whether such objectives were realistic. None of the team members had worked in a developing nation or in Latin America. But the U.S. experience had taught that establishing such procedures where they have not previously existed is always an uncertain, and often a very difficult, process. CRC, therefore, argued that the Joint Project Agreement would not detail how these objectives would be achieved. This, CRC proposed, would be defined incrementally through annual workplans, each of which would be constructed on a thorough assessment by the program and its partners of what had been accomplished and learned in the preceding year. This rolling design was a novel idea for both the USAID mission and CRMP's Ecuadorian counterparts. It was met with considerable resistance but eventually the signatories to the agreement settled on this approach. There were two immediate consequences that were to prove essential to the program's future success. The first was that no commitments were made to U.S. "experts" to be contracted for pre-defined activities during the project. The second was that the annual in-house self-assessment and workplan development process soon gave the Ecuadorian-American project team a strong sense that they were shaping their own program for the nation.

In retrospect, the overtly adaptive approach structured around self-assessments and annual workplans formally approved by the program's partners was the single most important feature of this program's design. As set forth in Box 2, the goals, strategies and organizational structure of the program evolved through four distinct iterations over eight years.

Box 2: The Evolution of the Structure of Ecuador's Programa de Manejo de Recursos Costeros (PMRC)

1984. The University of Rhode Island proposal to USAID Washington drew from an analysis of institutional arrangements for coastal management (Sorensen et al., 1984). The proposal detailed an eight-step process that began with assembling all pertinent information on the condition of coastal resources and their management, and proceeded to form a working group drawn from governmental and academic institutions that would analyze priority coastal management issues. The process emphasized the need to "scope down" on a few key issues and then assess the options for how a governmental response could be structured. The process culminated in a national dialogue by which Ecuador would decide whether to opt for a "networked" national program, or create a single agency vested with the authority to set policy and regulate coastal activities.

1986. The Joint Project Agreement called for the creation of a Policy Board composed of the representatives of six ministries to establish project policies and coordinate among the ministries involved. A Steering Committee would guide the technical work of the project and working groups would be formed to address selected priority issues. The national program would feature a water and shoreline use classification scheme, shoreline development and protection standards, and a review process for all major construction proposals.

1989. Executive Decree 375 formally established Ecuador's coastal resources management program (PMRC). Policy setting, reviews of progress and approval of annual workplans were made the responsibility of an inter-ministerial national commission chaired by the Office of the President. Program administration and technical oversight became the responsibility of a program office in Guayaquil. At the community level, Executive Committees within each of five special management areas (Zonas Especiales de Manejo, or ZEMs) were charged to develop detailed plans that addressed management issues considered to be of national concern. Advisory Committees in each ZEM brought together representatives of user groups and other non-governmental organizations (NGOs) to advise on the scope and content of each ZEM plan. A Ranger Corps led by naval port captains integrated the monitoring and regulatory actions of local representatives of national agencies with regulatory authority.

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1993. Executive Decree 3399 details the administrative procedures that govern the program and combine the two ZEM-level committees into a single Comite Zonal. These adjustments were requested by the Inter-American Development Bank in preparation for the loan-supported phase of the program.

Each design was widely debated within the project team and appeared at the time to be optimal. Nearly 20 years later, the formulation of an operationally and politically viable institutional design remains a central and unsolved problem.

The first annual workplan was approved as an attachment to the Joint Project Agreement. The mission requested that the project devote a major portion of its resources to the farmed shrimp industry. The industry had entered what would later prove to be only the first in a series of crises. This was caused by a shortage in the wild shrimp post-larvae that were used to stock the ponds. This supply "bust" came after a decade-long boom that had created many millionaires and produced a major new source of the foreign earnings that the country so urgently needed to pay down its foreign creditors and boost the Gross Domestic Product. CRMP I, with the support of DIGEMA, argued for a similar investment in an analysis, drawn from existing sources, of trends in the condition and use of the entire coast and its resources. CRC believed such "findings" should be the basis for consultations and an inclusive dialogue on the other issues that a coastal management program should address. This had been the first step of all coastal management programs in the U.S., and the CRC team was convinced that it was the best way to begin the process of building a foundation of constituencies for a long-term coastal planning and decisionmaking program. The objective was to prepare a document that would engage the interested public, and that would be objective and describe out how current issues and condi-

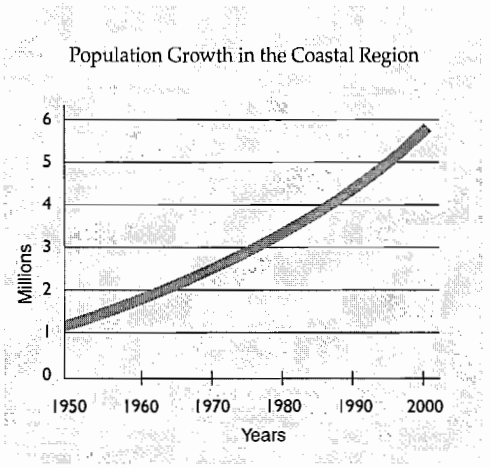
tions had evolved. Profiles were constructed around the issues of potential concern to a coastal management program. A historical perspective on these issues was important since the selection of actions that can shape a desirable future must be rooted in an understanding of the history of the place. Simple graphics and maps gave visual expression to the major points of the story. Profiles were drawn from existing sources of information and were widely distributed and discussed when still in draft form, so that other sources of information and interpretations of the facts could be discussed and considered for inclusion.

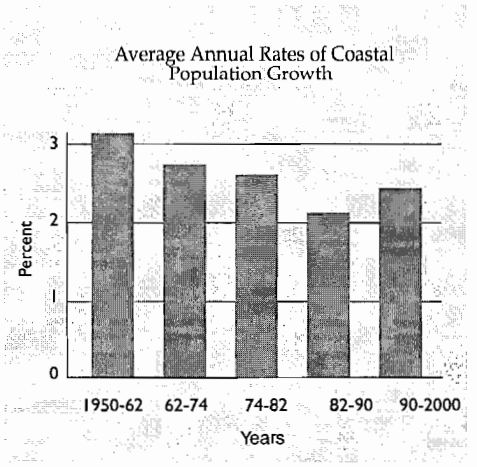
H. T. Odum, the famous ecologist, was an early advisor to the project. He had flown over coastal Ecuador many times in the 1940s when he was a meteorologist in the U.S. armed forces. Staring out of the widow of a single engine plane that took him from the Peruvian border in the south to the remnant of primary coastal forest on the Colombian border to the north, he sadly remarked, "Well, this place has been pretty much stripped." Where 40 years before he had seen uninterrupted expanses of coastal forest, there now lay a denuded landscape that could only support a few cattle. The few remaining, least accessible patches of forest were being logged. Equally dramatic were the vast patterns of shrimp ponds around the Gulf of Guayaquil. These had been built by bulldozing low dikes around shallow ponds of up to 100 hectares each. The majority were in publicly owned sand flats and mangrove wetlands. By 1984, 90,000 hectares of ponds had been built and had been producing more than 22,000 tons of shrimp worth US $160 million. There had been a similar re-engineering of every lagoon and river estuary along the ocean coast. The only estuaries still in their natural state were in the as yet inaccessible northern reaches of Esmeraldas on the northern border with Colombia.

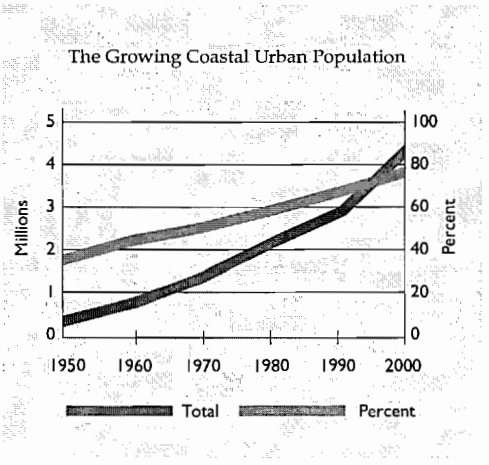
Building Constituencies for a Program

How could a participatory and inclusive profiling process be undertaken in Ecuador? The first challenge was to find a local partner with whom CRMP could work. The Fundacion Pedro Vicente Maldonado, a small and incipient NGO in Guayaquil composed of members of the faculty of

FIGURE 1. POPULATION GROWTH AND URBANIZATION OF THE COASTAL REGION







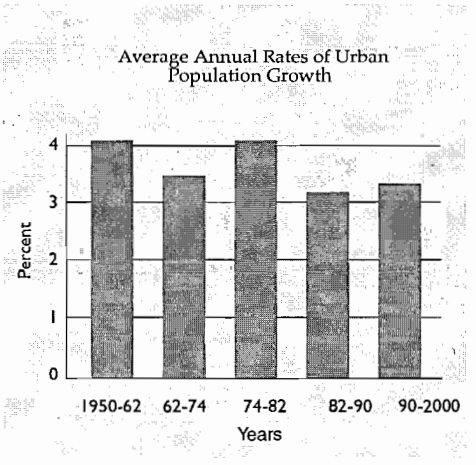
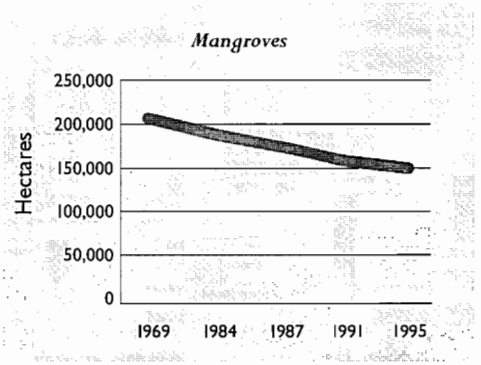
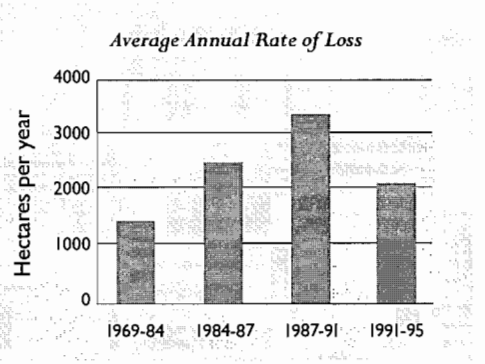
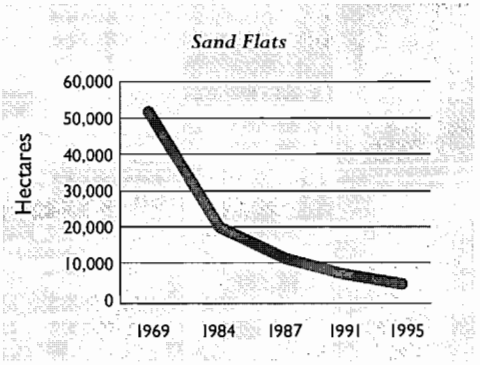
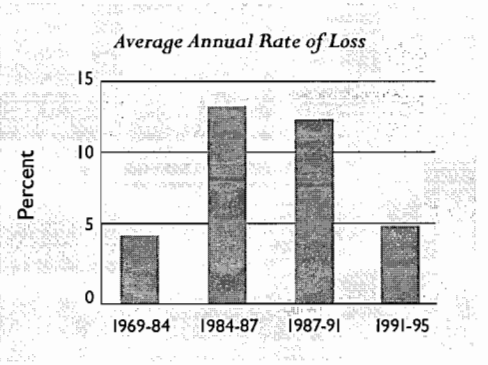


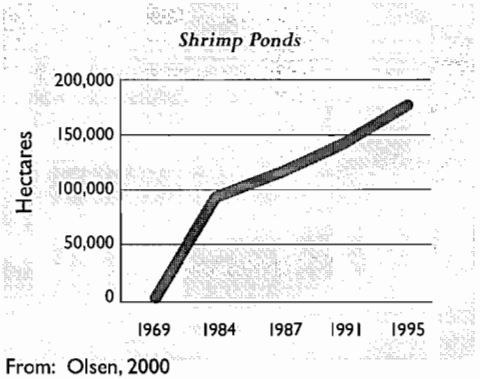
FIGURE 2. AREAS OF MANGROVES, SAND FLATS AND SHRIMP PONDS, 1969-1995, AS REVEALED BY AERIAL SURVEYS CONDUCTED BY CLIRSEN (THE MILITARY CARTOGRAPHIC INSTITUTE)

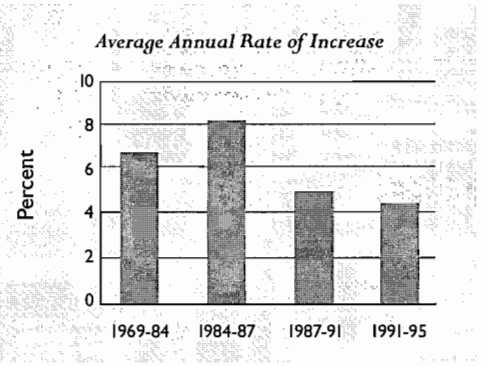












From: Olsen, 2000

the principal coastal university, the Polytechnic Institute of the Coast (ESPOL), was selected. The Fundacion was intrigued by CRC's belief in participation and the need to build a broad-based constituency for a coastal management program. Reflecting back on the situation several years later, Washington Macias (1995), who co-led the Fundacion during its initial years wrote:

"Before the inception of Ecuador's Coastal Resources Management Program, coastal communities in Ecuador had little exposure to environmental education, and no role in environmental decisionmaking. Technical experts working on coastal issues seldom consulted residents and resource users; coastal communities were not given the opportunity to express their views on decisions affecting coastal resources. The Coastal Program recognized from the outset that public education on environmental issues and participation in decisionmaking was critical to both launching and sustaining coastal resource management initiatives."

By mid-1986, the Fundacion's teams had compiled the available articles, data and books on Ecuador's coastal resources. This secondary information had three principal characteristics: the information was scattered, it was incomplete and it was not very reliable. The challenge was to organize what was known so that it could be a tool for understanding the economic and social development processes underway in the four coastal provinces, and to highlight the major social and environmental trends that had emerged since 1950. Much of what was known did not exist in printed documents but could be pieced together from the observations and experience of the older members of coastal communities and from the personal files and the institutional memory of the business people involved in such activities as agriculture, fishing, tourism and mariculture. Two techniques were used in a major effort to integrate these sources into the analysis. The first was "talking maps," which were used with community elders, who in most cases were illiterate or had very little schooling. This called for organizing gatherings in communities along the coast that brought together finfishers, shellfish collectors, charcoal makers, mangrove wood sellers, and those involved in the

tourism-related activities. A base map with an outline of that section of the coast was taped to a wall and the areas and activities being discussed were noted on the map with colored markers. These discussions centered on such questions as:

- What resources existed before and what resources are important to your livelihood now?
- When did big changes in the resource occur?
- What were the economically important activities before and now?
- When and where did new activities related to your livelihoods develop?
- When did your techniques for using the resource change?
- What have been the principal social, environmental, and economic impacts caused by the new activities and techniques?

A parallel set of interviews and workshops with business leaders and provincial experts were structured so that they could comment on the quality and completeness of the existing secondary sources compiled by the Fundacion, and present their perspectives on a similar set of questions.

When, in 1987, a full draft of both a regional overview and profiles of each province had been prepared, seminars were scheduled in each province to verify the content of the profiles and discuss the resource management issues that they revealed for each province. Where the reports and the perceptions of knowledgeable people differed, and where there were substantial differences in people's recollections and opinions on what had happened, the draft noted such differences. The participants represented the private sector, technical experts, authorities and user groups. The draft was distributed to the participants in

Box 3: Coastal Management Principles for Ecuador

- The focus of the program must be on issues and conflicts that are truly coastal in nature—that is, in matters related to the sea and the adjacent land areas. Coastal management should not be expected to deal with all the education, health and infrastructure problems of the coastal provinces, or it will simply duplicate the missions of other government agencies, and become lost in the complexities.

- There is no massive critical problem or problem common to all coastal areas. Rather, there are specific issues and problems in each sector of the coast, and some identifiable geographic areas where serious conflicts among users are either present or likely to emerge in the near future if no action is taken.

- There are already in place sufficient laws and authorities to properly manage coastal resources. New laws are not necessary. What is required is better coordination and enforcement of existing legislation.

- There is a serious shortage of adequately trained enforcement personnel in nearly all agencies; also, their salaries and logistic support are inadequate. The result is a high level of frustration on the part of those seeking to have the laws enforced, and a general attitude on the part of the public that the government does not really expect the laws will be obeyed.

- There are many overlapping areas of jurisdiction in government entities. In the case of coastal resources management, it would be more productive to improve coordination among government entities than to try reorganizing the existing distribution of responsibilities.

- The private sector does not have a high level of confidence in the ability of the government to simplify procedures, expedite decisions, or enforce regulations on coastal resources. This attitude cannot be expected to change until real improvements can be shown.

❖ An important element of coastal resources management must be an extensive education program at all levels to create a civic consciousness about coastal resources and the critical role they will play in the future of Ecuador.

❖ Recognition and support of the management programs must come from presidential and ministerial levels. This support will allow (a) that the different government entities improve their cooperation and the enforcement of policies; (b) that the regional and local entities become more concerned about solving conflicts affecting their areas; and (c) that public sector and general public opinions be considered in areas that are important to their interests.

From: Olsen, 2000

advance and each seminar began with a panel of presenters and commentators who addressed elements of the analysis and its conclusions. By the end of each daylong session, a consensus was reached on the modifications that should be made to the text. The final version of the document was produced as a single volume entitled *Ecuador: A Profile of its Coastal Resources.*

The volume was widely distributed and was the subject of many articles in the local and national press. Its release coincided with local elections for mayors, congressional representatives and city council presidents. Many politicians used the book as a source of information in formulating their political platforms, and for the first time the environmental management issues raised became an important element of the political discourse. A second printing of the profile was funded by a local bank and presented to each student upon his or her graduation from high school.

While the profiling process was underway along the coast, a two-person team was entrusted with the task of formulating a proposal for the institutional structure of a national coastal management program. This work was centered in the highland capital, Quito, where all national agencies of government have their headquarters. This team was composed of one of Ecuador's preeminent legal scholars and an American who had been deputy administrator of the National Office of Coastal Zone Management during the period when federal approval of many state CZM programs had been successfully negotiated. In contrast to the public debate and workshops that characterized preparation of the profile, this element of the program was carried out quietly. Its purpose, however, was the same—to build a constituency for the program within government agencies in Quito and to shape an institutional design that drew on the experience and views of recognized leaders. Sequences of meetings were held with individual agency heads and political figures to discuss the principles that should govern the design and operation of the coastal management program and an institutional design that would integrate across several ministries.

As a consensus emerged, another round of meetings was organized to comment and refine recommendations on how a national coastal management program should be structured. The result was a 20-page proposal that became known by the color of its cover as the "Yellow Book" (Matuszeski et al., 1988).

The Yellow Book gave a brief rationale for the need of a national program, set forth the principles that had emerged from the discussions, and suggested the major features of the institutional structure by which a first generation program could be implemented. (See Box 4.) These featured the development of detailed plans and actions for selected special management areas (Zonas Especiales de Manejo, or ZEMs), one in each coastal province, that would be selected as representative of the range of conditions and issues along the coast. Each ZEM plan would be prepared under the direction of an Executive Committee composed of the local elected authorities and representatives of government agencies, with the advice of an Advisory Committee made up of representatives of

Box 4: PMRC Strategies on the Principal Management Issues

Degradation of Mangrove Ecosystems

Strategy 1: Increase public awareness of the benefits produced by mangrove ecosystems; document and analyze the implications of trends in their condition and use.

Strategy 2: Develop and test mangrove management techniques that promote community-level stewardship and sustained use.

Strategy 3: Improve awareness and enforcement of mangrove laws and regulations.

Strategy 4: Work with the national agencies responsible for mangrove management to prepare a proposal for a new approach that emphasizes planning and sustained use at the community level.

Strategy 5: Foster monitoring and research in support of management.

Sustained Artisanal Fisheries

Strategy 1: Assist selected artisanal fishing communities to develop and sustain the infrastructure and services required to produce quality products in a cost-effective manner.

Strategy 2: Document the status and trends of selected fisheries known to be of critical importance to coastal livelihoods, and currently under several pressures from human activities.

Sustainable Mariculture

Strategy 1: Prepare and promote a vision for a sustainable mariculture industry for Ecuador.

Strategy 2: Bring international experience to bear in addressing priority mariculture issues.

Strategy 3: Take actions at the local level to protect the environmental base of the mariculture industry.

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SHOREFRONT DEVELOPMENT

STRATEGY 1: Map and analyze hazards and development issues posed by the use of the shore; promote good development practices.

STRATEGY 2: Prepare and implement shore use plans and zoning in selected ZEMs.

STRATEGY 3: Examine the economic and marketing potential of recreation and tourism development, especially in terms of its link to good environmental quality.

ENVIRONMENTAL SANITATION

STRATEGY 1: Utilize investments in environmental sanitation as a means to mobilize small communities that are not qualified to receive funding for sanitation services from other sources.

STRATEGY 2: Design and implement an intercalibrated water quality sampling program focused on issues related to shrimp mariculture.

From: Olsen, 1986

the various user groups and business interests in each ZEM. The Yellow Book also proposed that the various enforcement officers connected to the permit granting institutions along the coast be organized into seven Ranger Corps, each of which would be led by the naval Port Captain responsible for that stretch of the coast. Finally, the Yellow Book proposed that the program should be administered by the Director of Public Administration in the Office of the President. This representative of the president would chair a National Commission composed of the ministers with major coastal responsibilities. The National Commission would shape the program's policies and have oversight of the program office in Guayaquil, the Ranger Corps and the ZEM process.

Like the profile, the Yellow Book attracted considerable positive press. At the time of its release, Ecuador was approaching a presidential election. Fundacion Maldonado drafted a manifesto urging that the presidential candidates commit to the formal creation of a coastal management program. The Fundacion obtained the signatures of 66 prominent leaders in education, business and the church. The manifesto was printed with its signatures in local newspapers. Never before, and not since, have the coastal provinces come together to produce a regional statement of needs and presented these to the national government. All the major presidential candidates stated in televised debates that they supported the coastal management initiative. Indeed, in 1989, within six months of assuming office, the winner, President Rodrigo Borja, signed Executive Decree 375 that formally created the program with the features suggested by the Yellow Book. One could claim that the program had, within four years, built a broad-based constituency for a new form of coastal management and had secured a legal mandate for a national coastal program. The task of preparing the plans of the actions that such a program would work to implement was the next priority.

For CRMP I, the formal creation of Ecuador's coastal management program through Executive Decree 375 was the equivalent of a state governor in the U.S. signing off on a state CZM program. In America, had this coincided with approval from the federal Office of Coastal Zone Management, the result would have been a secure flow of annual federal funds to support the program's implementation. Although Ecuador is comparable in size to many states in the U.S., the next higher level in the governance hierarchy has no such mechanisms to reward and sustain a coastal management initiative. In essence, Executive Decree 375 had given the program a mandate and an institutional structure authorized by the highest executive authority—the president. But, as of 1989, the PMRC had neither the detailed policies and plans nor the funds to begin a full-fledged period of implementation. This situation was later diagramed (see "Introduction to CRMP I") as a "seed generation," recognizing that it generated the formal mandate and an initial base of constituencies for digging down into the negotiations and planning that

could shape the future trajectory of coastal change. It was becoming increasingly obvious that sustained funding for the PMRC once USAID support ended was a critical unknown. At the time, optimism prevailed. CRMP staff were buoyed by the fact they had already accomplished much of what observers had assured them was impossible. Surely funds to sustain the effort would materialize once a more detailed agenda for action had been negotiated. The Ecuadorian members of the team pointed to the Inter-American Development Bank (IDB) as a likely prospect once a detailed plan of action that had the full support of the government in Quito had been negotiated.

Can Community-Based Management Be Made Operational?

The coastal profile documented extraordinarily rapid processes of change that showed every sign of accelerating. The pattern of boom and bust was dominant in agriculture, fisheries and mining. The crisis in the mariculture industry was but another example of a well-established pattern, familiar to all that had characterized booms and busts in lumber, coffee, cocoa, fisheries and bananas. How could one hope to break such entrenched patterns of resource overuse and misuse? The layers of dysfunctional relationships and procedures within government and the business community convinced CRMP I staff that any attempt to tackle the issues identified by the profile at the national scale would get nowhere. The solution was to draw from CRC's experience with "special area management" in Rhode Island to focus the program's efforts on selected areas that illustrated conditions typical of the coast as a whole. The selection of these ZEMs (Ochoa, 1995) became a focal point of the concluding workshops in the profiling process and was shaped by the following criteria:

- Likelihood that positive results could be generated in a short timeframe

- Likelihood that actions could be undertaken successfully with a limited financial investment

- Likelihood that a resource management initiative would benefit a large number of people

- A positive climate was present for working with both government and the private sector

- There was the presence of local issues that reflected national concerns

- Likely relevance of planning techniques and management actions to other coastal areas

Once the first Decree was signed, it was time to detail the process by which planning and capacity building at the community level could be launched—an effort that would shed light on the following questions (Ochoa, 1995):

- Is it possible to use participatory methods for planning and decisionmaking in a country that has had no prior success in environmental planning in the coastal region?

- Can local resource users be convinced that coastal resources management is desirable and useful?

- Can existing laws and regulations serve as the basis for an effective approach to coastal management?

- Will local and national governance institutions be able to respond effectively if there is pressure in favor of plan implementation?

The Yellow Book proposed that each ZEM would be given two years in which to engage in an open planning process that would actively involve local residents, resource users and authorities in addressing future use of coastal resources. It had been decided that responsibility for preparing the plan had to rest with the existing local authorities including the mayor or mayors of the communities involved—if these

were present—and the designated representatives of governmental agencies with responsibilities within that ZEM. The Yellow Book visualized the responsibilities of the Executive Committee as:

- To detail the scope of the planning and coordination effort and invite other national agencies to participate as necessary

- To review the key projects and activities causing conflicts or abuse within the ZEM and develop a detailed timetable for discussing them in open forums

- To expedite decisions on the issues identified

- To develop a "one stop" permit system for actions within the ZEM

An Advisory Committee composed of representatives of the various user groups and business interests would assist the Executive Committee by generating ideas and by reacting to the proposals that might be put forward. A full-time coordinator would be hired by the project to organize the necessary meetings and provide the link between each ZEM and the project staff in Guayaquil. These coordinators would be hired from within the local communities and selected for their local knowledge, their contacts, and their potential to play a leadership role in what promised to be a complex process of a kind that had not been attempted before.

The expectation was that the five ZEMs would all address the priority issues that had been identified by the profiles and that the ZEMs would provide a variety of contexts and a range of social, political and economic dynamics that would generate the experience and ideas that could at some future date be applied more broadly. The project assembled a two or three-person technical team for each of the five priority issues:

- Destruction of mangroves
- Declines in fishery resources
- Water quality and sanitation

- Shoreline development
- Mariculture

Each team was to detail the issues in each ZEM and identify options for improved management responses. The technical teams were to consult within each ZEM and then present their findings and conclusions to the ZEM committees before presenting their reports to the program staff in Guayaquil. This was one of many examples of establishing feedback loops within all components of the program.

It was a novel experience for both the technical teams and ZEM communities to meet together to review and discuss the accuracy and potential usefulness of the findings and recommendations of external "experts." It soon became evident that this process was going to produce a multitude of ideas on what might be done to address the various issues. How could one decide which ideas had the most promise? This question dominated the annual self-assessment at the end of the first year of the ZEM process in 1991. The conclusion was that the program should establish a fund for "practical exercises." This provided modest funds—usually in the vicinity of US $100—for the implementation of selected initiatives at a pilot scale. This proved to be a successful strategy for engaging the communities in a process that went beyond issue analysis and planning. The practical exercises generated excitement, interest and vigorous debate on why a given effort succeeded or failed. They focused the efforts of the technical teams, the coordinators and the committees, and shaped the management actions that subsequently became the major features of each ZEM plan.

Without exception, the Executive Committees were a complete failure. Although their members came to the initial opening ceremony and accepted the congratulations of the representative of the President's Office and the program, they had little desire to experiment with a consultative approach to planning and management that involved the interested public. What benefits might such novel behavior bring them? Despite the energetic efforts of several of the coordinators, the Executive Committees were abandoned after the first year. For the CRC members

of the team, the first five years of the experience in Ecuador were teaching that the differences in the social and institutional contexts between the U.S. and a small Latin American nation were indeed profound. In Ecuador the roles and authorities of government in shaping the process of societal and ecosystem change were astonishingly limited. Yet the energy, creativity and desire of the impoverished people in each ZEM and the personal commitment of many individuals scattered through the government to engage and support a more effective form of planning and decisionmaking was inspiring. The foreseen journey into the unknown was proving to be exciting, full of surprises and highly rewarding.

The response to the Advisory Committees was entirely different from that of the government representatives appointed to the Executive Committees. The Advisory Committee meetings attracted so many participants that an initial concern within the program was that the efficiency of each Advisory Committee would be undermined by its sheer size. Attendance varied, but not infrequently drew more than 100 people to any given meeting. Fears about size leading to inefficiency proved to be unfounded as the ZEM coordinators and Advisory Committee presidents moved quickly to establish procedural rules that protected democratic principles, maintained order, and made sure that the at least a portion of the discussions at a given meeting addressed the announced topic. To U.S. observers, the Advisory Committees had characteristics remarkably similar to those of a New England town meeting. The Port Captain and some of the local officials that had been appointed to the Executive Committee began attending Advisory Committee meetings. When it came time to adjust the program's design in preparation for a full-scale phase of implementation through a loan from the IDB, it was obvious that the two committees should be merged into a single "ZEM Committee."

Usually absent from the ZEM Advisory Committees were representatives of the wealthy segments of society—most typically the owners of shrimp farms. Like those appointed to the Executive Committees, these

people seldom saw any benefits to participating in a new planning and decisionmaking process. For them, the existing system worked well enough, and actions that might encroach upon their freedoms and prerogatives were regarded with suspicion, if not as an outright threat. During this initial period, the PMRC became known in some circles as "the poor people's project," since the enthusiasm of the participatory process and the interest raised by the ZEM events (the practical exercises, school painting contests and workshops on a wide diversity of topics) appealed principally to the poor and the disenfranchised. At the time, this label was, for some, a source of embarrassment. For the project's critics it was evidence that the project was failing to meet its goals because it was not engaging those with the greatest power to influence the coastal development process.

The difficulties of working with the wealthier segments of coastal society—particularly those represented by the shrimp farmers—and the differences between CRMP's approach and the usual "project" had nearly derailed the program at the end of its first year. The program's greatest single investment in Year One was a symposium that brought world experience to bear on the crisis within the shrimp industry. An interdisciplinary team of shrimp mariculture experts, resource economists, estuarine ecologists and shrimp biologists met with representatives of the industry, local university specialists, and governmental agencies to assess the situation and develop a multi-faceted strategy to address problems posed by disease, the collapse of the wild shrimp stock, and the shortages of post-larvae needed to stock the ponds, as well as taxation policies, and the permit process. Focusing the program on the farmed shrimp industry had strong advocates within the CRC team and was seen as the top priority by the USAID mission. At the end of Year One, the mission argued forcefully that the program should be redesigned into a technical assistance program to the industry. The conflict resulted in the termination of some members of the CRC team and the mission refused to approve visits by the CRMP international director for several months. Subsequently, representatives of the farmed shrimp industry made it clear that they had no interest in participating in activi-

ties that could not be shown to produce an economic return to their members within two years. Nonetheless the crisis was weathered and, with the agreement of DIGEMA, Dr. Arriaga left his post with that agency to become CRMP's in-country director. He retained the position until the USAID-supported phase ended in 1995. His statesmanlike leadership became another central reason for the program's success. For the remaining years of the USAID-funded phase, strategies to foster a less volatile shrimp industry were addressed within the ZEMs and focused on actions that would protect and restore the environmental qualities upon which the industry depends.

The "Two-Track" Approach

The design set forth by the Yellow Book calls for a "two-track" approach in which experiments in community-level governance would be endorsed and overseen by a National Commission. The central idea was that the absence of successes in resource management along the coast gave little basis for making judgements on what actions would be most likely to produce positive outcomes. The ZEMs were presented to the National Commission as experiments, which could be undertaken with little or no risk to the existing allocation of resources and authorities among government agencies.

The project team soon learned that there were great benefits to scheduling some meetings of the National Commission in a ZEM. In such cases, the first part of the agenda was open to the public and devoted to hearing firsthand about the problems being addressed and, as the process matured, the ideas that were emerging from the practical exercises. The second part was an executive session on a pre-defined agenda. These meetings were typically held in a school classroom or an equally dilapidated meeting hall. The energy and the passion of the locals was always inspiring and on several occasions, the commissioners endorsed activities that according to the letter of the law were illegal or counter to established governmental procedures. For example, the commissioners granted a group of shellfisherwomen the responsibility for the stewardship of a mangrove area in which they harvested. This was not a "con-

cession" like those granted to shrimp farmers, but the right to manage a wetland for the benefit of the group that had traditionally utilized it, and to maintain it as a mangrove wetland rather than convert it to some other use. This became one of several actions that were seen by all as experiments "sponsored by the Office of the President." The fact that it departed from the established permit process was recognized by the local Port Captain and acceptable to all.

While the Executive Committees were failures, the idea of organizing local level enforcement officers into a Ranger Corps proved to be another experiment that quickly began to produce positive outcomes. As mentioned earlier, Executive Decree 375 established seven Ranger Corps, each of which was led by the naval Port Captain responsible for a designated stretch of coast. The Port Captains are recognized as the most professional and the most powerful representatives of the national government along the coast. They issue one of the three permits that should be obtained before constructing a shrimp pond. The other permits are issued by the forestry authority and the fisheries authority. In the 1970s and 1980s, it was universally accepted that these permits, if they were issued at all, were obtained in exchange for "informal payments" to officials in the various agencies (Meltzoff and LiPuma, 1986). Gathering these inspectors into teams and then assisting them in obtaining the resources with which to make joint inspections and joint patrols proved to be effective in making a corrupt system more accountable. A succession of admirals with oversight over the Port Captains strongly supported the program. Gradually, the quality of the officers selected to serve as Port Captains improved and the Navy training academy developed courses on coastal management and the proper functioning of a Ranger Corps. The process of change was gradual, but it was sustained.

Learning to Apply Adaptive Management to the Four Priority Issues

Once the ZEM process was underway, the program became overwhelmed by the need to provide sound technical guidance to the many

initiatives being implemented or considered in the five ZEMs. The program had a modest budget for so ambitious an undertaking and a primary goal was to build capacity within the Ecuadorian partners to respond effectively to these needs. There were two demands on the technical staff. One was to work with the ZEM Advisory Committees and coordinators to prepare a management plan for each ZEM. The plans would then be submitted to the National Commission for approval, and would frame a five to 10-year agenda of actions for each ZEM. The second demand on the technical staff was to support and evaluate the practical exercises as a body of experience that would shape the content of those plans.

The first CRMP I in-country director, and a person with years of experience in rural development in Latin America, suggested a strategy of nurturing informal teams on selected topics (Merschrod, 1989). The idea was to avoid the usual practice of inviting institutions to designate a representative to a committee. Unless there was the prospect of capturing significant financial or technical resources, this invariably resulted in the appointment of a low-level functionary who often had little interest or expertise in the topic and no decisionmaking authority. Such committees quickly become a *pro forma* exercise. Indeed, this was the fate of the Policy and Steering Committees that had been formed from national agency representatives with much effort in the first months of Year One. The alternative was to let it be known that the program was forming a working group on a given topic and invite those interested and with known capabilities to join and to serve in their individual capacity. The incentive was that the working group would be advised by a respected international expert. Also, the program would allocate modest funds to support initiatives put forward by the working group that responded to the program's needs. This approach proved to be particularly fruitful on two topics—mangroves and water quality.

The mangrove working group drew together specialists from the universities and the governmental agencies and was led by a member of the program's resident staff, with the advice from an American expert in

mangrove ecology. One of this group's priorities was to make the destruction of this feature of the coast a central theme in PMRC's public education efforts. Over the years these have featured school programs and parades involving thousands of schoolchildren, and have gained numerous news spots on TV and radio. In some ZEMs, the destruction already approached 80 percent of the mangroves present in 1969, when the first aerial photographs of the coast were taken. The working group noted that the official response to the widespread destruction was to adopt ever more stringent regulations forbidding any cutting and increasing the penalties for those who were caught doing so—both the traditional charcoal makers and those bulldozing new shrimp ponds. Yet, the regulations were having no discernible impact on the annual losses. The working group, impressed by the desperate conditions of the traditional "mangrove people," began to advocate for strategies that would promote the sustained utilization of mangroves and "put the people back into the wetlands." This cast the traditional users and environmental groups into an alliance against the shrimp pond builders and those condoning the advance of urban slum communities into these "wastelands." Practical exercises that produced trails and observation points in mangrove wetlands, and community efforts in reforestation and stewardship contacts with groups of shellfish and crab harvesters, all generated interest and press coverage. Another strategy was to support the Ranger Corps in their efforts to apprehend those constructing illegal shrimp ponds. The joint patrols and coordinated enforcement actions of the Ranger Corps increased steadily and produced over 200 enforcement actions in 1998 alone. Unfortunately, judges refused to treat the infractions as serious and very few produced jail sentences or penalties for those with influence and connections.

Parallel efforts on water quality, community sanitation, post-larvae handling and shorefront development created a sense of excitement and the wide perception that the program was developing a novel approach to old problems. The alliance of a foreign "project" involving both an NGO and governmental agencies was unusual. How could the effort be sustained? The USAID Ecuador mission had become a strong supporter of

PMRC, and it worked with USAID Washington to extend the project first from the original four years to six years, and then to eight.

The Transition to a New Funder

In 1993, at the annual high-level meeting between the government of Ecuador and the IDB, the government stated that funding for the implementation of the coastal program had become a national priority. The IDB responded with a project design process for which, at the government's request, CRC was contracted as the Bank's lead consultant. USAID agreed to extend its support yet again to sustain the project's core staff, including the five ZEM offices. The program staff worked quickly to complete the ZEM plans, shepherd them through the formal approval process, and to develop the activity descriptions and cost estimates that the IDB requires to process a loan.

The principal focus of the loan design had to be "bankable projects." One-third of the loan funds had to have detailed multi-year budgets as "final designs," and the remainder had to be designed to a level of detail sufficient to make the case that the economic benefits would outweigh the economic costs entailed through executing the loan. For CRMP I staff, this was a novel requirement—one that demanded following criteria that seemed inappropriate to a program directed at greater social equity and safeguarding environmental assets. The IDB team was sensitive to these concerns and shared the program's belief that it was essential to protect the program's unusual rolling design process and decentralized ZEM planning and decisionmaking procedures. The Bank's approach to capacity development was to make a large, one-time investment that would establish a sufficient threshold of financial and technical sophistication within the project office in Guayaquil at the start of the loan.

Since the IDB's instructions were that the loan could not be for less than US $15 million over four years, it posed challenges in project administration that were well beyond what either CRC or its Ecuadorian partners had experienced. It would require administering expenditures 10 times

greater than the program had previously spent in any year. Similarly, the designs for full-scale implementation of the more promising practical exercises jumped from a maximum of a few hundred dollars to a minimum of US $10,000. CRC was told repeatedly that a smaller loan was not worth the Bank's trouble. Many concerns were assuaged by the IDB's agreement that the rolling design—centered on annual self assessments and workplans—would be continued and that "el proceso PMRC," the decentralized and participatory processes for which the program was known, would be codified in a "Reglamento Operativo" that would guide all administrative decisionmaking. The in-country director, who had administered the program for almost a decade, was to be the author of the Reglamento, and he would stay on as the program's technical advisor during the entire loan period. Most innovative of all, the loan would not be implemented by the government. Instead, activities carried out with loan funds would be contracted out to three pre-selected partners in the private sector. The sanitation projects—the most familiar to the Bank, and readily "bankable"—would be the responsibility of CARE International. The Fundacion Maldonado would assume responsibility for expanded ZEM offices, each of which would have a resident team of extension officers. The ZEM coordinators and their staffs would be Fundacion employees. Continued investments in training would be provided by ESPOL. Technical oversight would be provided by a small team of specialists retained by PMRC headquarters in Guayaquil with continued support from CRC. The assumption was that the program's resident specialists would include the core team assembled and trained during the USAID-funded phase. At the time, these arrangements seemed to take all reasonable steps to protect the continuity of both the core staff and the program's unique traditions of management.

The Return to Business As Usual

The loan design was completed in 1992. Despite all the compromises in the loan design, CRC nonetheless withdrew with considerable misgivings. Six months later, the IDB approved the loan. But its approval came with a set of "conditionalities" that had not been previously discussed—

during neither the prolonged process of designing the loan nor the negotiations between the government of Ecuador and the IDB on the details of the budget. The most startling, Special Condition 4.02(e), stated that before any disbursements, the Government had to demonstrate that the PMRC had begun to implement "mechanisms for the coordination and the application of technical standards" to govern the approval or renovation of shrimp farm concessions. These permitting mechanisms and standards were to be developed jointly by the Bank and the PMRC and had to be approved by the IDB. Condition (e) required that these new permit procedures had to be widely advertised and announce that the evaluations of all such permit applications would be made available to the public.

This "conditionality" placed the PMRC in an impossible situation. The PMRC had maintained from the beginning that it had no intention of claiming for itself the regulatory powers vested in the Navy or the national agencies responsible for fisheries or forestry resources. The refinements to the PMRC's mandate that had been carefully negotiated with the IDB as a second Executive Decree signed in 1992, made no provisions for regulatory authority. Furthermore, such a "power grab" would fulfill the worst suspicions the shrimp industry had from the beginning, in 1985, believing that eventually a coastal management program would become another excuse for taxation and regulatory procedures designed to shackle the initiative of entrepreneurs. In one step the program's carefully garnered trust with established government agencies and the coastal populace was in question. Was the program about to become yet another regulatory agency now that it had US$ 15 million to pass around?

The PMRC had neither the power nor the desire to meet conditionality (e). Gradually, the remaining USAID bridge funding evaporated, as did the grant funds provided by the IDB for pre-loan capacity building activities. Most of these funds went to keeping the offices open and paying the salaries of the core staff. The team in Guayaquil began to look for

employment elsewhere. Several ZEM coordinators worked for more than a year without paychecks.

The impasse was broken in 1996, nearly three years after the loan was approved. It was spurred by an argument put forward by the IDB's Ecuador office. This contended that the "spirit" of condition (e) had been met and that the disbursements should begin. The basis of this claim was that reforms had been made to the notoriously corrupt forestry authority and even more stringent regulations had been adopted to protect mangrove wetlands.

Between 1993 and 1996, the program saw several PMRC directors come and go. By the time the impasse was resolved, a new president had been elected and Ecuador was on the threshold of one of the most traumatic periods in its history. The new director of Public Administration in the Office of the President called for a reassessment of the loan design and set about reducing costs on many activities—most notably the salaries for ZEM teams and investments in capacity building. A particularly destructive decision made at this time was that the program's three pre-selected partners (CARE International, Fundacion Maldonado and CRC) would have to negotiate new contracts for each annual workplan. Rather than program partners, they became mere contractors. Ecuador's highly complex public contracting procedures meant that this delayed new activities from six to 11 months, leaving little or no time to implement whatever that year's workplan had called for.

A major rift developed between the program's head office, the Direccion Ejecutiva, and Fundacion Maldonado over the supervision of ZEM office staff. The newly hired team of specialists in the head office argued that such supervision lay with them and not the ZEM coordinators hired by the Fundacion—even though the specialist team had no previous experience with the program and many had scant knowledge of the activities that were to be undertaken by equally green staff hired at low salaries in each ZEM. Fundacion Maldonado pointed out that their role had been reduced to that of a personnel contracting service. CRC's effort to provide technical assistance languished when new staff showed little inter-

est in the approaches and activities that the Center promotes. During the long gap before the first loan disbursement, the PRMC technical director worked to secure new sources of funding for new projects. These included a sixth ZEM, funded by Italian foreign assistance, and an effort to designate one of the remaining coastal freshwater wetlands as a Ramsar Wetland of International Importance site. Rather than attending to the needs of the ZEMs, the new staff put much of their efforts into these new, independently funded projects.

Late 1997 was the time for the first self-assessment and preparation of the Year Two workplan under the IDB-supported phase of the program. Dr. Arriaga, as the PMRC's senior advisor, consulted with the five ZEMs and the program partners. His reports documented unequivocally that the Reglamento Operativo had been abandoned. Expectations in CRC or the Fundacion Maldonado that this highly critical set of findings would catalyze discussion and a response within the IDB and the government proved to be unfounded. Nothing changed. To observers, the program had simply become another externally funded "project."

In 1999, before the loan-supported phase entered its final year, the IDB arranged for a mid-term evaluation conducted by a Danish consulting firm. The assessment lasted four months and involved a large team of international specialists. Their findings confirmed that only a fraction of the activities called for and funded by the loan had been undertaken or completed, and that the quality of the projects left much to be desired. Investments in sanitation had been particularly expensive and dysfunctional. The mangrove trails had blossomed into expensive walkways and public education centers, but were attracting few visitors and were beyond the capabilities of the local volunteer environmental groups to administer or maintain. There were some successes, and the evaluators were intrigued by what they could see of the program's approach and emphasis on participation in governance.

The Status of the Program in Mid-2003

The reversals and misfortunes of the program are to Ecuadorian observers only a reflection of the many difficulties and disasters that have haunted the nation in the past decade. Beginning in the mid-1990s the shrimp industry lurched from one crisis to another as a sequence of diseases swept through the ponds, reducing yields and idling many farms. In 1997, as the loan disbursements began, the country was hit by El Nino storms and floods that surpassed the 1982-1983 events in both their drama and the damages produced. Roads and bridges were washed out, crops ruined, and coastal erosion, flooding and landslides made life more precarious for coastal communities. Political turmoil matched these natural disasters. The presidency of Abdala Bucaram was truncated by impeachment and the escape of the president and senior members of his staff to Panama. At one point in the ensuing crisis, there were three people claiming to be president. In 1998, Jamil Mahuad, the former mayor of Quito, was elected by a slim margin. Soon thereafter the long simmering territorial conflicts with Peru over potentially oil-rich lands in the Amazon ignited into war. President Mahuad negotiated a treaty with Peru's President Alberto Fujimori that accepted Peruvian claims to the disputed territory, thereby ending a decades-long drain on Ecuador's military budget. The next challenge was to deal with an economic crisis that had eroded the value of the national currency from 50 sucres to the U.S. dollar when the project began in 1985, to 12,000 to the dollar in 2002. The president decided that the best option was to "dollarize" the economy—even though this would cause great hardship on all, particularly the poorest members of society. Indeed, the reaction was so violent that the president had to resign. In the process, many lost their life savings and unemployment rose sharply. In Guayaquil, there were riots over proposed increases in bus fares.

In this context, the government of Ecuador and the IDB agreed in 2002 to embark upon the design of a second IDB loan in support of the program. Yet, the process of delays and disintegration that marked the transition from the USAID-supported phase to the first IDB loan appears—at the

time of writing this chapter in late 2003—to be repeating itself. The IDB's procedure is to advertise internationally for a contractor to undertake the mandatory extensive loan design process. The contractor selected will not be likely to have any experience with the program or with coastal management. The contractor will have no role in the implementation of whatever design it puts forward. In July of 2003, the skeleton staff of long-term government of Ecuador employees assigned to the PMRC barricaded themselves into the project offices in Guayaquil demanding that they be paid the many months of back wages owed them. The second team of PMRC specialists hired in 1994 had sought employment elsewhere.

Any future investment in the PMRC will have to recognize the remarkable differences in the environmental and societal context in which the program would operate if it is reactivated. Ecuador is a poorer country in 2003 than it was in 1985 or 1992. Malnutrition was rare along the coast when the program began, but it has become increasingly prevalent in the succeeding 15 years. Violence and piracy have become common. Wealth continues to be concentrated in a small portion of the population and one impact of this is a proliferation of high-end, gated residential compounds along previously undeveloped stretches of the coast. Investments in resorts catering to well-heeled Ecuadorians and international visitors promise to be large. One consequence of these developments is that the poor have less access to the coastline and the resources of its beaches, wetlands and nearshore waters. The rapid growth in coastal settlements has resulted in the designation of many more municipalities. While portions of only two ZEMs lay within municipalities in 1989, today municipal governments with elected mayors and salaried staffs have the potential to offer a form of governance that was not present a decade before. Is there an appropriate role for ZEM Committees where municipal governments exist?

What Did the PMRC Accomplish During the USAID-Supported Phase?

First Order Enabling Conditions (See Chapter 1) were achieved in three phases. The first four years culminated in gaining a formal mandate for the necessary collaborative inter-institutional planning and policy formation. This was achieved by the signing of Executive Decree 375 in 1989. The second phase was to develop the goals and the detailed plans of action that are an expression of place-based management. In this case, the first generation of the program decided to focus this work on five ZEMs, leaving a coastwide program to a subsequent generation of the program. The greatest challenge during a third phase was to secure a source of funds to support the full-scale implementation of a first generation national program.

Thus, in terms of the ICM cycle, the PMRC had by the end of 2000 limped through the last two steps of an initial generation of a national coastal management program. A total of US $3.2 million had been invested by USAID and the government of Ecuador had added US $15 million to its foreign debt to support the initial phase of implementation. Unfortunately, by the end of this initial cycle neither the institutional capacity nor the funds for a second generation were present and the full suite of enabling conditions that had briefly existed in 1992 and 1993 were no longer present.

Second Order Behavioral Changes. The most remarkable achievements of the PMRC lie in the evidence that the changes in behavior within institutions, user groups and the public at large could indeed be achieved simultaneously at several scales in a relatively short period of time.

Changes in the behavior of institutions occurred at both the national level and among the local institutions operating along the coast. At the national level, the Technical Committee and Steering Committee called for by the Joint Project Agreement in 1985 proved to be dysfunctional and were disbanded. The institutional design adopted in 1989 made the

Office of the President the lead agency of the program. The ministers appointed to the National Coastal Management commission discussed issues of policy, made decisions and provided the PMRC with a top-level sounding board. They became eloquent advocates for the program. The support for the Ranger Corps by the commissioners during the Borja administration set in motion an unprecedented collaboration among the inspectors and permit-granting officials operating along the coast. Because they are government employees, the practice of joint patrols and collaborative permit granting has been more successfully sustained than the elements of the program funded by external sources. The participation of Port Captains in ZEM Committee meetings produced linkages between the public and enforcement officers that had not previously existed.

At the community level within the ZEMs, the Advisory Committees, and later the combined Zonal Committees, became an incubator for participatory planning, goal-setting and self-help actions that had not previously been seen along the coast. The ZEM Committees repeatedly demonstrated their ability to respond positively and effectively to local issues and crises. They provided the forums where the goals and priority actions to be incorporated in each ZEM plan were debated and voted upon, where disputes among competing user groups could be resolved and where the results of practical exercises were examined and debated. This expression of participatory management and transparent dealing was also unprecedented, and was greeted with disbelief by many who observed the program in its initial years.

The working groups on priority coastal management issues were another departure from the usual manner in which technical specialists related to one another and to the public. With the exception of the ZEM coordinator, who received a modest payment for his or her administrative duties, the incentives for working group members were not financial. They served because they had a personal interest in the topic and not because they were assigned to the group by their institution. They benefited from interactions with an international expert in their field and by

being associated with what was widely perceived to be a winning team. The members frequently commented that they felt that their participation gave them an opportunity to serve their country.

Finally, the PMRC itself signaled a significant shift away from the traditional behavior of government-sponsored institutions in Ecuador. A program without regulatory authority that freely distributed the information it generated and devoted its efforts to collaborative behavior among traditionally competing—and not infrequently antagonistic—institutions itself modeled a form of behavior from which many drew inspiration.

Other behavioral change can be seen in those most directly involved in the use and alteration of the coast and its resources. The PMRC invested heavily in each ZEM in organizing scores of "user groups" among the poor and subsistence communities that make up the majority of their resident populations. Wealthy segments of society, such as hoteliers and shrimp farm owners, have long had similar status, usually as members of Chambers of Commerce. Once formally organized, these user groups can, under Ecuadorian law, file as a civic organization and thereby obtain the *personalidad juridica* that enables them to assume group responsibility for an asset (such as a boat, a dock or a mangrove walkway), receive grants, and speak as an organization and not just as individuals. More than 50 organizations of low-income users achieved this status during the USAID-supported phase. These formally organized user groups assumed responsibility for most of the practical exercises. They undertook a wide diversity of self-help activities that were novel and incipient expressions of collaborative action to protect public assets.

Such expressions of stewardship were also seen among wealthier members of society. Most notably, during the long delays between the IDB loans, the Shrimp Growers Association in Guayas province provided substantial funds to the Ranger Corps to support their patrolling activities. This signaled a major change in the attitude of shrimp growers toward the program.

Third Order Harvests represented by improved societal and environmental conditions were modest during the USAID-funded phase. The biggest, but unquantified, achievements were undoubtedly in the generation of hope and empowerment—important indicators when assessing quality of life—that the PMRC process brought to the poorer segments of coastal society. The practical exercises also generated modest gains in earnings and employment for some user groups. Presumably, the collection of garbage and the building of latrines brought some undocumented health benefits. The actions of the ZEM Committees protected—or in the case of the Machala ZEM—reestablished access to mangroves adjoining shrimp farms for artisanal shellfishers who had previously been expelled as presumed poachers. The eco-tourism experiments provided occasional employment to otherwise unemployed members of some communities.

In terms of improvements in environmental quality, the Third Order Harvest during the first phase was small. There were some examples of mangrove replanting. More importantly, a number of actions that would have destroyed more mangroves were avoided by the joint efforts of ZEM committees and the Ranger Corps. Nesting colonies of seabirds and "the highest mangroves in the world" in Esmeraldas province were recognized as important assets and protected. Unfortunately, the larger-scale outcomes expected during the loan phase did not materialize.

What Can We Learn From the PMRC?

All the Americans involved in the Ecuador program were impressed by the warm reception that greeted the values and processes of participatory governance. As the project began, anyone familiar with the culture and traditions of the Ecuadorian coast assured the CRC team that public meetings and open debate over issues and alternative courses of action would be pointless, or dangerous, or both. In the mid-1980s participation by stakeholders in the governance process was looked upon with suspicion or hostility in many quarters—reminiscent of the reaction 15 years before as state coastal management programs got underway in the U.S. It was, however, essential that the practices of such participation

were given an Ecuadorian expression. The strategies selected and the many adjustments made along the way were the fruit of much reflection and debate within the project team. The leadership and the experience of the Fundacion Maldonado in these matters was central to the project's success.

A major lesson is that it remains difficult to sustain the changes in behavior achieved by the PMRC. In Ecuador, there is no equivalent, as the federal government provided to the individual coastal states in the U.S., of a higher level of governance that is structured to encourage sustained effort with appropriate incentives and accountability requirements. The conditionalities attached to the loan contradicted the fundamental strategies of the program, put carefully nurtured relationships at risk, and proved impossible to meet. If new approaches to coastal governance are to take root and flourish in contexts like those that exist in Ecuador, the international system of incentives to support such efforts will need to be retooled.

Another conclusion is that discovering the optimal institutional design for a PMRC-like program in a politically unstable nation remains a work-in-progress. A coastal management program must operate with the authority of government. Yet, it must be protected from the frequent turnovers in those holding high-level governmental posts that is characteristic of many Latin American countries. The answer probably lies in a para-statal institution that can operate within the administrative and financial rules that govern the private sector, but receive financing from government and international institutions. Here again, the biggest challenge lies in securing a stable source of core funding that can maintain the institutional capacity of a program that is demonstrating its effectiveness and its ability to progress towards its stated goals.

Finally, one can conclude from this effort that the challenges addressed by such a program are primarily the issues of governance. Governance is not synonymous with "economic development" or "biodiversity protection" or "democratization." It integrates among all of these, and the

attributes of goal-setting, planning and decisionmaking that address the full complexity of ecosystems in which people are the dominant force of change.

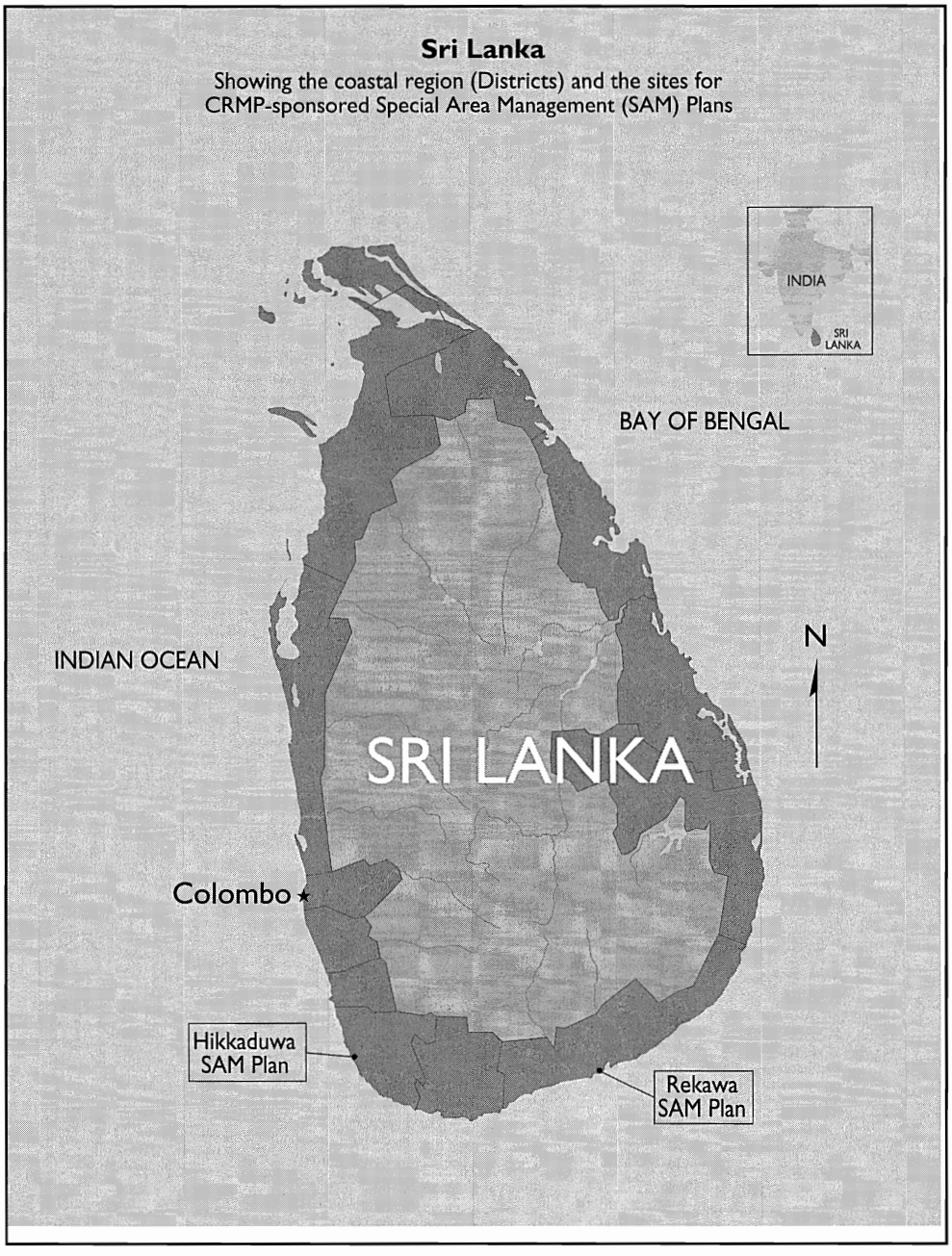
CHAPTER 4

THE EVOLUTION OF COASTAL MANAGEMENT IN SRI LANKA

Kem Lowry

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


Sri Lanka
Showing the coastal region (Districts) and the sites for
CRMP-sponsored Special Area Management (SAM) Plans
INDIA
SRI LANKA
BAY OF BENGAL
INDIAN OCEAN
N
SRI LANKA
Colombo
Hikkaduwa SAM Plan
Rekawa SAM Plan

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 redesign 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 redesign 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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INTRODUCTION TO CRMP II

Stephen Bloye Olsen

The successes of CRMP I and the desire of an increasing number of USAID country missions to invest in coastal management led USAID Washington to design an eight-year follow-on project. This was the Coastal Resources Management Program II (CRMP II) that was initiated in mid 1995. In sharp contrast to CRMP I, this second phase of the USAID-CRC partnership was funded primarily by USAID in-country missions rather than USAID Washington. (See Figure 1.) When CRMP II ended on September 30, 2003 it had received US $24.6 million from in-country missions and US $6 million from USAID Washington. An additional US $4 million was contributed by private foundations, host country governments and as in-kind contributions from the University of Rhode Island (URI). These figures reflect the original goal set out at the start of CRMP I that the missions would invest in coastal management once it had been demonstrated as an effective approach to the problems posed by needs for both development and conservation in coastal regions.

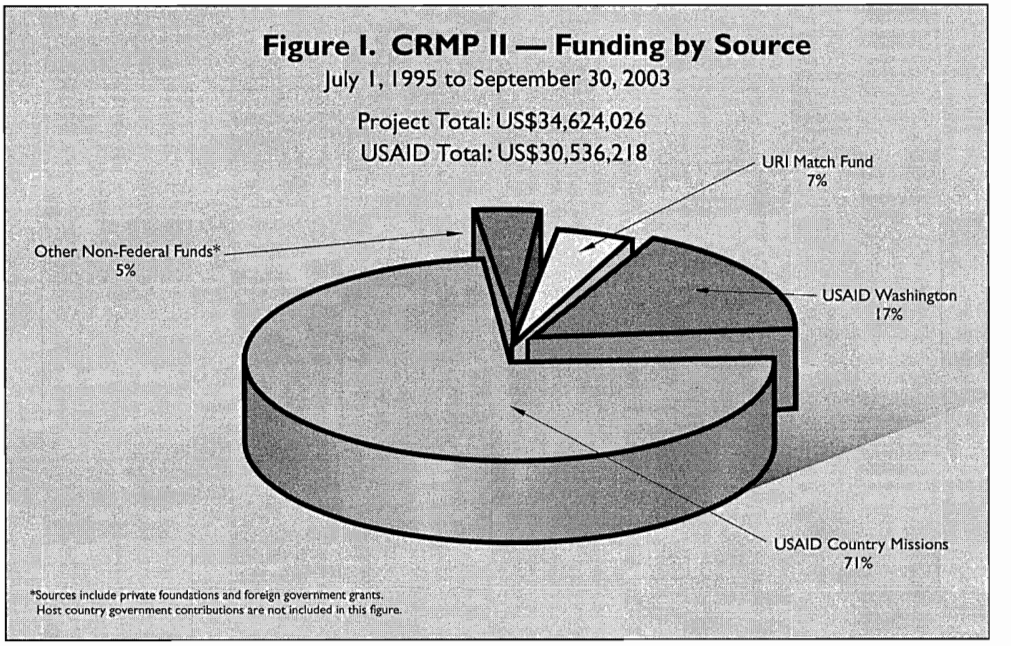


Figure 2 shows that of the US $10 million in funding that was URI-based, more than US $3 million went to activities in direct support of field programs. An additional US $2.3 million went to global leadership activities—activities which supported research, communications and capacity building targeted at a global audience but which drew from and supported the field programs. When these two categories of funds are added to those which went directly to the field offices, the total spent in support of country programs is 86 percent. Table 1 shows that the countries assisted by CRMP II showed greater diversity in terms of size and wealth than those addressed in CRMP I. The funds invested by the missions also varied widely from the modest US $850 thousand investment in Kenya to a substantial US $14 million investment in Indonesia.

Tailoring ICM Principles to New Contexts

The follow-on project got underway in mid-1995 and ended in September of 2003. Three new long-term country programs—Indonesia,

Mexico and Tanzania—were initiated with the characteristics shown in Table 1. All three projects have worked to advance nested systems of coastal governance. (See Chapter 8.) A series of activities also began in Kenya in 1995 and continued through 2003. However this was a modest effort, much of which initially focused on a demonstration site near Mombasa and later expanded to testing rainwater-harvesting techniques elsewhere along the coast. The Kenya project is not included as a case study in this volume.

The CRMP II programs built upon what had been learned in CRMP I and worked to address some of the weaknesses of those initial pilots. For example, a major effort was made to document baseline conditions at the community level in North Sulawesi, Indonesia before new approaches to coastal management began. In Indonesia and Tanzania, an annual retreat-like self-assessment that had become a hallmark of the CRMP I pilots was emphasized as a feature of an overtly adaptive approach to the administration of a country program. The steps and

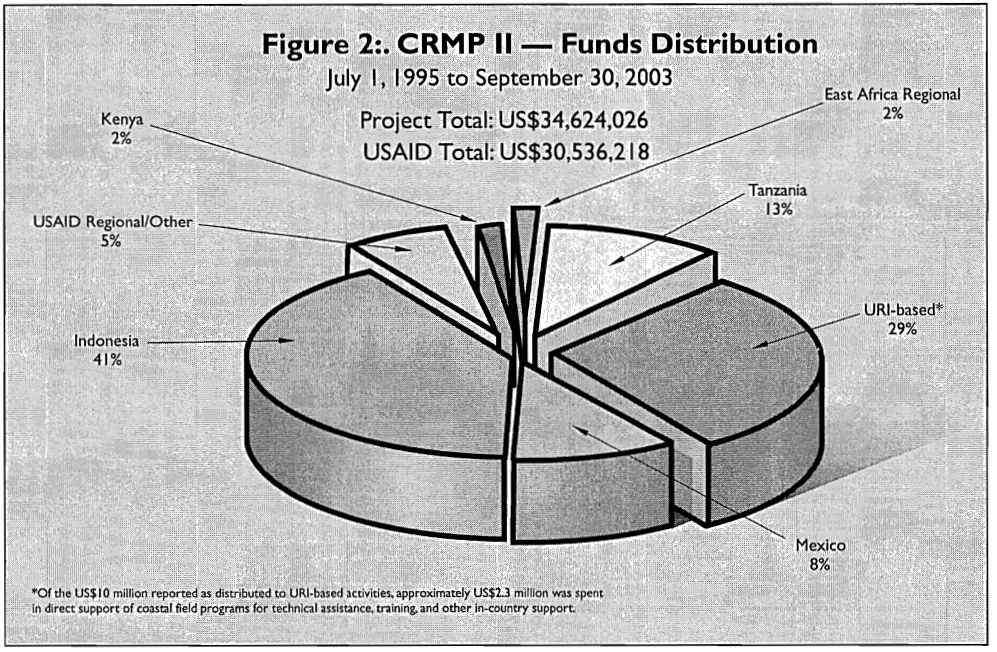


TABLE 1: CHARACTERISTICS OF THE COASTAL REGIONS OF THE FOUR CRMP II PILOT COUNTRIES

COASTAL CHARACTERISTICS OF CRMP II COUNTRIES

	INDONESIA	KENYA	MEXICO	TANZANIA
TOTAL POPULATION IN 2002 (THOUSANDS OF PEOPLE)	217,543	31,904	101,842	36,820
POPULATION WITHIN 100 KM OF THE COAST (PERCENT IN 1995)	96	8	29	21
GDP PER CAPITA (1995 US DOLLARS)	986	322	3,784	183
TOTAL COASTLINE LENGTH (KM)	95,181	536	9,330	1,424
CLAIMED EXCLUSIVE ECONOMIC ZONE (KM^2)	2,914,978	104,056	2,997,679	204,294
COASTAL AREA ADDRESSED IN CRMP II PROJECT (KM^2)[1]	300,024	30	3,726	3,375

SOURCES: "Coastal Area Addressed During Project" from CRMP II reports. All other data from World Resources Institute, Earth Trends, The Environmental Information Portal Country Profiles, 2003.

[1]During CRMP II, the program estimated the area of coast addressed through management activities. Such data was not collected in CRMP I.

KEY COUNTERPART AGENCIES

Indonesia: National Development Planning Board; Ministry of Marine Affairs and Fisheries; Provincial Regional Development Planning Boards in North Sulawesi, Lampung and East Kalimantan

Kenya: Coast Development Authority

Mexico: Amigos de Sian Ka'an; Conservation International/Mexico; University of Quintana Roo

Tanzania: The National Environment Management Council

associated actions in the integrated coastal management (ICM) policy cycle were used as a road map to guide the sequence of activities in a given place and emphasize the linkages between different phases in the development of institutional capacity. In Indonesia, a university-based center was established to become a repository of learning on coastal management practices.

The Mexico field program differed significantly from the Indonesia and Tanzania programs. It was more modestly funded and was designed to respond to the USAID Mexico mission's focus on building the capacity of selected NGOs rather than that of government agencies. Also, while the Tanzania and Indonesia programs included sizeable in-country offices, the Mexico program did not.

CRMP I had reaffirmed that integrating approaches to coastal governance require tailoring a project's goals and strategies to the needs, traditions of governance and institutional capacities at a site. The three nations selected for long-term field projects during CRMP II were remarkably different from one another, and these differences also produced quite different project designs.

The Indonesia and Tanzania projects were designed to advance the institutionalization of coastal management practices at the national scale. While Tanzania is the size of a large American state and has a coastline similar in length to that of Ecuador and Sri Lanka, Indonesia is the world's largest archipelagic nation. The country's more than 7,000 islands extend over an area larger than the 48 contiguous U.S. states, making Indonesia a complex nation containing a diversity of distinct ethnic groups and cultures. While Indonesia is endowed with a wealth of natural resources, including oil fields, and is relatively wealthy, Tanzania is one of the world's poorest nations. In 2002, Tanzania ranked number 151 out of the 173 countries ranked on the United Nations Development Program's Human Development Index. Much of its coast remains sparsely populated and isolated.

Mexico provides a sharp contrast to both Indonesia and Tanzania as a large, politically stable nation with "first world" systems of education, transportation and health, and a well-developed industrial base. Like Indonesia, Mexico is a major world producer of petroleum. In both Indonesia and Mexico, however, wealth is concentrated in relatively small geographic areas and in small segments of society. In both nations, large regions are considered undeveloped. In those areas, much of the population lives in poverty.

The Indonesia project has been, by far, CRMP II's largest with annual budgets averaging nearly US $2 million a year. This compares to an average of US $0.7 million a year for Tanzania and US $0.3 million a year for Mexico. In Indonesia, the project began during the Suharto regime when an authoritarian, top-down governmental system was dominant. The project was designed to demonstrate how decentralized forms of governance could be effective in a diversity of settings in three different provinces—East Kalimantan, Lampung and North Sulawesi—but initially did not attempt to influence policy at the national scale. In 1998, the project acted quickly to take advantage of a much more positive climate for a coastal management program at the national level that came with the collapse of the Suharto government. The new government's embrace of decentralization led the CRMP to invest in a partnership with the newly created Ministry of Marine Affairs and Fisheries. National coastal management legislation is currently being developed that would endorse and strengthen approaches to decentralized coastal planning and decisionmaking, and this approach is being institutionalized by new legislation at the district and provincial levels in North Sulawesi.

In sharp contrast to Indonesia, the Tanzania project opted to work from the start with national government. By 1997, several Tanzanian community-based coastal management projects were underway, sponsored by various international donors. It made little sense for the CRMP to also invest at this demonstration project scale. As a former British colony, Tanzania has a professional civil service and traditions of governance similar to those of Sri Lanka. Here the objective, from the beginning, was

to work with government agencies to formulate a national coastal management policy that would integrate and encourage participatory coastal governance at the community and district levels.

In Mexico, a republic with high institutional capacity at the federal level, the project aimed to facilitate more effective coastal management in selected municipalities, and to strengthen the connections between such initiatives and the federal agencies involved. The nature of the activities undertaken led to collaborative relationships with municipal, state and federal agencies of government; business and community groups; universities; and NGOs.

By the end of CRMP II in 2003, these three field programs had made major strides towards institutionalized coastal management programs that were operating within a legal and organizational framework, supported through the allocation of government resources, and implemented in accordance with accepted principles of participatory and open governance.

In summary these accomplishments include:

In **Indonesia**, several models of decentralized coastal governance have been carefully documented and are being replicated both within the three provinces where the project has been active and elsewhere in the country. Enabling conditions (First Order outcomes) are in place at the district and province levels in North Sulawesi, and work on national legislation to formally establish a coastal management program is well advanced. Within the three provinces, there are a diversity of behavior changes underway—including resource stewardship actions at the community level and new forms of collaborative planning and decisionmaking among the various levels of government. Community-based marine protected areas are a strong feature of these efforts.

In **Tanzania**, the National Integrated Coastal Environmental Management Strategy was formally adopted by the nation's Cabinet in 2002.

This puts in place a set of national policies that address district-level coastal management and establish a clear process for planning and decisionmaking on mariculture and tourism development. In Tanzania, the emphasis has been upon behavioral change within government agencies in support of collaborative action, learning-based approaches to resource management, and closer collaboration between government and business in shaping the development process along the coast.

In **Mexico**, the project has worked with NGOs in the state of Quintana Roo on the east coast to establish the first national marine park initiated by a community and to increase capacity on coastal management topics in a small university. On the west coast, in the Gulf of California, the project has assisted in the formation of a unique bi-municipal management plan for a coastal lagoon—Bahía Santa María—and a trust fund to support its implementation. On both coasts these efforts are demonstrating new approaches to decentralized coastal governance centered in municipal governments.

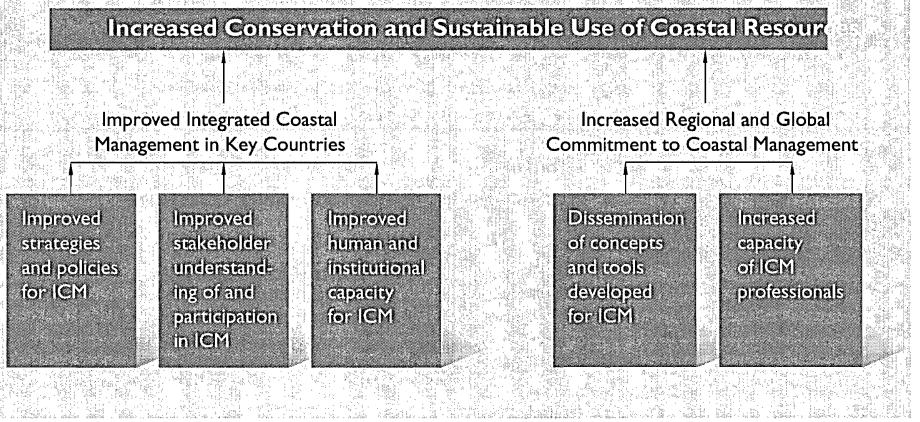
While the CRMP II design drew heavily on its CRMP I predecessor, it was also influenced by the U.S. Performance and Results Act of 1993. This initiative of President Bill Clinton's administration created regulations governing all federally-funded programs, requiring them to define goals and monitor progress toward predefined outcomes. Within USAID, projects and programs were designed around "results frameworks" consisting of a Strategic Objective for each major program supported by a number of Intermediate Results. Each USAID mission developed its own results framework and indicators. These are organized around each mission's major programs and typically are designed to promote biodiversity conservation, economic development, public health, or democratization. This raises issues for an ICM initiative that works to bridge across several of these categories. While all ICM programs integrate across elements of environmental quality, societal well-being, democratization and economic development, the CRMP II projects were placed within the environmental management Strategic Objective—which emphasized biodiversity conservation.

Indicators were selected to gauge progress in each of the elements in the CRMP results framework. (See Figure 3.) The highest priority is given to measurable change in tangible biophysical or societal variables. Such changes fall into the category of Third Order outcomes in the scheme described in Chapter 1. For both USAID Washington and its missions, CRMP II projects reported their most important "performance results" annually in terms of:

- Hectares under improved management
- Hectares under effective management

Box 1 defines each of these categories of results. The first category included areas where advances were being made and quantified but were considered as a work-in-progress. Areas assigned to the second category were those where the USAID goal had been fully achieved.

FIGURE 3. CRM II Results Framework



Box 1: Defining Success in CRMP II

Improved is defined as "when an ICM program is in place and functioning." Areas in this category can be counted when at least one of the following activities has been completed and targets have been set for the remaining parameters:

- Assessment completed
- Legal framework established
- Planning completed
- Management actions implemented
- Capacity developed
- Monitoring action implemented

Effective is defined as "where environmental conditions are being monitored and resource degradation is documented as slowed, stopped or reversed."

Generally, effective management sites are geographically smaller than those in the improved category, and are associated with a specific type of coastal environment or resource, such as coral reefs or mangroves. Two requirements must be met for management to be deemed effective:

- Environmental quality is maintained or improved, and/or the rate of degradation is reduced
- Institutional ability to monitor and respond to threats is demonstrated

From: *Coastal Resources Management Project II 1999 Results: Increasing Conservation and Sustainable Use of Coastal Resources* (2000)

While each USAID project and each mission needed to show increased hectares under improved and/or effective management each year, indicators for many CRMP II country programs could not be reported in terms of increased areas under management, but rather were reported and evaluated as "improved strategies and policies for ICM". The challenge in this approach to monitoring and evaluation was highlighted in some length in the final evaluation report on the Indonesia project (Hanson et al., 2003). One problem is that areas assigned to the "effective management" category cannot be counted as contributing to more than one year of "results." This contradicts the iterative and adaptive nature of coastal management. According to the Indonesia evaluation (Hanson et al., 2003):

> "A serious review of the Natural Resources Management (NRM) Results Framework should be undertaken to incorporate outcome/impact indicators, measures that can document the evolving relationship between NRM and decentralization, and indicators that incorporate horizontal and vertical cooperation and linkages between central and local government, village initiatives, NGOs, and academia. Furthermore, the overarching goal of biodiversity conservation could be improved by expanding it to embrace sustainable development in terms of economic benefits, food security, and biodiversity conservation benefits... Selected socio-environmental indicators could be used to illustrate impacts of the project on community beneficiaries, fisheries and habitat management."

The report suggests that indicators which could be used jointly by USAID, national government agencies, and local governments to measure progress in Indonesian marine and coastal management would help advance a common understanding of the purposes and accomplishments of a coastal management program.

Promoting Global and Regional Commitment to Coastal Management

In CRMP I, training programs offered to regional and global audiences were the major means for disseminating the approach and practices emerging from the CRMP pilot projects. This training program continued through CRMP II and included adding curricula on new topics and developing new delivery mechanisms. By 2003, nearly 400 professional men and women with backgrounds in the social and natural sciences from 68 countries had attended CRMP formal two- to four-week international training courses.

In addition to continued efforts in training, CRMP II devoted more time to refining and disseminating the concepts and tools that were proving effective in guiding the design and sequencing of activities within coastal management initiatives. This took the form of developing, refining and promoting "common methodologies for learning" that were emerging from coastal management projects and programs. These common methodologies:

- Elucidate the conditions that favor or impede progress towards the goals of coastal management in different settings

- Identify the barriers and bridges to linking investments in planning and capacity building to investments in the implementation of a coastal management program

- Document successes and failures in a manner that encourages learning across projects

Further described in Chapter 1, these methodologies provide frameworks for examining the cases presented in this volume. They were initially introduced at an international workshop in Xiamen, China in 1995 (Olsen et al., 1997). After deliberations of an expert group, they were refined and published as *The Common Methodology for Learning: A Manual for Assessing Progress in Coastal Management* (Olsen et al., 1999). While the

manual focuses on the actions associated with each step of the ICM cycle, the indicators associated with the orders of outcomes were detailed in a paper prepared for a workshop in Ottawa on indicators for ICM (Olsen, 2003). The methodologies have been further refined as they have been applied to a diversity of ICM projects and programs supported by international funders including the Global Environmental Facility, development banks and bi-lateral donors.

CRC, through the CRMP global and regional program, has, until 1998, also provided technical support and staff to activities of the International Coral Reef Initiative. This work has since evolved into collaboration with several international institutions on the design and application of databases that integrate a range of human factors into reef monitoring. These additions to biophysical monitoring provide important insights into assessing reefs from a management perspective. Global concern over the degradation and loss of coral reefs has more recently led to research by CRC and its partners on the factors affecting the success and sustainability of community-based marine protected areas in the Philippines and the application of this learning to similar initiatives in Indonesia and Tanzania.

Another feature of CRMP II has been to work with a variety of expert groups in several regions to formulate "good practices" in mariculture. Efforts have been directed at establishing how mariculture—particularly shrimp farming—can be integrated into a larger coastal management process. This work focuses on assessing the cumulative impacts of many operations on the environmental qualities of a given area and on the societal impacts of the industry. The emerging good practices are being integrated into planning and regulatory frameworks in the various countries where CRMP has been active.

Finally, through its many publications and its newsletter, *InterCoast Network*, CRMP II has worked to widely disseminate experience and provide a forum on the evolving concepts and tools for the effective

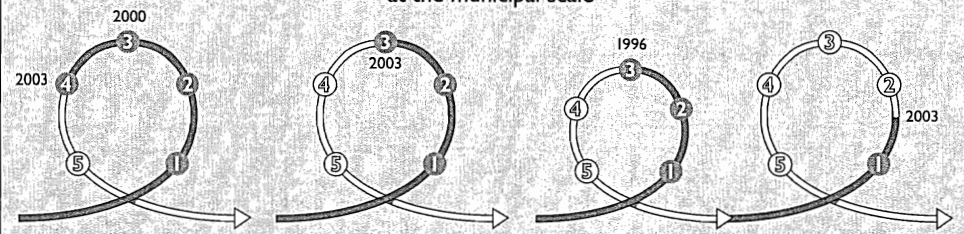
management of coastal ecosystems. In 2003, through a workshop held at URI and a seminar in Washington, D.C., participants from both CRMP I and II projects came together to assess progress and the evolution of coastal management practices.

The Expectations and Outcomes of CRMP II

CRMP II achieved its stated goals. It has further demonstrated how the principles of ICM can be successfully applied in a wide diversity of settings. By the end of the program in 2003, the initial threshold of First Order enabling conditions had either been achieved, or were close to being achieved, and documented as elements of nested systems of governance that link community-based coastal stewardship with supportive governance at the district, provincial (or state) and national levels. In CRMP II, major efforts have been made to link USAID-supported efforts to coastal management efforts sponsored by other institutions. As illustrated by Figures 4, 5 and 6, the great majority of these efforts at both the

FIGURE 4. CRMP II — Mexico

The evolution of coastal programs in Mexico at the municipal scale



The Xcalak Marine Park, Quintana Roo State

The Bahía Santa María bi-municipal lagoon management program

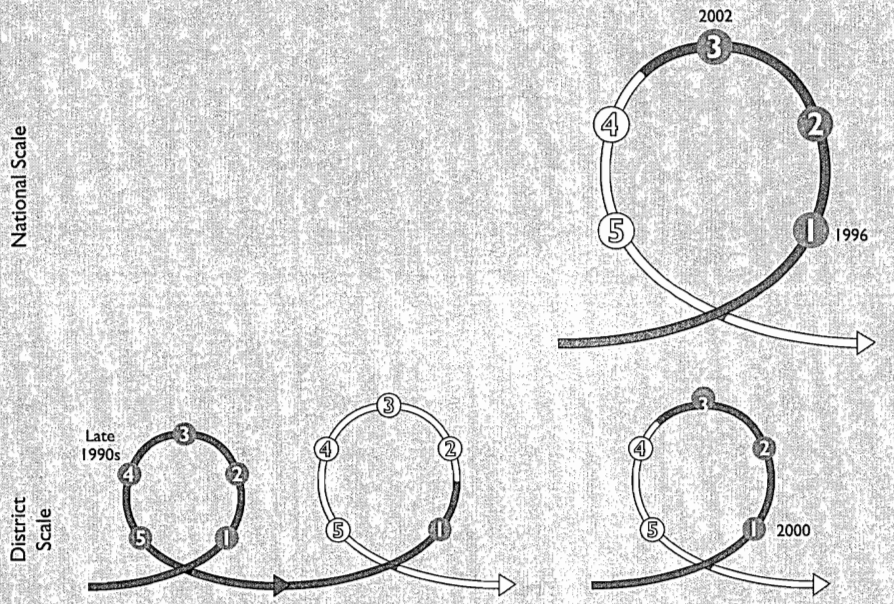
Chetumal Bay, Quintana Roo State

In the state of Quintana Roo on Mexico's east coast, CRMP II has assisted in developing a plan and management structure for the Xcalak Marine Park. The park was formally designated by President Ernesto Zedillo in 2000, and was in the initial phases of implementation in 2003. Further to the south, the management of Chetumal Bay has been a focal point of work with the local university, the municipalities, and state and federal government agencies. The disappointing outcomes of a pre-existing manatee sanctuary in the Bay have been assessed and progress is being made towards a more comprehensive scheme for the management of this important estuary.

On the west coast of Mexico in the Gulf of California, CRMP II has worked with two municipalities to develop a management plan and associated trust fund for a large multi-use lagoon. The Conservation and Development of *Bahía Santa María* was formally created by municipal and state governments in September 2003.

FIGURE 5. CRMP II — Tanzania

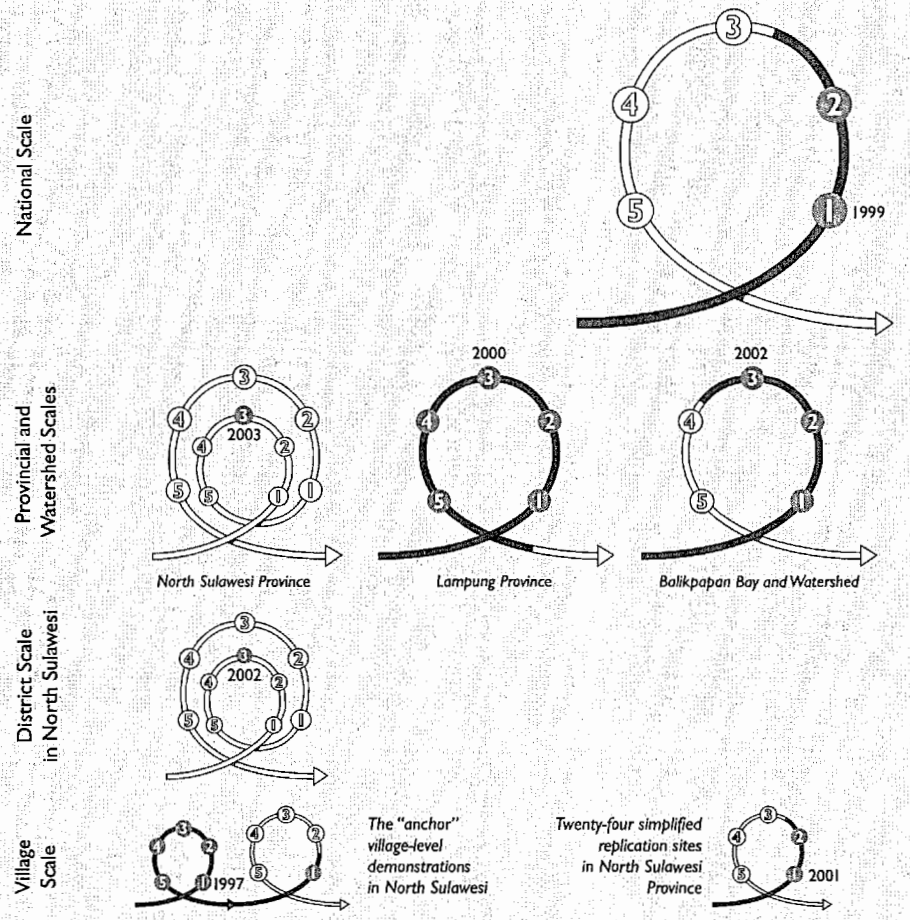
The evolution of the national coastal programs in Tanzania and of CRMP-supported district action plans



In Tanzania, CRMP II has drawn upon the experience in six pre-existing and independently funded coastal management initiatives at the community and district scales. Several of these programs are now in their second generation. A coastal management program at the national scale was formally established in 2002 as the Tanzania National Integrated Coastal Environment Management Strategy. The priority actions called for by the strategy were underway in 2000 with CRMP support in three districts. By 2003, two action plans had been approved and were being implemented; a third was in the planning phase (Step 2).

FIGURE 6. CRMP II — Indonesia

The evolution of CRMP-supported coastal programs in Indonesia at the national, provincial, district and village scales



In Indonesia, CRMP II began by formulating integrated management schemes at the local level at five sites in three provinces. By 2003, the village "anchor" sites in North Sulawesi and the Lampung Provincial Plan had become largely self-supporting and were entering a second generation. Towards the end of the program, 24 additional village-level programs in the province of North Sulawesi were nearing formal approval. In North Sulawesi, legislative acts creating coastal management councils have been approved at both the district and provincial levels. These provide a mandate for coastal management at larger scales, but plans or targets for management actions at that these scales are yet to be defined. These mandates are, therefore, diagramed as a "seed" generation.

In East Kalimantan province, the Balikpapan Bay and Watershed Management Plan that spans two districts and a city has been formally approved and is being implemented.

The dramatic reforms in national policy that occurred in 1999 led CRMP II to work with the newly created Ministry of Marine Affairs and Fisheries to begin negotiating the national legislation that would create a decentralized national coastal management program. The proposed law will be debated by the legislature in early 2004.

municipal, district or national scales are either at an early stage of implementation or at the challenging step of seeking formal approval and funding for an initial period of implementation. As with the diagrams for the CRMP I country programs, darkened loops and darkened numbers trace the evolution of a coastal management program through the steps that link planning to implementation and evaluation in a generation of coastal management. Double loops symbolize an initial phase in which a governmental mandate was secured but the other steps were not undertaken.

Today, there exists abundant evidence that both coastal users and the agencies responsible for the planning and decisionmaking that shape the processes of contemporary coastal change are both willing and able to change their behavior in ways that can produce desired environmental and societal outcomes at significant geographic scales. The good practices that produce efficient progress towards effective coastal governance are now known. Many of the uncertainties that were so palpable in CRMP I have been lain to rest. Thanks in good measure to CRMP projects and associated activities, the philosophy, values and practices that began to shape ICM in the U.S. in the 1970s are being applied and adapted in hundreds of coastal areas around the world. They constitute a new approach to coastal governance and a response to the awesome challenges of the Anthropocene. (See Chapter 1.) They signal a path to a future that sustains the qualities of coastal ecosystems while enhancing the lives of coastal people. What remains unknown is the degree to which the larger governance systems of values, goals, procedures and rules will allow these initiatives to prosper and replicate. Many of the pressures on the areas and people in the regions addressed are not the consequence of local or national policies and practices. They are the result of worldwide pressures brought by societal values and behaviors that can only be addressed at that global scale. This is a major feature of the Anthropocene, and underscores the need for sustained collaboration and sustained learning at all geographic scales.

CHAPTER 5

BUILDING PARTNERSHIPS TO ESTABLISH INTEGRATED COASTAL MANAGEMENT AT THE NATIONAL SCALE IN TANZANIA

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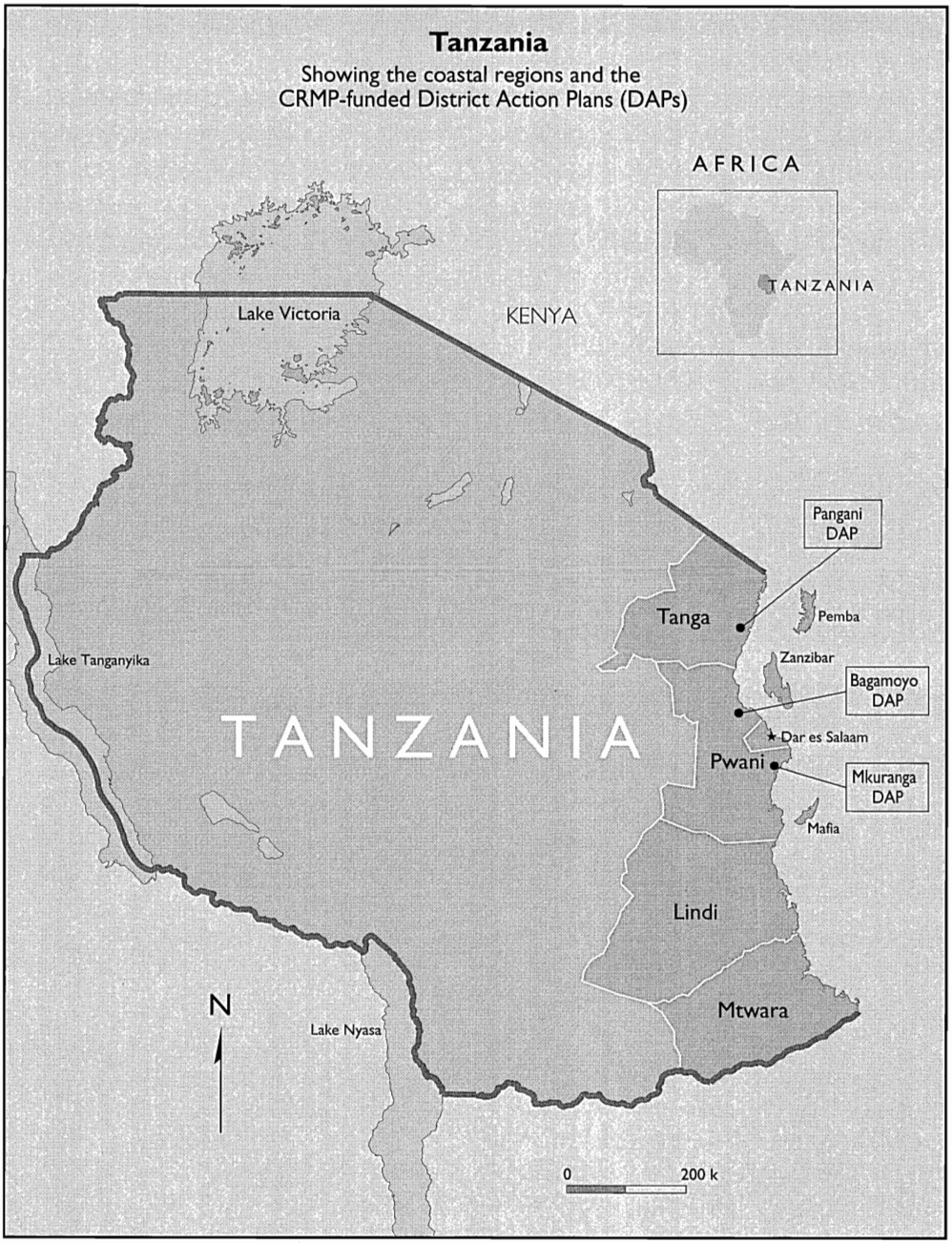
INTRODUCTION

This chapter describes how the Tanzania Coastal Management Partnership (TCMP) was established as a coastal management initiative at the national scale with strong ties to pre-existing initiatives at the community level. The TCMP has promoted a nested governance system that features partnering with national and district government agencies, local integrated coastal management (ICM) programs, scientists and non-governmental organizations (NGOs). The chapter begins by outlining the historical governance context of Tanzania. It then describes the


Tanzania
Showing the coastal regions and the
CRMP-funded District Action Plans (DAPs)
AFRICA
TANZANIA
KENYA
Lake Victoria
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TANZANIA
Pangani
DAP
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regional East African context and local Tanzanian context for coastal management—contexts that have provided strong roots for ICM in Tanzania, and a body of experience on which to build toward a national ICM program. The chapter concludes by outlining key elements of the strategy used by the TCMP to achieve its goals, the key lessons learned, and seeds for the future.

The Historical Governance Context

Tanzania as a political entity is a recent construction. It was not until 1961 that it became a nation. Until that time, Tanzania was either under colonial rule or divided into smaller political entities. (See Box 1.) For more than 2,000 years, foreign powers have been present in the coastal areas of Tanzania. In the first millennium, Arab merchants traded gold, ivory, and slaves along East Africa's coastline. Arab dominance decreased in the 1500s when the Portuguese conquered parts of the East African coastline. By the late 17th century, the Omani Empire was putting its mark on the region. It pushed the Portuguese influence south of the Ruvuma River into what is now Mozambique and began a 200-year period of Omani dominance in the Western Indian Ocean. At its height, the Omani Sultanate—using Zanzibar as its control center—had extensive power and influence over towns along what is now the Kenyan and Tanzanian coast (Torell, 2002).

With the passing of another 200 years and by the mid-1880s, East Africa was divided between Great Britain and Germany with Germany ruling mainland Tanzania, or Tanganyika, until the end of World War I, and Britain assuming control thereafter. It was not until after World War II that Tanganyika gained the international status of a Trust Territory through the United Nations Trusteeship Agreement. Although the Trusteeship Agreement explicitly recognized the rights of the Tanganyikan population to their land, Great Britain continued to distribute and use land for its own purposes, with little consideration for local needs.

Box 1: Timeline of Tanzania's history

Omani rule - before 1885

European colonization 1885 - 1961
- German Rule 1885 - 1919
- British Rule 1918 - 1961

Post-independence after 1961
- Pre-Arusha Declaration 1961-1966
- Arusha Declaration 1967
- Liberalization early 1980s
- Local government reform program 1996 and onwards

(adapted from Kikula, 1997)

With the advent of independence in 1961, the government of Tanzania focused on the nation's political consolidation. The first president of the country, Julius Nyerere, had the integrity and political skills to unite leaders from the mainland tribes and Zanzibar and to lead the peaceful creation of the Republic of Tanzania. The newly independent republic inherited the major part of its legal framework from the colonial period and as such the national government viewed the state as a property-holding community (Wily 1998). With the Arusha Declaration in 1967, Tanzania committed itself to socialism and self-reliance. As defined by the Arusha Declaration, rural socialism was based on mutual respect, communal ownership, the sharing of basic goods and the obligation of everyone to work. Success would depend on voluntary—and later mandatory—"villagisation," under which people lived and worked together for "the common good" (Leader-Williams et al., 1996).

Despite the initial emphasis on villages and collective resource use, the administrative powers of local governments became increasingly limited. By 1972, district authorities were dissolved and local issues were assigned to five regional authorities. Meanwhile, the national government became the sole decisionmaking body for natural resource management while regional governments took on the role of instructing the districts in implementation and compliance with central government directives (Horrill, Kalombo, and Makoloweka, 2001). Lower-level administrators were left with very limited decisionmaking powers and small operational budgets. The result was districts that were underfunded and under-staffed. With the national party having a presence all the way down to the village level, open politics was more or less eliminated and local administrators and councilors became disillusioned: "They were not expected to do anything on their own. Thus, why do anything?" (Seppälä, 1998: 7).

A famine in the late 1970s and early 1980s caused aspects of the villagisation and socialist ideology, known as Ujamaa, to be reconsidered. The nation's poverty, poor agricultural performance, economic decline, and environmental degradation contributed to the belief that the socialist system had failed to realize for the nation the very goals it had set out to achieve. However, the impacts of Ujamaa were not all negative. The focus on human development and self-reliance were successful in areas such as health, education, and in creating a unified political identity among Tanzanians. By the early 1980s, Tanzania had moved away from the socialist system and to a market economy. In 1996, a new administrative reform was launched to decentralize decisionmaking and allow local authorities to govern financial and human resources. Democratically elected and autonomous local authorities were to serve their districts within the realms of national policies and legal frameworks (Horrill et al., 2001). As a result of this reform, district councils now control and own natural resources within their area of jurisdiction. While village councils have the authority to create by-laws and manage village affairs, citizens consider the district councils as the most relevant level of government. It is these district councils that approve village by-

laws and make them legally binding. In spite of this move to more decentralized decision-making, the central government remains very powerful and local governments depend heavily on central government financing, particularly in the areas of education, health, and water sanitation (World Bank, 1999). This means the complex functions of local, regional, and central government bureaucracies often overlap. For example, the central government prepares guidelines for management, while the regional government advises the district government on implementation of those guidelines, and the district government carries out their implementation.

The Current Ecological and Economic Context

Tanzania's coastline is both ecologically and economically important to the nation. It stretches for approximately 2,300 kilometers and encompasses five coastal regions (Tanga, Pwani, Dar es Salaam, Lindi and Mtwara) and three large islands, (Mafia, Pemba and Zanzibar). The coastline is richly endowed with estuaries, mangrove forests, beaches, coral reefs, seagrass beds, and the deltas of large rivers such as the Rufiji, Pangani, Wami and Ruvuma. While these coastal districts cover only about 15 percent of the nation's total land area, they support approximately 25 percent of the population, or eight million people. The coastal population is projected to increase to 20 million by 2025.

Poverty is a stark reality in Tanzania. A household survey in 2000 indicated that more than 52 percent of Tanzanians lived below the basic needs poverty line and that more than 31 percent lived below the food poverty line (Overseas Development Institute, 2002). Non-income dimensions of poverty are also severe. In 2002, Tanzania was ranked number 151 (out of 173 countries) on the United Nations Development Program's Human Development Index. While poverty is a problem for the nation as a whole, it is particularly severe in the coastal areas where livelihoods depend on small-holder farming, subsistence forestry, lime and salt production, artisanal fisheries, seaweed farming, and small-scale trade. For example, in the Tanga coastal region the Gross Domestic Product (GDP) per capita average in 2002 was only 60,021 Tanzanian

shillings (Tsh) (US $69) and in the Pwani region it is even less—just 22,624 Tsh (US $26).

Poor infrastructure is one of the many factors contributing to poverty along the Tanzanian coast (TCMP, 2001). Few communities have access to electricity—a luxury found mostly in cities and towns. Only 1.4 percent of households in rural Tanzania have access to electricity. The road system is extremely poor. For example, in the Pwani region 89 percent of the roads are made of gravel and bare earth and are often impassable during the rainy season. The distance to reach water is often long and once reached, the quality of that water too often is unsatisfactory. A survey conducted by TCMP as part of the *State of the Coast 2000* report found that community members in one Tanga village had to walk eight hours to reach a supply of domestic freshwater. Overall, between 26 and 60 percent of the rural population in the coastal regions lack access to clean freshwater (Vice President's Office, 1999).

The economic and ecological pressures on Tanzania's coastline are already great and yet continue to increase as a result of population growth and continued demands for economic development. Destructive practices such as dynamite fishing, coral mining, and mangrove clearing have placed great pressures on the very resources upon which the health of the ecology and the economy depend. Coral reef destruction, mangrove depletion, and declining fish stocks are a familiar and bleak reality. These practices in turn contribute to soil and beach erosion. Between 1990 and 1994, fish catches dropped by 32 percent—even though the effort remained constant—a clear signal of overfishing (TCMP Support Unit, 1999b). During the past two decades, coastal forests have declined from 59,300 square kilometers to 1,050 square kilometers.

Regional Progress on ICM in East Africa

In spite of the coastal management challenges that faced Tanzania by the time the TCMP was beginning in 1997, the country and the project had access to a wealth of ICM experience and progress that had accumulated

in the East Africa region. In 1992—just a few years before the start of the TCMP—the United Nations Conference on the Environment and Development (UNCED) held in Rio de Janeiro, Brazil spurred a surge of interest in ICM. As a result, many donors, among them the U.S. Agency for International Development (USAID) and the Swedish International Development Agency (Sida), increased investments in coastal management in East Africa. A growing number of conferences, workshops and training courses ensued. Included in these was the Sida-funded 1993 East Africa Regional Workshop and Ministerial Conference, held in Arusha, Tanzania. This was the first regional ICM conference. The timing was propitious, as many of the ministers who attended this conference had also participated in the Rio Conference. These ministers were versed in UNCED's Agenda 21 that called for coastal states to "commit themselves to integrated management and sustainable development of coastal areas and in the marine environment under their national jurisdiction," and they saw the Arusha Resolution as a way to respond.

The Arusha Resolution was endorsed in a spirit of optimism and high expectations. It set forth 16 principles that reflected priorities for reforming how coastal areas would be used and administered. While it was a regional agreement and did not have any legal authority to bind individual nations to abide by its principles, it nevertheless provided an invaluable springboard for national ICM initiatives in Tanzania. A few highly placed leaders—some of whom had been involved in drafting the text of the Arusha Resolution—skillfully used the resolution to create national demand for coastal management. As a result, Tanzania's government ministers gave early endorsement to the resolution, helping pave the way for the TCMP's work.

The Arusha conference was followed with ministerial meetings in the Seychelles (1996) and Mozambique (2001) as well as two technical workshops. One of these technical workshops was attended by an expert group convened by Sida. This group was officially charged with developing the technical report on ICM in East Africa. It sought to determine Third Order outcomes—i.e. to determine progress toward sustainable

environmental conditions and improvements in quality of life. The second technical workshop—a joint effort of the Western Indian Ocean Marine Science Association (WIOMSA), the Coastal Resources Center (CRC) at the University of Rhode Island, and the United Nations Environment Program (UNEP)—was held concurrently but had a quite different purpose. This second workshop brought together, for the first time, local ICM programs from several countries in the region (at that point there were no national programs) to discuss their successes and failures. Workshop participants examined the progress being made and the lessons emerging from their programs, and concluded that at that scale considerable progress was being made. When workshop participants assessed progress in ICM at the national scale, however, they concluded little had changed. This was not surprising. Ministers attending the Arusha Conference had not translated the principles adopted at that meeting into action, and neither donors nor national governments had made funding available for national-scale ICM initiatives. It was this lack of effort at the national scale that provided the seeds for the TCMP.

Another important catalyzing event was the 1996 ratification of The Nairobi Convention. The convention was proposed in 1985, entered into force in May 1996, and had gained 100 percent ratification in 1999. The convention seeks to ensure that resource development does not degrade the region's environmental qualities. Since the Nairobi Convention—unlike the Arusha Resolution—is a legally binding document, it constitutes a formal commitment to ICM and, as such, helped prompt the formal adoption of the East Africa Action Plan developed a decade before. The convention identifies five broad environmental management issues upon which nations should collaborate:

- Protected areas
- Cooperation in cases of emergency
- Environmental damage from engineering activities
- Environmental impact assessment
- Scientific and technical cooperation

Despite full ratification, the greater hope for the Nairobi Convention—i.e., that it would have a significant impact on ICM policy development and on helping ICM move forward in the region—has not been realized. The convention, as is the case with most regional frameworks, is difficult to implement. Nevertheless, several donors including the Global Environment Facility (GEF) and Sida are currently making new investments in efforts to make the convention and its goals capable of being implemented.

Expanding East African Capacity for Coastal Management

In East Africa, capacity for coastal management has increased significantly over the last 10 years. Two key contributors to this have been Sida and USAID. Since 1983 Sida, in collaboration with Swedish universities, has been building a cadre of scientists with coastal and marine expertise, particularly in Tanzania, Kenya and Mozambique. By 2002, more than 100 individuals were enrolled in research programs or had received M.Sc. or Ph.D. degrees with Sida funds. In parallel, CRC, with USAID funding and support, has shaped a generation of coastal managers through its projects and training programs. The result has been an unplanned but complementary ICM support system. Sida's support of degree programs produced skilled graduates, many of who proceeded to work in ICM projects. CRC, with USAID support, enhanced those individuals' management capacity with additional training and hands-on experience in management.

There have also been numerous efforts at the regional level to advocate and build ICM capacity in East Africa. As mentioned previously, the Arusha Conference was the first of its kind in East Africa and started a movement for ICM in the region. Further, it prompted subsequent meetings and conferences on ICM—the Sida-sponsored ministerial meetings, the Pan-African Conference on Sustainable Integrated Coastal Management (PACSICOM), and the Advisory Committee on the Protection of the Sea (ACOPS). These regional events and organizations

often shared common objectives in support of coastal management activities at national and local levels:

- Advocating for policies that promote integrated planning and management of coasts
- Encouraging international donors to invest in coastal management in East Africa
- Strengthening management capacity within government agencies and NGOs at the national and local levels to effectively manage coastal areas
- Encouraging countries to implement regulations and guidelines on resource exploitation and management
- Promoting public education and awareness programs to create constituencies for coastal management
- Forwarding new approaches to ecosystem management

The Coastal Resources Management Program's Introduction to East Africa

The Coastal Resources Management Program (CRMP) began its work in East Africa in 1994 with the help of modest resources from the office of the Regional Economic Development Services Office for East and Southern Africa (REDSO). REDSO was interested in initiating ICM in the region to properly manage its natural resources, and its management officer had worked with CRC in the CRMP I project in Sri Lanka. He believed it was a model that could also work in East Africa. In initial discussions between CRC, REDSO and UNEP it was decided that small-scale ICM projects would be implemented in Mombasa, Kenya and in Zanzibar. UNEP was funding several ICM projects in the region and was interested in sharing lessons learned between these and other ICM projects.

While many positive outcomes resulted from this initial introduction to the region—including CRC's continued work in Kenya and Zanzibar—the anticipated linkages between CRC, REDSO and UNEP did not materialize. This was due to differences in the priorities and approaches of each of these groups at the time. UNEP was interested in supporting several ICM teams to generate "funding plans" which would attract donors to make investments in ICM in the region. This conflicted with CRC's priority, which was to prepare coastal management plans in partnership with local institutions and stakeholders.

CRC's early work at the community level in Tanzania and Kenya provided the opportunity to work with the sole indigenous regional organization—WIOMSA—and to jointly conduct the first regional workshop for the growing numbers of ICM practitioners in the region. Through this workshop and through its involvement in pilot sites in Kenya and Tanzania, CRC developed a working relationship with leaders and future leaders in ICM. Many of these original contacts later became key participants in the TCMP.

Another benefit of working on regional issues was the ability it gave CRC to test new approaches and mechanisms for making progress in ICM. What emerged from these tests was the usefulness of using intersectoral and multi-disciplined working groups as engines for change. This had proved a useful approach in CRMP I pilot sites in Ecuador and Sri Lanka and became a feature of the TCMP program approach.

Local ICM Efforts in Tanzania

While CRMP I advocated a "two-track" approach in which resources were applied at the both the national and local levels simultaneously, the TCMP decided to focus on the national level. Why was this strategy adopted? A significant number of community-based coastal projects were already underway in the country. (See Box 2). The largest of these was the Tanga program, which, at that time, was seeing impressive gains on the ground after four years of experience. The other major program was the Mafia Island Marine Park, which was leading the region in

Box 2: Local-level ICM Projects in Tanzania

Mafia Island Marine Park (MIMP)

The park was established in 1995 under the national Marine Parks and Reserves Act of 1994. The initial management focus has been on the problem of dynamite fishing within the park. In the next several years, the MIMP will work closely with Mafia Island communities to revise the park management plan and make the Park Management Council operational.

Tanga Coastal Zone Conservation and Development Program (TCZCDP)

This program was established in 1994 to promote sustainable use of coastal resources in the Tanga administrative region. The program works at both district and village levels to address critical coastal issues. Conservation actions include control of destructive fishing practices, closure of reefs to replenish fish stocks, promotion of alternative livelihood options (such as mariculture) and mangrove planting. This demonstration program has shown that management of coastal resources and development activities can be effectively undertaken at the local level.

Kinondoni Integrated Coastal Area Management Programme (KICAMP)

This coastal management program in the Kinondoni district in Dar es Salaam was initiated in 2000. The program has identified priority coastal issues and developed a strategy for addressing them. Priority issues include coastal tourism development, erosion and dynamite fishing.

Rural Integrated Project Support (RIPS)

RIPS is a rural development project located in the Mtwara and Lindi administrative regions. The project works with coastal communities to reduce dynamite fishing and raise awareness about the importance of coastal resources.

Rufiji Environment Management Project (REMP)

REMP's goal is to promote long-term conservation through wise use of the lower Rufiji forests, woodlands and wetlands. The project area is within the ecologically rich Rufiji floodplain and several upland forests of special importance.

Menai Bay Conservation Area (MBCA)

MBCA, gazetted as a conservation area in 1997, is located on the southwest coast of Unguja (Zanzibar) Island. It encompasses an area of 47,000 hectares, which contain extensive areas of coral reefs, sea grass beds and mangrove forests. Sixteen village communities reside within the protected area. The conservation area was created after studies conducted in 1991 indicated that the area's coral resources were being rapidly degraded and fish populations were declining as a result of damaging fishing methods. Management actions have targeted destructive fishing methods and overfishing. The long-term goal of the project is to conserve the biological process, productivity and ecosystems of Menai Bay for the benefit of local people.

Chumbe Island Marine Park (CIMP)

Established in 1992, the park is managed by a private company with assistance from an advisory committee that includes representatives from government, the University of Dar es Salaam and local communities. In 1994, Chumbe Island was gazetted as a marine protected area that includes a reef sanctuary.

community-based park management. Other on-the-ground projects included the Rural Integrated Project Support (RIPS) program in Mtwara and Lindi. Together, these projects added up to a significant body of experience at the community level and created a demand for an overarching national program that would support such local-level initiatives.

CRC realized that the opportunity lay not in creating yet another community-scale project, but in creating a national framework to support what already existed at local level. As CRC and its Tanzanian partners began the design of the TCMP, they conducted an assessment of existing local programs. Three important findings emerged:

1. Local projects wanted to be better connected to each other.

2. National government needed a coastal management champion. Often programs would progress only so far in solving problems with further progress impeded by a national agency that lacked a full understanding of the issues or the approach being taken.

3. Local programs needed help with issues that were beyond their skill, scope, or resources. This included assistance dealing with large-scale economic forces, such as mariculture or tourism that were having major impacts on coastal people and resources.

The design phase was critical to the TCMP's early success. The design team visited each local program, listened to their needs and reassured them that the TCMP would not compete with them. Early in the process, the design team held an open meeting in Dar es Salaam to present initial design ideas and receive important feedback. Besides collecting critical input, the process also helped the team meet potential allies and begin building in-country networks. The design also drew and built upon lessons that had emerged from CRMP I. A senior CRMP II program review team helped vet the design before it was finalized. The importance of this process cannot be underestimated. It took into account

lessons learned from previous experience in other countries and it brought to the same table individuals with many years of collective experience who could help identify key issues around which the project would need to operate.

Establishing a National ICM program

In 1997, CRMP II leaders were invited by the USAID mission in Tanzania to develop a project that would work in partnership with the National Environmental Management Council (NEMC) to design a coastal management program for Tanzania. As the program design emerged, so did the shape of the entity that would implement it. This was the genesis of the TCMP.

Six factors shaped the TCMP design:

1. *There was no national level policy to guide the accelerating transformation of coastal Tanzania.* In Tanzania, management of coastal resources was performed locally prior to colonization, and moved toward a national and even international scale during colonization and early independence. By the time the TCMP was taking shape, there was a closing of the loop, as local governments and communities gained more opportunities to manage their own resources. The design team saw the usefulness of creating a national policy for coastal management in Tanzania, to support and guide districts and communities as they embarked on planning and managing their coastal resources.

2. *Top-down power structures impeded effective participation in environmental management initiatives.* When the TCMP started, environmental governance was sector-driven and top down. Collaboration between local and national-level administrations was weak or not present. The design team found it essential to build the TCMP as an integrated project that depended on inter-sectoral collaboration.

3. *There was insufficient human capacity to deal with environmental management issues.* The number of skilled scientists was growing thanks to the Sida-funded marine science program. However, capabilities in the natural sciences provided only some of the knowledge and skills required to be an effective coastal manager. Also, there were few skilled program managers. Those who did exist were already employed by the government. Asking these skilled managers to leave their jobs to work for the TCMP would only lead to discontinuity in the very agencies that needed to be strengthened. As a result, a decision was made to hire a small team supported by inter-disciplinary working groups. This ensured maximum competence while keeping especially talented individuals in their existing jobs.

4. *Poverty was a major issue along the coast.* It was acknowledged as impossible, if not irresponsible, to focus the TCMP's efforts exclusively on resource conservation. One of the key goals for the TCMP was to create mechanisms for addressing emerging economic opportunities. In response, the TCMP committed to developing investment guidelines for mariculture and tourism.

5. *The TCMP built upon and made links to the extensive regional collaboration and capacity-building efforts for coastal management.* Contributing to the regional and global ICM efforts became another of the partnership's goals.

6. *When the TCMP began, there were a substantial number of local ICM initiatives in Tanzania, from which the partnership drew experience.* Linking with local programs was critical, and an essential element of the project design. This meant including activities to assist and facilitate learning between ongoing local programs. In response, the TCMP has become a service center for the local programs, by establishing an information center and by hosting semi-annual learning retreats.

The goal of the TCMP became to *establish a foundation for effective coastal governance in Tanzania.* To achieve this goal while taking into account the contextual factors described above, the TCMP decided to focus its work on five priorities:

Effectively apply an ICM policy to coastal problems at both the national and local levels

As the TCMP got underway, the activities required to put in place a formally adopted national ICM policy took shape as two overlapping phases. Phase I focused on developing the coastal policy itself. In Phase II, the focus was on policy implementation. Again, these phases of the effort were very fluid and overlapping. So, even while formal approval of the policy was still pending, the project team was implementing actions in support of that policy. These ranged from research on key ICM-related issues of concern to the public, to networking with partners who would be essential when implementation of the ICM policy was ready to begin. The TCMP also saw that such efforts were critically important during this period or there was risk of losing momentum. For example, long before the ICM policy was approved, there was a new mariculture permit process in place, local action planning was underway, and support to existing local programs was available and being utilized. This was the "practical exercises" strategy that proved so important during the planning phase of the CRMP I Ecuador program.

Demonstrate intersectoral mechanisms for addressing emerging coastal economic opportunities

Science for management became an increasingly important issue in Phase I and was added as a life-of-project goal in Phase II. A small subgroup of scientists, all members of the TCMP's Core Working Group (CWG) became the TCMP's Science and Technology Working Group (STWG). The STWG was charged with preparing a "State of the Coast" report—a comprehensive review of the environmental and socioeconomic conditions along the Tanzania coast. The report would provide a base-

BOX 3: THE TCMP'S MANAGEMENT STRATEGIES

- Use inter-sectoral working groups as the engine for issue identification and policy formulation (the Core Working Group, Mariculture Working Group, Science and Technology Working Group, and Coastal Tourism Working Group)
- Convene high-level meetings to direct policy development
- Fill gaps in knowledge with primary research and synthesis of existing information
- Focus on communications through regular coverage in the national press, newsletters, and listservs
- Engage in day-to-day contact with key sectors and leaders

line against which to measure the successes of the ICM policy once it was implemented. The STWG also collaborated with the University of Rhode Island to develop, ground-truth, and interpret geographic information systems (GIS) maps that document changes in mangrove cover in Tanzania.

Enhance public awareness of coastal management issues

An activity that began in Phase I and that has expanded significantly over time is the Coastal Environmental Award Scheme (CEAS). The CEAS is an awareness-raising and environmental education program that involves communities in coastal management. The CEAS sponsors a yearly competition for schools, NGOs, communities, individuals, and commercial organizations that are working to improve environmental quality. The competition attracted over 100,000 participants in 2002, up from 52,000 participants in the previous year. Winners in the CEAS carry

out environmentally friendly activities such as beach clean-ups, tree planting, school/community projects, and sustainable fishing practices. One interesting feature of the CEAS is that the winners are given tools that they can use in their continued work. The CRMP II team initially discouraged the idea for this initiative, fearing it would distract energy and resources away from the main goal of writing ICM policy. Fortunately, the in-country TCMP team had the foresight to see the potential for the initiative and was persuasive in pushing the decision to continue forward with it. It was the right decision, providing another important link to the community level and an effective means for strengthening local-level support for ICM.

A feature of all CRMP II programs is capacity building. Both TCMP Phases I and II included capacity-building objectives. The strategy for reaching those objectives, however, changed between phases. Initially the plan was to design and deliver a major in-country training program. In preparation for this, the TCMP conducted a thorough capacity needs assessment. However, a combination of CRMP II staffing constraints and the TCMP desire to direct resources towards the policy process resulted in abandoning this strategy. Instead, the TCMP approached capacity building from the perspective that "hands-on" experience was the best training approach, and it focused those efforts on its own staff and working group members. This hands-on training transcended ICM and included skills building in basic time management, group facilitation, task planning and public speaking.

The TCMP's Management Strategies

Ensure Tanzania's coastal management experience is informed by and contributes to ICM regionally and globally

Throughout its Phase I and II, the TCMP worked to gather ICM experience within Tanzania and to then share it with other audiences in the country, the region, and globally. Activities in support of this goal have included participating in regional and international meetings and conferences to share the story of ICM in Tanzania.

Box 4: The Mariculture Working Group (MWG)

The first task for the TCMP's Mariculture Working Group (MWG) was to define provisional working goals and objectives and identify and analyze issues. The group carried out a comprehensive assessment of mariculture to advance understanding of:

- The composition and structure of the mariculture sector
- The development context (natural and human resources and economy)
- Mariculture development options
- The existing knowledge base and information gaps
- Public awareness and interests
- Land tenure rules
- Existing legal, procedural, and institutional frameworks
- Environmental and resource use policies, regulations and guidelines

The MWG's participatory assessment occurred over a one-year period; it provided a basis for consultations among managers, scientists and the public at large at both the local and national level on goals and priorities for sustainable mariculture.

After the assessment was completed the next challenge for the group was to formulate mariculture development guidelines. The goal of the guidelines was to establish clear project review and approval procedures that were consultative, multi-sectoral and interdisciplinary; and to establish monitoring, reporting, evaluation and response. The guidelines, which were approved by the government in 2001, should increase the likelihood that projects are reviewed in a manner that safeguards the coastal environment and human population, while encouraging technically sound investments in mariculture.

Adapted from Tobey, 2000

The TCMP is unique in Tanzania for several reasons. First, it is the only initiative to build a national policy where the process has allowed and encouraged all interested parties to contribute. In order to create a collegial environment, the TCMP invited a broad range of stakeholders to actively participate in preparing the national coastal policy, and incorporates this participatory approach in all aspects of its work. It is one of the few national programs that uses ICM initiatives funded by other donors to build the two-track approach to coastal management, working simultaneously at the national and local levels.

> *"The working groups cover many fields from fisheries, mining, community development, and so on. No member has all the expertise and we complement each other."*
> – Core Working Group Member

The Support Unit

When initiating the TCMP, the design team deemed it unwise to create the TCMP as an organization with a large staff of full-time employees. Instead, the team decided the core of the TCMP would comprise a small Support Unit. Even the choice of name "Support Unit" was strategic and symbolic. In its first six months, the TCMP was focused solely on building a culture at the Support Unit—meeting daily as a group to review priorities, discuss the handling of issues, and build a sense of purpose as a team that existed to support the local ICM programs. The unit initially consisted of a project team leader, a communications specialist, a secretary and an accountant. It later added part-time working group secretariats. The small Support Unit worked together with CRMP II technical advisors and the various working groups to implement the TCMP workplans.

Interdisciplinary Working Groups

From the outset, the TCMP needed to find ways to engage and maintain contact with national government agencies. This needed to happen without those agencies feeling that their power and prerogatives were being threatened. The TCMP chose a range of working groups as the

mechanism for trying to accomplish this goal. CRMP II had experimented successfully with working groups during its initial foray into ICM in East Africa at the Kenya and Zanzibar sites. This goal of ensuring government agencies did not feel threatened was critically important. The TCMP realized that if it were perceived as a threat, it would be difficult, if not impossible, to mobilize the necessary government forces to get a coastal management policy approved and implemented. As described later, this very problem did arise, but the use of these inter-sectoral working groups as sounding boards in which agencies could contribute their ideas and assist in achieving its goals, helped minimize this problem.

The TCMP convened a working group for each of its main activities. In Phases I and II this included working groups for policy development, the Core Working Group (CWG), the Mariculture Working Group (MWG), the Coastal Tourism Working Group (CTWG) (Phase II only), and the Science and Technology Working Group (STWG). Each group started with approximately 18 members, representing different disciplines and institutions. Together with the Support Unit, the working groups were responsible for completing workplans and deciding upon and fulfilling more detailed activities in their groups. Each working group is supported by a secretariat, an individual employed half-time by the TCMP to handle the administrative needs of the team such as organizing meetings, keeping minutes and assembling information.

How often the group members met depended on their workload, but as a rule they convened twice a month. Much of their work was related to the preparation of various documents (such as the national coastal program, mariculture and tourism investment guidelines, and the *State of the Coast 2000* report). Working groups' activities always involve active engagement with the stakeholders. While working to develop the national policy, each working group spent significant time in the field soliciting input (in Tanzania this was a totally new approach) and conducted a number of major national workshops to review policy options and hone in on final policy statements. Working group members were also

ambassadors to each line agency and played an important role keeping their assigned agency informed. Group members urged their leadership to be active in the policy development process. This contributed to unusually high attendance at national workshops.

One benefit of the working groups is that they encourage diverse interests with varied expertise to participate in the process, ensuring that documents and guidelines are based on the best available knowledge and that they represent a broad range of viewpoints. The working groups also foster vision-building and social learning. They contribute to a feeling of ownership for the process and its outcomes among government agencies and local programs. On the down side, the working groups can be both costly and time consuming to manage. Group size varies, but ranges from 12 to 20 individuals—with some members dropping out and new members joining throughout a group's lifespan. It is, at times, a challenge to keep working group members feeling engaged, productive, and energized. And, in some cases, all members may be paid allowances (on contract) to participate, even though not everyone contributes equally to the work assigned to that group. In Tanzania, it has also been difficult to involve representatives of the private sector and NGOs, possibly because both groups are in a minority in the country (when the TCMP started, the government employed 80 percent of the work force) and are somewhat weak. For the private sector, the pace of the TCMP process with the government is often too slow to sustain their interest. Another challenge is the prevalent view among government officials that the private sector should be a beneficiary of their work rather than a contributor to public policy. Despite these obstacles to keeping the NGOs and private sector involved, the TCMP has succeeded in keeping both groups engaged in the conversation.

Self-assessment workshops and retreats

Another expression of "service" to local coastal programs was through the use of self-assessment workshops and learning retreats. The TCMP acts as a national ICM office and as such creates a space for networking to occur. This is seen as a real benefit by local ICM programs that formerly had never been brought together.

The partnership uses self-assessments to discuss project components and provide time for group reflection and learning. These events are a chance to learn from experience and to reflect on what has worked, what has not worked and why, within a particular element of the project. The TCMP has organized yearly self-assessments as well as workshops to analyze the experiences of the MWG and the district action planning process. The objectives of the self-assessments are to:

- Document progress
- Explore to what extent the project goals are being achieved
- Explore the roles of the different groups involved
- Provide input on to how to revise the process
- Discuss how to proceed on specific activities, given the resources available and the constraints identified
- Discuss how the experience can be transferred to other programs or other elements within the same project (Haws and Amaral, 2000; Torell, 2001; Torell, Tobey and van Ingen, 2000)

Capacity building

The results of a training needs assessment conducted by CRMP II personnel in collaboration with WIOMSA in 1998 highlighted the fact that training and education in the East Africa region is sector-driven. This causes existing capacity to be narrow and highly technical (Kyewalyanga, Wood and Francis, 1999). To improve overall capacity and make it more relevant to management, the TCMP invested in various training and education schemes. This included designing and delivering short courses, providing peer learning, and mentoring.

Perhaps the most important mentoring that occurred during the first four years of the TCMP project was the informal coaching that the chief

technical advisor provided to the Support Unit. After capacity building events, such as a field trip or workshop, the technical advisor would call a team meeting to talk about how it went, how it could be improved, and celebrate the accomplishments. This created an atmosphere of reflection and learning that continues today.

Field visits

Since the TCMP is not directly involved in village-level planning, it has used field consultations as a method for soliciting feedback on the national ICM process from districts and community members. These field consultations resulted in a policy that "reflected the collective views of the sectors and stakeholders as to why a coastal policy is needed and what the policy should address" (TCMP Support Unit, 1999). During the field visits, the TCMP working group participants interviewed and engaged in focus groups with district staff and community members. They also facilitated local workshops to identify issues and plan for how to address these issues. Field visits provide for two-way information exchange. They also contribute to empowerment of communities and district staff by inviting them into a process that then makes them active participants and contributors to the national processes at the national level.

Communications

In addition to the working groups, the TCMP has a communications unit that works to promote coastal management in Tanzania at large. The TCMP has attempted to keep Tanzanians updated through newspaper articles and TV coverage. Other communication tools include the *Pwani Yetu* (Our Coast) newsletter, the E-Pwani e-mail listserv, and on-line posting of key TCMP documents. This communications network is critical to the successful development of the national ICM policy, providing rapid access to local programs and key constituencies at the local level.

CRMP II's role and behavior as a partner, catalyst and provider of operational systems

From its inception, the TCMP has tried to model the behavior of a national coastal management program. The office was set up to facilitate networking, solve problems between national and local levels, provide information, raise national awareness, and advocate for coastal people. This has meant assisting local programs, being helpful to national agencies, and reaching out to those who, in the past, doubted the power of the process. Technical assistants are expected to be members of their working group until the completion of the activity assigned to that working group. This creates trust between the working group members and the technical advisors. It also helps the technical advisors understand the depth of the issues and particular problems associated with working on those issues in the Tanzanian context.

Early on, the TCMP made an overt decision to invest in and support a functioning office. This went beyond providing a good photocopier and a few computers. It included establishing an office-wide network with around-the-clock access to the Internet, investment in video conferencing, and provision of the best possible hardware and software available within budget. The TCMP equipment is available to the staff and working group members and more recently to local programs near Dar es Salaam. Over time, the TCMP has become the first point of contact for most people interested in coastal management in Tanzania. Most new coastal programs launched after the TCMP's inception have turned to the project for advice and logistical support.

During Phase I, the TCMP did not have a chief of party. Day-to-day management and strategic-level decisionmaking were the responsibility of a management team comprised of a project coordinator from CRMP II and a Support Unit leader assigned from the host institution, NEMC. While this model was in place, the project coordinator and the Support Unit head worked as a team, even when they were not together, staying in regular phone and e-mail contact. This made the project feel uniquely Tanzanian. The downside to this model was the extensive amount of

international travel that had to take place between CRC offices in Rhode Island and the TCMP offices in Dar es Salaam. The model was changed during Phase II. While the TCMP still does not use the chief of party model, CRMP II has placed a full-time, resident expatriate technical advisor/coordinator at the TCMP office. This person continues to share decisions and responsibility with the Support Unit leader.

The National ICM Process

Facilitating and promoting the national policy process was the core of the TCMP's work. This process began shortly after the Core Working Group was formed in 1998. The process began with identifying the key coastal issues from a national perspective and outlining major components of a policy adoption process. During the issue identification process, the TCMP commissioned several studies, including a socioeconomic review and an institutional and legal analysis. These reports, which were prepared by either the Core Working Group or by Tanzanian consultants, synthesized existing information, identified key issues and knowledge gaps specific to the coastal regions, and identified topics for more focused research. The information generated in these reports was deliberated upon by the core group and used in developing the coastal policy.

Once the issues for the coastal policy were characterized, a series of meetings was held for the directors of institutions with important roles in managing the coast (e.g., fisheries, forestry, lands). These meetings became known as "directors' meetings," and were a crucial feature of the policy formulation process. Once the directors had agreed on the key coastal issues, the Core Working Group started a multi-stage process to develop goals, principles, and implementation actions for each. This produced a number of technical documents that supported the draft policy. A milestone in this process was the Tanzania coastal management Green Paper. The Green Paper presented policy options, while a subsequent White Paper selected one option and presented it as a draft for the formal consideration of government.

The Green Paper was presented at the third directors' meeting in November 1999. The meeting was attended by agency directors, representatives from the districts, and several members of Parliament. It was a watershed event and one where, for the first time in Tanzania's post-socialist history, options for a policy were presented and stakeholders were allowed first to discuss them, and then to select the preferred implementation mechanism. It was heralded as a new model for national policy development. Comments were solicited on the Green Paper and later on the White Paper. The step of drafting and soliciting another round of comments on a White Paper proved to be a strategic error. The elusive "window of opportunity" was missed. With the Green Paper finished, the time was right to move quickly and submit the policy to the government's Permanent Secretary and the minister. Instead, precious time was spent developing a White Paper. By the time that paper was complete, the TCMP found that the individuals they needed to approve the policy had turned their attention instead to the national elections.

Before the White Paper was submitted to the Cabinet, a process began which turned what had been referred to as a national policy into a national strategy. The reasons behind this are not completely clear, but were at least partially tied to tensions between NEMC and the Division of Environment (DoE). The Division of Environment is a sister organization to NEMC, within the Vice President's Office. Both DoE and NEMC are charged with working on environmental management, and the relationship and power balances between the two are sometimes delicate. Concerns were raised that a coastal policy might be unnecessary since Tanzania already had adopted an environmental policy—albeit a policy which most continue to believe is inadequate as an operational basis for planning and decisionmaking along the coast. After a year's delay, the TCMP was able to bring the policy to the decisionmakers again, but only if it was defined as a "strategy." This decision disappointed many of the working group members because a strategy is seen as a less powerful statement of the government's intent.

The policy was reworked, now renamed a strategy, and submitted to the Vice President's Office for consideration. Getting the strategy approved

was a complex process with several rounds of minor revisions, again spurred by those that did not want any statement approved. The Cabinet finally approved the National Integrated Coastal Environment Management Strategy in December 2002. A lesson learned from this situation is the importance of having a thorough understanding of the political process by which a national policy (or even a strategy) is approved in Tanzania. With a better, in-depth understanding of that process and a more strategic approach, it might have been possible to accomplish the initial goal of getting an official policy approved.

The vision of the national coastal strategy is of a coast with thriving settlements, where people who rely on the sea and its abundant resources for their food and livelihood are actively working to protect and sustain their resource base. It further envisions the development of new coastal economic opportunities that sustainably contribute to both local and national development and diversified employment opportunities for coastal residents. It calls for the creation of partnerships between government and all segments of Tanzanian society—resource users, the private sector, academic and research institutions, and others—who work together to implement the strategy.

The goal of the National Integrated Coastal Environment Management Strategy is "to preserve, protect and develop the resources of Tanzania's coast for use by the people of today and succeeding generations to ensure food security and to support economic growth." In order to achieve this goal, the strategy calls for seven actions to be completed by the year 2025:

1. Support planning and integrated management of coastal resources and activities at the local level and provide mechanisms to balance national and local interests.

2. Promote integrated and sustainable approaches to the development of major economic uses of the coast to optimize benefits and minimize negative impacts.

3. Conserve and restore critical habitats and areas of high biodiversity while ensuring that coastal people continue to benefit from the sustainable use of these resources.

4. Establish an integrated planning and management mechanism for coastal areas of high economic interest or with substantial vulnerability to natural hazards.

5. Develop and use an effective (includes factors such as cost, practicality, appropriateness and efficacy) coastal ecosystem research, monitoring and assessment system that will allow already available—as well as new—scientific and technical information to inform ICM decisions.

6. Build both human and institutional capacity for inter-disciplinary and inter-sectoral management of coastal resources.

7. Provide meaningful opportunities for stakeholder involvement in the coastal development process and the implementation of coastal management policies.

Implementing the National Coastal Strategy through District Action Planning

Implementation of the major ideas outlined in the national strategy began almost two years before the Cabinet formally approved the document. As mentioned earlier, this was critical in order to maintain momentum and demonstrate the benefits the strategy can have in the coastal districts. After reviewing various methods for implementation, the TCMP selected district action planning as a suitable and potentially powerful mechanism. The action planning strategy concept was adapted from the Tanga program, which had played a major role in helping the TCMP prepare the national guidelines.

The goal of district ICM action planning is to implement the national coastal strategy in the coastal districts. The first step was the development of guidelines for district action planning. In 2000, after the first version of the guidelines was developed, the TCMP launched the "Local ICM Action Planning Program" in two pilot districts—Pangani, in the Tanga region, and Bagamoyo, in the Pwani region. Once the sites were selected, the CWG provided technical assistance to the districts as they developed their action plans.

Before the selection of Pangani and Bagamoyo, the CWG assessed the "readiness" for ICM action planning in the coastal districts of Tanzania. The decision was to involve two districts—one "experienced" and one "inexperienced"—for the first round of action planning. The Pangani district was considered experienced because of its previous involvement in the Tanga program. But the existence of the Tanga program also hampered the creativity of the action planning process because participants skipped some steps that they perceived had already been covered through the Tanga initiative. For example, the ICM working group decided not to prepare an issue profile. Instead they chose to use the issue identification that had been produced by the Tanga program several years earlier. They looked at the old list of issues and decided to focus on one or two which that they felt the Tanga program had not adequately addressed. This made the Pangani district action strategy quite narrow, and they missed the opportunity to identify new issues that had arisen in the communities after the Tanga program started.

The final action plans for Pangani and Bagamoyo were quite different. The Pangani plan focused on addressing one priority issue: beach pollution. In contrast, the Bagamoyo action plan addresses four broader problems:

- Conflicts arising from shrimp trawling
- Illegal cutting of mangroves
- Conflicts in the use of beaches
- Destructive fishing practices

By 2002, both the Pangani and Bagamoyo districts had formally adopted their action plans and the district working groups had begun the implementation process. The experience from Pangani and Bagamoyo showed that district action planning could bring the national strategy down to the local level. It enables villagers and district staff to plan for the management of coastal resources using the framework developed in the national strategy and the local action planning guidelines. Learning from Pangani and Bagamoyo, action planning has been initiated in an additional district—Mkuranga. This district, which had even less technical and logistic capacity than Bagamoyo and Pangani, was in the planning phase by early 2003.

Outcomes And Lessons Learned

The TCMP has been focused on the enabling conditions for ICM at the national and district level. As such, it has primarily produced important First and Second Order outcomes.

Contributions to ICM in Tanzania

The TCMP can claim success for a number of achievements that have advanced ICM in Tanzania:

Acquiring a formalized mandate for national-level coastal management
The approval of the National Integrated Coastal Environment Management Strategy has been TCMP's greatest accomplishment. It is important to note that the process used to write the strategy was central to creating a context within which approval was possible. Success lies as much in the process that led to that approval as in the approval itself. The process has provided a firm foundation of constituencies among government agencies and coastal districts and broad support for the national goals and implementation. Although the strategy is not legally binding, it is important as a formally endorsed guide for coastal governance in Tanzania. While the document is critical, other parts of the process leading up to it and other outputs and outcomes along the way should also be acknowledged. This includes the *State of the Coast 2000*

report, which brought national attention to Tanzania's pressing coastal issues. It includes the mariculture and tourism investment guidelines, which are an example of national-level guidance that can assist future development within the coastal region. The Mariculture Working Group restructured the mariculture permit process and did so while modeling a new and more productive way for agencies to work together. Another effort that helped set the pre-conditions for approving the Strategy was the TCMP's work to promote coastal management in Tanzania through awareness raising activities, such as the Coastal Eenvironmental Awards Scheme.

Establishing a nested planning decisionmaking system

In terms of behavioral change, the TCMP's greatest achievement is its proven ability to build relationships and promote collaborative behavior between national government agencies, district government, and private interests. Part of what contributed to this success was the great care the TCMP took from the very start of its efforts to balance local and national interests. The TCMP made sure that it did not just create a national framework and adjust top-down decisionmaking structures. Instead, the TCMP created entirely new systems and procedures that balance local and national needs.

The working groups provided another interesting study of behavior and an example of a tool well-chosen to tackle the job at hand. Working group members transformed over time. During the first few months of meetings, members behaved as if taking part in a card game, with each agency holding its cards close to the chest and watching and reacting to what the other agencies where doing before making a move. As group members grew to know and trust each other, there was a marked behavior change. Members began to focus on the common issues and turned their attention to solving problems.

Improving human capacity

Through training, mentoring and learning-by-doing, the working group members have learned to interact across disciplines and hierarchies, improving the relationships between various government agencies and enabling different interest groups to work effectively together to address coastal issues. The training workshops and field visits have transferred knowledge about the how, why, and wherefore of collaborative management outside the boundaries of the TCMP.

Studies and assessments, such as the mariculture and coastal tourism profiles, the *State of the Coast 2000* and information generated through the GIS project have increased technical knowledge within the TCMP. These studies and assessments have improved the overall understanding of the state of coastal resources in Tanzania, providing reference materials for planning, decisionmaking and implementation within local projects.

Learning from and contributing to regional collaboration and capacity-building efforts

Over the years, the TCMP has become a regional leader in ICM, contributing to regional and international meetings and conferences on coastal management. The TCMP has also continued to partner with regional organizations such as WIOMSA and the Secretariat for Eastern Africa Coastal Management (SEACAM). The government of Tanzania is also active in regional coastal management forums. Probably one of the most important of these is the Nairobi Convention and its Coral Reef Task Force. CRMP II's experience from the Mombasa and Zanzibar REDSO-funded pilot projects was a means for introducing CRMP II to the East African players and context and its "practical exercises" allowed CRMP II to better apply its approach in a Tanzanian context.

Learning from and supporting local ICM initiatives

Before the TCMP began, local Tanzanian ICM programs worked in isolation, while today there is a culture of collaboration and common purpose

among them. Retreats and other means of information exchange (e.g., the E-Pwani listserv and *Pwani Yetu* newsletter) have contributed to improved linkages and cross-project learning. As an information hub, the TCMP office provides an extensive library of compiled reports, books and other documents. The library is open to partners, students, researchers and others who wish to learn more about coastal ecology, planning and management, and related topics.

Seeds For The Future

Coastal management is at a critical inflection point in Tanzania. Over the next two to three years, it will be essential to shift the program's emphasis from planning and the development of enabling conditions to implementation of tangible on-the-ground actions. Phase III of the program, approved by the USAID Tanzania mission in early 2003, will focus its efforts—largely at the district level—on implementation activities for the national strategy.

Implementing the national coastal strategy at the local level

The goal of Phase III is "to improve the well being of coastal residents and their environment through the implementation and strengthening of the Tanzania national coastal strategy." The TCMP will continue working with the districts involved in Phase II to promote on-the-ground implementation of the coastal tourism and mariculture investment guidelines. This phase will look to build partnerships for improving food security and quality of life along the coast. Finally, the TCMP's Phase III will increase its investment in research and monitoring of environmental change, economic development, population dynamics and social trends in the focus districts.

Improving the enabling conditions for national-level ICM

The Phase III program recognizes that investments in coastal management should go hand-in-hand with continued support to ICM at the national level. Since the national strategy was approved, new institutional mechanisms need to be established. This includes the need to form a

national ICM steering committee and a NEMC ICM unit, and to reconstitute the working groups. During this phase, the TCMP will also assist NEMC and the DoE to draft coastal sections of the national environmental law. The TCMP will also produce an expanded state of the coast report to include more information on economic development and poverty alleviation. Efforts at the national level will include preparing a communications strategy, collaborating with new organizations such as the U.S. Peace Corps, and expanding the TCMP's reach to Zanzibar.

Continuing to work at a regional scale

In Phase III, the TCMP will continue to collaborate with regional organizations and programs. It will be important to track new initiatives in the region that are spurred by commitments made at the 2002 World Summit on Sustainable Development or by the anticipated implementation of the Nairobi Convention.

The TCMP will continue to partner with regional organizations such as WIOMSA and the SEACAM—partners who should play an important role in building regional ICM capacity through training courses and other activities that can benefit national and local ICM programs.

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CHAPTER 6

NAVIGATING A COURSE FOR ICM IN INDONESIA: THE INDONESIA COASTAL RESOURCES MANAGEMENT PROJECT

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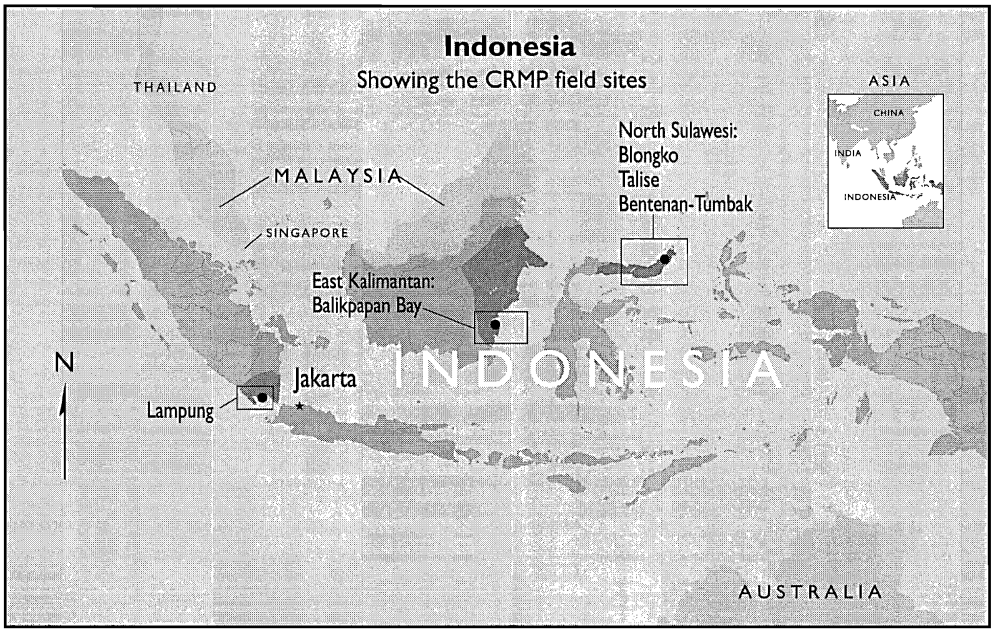
This chapter focuses on adaptive management as highlighted by key aspects of the Indonesia Coastal Resources Management Project, known locally as Proyek Pesisir. It explains how the project used experiences as they occurred, reflected on those experiences, and adapted project implementation strategies to address the constantly changing context. It describes how the project took maximum advantage of lessons learned from ongoing field implementation. It emphasizes the complexity, the challenges and the time required to build a fully functional integrated coastal governance system.



The Indonesian Context

The importance of Indonesia's coastal and marine resources to the economic well-being of the nation cannot be underestimated. It has one of the longest coastlines and is the largest archipelagic nation in the world with over 17,000 islands and a population of more than 200 million people. Approximately 24 percent of Indonesia's gross domestic product (GDP) is derived from coastal and marine-related activities and resources which employ approximately 15 million people. While oil and gas make up a significant proportion of the coastal and marine GDP, tourism, capture fisheries and mariculture are also significant. Fisheries and mariculture provide not only important export earnings but also a substantial portion of the protein in the local diet.

Coastal management issues in Indonesia are typical of the region. Environmental issues include pollution of most of the estuaries located adjacent to urban areas, coral reef degradation from destructive fishing

practices, sedimentation from logging and conversion of forests to agricultural lands, coral mining, and overfishing. Almost half of Indonesia's mangroves have been lost to mariculture ponds, reclamation and logging. Of those remaining, most have been degraded by local communities that cut the mangroves for firewood and for constructing homes. In spite of the abundance of coastal and marine resources, most coastal communities are considered to be among the poorest of the poor with average household incomes below the poverty threshold. Since the Asia financial crisis struck in 1997, the number of people living in poverty has increased. Socioeconomic conflicts between small-scale users (typically fishers) and larger-scale private sector enterprises are common.

Institutionally, strong autocratic leaders have ruled the country since Indonesia gained independence from the Dutch after World War II. Until recently, most decisions concerning development and planning were made by centralized planning and decisionmaking agencies based in Jakarta, Indonesia's capital. Under this centralized system, accusations of rampant cronyism and corruption were commonplace. From a coastal management perspective, there were few mechanisms at the central or local level for coordinated coastal resources management planning. Historically, coastal and marine resources management has been primarily sectorally based (Sloan and Sughandy, 1994), and this remains so today.

The Indonesian government has long been aware of the coastal and marine resources management issues facing the country. In the 1980s and 1990s, millions of dollars were invested by the international development community to strengthen coastal and marine management and planning capacity in Indonesia (Sofa, 2000). These efforts were focused on developing university capacity, large-scale spatial planning and mapping using geographic information systems (GIS), national parks planning (Alder et al., 1994) and fisheries development. They included the Coastal Resources Management Project in Segara Anakan funded by the Association of Southeast Nations (ASEAN) and the United States Agency for International Development (USAID), and the Marine

Resources and Environmental Planning Project funded by the Asia Development Bank (ADB). A number of international non-governmental organizations (NGOs) have also been active, including The Nature Conservancy (TNC), which has invested in the Komodo National Park. ADB had also made a number of project investments in fisheries sector development. However, by the late 1990s there was little evidence that these investments had resulted in any substantive or concrete management changes on the ground (Dahuri and Dutton, 2000).

Indonesia underwent a dramatic political transformation in the late 1990s during the implementation of Proyek Pesisir. During the project design phase and initial start-up from 1995 - 1997, there were few expectations that the highly centralized planning and control mechanisms that governed Indonesia would change in the short term. However, the centralized governance system that was built up since independence in 1946 started to unravel during the Asia financial crisis of 1997. Indonesia suffered greatly during this period. The country's rupiah (RP) devalued from 2,500 to 15,000 to the U.S. dollar in a matter of months. The banking and manufacturing sectors experienced a devastating downturn. The economic crisis was exacerbated in 1998 by the El Nino that produced a major coral bleaching event worldwide, as well as a long period of drought that set off forest fires in Sumatra and Kalimantan. The latter created a regional haze that significantly affected neighboring countries and contributed to a perception of Indonesia as "out of control."

The economic difficulties experienced by the country in 1998 eventually led to the resignation of President Suharto after rioting broke out in Jakarta and several other locations in the country. Following Suharto's resignation, there was a period of considerable uncertainty as the country transformed its governance system to a democracy and instituted a number of important reforms. Several restive provinces threatened to break away from the country and laws were passed in 1999 with significant concessions for natural resources-rich provinces such as Papua, East Kalimantan and Aceh. The province of East Timor was successful and achieved its long-sought goal to become independent. Communal vio-

lence flared in the Malukus and Kalimantan. The country is now struggling to rebuild lost economic ground and address social and political problems that continue to plague the country. In spite of these issues, much progress has been made towards decentralized and democratic forms of governance in Indonesia.

Coastal resources have continued to experience decline since the turn of the millennium and start of the reform era. However, the policy context for coastal resources management has undergone a dramatic shift and leaves hope for optimism. In 1999, the nation created a ministry with responsibility for coastal and marine resources management—the Ministry of Marine Affairs and Fisheries (MMAF) (Dahuri and Dutton, 2000). National laws on fiscal decentralization and regional autonomy were enacted with significant repercussions on coastal and marine resources management (Patlis et al., 2000). Law No. 22 of 1999 gave authority for management of marine resources out to four and 12 nautical miles, respectively, to district and provincial governments. A greater share of natural resource revenues, including fisheries revenues, is now channeled to regional governments (Law No. 25, 1999). Within this backdrop, Proyek Pesisir charted a course to assist institutions at the national and local level to make progress towards improved governance of coastal resources. Through these dramatic events, decentralized governance and democratic processes remained the central goal of Proyek Pesisir.

Project Design

At the request of the USAID Indonesia mission, the University of Rhode Island Coastal Resources Center (CRC) developed the initial project design in 1995. The design team consisted of several U.S. experts with international experience in integrated coastal management (ICM) and one Indonesian ICM expert from Institut Pertanian Bogor—Bogor Agricultural Institute (IPB)—who became the minister of Marine Affairs and Fisheries in 2000. The design team drew heavily on lessons from early international efforts in coastal management supported by USAID through the Coastal Resources Management Program (CRMP) and on

local Indonesian experience. Although Indonesia had a highly centralized system at the time Proyek Pesisir was being created, the design premise was that a participatory and decentralized approach was necessary to achieve effective coastal management, and improved resource conditions and quality of life for the nation's coastal communities. In order to test this premise and provide tangible examples of how an integrated coastal management (ICM) approach could be positively applied in Indonesia, the project called for the establishment of several pilot field experiments (CRC, 1995). The objective was to use local demonstration sites to test, learn and demonstrate how to apply decentralized and participatory management principles in the Indonesia context. These demonstrations could improve conditions at pilot sites, provide models for adaptation and replication by other programs and projects, and be used as a basis for policy recommendations at the national level. It was envisioned that this could eventually lead to the adoption of locally tailored strategies for effective coastal management in other regions of the nation as well. In addition to field demonstrations, the original design emphasized the need for documentation and dissemination of project field experience to bolster the argument that a new approach could be more effective than the existing practices.

Implicit in the original design was an emphasis on local action with little initial emphasis on national policy initiatives until on-the-ground results could be demonstrated. This design addressed local stakeholder concerns—expressed during the design process—that the centralized system of coastal resources management was not working effectively and new approaches were needed. The idea was first to achieve documented impacts at the local scale. Partners within CRMP and the government of Indonesia counterpart agencies seemed willing to experiment with this new approach on a small scale.

When enormous political and institutional changes brought a dramatic shift in context, the project developed a new Life-of-Project Strategy (CRC, 1999) that mapped out modified objectives for the second phase of the project. This new strategy included assisting the MMAF with several

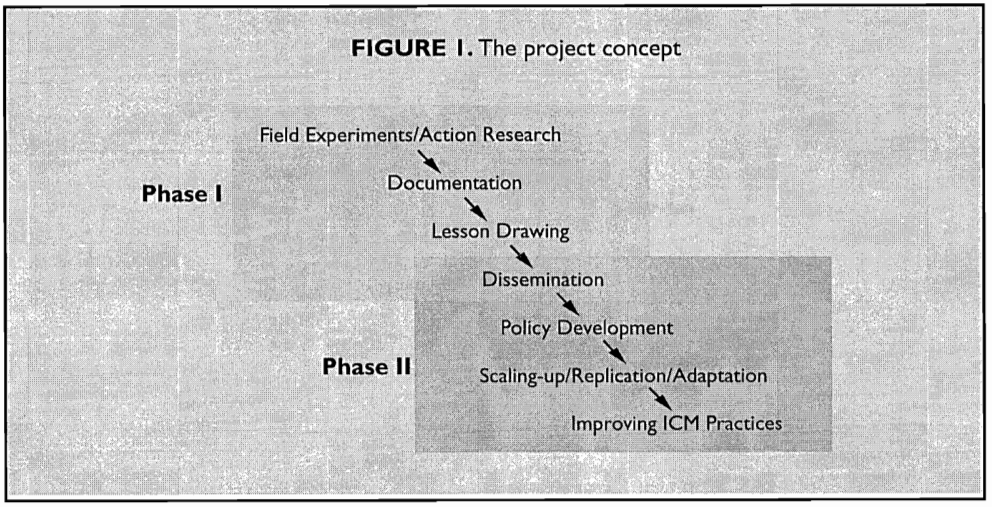


FIGURE 1. The project concept

national policy initiatives for coastal management. It also emphasized the need to demonstrate how decentralized and participatory coastal management—examples of which were emerging from the field sites—could be institutionalized locally and nationally.

The initial project design called for developing special area management plans, similar to the successful strategies used by CRMP I in Sri Lanka, Thailand and Ecuador as well as in the U.S. However, Indonesia had a complex administrative system with multiple layers of government administration extending from central government to the village level. In light of this, the project quickly realized that one approach alone could not be applied to all locations (Crawford et al., 1999). Instead, a range of approaches were tailored to local conditions, capacity and context. The evolving strategy acknowledged that even when the approach being developed by one provincial location differed from that being developed by another, those approaches could complement and be used in conjunction with one another. There could be several initiatives in a specific geographic location operating at different geographic or administrative scales and linked to one another through various coordination mechanisms, and with varying roles and responsibilities. This is referred to as "nested" or tiered systems of governance common in decentralized situations. (See Chapter 8.)

Project Goals and Objectives

The goal of Proyek Pesisir was "decentralized and strengthened natural resources management." While this goal remained unchanged throughout the life of the project, specific objectives to achieve this goal evolved over time to include:

- Testing and demonstrating decentralized and participatory coastal resources management approaches
- Strengthening the human resources and institutional capacity of local counterpart institutions
- Documenting project activities and lessons learned, and disseminating broadly
- Developing decentralized and participatory policies for coastal management

The primary objective in the early years of the project was to test and demonstrate how—in contrast to a centralized governance system—a decentralized and participatory coastal resources management approach could result in improved quality of life for coastal communities and improved environmental conditions. Three provinces were chosen for demonstration activities: North Sulawesi, Lampung and East Kalimantan. Papua province was added in the sixth year of the project at the request of USAID, as this became one of their priority provinces after decentralization took place. However, since the Papua activities are a minor component of the overall project, they are not discussed in this chapter.

Different models of coastal management were tested based on what was considered an appropriate strategy in each province. Each province prepared and implemented a management plan that addressed coastal issues typical to that province and the nation as a whole. The models tested included a community-based approach in North Sulawesi, a

provincial strategic planning approach in Lampung, and a bay and watershed management approach in East Kalimantan.

The second objective of the project was to strengthen human resources and institutional capacity of local counterpart institutions, primarily through training opportunities. This objective was a focus in the early phase of the project. Later phases placed more emphasis on institutional and organizational development, with a major effort at establishing legal frameworks. This change in strategy acknowledged the need for a strong policy mandate and institutional framework to sustain implementation and adoption of new coastal management practices after the project completion.

The third objective of the project aimed to document activities and lessons learned, and disseminate this information broadly throughout the country. IPB, the country's premier university for coastal and marine resources management, was slated to play an influential role as a partner for documentation and dissemination of project experience as well as in policy development. At the same time that CRMP II was slated to begin in 1995, other internationally supported coastal and marine resources management projects, including the multi-donor funded Coral Reef Rehabilitation and Management Project (COREMAP), were also being designed. The hope was that Proyek Pesisir could get a quick start and provide experience and lessons of use to these other projects.

The final objective of the original design was policy development. The process for detailing how this would occur was deferred, however, until initial project implementation was well underway. Only in the project's second phase, after the 1999 government reforms, did policy opportunities present themselves at the local and national levels. Once those opportunities were real, CRMP II aggressively pursued this objective.

Delivery Strategies

The project used several strategies to achieve its objectives. At the start, the project established a strong in-country project office and project team

with a decentralized structure. Since there was no single agency at the national or local level with direct authority for coastal management in Indonesia, CRMP II established a strong project management unit with a full complement of technical and administrative staff. The aim was to give the in-country team wide latitude in decisions about who they worked with and to maximize the team's ability to adapt its efforts as necessary as the capability and interests of various institutions became evident. Annual self-evaluation strategies were incorporated into the work planning process and annual work plans were produced in the early years based on the initial project design. Indonesian program managers were assigned responsibility for implementation of the annual workplans. A life-of-project strategy for the period 2000 - 2003 was developed and the initial project strategy was modified to incorporate new CRMP II strategic directives as well as lessons learned in the first two years of the project. Further, modifications to the project design were made again in 2000 in response to a review of the USAID Natural Resources Management portfolio. This combination of internal and external reviews and assessments reinforced the direction of the original project goal, but prompted considerable changes to the Proyek Pesisir's strategies and activities.

At the national level, the project worked with the Regional Development Board (BANGDA) in the Ministry of Home Affairs as the national implementing agency. Most of the international coastal and marine resources management projects were administered at that time by BANGDA. Because Proyek Pesisir was a decentralized coastal management project, BANGDA was the logical national counterpart, given their emphasis on regional development planning and their close relationships with provincial planning authorities. However, the National Development Planning Board (BAPPENAS) also played a role as the coordinating agency for the overall USAID-government of Indonesia Natural Resources Management II Project (NRM II Project). In 1995, at the start of CRMP II, however, there was no single institution at the national level responsible for coastal management. Instead, authority was dispersed among various sectoral agencies. If the project was located within one of

the sectoral agencies, the concern was that it would take on the character of a sectoral project. This would have made it difficult for the project to address what many people believed to be one of many coastal management problems in Indonesia—a lack of inter-agency coordination and integrated planning. After the MMAF was created, it became the project's national counterpart agency, replacing BANGDA.

The project management units, particularly at the field level, worked with a large number of partners and at many levels of government. However, a government agency always served as the lead partner institution. In Indonesia a sustained ICM initiative could only be achieved if built into and nested within the nation's governmental structure.

Provincial-level project field offices were established and local staffs were hired. BANGDA channeled Indonesian counterpart funds to the Provincial Planning Board (BAPPEDA) in each of the provinces where the project was active. Each province established inter-agency working groups chaired by a BAPPEDA representative. The purpose of these working groups was to ensure that integrated and cross-sectoral planning and implementation could occur. The project worked with local partners that included provincial agencies and other institutions at the district/municipal, sub-district and village level, and included universities and non-governmental organizations (NGOs). The choice of the partners with which to work was influenced by the issues and coastal management practices being promoted.

North Sulawesi province was selected as an initial focal point for a number of reasons. First, USAID wanted to continue building on the previous natural resources management projects it had funded in the province. One of these was a project that concentrated on the province's marine park planning at Bunaken National Park. Second, local government felt that it had received little attention during the Bunaken project and wanted an initiative that would address coastal management and development issues outside the marine park. A third reason was that the Minahasa district of North Sulawesi was one of a few districts in the

country granted a degree of decentralized authority by the central government prior to 1999. While the North Sulawesi site was the first where the project began to operate, more were to follow. In the first year of Proyek Pesisir, a national steering committee developed criteria for selection decisions. Based on those criteria, it chose Lampung and East Kalimantan as additional project sites.

Unique to the project strategy was an effort to develop a group at IPB that would lead project learning and serve as a center for information collection and dissemination. The Center for Coastal and Marine Resources Studies (CCMRS) at IPB was contracted to serve in this role. However, while IPB had strong scientific capacity in various marine science disciplines, its ability to manage a learning process approach within the project and undertake practical efforts to improve coastal resources management and policy development was not well developed. Hence, another project objective emerged—to strengthen IPB's capacity to serve as this collection and dissemination agent. Advisors were found to assist the IPB team in building their skills in documentation, lesson drawing and capacity building strategies. CCMRS developed a specialized library and information center on coastal resources management and conducted national training events on coastal resources management that incorporated lessons learned and project experience into the curriculum. The project helped CCMRS to launch a peer-reviewed Indonesian scientific journal, the *Jurnal Pesisir dan Lautan* (Indonesian Journal of Coastal and Marine Resources).

During the second year of the project, CCMRS implemented the project field program in Lampung province. One reason for selecting Lampung was its physical proximity to IPB, thereby offering a living laboratory in which CCMRS could learn about coastal resources management first-hand. The university assigned a faculty member to work full-time as the project field program manager in the provincial capital of Lampung. Other IPB faculty served as technical advisors for activities in the province with support from local advisors and the University of Lampung (UNILA).

Starting in 2000, the project worked with the MMAF to establish a national coastal management program through a national law. Proyek Pesisir assisted with strategic planning within the ministry. It also helped develop guidelines for provinces and districts to use in coastal management and spatial planning.

At the same time that the project was pushing forward with its national policy initiative, models of local and participatory coastal management planning were taking shape at the field sites. The project started working more closely with local institutions to develop strategies for institutionalizing these practices. In Lampung and East Kalimantan, this entailed establishing institutional arrangements and local government budgeting to implement the plans. In North Sulawesi, the process was more complicated. The village management plans were adopted as a formal village ordinance, and implemented by village government and management committees. Meanwhile, the project worked to establish a district-wide program by developing a law that would support the existing sites and other villages engaged in community-based planning and management.

The Process of Development and Replication of Local ICM Practices at the Field Sites

North Sulawesi

In North Sulawesi province, a large number of isolated fishing-farming villages are scattered along a coastline of farmed hillsides with fringing coral reefs. Urban and industrial development issues are minor. While coastal resource conditions are still good, resources are threatened by bomb and cyanide fishing, coral mining, sedimentation from hillside farming and overfishing (Pollnac et al., 1997).

In North Sulawesi, initial assessments pointed to limited government capacity. The planning framework had to be kept simple. It was essential to propose a pilot management area that was within existing administrative boundaries. This avoided the need for a separate administrative

structure outside of the existing governance framework. The North Sulawesi program started with community-based approaches appropriate to the rural and isolated nature of coastal villages in the Minahasa District. On the advice of the head of the provincial BAPPEDA, the program concentrated initially on village-level activities. Three villages were selected for the development of participatory integrated coastal development and management plans (Crawford et al., 1998). Each village developed a community-based issue profile. Each village plan called for small-scale marine sanctuaries (no-take reserves) based on examples visited during study tours to the Philippines. Cross-visits to sites and discussions with visitors from the Philippines were extremely important in building local government support to test community-based approaches and in motivating village communities to believe the process could work and would provide local benefits. Management plans and sanctuaries were formalized through a village ordinance and implemented through a village management committee. While the villages were the focus of the participatory planning process, sub-district and district government institutions were involved in the planning through a District Task Force. The task force consisted of government agencies and other representatives. The task force assisted village committees with drafting plans, attended public meetings, reviewed plans and concurred on the final plans approved by the villages. The approach is best defined as a co-management process, where the major responsibility for planning, management and implementation is by the community, but the project proceeds with the active support and assistance of sub-district and district government, especially in the planning phase.

The North Sulawesi program chose to use the same predictors of success for community-based initiatives as had been used in the Philippines (Pollnac et al., 2001). These predictors include local government support, funding and continuing advice from outside institutions. The need for support from higher-level authorities is extremely important in Indonesia where there is a long tradition of authoritarian leadership. This was reinforced by results of community surveys conducted in 2002, which indicated that local communities trust their local government

leaders more than friends, the media, universities or NGOs for advice on resources management. In North Sulawesi, local government (province and district) support was seen as essential in catalyzing community action. The additional benefit that resulted from this co-management approach was that provincial and district government counterparts viewed the pilot models as highly successful and therefore were motivated to establish a formal community-based management program later in the project.

North Sulawesi implemented early actions in all its pilot field sites during the management planning process. This strategy applied a practice developed in CRMP I in Ecuador. Early actions were designed to lead to quick and tangible results while a longer-term planning process continued. Examples of early actions in North Sulawesi included Crown-of-Thorns starfish clean-ups, mangrove planting, construction of latrines, and provision of capital (revolving funds) to community groups for supplemental livelihood projects and construction of community information centers. The project experimented with providing small grants to villages as part of the early action strategy. Both USAID and Indonesian government counterpart funds were used for these "block grants." Village management groups prepared simple proposals to address coastal management issues. Proposals had to be approved by village government and involve as large a number of individuals in the community as possible. When proposals were funded, village groups became responsible for fiscal and programmatic management and for reporting. What was being tested by this small-grants initiative was whether communities were capable of managing small-grant funds. If proven successful, a small-grants program could be used by the district government as a decentralized mechanism for implementing ICM. Results of an internal assessment summary determined that not all projects were successful, and there were occasional problems with financial management. However when staff were properly supervised and trained, community grants were effective in catalyzing a large range of activities on community concerns and coastal resources management issues (Crawford et al., 2000; Pollnac et al., 2003).

In spite of the results of the internal assessment, an external mid-term project evaluation determined that block grants to the communities tainted the participatory process—by making communities too dependent on external funding as an incentive for taking action on coastal management issues. As a result, block grants were discontinued and local government has not integrated this concept into its coastal management program. In retrospect, field extension agents continue to believe block grants are useful tools for understanding implementation issues and are instrumental in building support for initiatives where benefits are more long term (e.g. marine sanctuaries). Recognizing the array of opinions on the value of block grants to communities, Proyek Pesisir continues to believe these grants remain an unrealized but potentially important tool. Without such financial support mechanisms, expectations for what communities can achieve and sustain on their own must be modest.

Throughout the North Sulawesi program, district government remained active in village management planning workshops, and village governments remained committed to local village planning and implementation. However, it was the level of support from the various village heads that most influenced the speed and degree of success at the different village sites. While coordinating functions of line agencies seemed easy to facilitate, getting those agencies to support villages on field-level specific implementation activities remained difficult. Where the project either facilitated the field actions of line agencies or where there were specific directives from the district-level Bupati (the Bupati has powers similar to those of a U.S. governor) their involvement was more successful. An example is the certification of land tenure for 220 households on Talise Island. This reinforces findings from the comparative study of Philippine community-based coastal management initiatives where local leadership support emerged as a predictor of success.

As the village-level planning and implementation process continued, the project worked to design a broader effort to scale-up community-based approaches to a larger number of villages (Crawford et al., 1999). This

was viewed as the only way for a community-based strategy to achieve regional-scale impact or be worthy as a district-wide program. This prompted a review of the approaches used by the pilots, and a discussion of how the pilot process could be adapted for implementation in multiple sites and carried out by local government.

A strategy was developed that concentrated activity in two adjacent subdistricts where 24 coastal villages could be simultaneously involved in a community-based planning process. The initiative was voluntary. In order to receive technical assistance with planning and to receive support for capacity building, villages were required to submit letters of interest and nominate unpaid volunteer community organizers. This was an experiment in how to develop more cost-effective means of service delivery—service delivery that was not dependent on foreign assistance and which could achieve economies of scale.

Initial attempts to institutionalize community-based approaches through existing government programs in North Sulawesi failed when budgetary allocations were not forthcoming and no single agency had a legal mandate to carry out ICM activities. It was time for Proyek Pesisir to try a different approach. The decision was to develop a district law that would empower communities to undertake their own community planning efforts and designate a lead agency to assist communities in this process. This approach to establish a local-level "legal framework" reflected the strategy used to initiate a national law. However, the North Sulawesi process was somewhat different. Rather than working primarily with the executive branch of government to develop the law, the new democratic framework placed considerable power in the hands of local legislative bodies. The project worked with the social welfare committee of the district legislature (which had a strong interest in community development approaches) to draft the district law. The committee, in cooperation with local NGOs, carried out a broad-based stakeholder consultation process. This was the first time that process had been undertaken to support the development of a district ordinance.

The effort paid off. In June 2002, the new Minahasa district community-based ICM law was passed. The law calls for the creation of an inter-agency coastal management board and allows for coordinated review of village and sub-district plans. It also calls upon sector agencies to coordinate delivery of services to villages. The board advises the *Bupati* on district-wide coastal management issues that need to be addressed at a level higher than village scale. The law provides a process for traditional use rights to be formally acknowledged and legitimized by local government. The project disseminated the law provisions widely to coastal villages and is working to establish the district management board through formal appointment by the Bupati.

The Office of Fisheries and Marine Affairs in Minahasa is committed to implementing the new law and continuing the scaling-up program. They have assigned a full-time employee to this effort. However, the office still lacks the capacity, funding and human resources to do the job adequately. Fortunately, another district-level institution, the Village Community Development Board (Badan Pembangunan Masyarakat Desa, or BPMD), is committed to the effort. BPMD has also assigned one person at the sub-district level to coordinate scaling-up activities in the Likupang region, to implement training on community organizing, and to support village planning activities and meetings.

In 2003, the North Sulawesi Provincial Legislature passed a complementary coastal law that further strengthens the mandate to carry out community-based initiatives. However, in North Sulawesi, local government budgets are extremely tight under the new decentralization laws. In 2002, no funds were allocated for development activities. The local budget for implementation of this new law is likely to be small. This is a major challenge in the institutionalization of the community-based models that have been developed.

Lampung

Lampung Province is at the southern end of the large island of Sumatra and is a gateway to the heavily populated island of Java. It contains sig-

nificant manufacturing, commercial fishing and mariculture (shrimp mariculture and pearl farming) industries. Lampung struggles with a number of issues including serious user conflicts, pollution in the upper reaches near the capital city of Lampung, degraded coral reef habitats from sedimentation, and destructive fishing. The east coast has seen a loss of large areas of mangrove forests to commercial shrimp mariculture.

In Lampung, provincial government wanted to start with a provincial-level strategic planning process. The intensive use of coastal resources in the province, combined with the multiple conflicts that existed between large-scale industries, such as pearl and shrimp farming, and small-scale fishing, argued for such a starting point. The approach was to build on the Marine Resources Evaluation and Planning Project (MREP) that had been developed in several other Indonesian provinces and to adapt the process to integrate a participatory planning process. The process included developing an atlas as a means of profiling coastal issues and as one step in engaging stakeholders in a consensus-building process. This was a new approach and one which capitalized on the visual (versus written) orientation of many Indonesians. The atlas was a step towards a provincial strategic plan. The strategic plan itself was completed in two years after a stakeholder consultation process at the district and sub-district levels. NGOs also played an important role in the stakeholder consultation process. The planning process was managed through a Provincial Steering Committee led by BAPPEDA.

The provincial plan, once completed, provided the policy framework within which community initiatives could be authorized. This became Proyek Pesisir's first attempt to replicate the initial community-based model developed in North Sulawesi in the very different ecological, political and social setting in Lampung. The first on-the-ground initiative was in an area where shrimp ponds and mangrove management were the main issues—issues that were of minor importance in the North Sulawesi sites.

The village management plan for the community-based sustainable mariculture took three years to complete. This compares to two years in North Sulawesi. It is important to look at some of the reasons for needing an additional year for the process in Lampung. First, Lampung had fewer resources available for this activity. The community was more complex and diverse. Lampung replicated the community-based marine sanctuary model on Sebesi Island—an area with a smaller and more homogenous community. Here the process took about 18 to 24 months—a slightly longer period than in the first pilot site in Blongko, North Sulawesi, but less than at the mariculture site in Pematang Pasir in Lampung. On Sebesi Island, the project employed part-time extension workers rather than the full time extension workers used in North Sulawesi. Philippine studies (Pollnac et al., 2001) have shown that a full-time field worker is not a critical predictor of success for community-based initiatives. Using the part-time approach in Sebesi Island and in the scaling-up sites in North Sulawesi, therefore, seemed acceptable. At the same time, the Sebesi Island example demonstrates that while having a part-time field worker can be effective, it may also lengthen the time needed to reach completion.

By 2003, the Lampung coastal strategic plan was not yet formally adopted through an executive order nor was there an inter-agency committee responsible for implementing the plan. However, it is endorsed and has been implemented by BAPPEDA for several years. The small investment in strategic planning with the provincial government has worked well. A recent evaluation documented that over US $400,000 is being spent annually to implement the plan's activities province-wide (Wiryawan et al., 2002). It is uncertain, however, what percent of these funds are newly budgeted tasks versus ongoing activities that now are captured within the plan framework. BAPPEDA currently manages the atlas databases and is responsible for periodically updating GIS information. BANGDA, in the Ministry of Home Affairs, recommended that other provinces replicate these atlases. More than a half-dozen provinces have followed that recommendation.

The Lampung approach differed considerably from that of North Sulawesi. North Sulawesi followed a bottom-up approach to development of a program whereas Lampung operated top down. In North Sulawesi, the program is primarily at the district level, and supports community-based initiatives, while in Lampung the approach was to work primarily at the provincial level in support of provincial and district activities. North Sulawesi used a legal instrument to develop a formal institutional framework and program at the district level after the community level plans had been developed. In contrast, Lampung illustrates a non-legal approach. While Lampung has been able to obtain significant budgetary allocations for provincial and district-led actions, North Sulawesi has been less successful in allocating local resources for implementation.

East Kalimantan

East Kalimantan, the Indonesian part of the island of Borneo, is one of the richest provinces with large reserves of natural gas and oil, as well as forestry and mineral resources. The province has benefited tremendously from decentralization in terms of revenues returned from natural resources exploitation. There is great concern over the pace of forest degradation, the loss of mangroves for conversion to shrimp and fish farms, as well as pollution from mining, and the oil and gas industry. While indigenous tribes populate the interior of this very large province, the coastal population, including Balikpapan, where Proyek Pesisir has focused its work, is populated largely by immigrants who arrived in the last century. The coastline consists primarily of estuarine, delta and bay systems.

In East Kalimantan, the initial strategy was to strengthen capabilities in provincial planning and GIS. The provincial government had requested a pilot bay and watershed planning initiative in Balikpapan Bay. Although East Kalimantan already had a coastal management plan developed by the MREP project, it was prepared with little or no stakeholder consultation, did not adequately address bay and watershed

management issues, and needed updating. After one year, the Proyek Pesisir activities focused on watershed planning in Balikpapan Bay. This was the result of two factors. First, the project office was in Balikpapan rather than the capital of Samarinda (several hours away by car). This made provincial coordination difficult and infrequent. In addition, the project lacked the resources or capacity to work simultaneously at both the provincial and watershed scales.

The bay planning initiative had a mixed start. It was strong in formulating issues and conducting initial stakeholder consultation meetings. However, its engagement with local government partners was weak, especially with the Balikpapan municipal government and with large-scale private sector operations, such as the oil companies. This created a lack of buy-in to management recommendations. Personnel changes led to a redesign of the project strategy. This included reducing significantly the number of the project's community-level activities that were diverting attention from the bay-wide planning effort. Instead, the project concentrated on building greater commitment and ownership of the plan by local government. More than a year after this change in strategy, local government was, in fact, more involved and committed.

The Balikpapan Bay plan was approved in July 2002, an agreement signed by the governor of the province, the heads of the four local administrations that make up the bay watershed, and the minister of Marine Affairs and Fisheries. Prospects for successful implementation of the plan are good. Local government agencies are funding implementation initiatives that address issues of interest to multiple partners and that require institutional coordination, such as mangrove management and erosion control. A bay management council is being organized. Although large-scale private sector interests such as the oil and plywood companies are major users of the bay, their involvement has been weak. Increasingly, however, these private sector groups are being brought into the implementation process. Private industry is now represented on the bay council and at least one company has provided grant funds to NGOs for implementation of environmental awareness and coastal community

livelihood development activities. Provincial and other local governments are interested in expanding the bay and watershed planning approach to other areas within the province. There are also discussions about developing provincial coastal management legislation—although what form this will take is still unclear.

In this project, concerted efforts have been made to develop NGOs as advocates for the bay and its watershed. The Forum to Save Balikpapan Bay (Forum Selamatkan Teluk Balikpapan, or FSTB) was formed in February 2001 as a response to public demand that issues in the bay must be addressed. FSTB has diverse membership ranging from women's representatives; junior high, senior high and university students; teachers; and assorted others. There are almost 500 members campaigning and promoting public discussions on the need to save Balikpapan Bay from its pressing challenges including unplanned development, sedimentation, pollution and overfishing. In April 2002, just a year after FSTB was established, its members formed another NGO named Yayasan Sahanbat Teluk Balikpapan (YSTB). YSTB has been actively working with the government of Balikpapan—especially the environmental office, and other local environmental NGOs—to promote mangrove planting in several villages. YSTB has also facilitated exchanges and learning among farmers, fishermen and policymakers on successful reforestation projects. Local government and private sector interests see NGOs as an important partner in community-level education and livelihood development.

The Development of National Policies and Programs

In the first two years of the project, the national counterpart agency BANGDA catalyzed and supported project activities in the provinces. The institutional changes that occurred at the national level in 1999, when MMAF was created, provided new opportunities to do this.

In 2000, MMAF was designated as the new counterpart institution for the project. Ironically, at the same time that authority for coastal management was given to a single institution at the national level, the

decentralization laws gave districts and provinces jurisdiction over the most important coastal areas out to 12 nautical miles. This created instant demands to increase local capacity and a search for concrete examples of local coastal management initiatives that could be replicated and adopted in other projects and provinces. The objectives at the national level, therefore, were no longer to create models of good practice but rather to institutionalize the field models already developed by the project and to create the conditions that would foster the adoption of these models by local governments.

The project assisted the new ministry in laying the groundwork for a national law that would formally establish a national coastal management program within the new decentralized governance context. While the process for developing this law was underway, national policy guidelines on coastal management and spatial planning were also being developed. These guidelines are voluntary and provide no incentives for local government to comply. They merely provide local government with guidance on good coastal management practices and lessons learned from previous efforts.

The proposed national coastal program is loosely modeled after the U.S. Coastal Zone Management Program. It calls for national government to support local coastal management initiatives and ensures that local government addresses national interests. The law, if passed, will establish an integrated structure and funding mechanism whereby national government helps to build the capacity of regional government and provides funding for local-level planning and implementation. It calls for a certification program, and a set of conditions under which local governments can voluntarily participate in the national program and become eligible for matching funds. Conditions include public participation and stakeholder consultation in the planning process. The program also provides a vehicle for disseminating best practices in coastal management and promotes the establishment of provincial, district and village-level conservation areas.

Another feature of the proposed national law is the Sea Partnership Program. This exploits the potential of the Indonesia Coastal University Network (INCUNE)—universities located throughout the country—to play a lead role in developing and promoting sustainable coastal resources management and in contributing to economic development within their respective regions. INCUNE was created with support from Proyek Pesisir under the leadership of CCMRS. The Sea Partnership Program creates an institutionalized coastal resources research and extension effort throughout the nation supported by MMAF. Such a program has the potential to build local capacity and provide for better government-university-private sector partnerships. While the Sea Partnership Program is proposed as part of the national law, MMAF has decided to start planning and implementing the program now as part of ongoing initiatives within its Directorate of Small Islands and Coasts.

An important feature of drafting national legislation has been a highly participatory consultation process. Scores of meetings were held with nationally based stakeholder groups and legal experts to develop an "academic draft" that sets forth the rationale and justification for creating a new law. The academic draft paved the way for drafting the actual law itself. This started a new round of consultations with national stakeholder groups, and also incorporated a series of regional stakeholder consultations held outside of Jakarta. This was an extremely important step since regional governments and resource users will be the main beneficiaries of the program.

NGOs have been very active in the consultation process. NGOs hosted a regional public consultation meeting in Java. Indigenous NGOs, Jaring Pela and Aman in particular, have been active and have made specific recommendations to include a section in the legislation that recognizes traditional rights. If the national coastal law is passed and addresses traditional rights, it will be the first time since independence that traditional marine tenure has been recognized by national government.

TABLE 1: NORTH SULAWESI PROFILE					
Scale	Location	Time Frame	Orders of Outcomes Achieved		
			First	Second	Third
Province	North Sulawesi	9 months	• Law under development		
District	Minahasa	2 years	• Law passed • Lead agency designated • Council formed	• Local budget for implementation being formulated	
Sub-District/ Village	Likupang	1 year	• Planning started in multiple villages • CB-MPAs established • CRM plans adopted • MPA ordinances passed	• Mangrove planting underway • MPA marker buoys and signboards placed	
Local/ Village	Pilot sites of Blongko, Talise, Bentenan-Tumbak	5 years	• ICM plans developed • MPAs developed • Ordinances passed • Committees established	• Mangroves planted • Dikes constructed • MPAs demarcated • Bomb fishing declining • Community perceptions concerning impacts of resource use improving	• Reef quality improving • Mangrove area increasing • Some livelihood projects successful

Project Contributions to Progress Towards ICM in Indonesia

North Sulawesi

The Proyek Pesisir pilot sites have gone through a full cycle of an ICM program from issue identification to summative evaluation. This has provided useful insights into a number of implementation issues facing communities.

These include insights on how to promote the efficient and effective functioning of management committees, how to encourage or enforce compliance with rules, and how to determine a realistic scope and breadth of activities that can be sustained without significant external project support. These sites are providing outstanding learning centers and applied research laboratories.

The project has also worked to establish enabling conditions at the district level to help support the village-scale efforts. This includes having institutional structures and a legal mandate in place. Budgeting for implementation remains uncertain and is the major threat to the continued success of these efforts.

At the district level, modifications are being made to the original pilot site strategies. The aim is to determine if scaling-up and diffusion of the community-based innovations can occur in a more cost-effective manner and be implemented within the existing capacity of local institutions.

Implementation activities in the scaling-up sites focus primarily on establishing marine sanctuaries and on mangrove reforestation. Starting with such small, simple actions has proven to be a successful strategy elsewhere. Communities have shown great interest in the marine sanctuary concept, and local government is interested in this simple and manageable planning process. Over an 18-month period, the approach has resulted in 22 community-based MPAs covering 650 hectares, compared to four MPAs in the original pilot sites covering 116 hectares. To date, only some management plans have been completed.

Lampung

The Lampung case is interesting in that it received the most modest investment (in total dollars expended) and has reaped the largest returns in respect to local funding allocated for implementation. The three years needed to complete the Lampung planning process were similar to the time needed by the community sites in North Sulawesi, but much less than the time needed in Balikpapan Bay. A recent evaluation demonstrated that approximately 40 percent of the activities for 2001 called for in the Lampung plan have been implemented. Over 3.2 billion RP in provincial and district funds in addition to 800,000 RP in national funds were spent on implementation in 2001 (Wiryawan et al., 2002). It is unclear, however, how much were already-existing funds that are now counted as implementation expenditures. Even if all of the effort contains no new funds, the plan provides for coordinated planning and implementation that previously did not exist. Based on the Lampung experience, networked program models for institutional arrangements at the provincial level may be more appropriate in the current governance framework. The small project investment at the provincial level seemed to have paid off and Second Order outcomes are starting to be realized. Third Order outcomes remain undocumented.

Meanwhile, community-based sites in Lampung are only just now entering the implementation phase. Several small marine sanctuaries have been established on Sebesi Island and a management plan for sustainable community-based mariculture has been adopted in Pematang Pasir. Insufficient time has passed to determine implementation success at these community sites.

East Kalimantan

In Balikpapan Bay, the bay planning process took longer than anticipated. In the course of the effort, significant lessons were learned about institutional engagement for large-scale planning. It is likely that adoption of the process in other locations could move more quickly. A management plan has been approved, institutional structures are in place,

and financial allocations for initial implementation have been budgeted. Civil society organizations have been established to advocate for the bay environment. However, it is still too early to predict how implementation will play out and what issues will be encountered in this stage of the process.

National

At the end of 2003, the national law was being introduced to Parliament. If it is passed, another phase of planning will be needed to begin implementation of the national program. It will likely take a year to get the program up and running, although elements could be quickly tested in other foreign-assisted projects. Initially, the national program will trigger a round of local-level planning. In only a few rare instances (e.g., North Sulawesi) will an existing program be in a position to be certified immediately. While the national program may start its implementation within a year or two, implementation in the provinces and districts will likely lag for another several years until they have completed their local planning processes, achieved certification by the national program and are ready to move their plans into the implementation phase. Regardless of whether or not the law is passed, the drafting and public consultation process has initiated a national discussion on national-level coastal management issues, and on the roles of local and national government. It has begun to build a national constituency in support of improved management of coastal and marine resources.

Institutional behavior changes are already evident within MMAF and these will translate into adoption of some of the project concepts into the ongoing programs of the ministry (Taryoto, 2002). MMAF can implement a number of the suggested strategies even without a law and donor-assisted projects such as the ADB-funded Marine and Coastal Resources Management Program (MCRMP) are good vehicles for helping do this. If the law does not pass, there are two important elements that stand to be lost—the formation of a national inter-ministerial council and the recognition of traditional use and management practices.

Reflections and Seeds for the Future

The project has progressed on many fronts, achieving primarily First Order outcomes, some Second Order outcomes, and Third Order outcomes only at the local or village scale. This illustrates what realistically can be achieved over a six-year period within a context of substantial political instability and major governance transformations, and in a country as large and complex as Indonesia. Today, the nation is on the threshold of having substantial new institutional arrangements in place that may enable it to make more rapid on-the-ground progress. Full implementation can bring real change to the lives of coastal communities and the condition of coastal environments. Moving more fully into implementation and achieving more Second and Third Order outcomes is the challenge of the next decade. MMAF is well on the way to achieving these goals by forging ahead with programs on several fronts—sea partnerships, community empowerment, and a national coastal resources management program. While the national government can help enable action on the ground, the real challenge is at the local level—building the capability of district and provincial governments, creating effective institutional structures and obtaining budgetary allocations for implementation. Working models at this scale are emerging.

The following are important lessons learned during the course of Proyek Pesisir—lessons that will be useful for project designers and implementers of future ICM projects in Indonesia or elsewhere.

Make the system whole

The project has been able to develop and document innovative participatory approaches to coastal management that are now beginning to be implemented by local governments. While building from the ground up, the project has also assisted the MMAF in developing support structures from the top down. Systems at the local and national levels are not yet fully developed, nor have the connections between them been fully and formally established. However, most of the pieces to complete the puzzle of ICM for Indonesia are now present. Refining the pieces at the local

and national levels and connecting them into a fully functioning vertically integrated system for coastal management is a continuing challenge and will take more than a decade to develop.

Move beyond individual capacity development to institutional and organizational development

Improving capacity for coastal management in a nation like Indonesia involves more than addressing individual skill development or improving the capacity of a specific institution. Capacity building requires addressing the entire ICM governance system and how levels of government interact. The new decentralization laws created opportunities at the local level by providing them with authority for coastal resources management, but no comprehensive program has as yet been provided to develop their capacity to exercise their new authority. In the project sites of East Kalimantan and Lampung, provinces are providing funding for local coastal management initiatives. In North Sulawesi, where government has experienced a reduction in available revenue under decentralization, funding is minimal and remains problematic. However, the decentralization legislation has allowed the Minahasa district and North Sulawesi government to move forward with development of local coastal management laws. Beyond the project sites, the picture is less clear and will likely be uneven among the many districts and provinces. The critical challenge now for lead agencies in the project sites is to develop organizational strategies for implementation and secure funding allocations for those activities.

Promote the role of universities and NGOs

The CRMP has always believed that strengthening universities so they contribute to ICM programs and support local government is an important element of success. Usually, centers within the universities (such as CCMRS) act as contract service providers to government institutions. These relationships are rarely in the form of long-term cooperative partnerships between government and universities and tend to be ad hoc,

opportunistic and project-driven. University involvement in the Proyek Pesisir has produced some useful examples of long-term service relationships either directly with communities or with local governmental institutions. These relationships have illustrated elements of effective research and extension systems. This plants the seeds and lessons for the local Sea Partnership Program currently under development by MMAF that will set up formal structures and funding for cooperative regional university-local government partnerships. Local government typically views universities as credible and competent partners, particularly when compared to NGOs. However, universities in Indonesia play a technical advisory role and not a community-organizing or advocacy role. Nonetheless, strengthened universities can add important dimensions to the overall coastal management institutional support system.

NGO involvement has had mixed results. The Indonesian government under the old autocratic system was very reluctant to engage NGOs and most relationships between government and NGOs can be characterized as adversarial and distrustful rather than cooperative. This is very different from the Philippine context where NGOs are playing a very active role and government is more open to their involvement. Indonesian NGOs are also wary of working with government. NGOs have participated as stakeholders in larger-scale planning such as in Balikpapan and Lampung and have sat on multi-institutional task forces and working groups. They have also been in a service provider role similar to that played by universities. However, this role has not always been effective due to philosophical differences in approaches, as well as the reluctance of NGOs to work as partners with government. Often there have been real or perceived weaknesses in the NGOs' technical capacity and skills for implementation. NGOs can play an important role in working directly with communities as well as advocates for coastal management programs. They have the opportunity to influence and shape local institutional arrangements and programs, but whether they will be able to fulfill this role is uncertain.

Design for the diffusion of good practices in ICM

North Sulawesi became a popular visitation spot for coastal management projects and for a while was bombarded with visitors from all over the country. This was useful in providing opportunities to influence international projects such as those supported by the Japan International Cooperation Agency (JICA), COREMAP and MCRMP. Some are adopting similar community-based approaches based on the CRMP experience (Taryoto, 2002). However, the impacts of these visits to North Sulawesi were never tracked, and their influence on other donor projects is not fully known. What is known is that JICA used a similar process in developing a community-based marine sanctuary in Basaan village in North Sulawesi and is planning to do so in four additional village locations; and COREMAP in Riau developed eight village-based no-take marine reserves. The new ADB-supported MCRMP administered within MMAF is also drawing on several project-developed and tested practices (Taryoto, 2002).

The demand for tangible local models is illustrated by the Lampung coastal atlas being independently replicated in nine other provinces at the urging of the initial national counterpart agency, BANGDA. Several districts also started to develop atlases. Unfortunately, although districts replicated the product, most failed to adopt the consultation process that had been used to validate data and to build stakeholder consensus on issues. There are several reasons why the participatory process was not followed. The costs and the time involved to conduct extensive stakeholder consultation are high and local officials in provinces outside the pilot sites were unconvinced of the importance of the participatory processes. Only one province subsequently developed a coastal strategic plan after producing an atlas.

Other examples of good coastal management practices are also starting to be replicated. This includes a proliferation of draft district and provincial coastal management laws and a desire by some local governments to emulate the Balikpapan Bay and watershed planning example.

Develop realistic indicators appropriate to the scale, time frame and primary objectives of the project

The USAID results framework for performance monitoring and reporting emphasized the geographic reach of the program with the highest order outcomes targeting increasing hectares of habitat under "improved" or "effective" management. Several intermediate indicators that were primarily output-oriented—number of persons trained, publications produced—were also tracked. These were seldom good indicators of project accomplishments and more qualitative narrative descriptions tended to be more informative. In addition, hectares under improved and effective management were difficult to document, since improved environmental conditions and probable causal linkages to project activities are difficult to demonstrate except on a very small scale. Since most of the progress has been in creating capacity and developing institutional structures for management, hectare targets are long-term goals unlikely to be realized during a six-year project. In addition, these targets provided no insights into the social or economic dimensions of coastal change. In the future, projects such as this need to incorporate social and economic indicators from which to judge project performance. While socioeconomic and environmental change may be the long-term goals, for a short-term project, more realistic intermediate indicators are needed that capture the essence of First Order enabling conditions and analyze the advance into the Second Order behavior changes.

Practice adaptive management

The remarkable upheavals and transformations that Indonesia has gone through in a few short years since 1997 are often forgotten when discussing project activities and performance. One of the most important features of this project is that it rode the dragons of change by continually assessing and adapting its strategies—sometimes successfully and sometimes not. As an ancient Chinese philosopher once remarked, "In the chaos of change, there is opportunity." This accurately portrays the journey of this project. This sentiment was repeated by an international

coastal management expert with long experience in Indonesia who remarked, "This was the right project at the right time."

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CHAPTER 7

CONSERVING CRITICAL COASTAL ECOSYSTEMS IN MEXICO:

CAPACITY BUILDING AND STRATEGIC INNOVATION FOR THE SUSTAINABLE DEVELOPMENT OF COASTAL COMMUNITIES AND REGIONS

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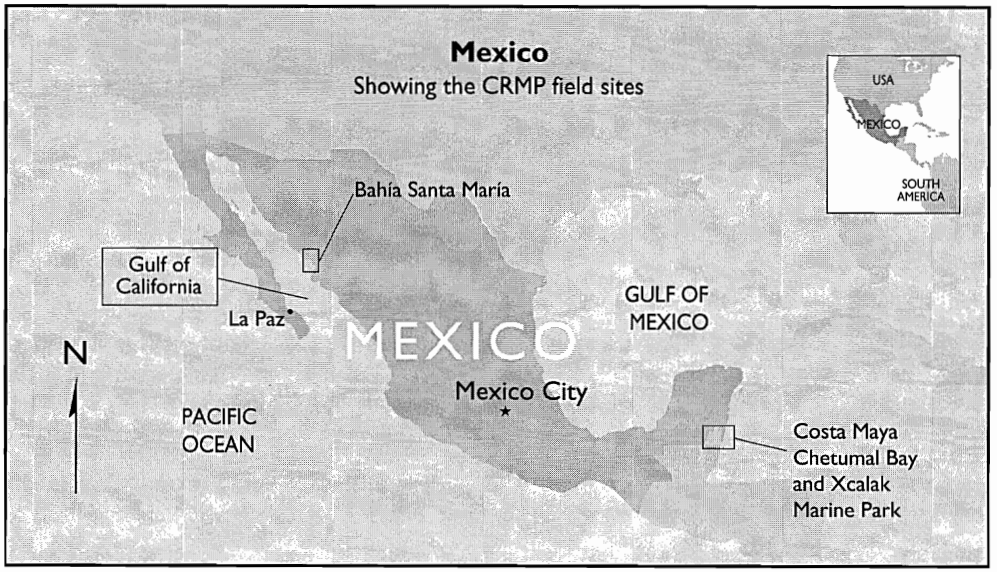
INTRODUCTION

The seven-year (1996 – 2003) program Conserving Critical Coastal Ecosystems in Mexico (C^3EM) was the third country program undertaken during CRMP II. It evolved within a context of rapid development in Mexico's coastal growth centers, a strong response to this development from Mexican and international conservation communities, and important efforts in the 1990s to upgrade Mexico's institutional framework for environmental management. During this period, the U.S. Agency for International Development (USAID) and the conservation community in Mexico focused primarily on conserving biodiversity and implementing management plans for formally established protected areas.



C^{3}EM has been implemented by the Coastal Resources Center (CRC) at the University of Rhode Island (URI) through a partnership with two Mexican non-governmental organizations (NGOs)—Amigos de Sian Ka'an (ASK) and Conservation International/Mexico (CIMEX)—and a Mexican state university, the University of Quintana Roo (UQROO). The C^{3}EM program operates in two coastal regions—the southern portion of the state of Quintana Roo on the east coast and the Gulf of California. In both regions, the project's partner organizations lead local conservation and management efforts.

The opportunity for CRC to work on integrated coastal management (ICM) in Mexico emerged in 1995. It began when CRC staff completed the design of a World Bank project to initiate ICM programs on the west coast in Chiapas, Veracruz and Nayarit to complement investments in environmentally sound aquaculture. That same year, CRC was asked by USAID's Mexico mission to help prepare a much smaller-scale proposal for the Summit of the Americas initiative of the U.S. State Department to assist the mission's conservation partners in Mexico. Although the World Bank program was eventually cancelled, its design had a significant

influence upon the USAID initiative, which promoted a participatory approach to preparing coastal management plans, built upon existing environmental management tools and featured collaboration with universities and NGOs. The agenda laid out in the World Bank project design remains relevant a decade later as CRC works to promote aquaculture good practices in Sinaloa, CIMEX works in Nayarit's Marismas Nacionales, and USAID targets watersheds and lagoons in Chiapas and Veracruz.

The interconnectedness of events and agendas is an important element of the C^{3}EM story. This chapter highlights the context of resource management in Mexico in the 1990s, the successes and challenges facing C^{3}EM during its implementation from 1996 - 2003, and the results and lessons learned as of the project close in September 2003.

The Governance Context for Coastal Management in Mexico

A mix of global, national and local issues in the target regions of the east and west coasts of Mexico helped shape the design of the C^{3}EM. National environmental policy and leadership was galvanized in Mexico by the 1987 report of the World Commission on Environment and Development and by Mexico's adoption in 1988 of its General Environmental Protection Law. Next, the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, set the stage for Mexico's 1995 - 2000 environmental program, prepared by the newly created super-agency SEMARNAP (now SEMARNAT, Secretaria de Medio Ambiente y Recursos Naturales—the Environment Secretariat of Mexico). This marked a period of strong leadership and the energetic application of such conservation and environmental management tools as protected areas and marine parks, environmental plans for coastal areas, and enforcement of environmental laws. Important new measures included the creation of the Mexican Nature Trust (Fondo Mexicana para la Conservación y Natureleza). This fund supports a variety of site-based conservation projects and has transformed "paper parks"—i.e. parks that exist on paper but are largely non-functional—

into an effective conservation tool. The Nature Trust is currently capitalized at about US $58 million, with contributions from the Global Environmental Facility, the Government of Mexico, USAID and several private foundations.

In the mid-1990s, coastal management issues were on the national agenda. The environmental agenda included in President Ernesto Zedillo's six-year plan (1994 - 2000) called for addressing key problems in the federal coastal zone—a 20-meter-wide strip above the high water mark—including the need to clarify ownership and establish management responsibilities along the Mexican coastline. New legislation guided federal agencies in the management of fisheries, wildlife, forests and the federal coastal zone. Mexico's coastal zone management program has subsequently focused on settling title disputes and collecting revenues from concessions while other federal ministries have worked with their counterparts at the state level to oversee human settlements, urban planning, navigation, ports and tourism.

About 13.4 million people reside in the coastal region, which spans approximately 35,000 kilometers and includes 166 municipalities in 17 states. Since 1921, Mexico had a highly centralized government under the Partido Revolucionario Institucional (Institutional Revolutionary Party), which held power for 80 years. The elections of 2000 marked a major political transition as the presidency shifted to the Partido Acción Nacional (National Action Party). Since this change in government, Mexico's environmental programs have promoted decentralization and granted state and municipal agencies greater authority and decisionmaking power. The change has sparked an increasingly vocal struggle over revenue sharing between the federal government and the states. It has also created decentralized environmental programs in all three layers (federal, state and municipal) of government.

In 2003, most coastal states have their own counterparts to the federal agencies. Environmental affairs and urban development are frequently combined at the state level. Yet in 1995, at the outset of C^3EM, there was

little coordination or integration either among sectors or among federal-state-municipal lines of command. The struggle among layers of government to create effective decentralization reflects the difficulties of internal reform. However, providing a strong institutional foundation is an essential precondition for advancing ICM in Mexico.

Mexico has acknowledged the need to expand beyond the federal zone and establish an ICM framework. In 2000, the National Ecology Institute published a series of reports that summarized environmental progress under the Zedillo administration and set out agendas for the future. The recommendations outlined in the reports reflect a tacit understanding of the issues that have slowed the country's attempts at sustainable coastal development. The C^3EM is, in and of itself, a manifestation of the recommendation to "draw more fully on the opportunities for international cooperation in coastal management."

Key Coastal Biodiversity Issues facing Mexico in the mid-1990s

Establishing viable international markets for fisheries products (including farmed shrimp) and building market share in the global tourism industry are key economic objectives for Mexico. Both industries create important forces that are changing Mexico's coasts. USAID, in its 1998 – 2006 biodiversity conservation strategy, promoted ICM as an approach that could work in concert with its conservation strategies to address the issues raised by these development pressures.

Tourism

The growth and popularity of Cancun as a vacation resort, and now the largest city in the state of Quintana Roo, proved that tourism could be an important engine for economic development. It provides a physical model for tourism development—one with massive, all-inclusive resort hotels—as well as a financial model, where initial investments have ignited a long period of hotel construction and associated activities. Within just 25 years, the once sleepy village of Cancun has been transformed into a premier resort city of over 300,000 residents and spawned

a 150-kilometer tourism corridor, the Riviera Maya. This has set the stage for new plans for a tourism investment program for the southern Costa Maya—the same region where USAID's program has promoted more sustainable forms of coastal management and growth.

Tourism development has not come without costs. While Quintana Roo captures approximately one-third of Mexico's total tourism income, economic success is difficult to measure and prompts difficult questions. Are the benefits distributed fairly to communities and local entrepreneurs alike? To what extent do benefits remain in Mexico as opposed to being sent abroad to tour companies and international hotel chains? How are ecosystem services compromised by such intense coastal development and use? The National Tourism Promotion Fund (FONATUR), is proud of its role in jump-starting the tourism development in Cancun's beach zone and the Riviera Maya. However, government and citizens are now working together to address the uncontrolled secondary impacts of this growth, and address problems in implementing the local Environmental Land Management Plan that was adopted in 1994 after more than 20,000 rooms had been constructed and visitor arrivals had reached two million per year.

Today, FONATUR continues to promote mass tourism to destinations throughout Mexico's coastal zone but it is now promoting a low-impact alternative to the Cancun style of development. The newest proposal for the Gulf of California encourages a regional approach to development—26 marina sites located along a "Nautical Route." FONATUR's master plan for Quintana Roo's southern Costa Maya calls for a smaller 7,000-room tourism destination tied to a cruise ship port. It is important to note that these and other projects are now being negotiated with politicians, community groups and environmental organizations, who together are helping define a trajectory for sustainable tourism.

Fisheries and aquaculture

A motivating factor for creating marine protected areas in Mexico has been declining fisheries and biodiversity. Whether it is industrial trawl-

ing of shrimp in marine waters or increased fishing pressure on coral reefs and lagoons by artisanal fishers, conflicts are increasing and populations of fish and shellfish are declining. Artisanal fisheries have both social significance and political influence in the region. There are well over 11,000 boats in the Sinaloa region alone. Unfortunately there are few or no regulations on the species harvested.

Economic pressures for growth in aquaculture can be clearly seen in the Gulf of California, where 16 of the 20 major coastal lagoon ecosystems have been surveyed for shrimp aquaculture. About 35,700 hectares of ponds have already been built and there is a potential for 180,000 hectares more. Such a build-out would threaten these coastal ecosystems, which have important wild shrimp fisheries, internationally significant wetlands, and provide important habitats for migrating shore birds and ducks.

Mexico's strong concern for the health and good management of its bays and lagoons is reflected in its Comprehensive Fisheries Policy (*Carta Nacional de Pesca*, the National Map of Fisheries Policies) which includes a characterization, issue diagnosis and recommended actions for all of Mexico's important embayments. Nevertheless, weak enforcement and bureaucratic processes have made management of these areas a challenge.

Increases in economic investment in the fisheries and tourism sectors are deeply intertwined with demographic and environmental issues affecting quality of life in coastal regions. Mexico is using ICM tools to help address management by integrating environment, economy, and development. While advances are being made by addressing such resource management issues, the forces of internal and external change (globalization) demand major policy shifts and require that political decisions be made at larger scales.

Project Design and Operation

While the CRMP II initiatives in Tanzania and Indonesia and the CRMP I pilot sites in Ecuador, Thailand and Sri Lanka were all government-led partnerships that addressed ICM at the national level, the C^{3}EM project was directed at strengthening NGO and university institutions in targeted bio-geographic regions of Mexico. The reason for this focus was simple: Mexican law is sufficient to meet the challenges and its key institutions are already in place. The need is for an increased level of public participation and sound implementation. Place-based efforts at the community, municipal and bio-regional levels—efforts with high levels of participation and co-management—are one means for accomplishing this.

In its first two years, the C^{3}EM was funded at US $2.7 million to achieve its four key objectives. In the project's third through fifth years, USAID increased the scope of work to include the design and oversight of a field station to match Japanese Embassy funding of the facility in Mahahual in the state of Quintana Roo. All C^{3}EM partners have a successful history of fundraising and securing institutional funds to match project income. From the start, the team agreed to seek complementary projects that would substantially increase the work that could be supported through USAID funding. These efforts generated US $1 million on each coast.

As an element of the USAID Mexico biodiversity portfolio, C^{3}EM's purpose was to build the capacity of selected Mexican institutions to effectively support citizen efforts to address the multi-faceted issues affecting coastal resource condition and use. USAID's priority in 1996 was to bring an integrated approach to what it saw as a set of isolated coastal conservation projects. While Mexico has an enviable legal and administrative framework for environmental policy, there was a growing gap between stated policy and actual practice. Working through existing NGOs previously funded by USAID provided a platform to advance coastal resource governance through strategic points of entry rather than through a comprehensive national program. Often, small practical

demonstrations of coordination, cooperation and co-management can generate the hope and self-confidence needed to build demand for and capability to carry out programs of greater scope and influence.

The C^{3}EM objectives were to:

1. *Make progress in coastal management in areas adjacent to biodiversity conservation sites.*
   C^{3}EM worked in two ecologically important areas to demonstrate how coastal management could help conserve critical coastal ecosystems and build NGO and university partner capacity to contribute to a broader coastal management agenda. The C3EM sites were Xcalak and its associated coral reef ecosystem within the Meso-American Reef System; and Bahía Santa María in Sinaloa, a high-priority coastal wetland ecosystem in the Gulf of California.

2. *Promote voluntary measures to mitigate the impacts of development.*
   C^{3}EM acknowledged that most change in coastal resource use would need to be voluntary and driven by incentives for individuals and developers to adjust their activities. Toward this end, the project, in partnership with private and public stakeholders, focused on developing and applying good practices for tourism and mariculture—practices that would reduce environmental impacts, promote sustainable businesses and enhance the local distribution of benefits.

3. *Improve coastal governance.*
   The C^{3}EM project addressed the coastal policies affecting the ecosystems of Costa Maya, Chetumal (Quintana Roo), and the Gulf of California. The project contributed to the state-level coastal land use ordinances that are Mexico's primary tool for establishing use priorities in geographic areas. The objective was to strengthen institutions and policies within the targeted regions and thereby increase the prospects of success in these strategically selected sites—and then to replicate this process throughout the region. The C^{3}EM program

design emphasized participatory methods to establish co-management schemes and sought opportunities to create inter-sectoral coordination mechanisms.

4. *Increase local and regional capability to utilize ICM principles and practices.*
   C^3EM worked to build the capacity of program partners to work successfully with a diverse group of stakeholders at the community and regional levels to support the first three objectives. The project recognized that in order for participatory processes, coastal planning and decisionmaking, or the design and adoption of good practices to succeed, all three layers of Mexican government—local, regional, and national—had to be actively engaged.

Two conditions sparked the selection of Xcalak and Costa Maya as sites requiring "improved management." One was the announcement by government of plans to develop tourism along the coast of this region. Another was the request from community members to create a marine park and promote eco-tourism. The C^3EM goal was to help Xcalak and the Costa Maya as a whole to move from a threatened environmental status to one in which ecosystem quality was healthy and coastal management capability was robust. To accomplish this, C^3EM proposed using a learning-based approach.

In both the Costa Maya and Gulf of California sites, measurement of progress towards improved management was the main indicator reported annually to USAID. Advances in site management were tracked by a scorecard, adapted in part from the Mexico Parks in Peril program and the Regional Environmental Program for Central America (PROARCA). This scorecard mirrored the ICM policy cycle. (See Chapter 1.)

Step 1: Local problems identified and a shared vision prepared
Step 2: Local action plans and strategy initiated
Step 3: Local action plan approved
Step 4: Local action plans implemented
Step 5: Evaluation (addressing performance gaps) conducted

Other indicators tracked specific changes in behavior in coastal resource use and progress in policy and capacity development.

The following pages share insights into C3EM strategies to achieve its goals and highlight both its successful and less successful efforts. Seven years of collaboration to improve Mexico's evolving ecosystem and land use governance system have provided CRMP II and its partners with a broader understanding of both the bottlenecks and the opportunities for reform, progress and growth of ICM as an important tool for sustainable development.

Strategies for Achieving Results

The intended strategies for each result of the C3EM program describe the initial choices on direction and use of project resources. Some of these choices changed during the course of the program in reaction either to internal changes in the project and its partners, or to external changes in the issues and opportunities in the program areas. This reflects the learning-based approach that characterized the CRMP.

Strategies for formally adopting coastal management plans and selecting implementation actions along southern Xcalak Peninsula and Bahía Santa María

In both Quintana Roo and the Gulf of California, local successes have helped advance coastal management at all levels. It is the work implemented at the site level that creates concentrated effort and enthusiasm, and provides tangible evidence of the practical outputs and outcomes that can result from the investments of time, energy and money that go into studies, discussion and consensus building. Mexico has a labyrinth of area plans, impact assessment procedures and regulatory criteria—none of which converge at the scale of a coastal ecosystem and most of which have little credibility at the local level. This systems begs for an alternative approach that can demonstrate and then generate support for planning methods that cross jurisdictions and that unify stakeholders.

Such an approach would ensure sustained efforts that transcend administrations and have sustainable funding and a vibrant constituency. However, without a focus on what local people perceive as priority issues and a commitment to participation, otherwise logical and robust environmental planning can degrade into the tedious formality of preparing environmental master plans at different scales. For example, combining bay and land area decisionmaking—an idea only vaguely referred to in national law—became real and exciting when tested on the ground in both Quintana Roo and Sinaloa.

Moving from planning to implementation in Mexico means breathing new life into existing instruments. Currently, municipal and state-adopted environmental ordinances and a federal environmental regulation system that oversees coastal decisionmaking are Mexico's principal coastal environmental management tools. C^{3}EM's three strategic partners worked at revitalizing these instruments from different perspectives.

Closing the gap between planning and implementation meant pursuing practical projects with good chances of producing early and tangible success at various levels. In C^{3}EM, this included implementing specific problem-solving exercises in villages, experimenting with private enterprises to take advantage of conservation successes, reshaping legal procedures so as to engage resource users, and providing a support network to working groups. Early actions in Xcalak and Bahía Santa María were especially effective in building stakeholder confidence and providing a practical exercise for advancing local management while waiting for formal mechanisms to be put in place.

Strategies for defining low-impact practices for environmentally compatible coastal development and promoting their use by private developers and regulatory agencies

C^{3}EM strategic partners initially worked in sites where biodiversity was the primary concern. As programs on both coasts unfolded, partners also responded to the need to address social and economic development, and

the public health dimensions of environmental problems. These added dimensions were introduced through training events and support for business planning and supplemental livelihoods. The program has been diligent in incorporating private sector and community viewpoints on good conservation practices. It has addressed the incentives and disincentives for implementing policies and good practices.

Strategies for developing policy options for government

Coastal management is a relatively new idea in Mexico. One of its underlying foundations is the co-management of natural resources and public goods. In co-management, both government and users of common property resources take responsibility for good decisionmaking and make credible commitments to carry out these decisions. In Mexico, however, federal government holds the authority for most decisions on coastal and marine waters and resources. Nevertheless, co-management arrangements do work when appropriately staffed, funded and backed by enforcement agencies and the judicial system.

The best known example of a co-management arrangement is the pioneering work in the 1980s which led to major policy change in tropical forestry management in Quintana Roo and the establishment of the Sian Ka'an Biosphere Reserve. Forests held by *ejidos* (communities that own land in common) are now managed collaboratively with government authorities through an array of agreements that leaves management largely in the hands of the resource owners. This was a dramatic reversal in federal and state policy toward forest resources—from a situation where forest concessions were issued top down, to a situation where, today, *ejidos* have full control and make consensus-based decisions within the context of a statewide integrated decision process.

As a result, rampant deforestation and uncontrolled expansion of cattle ranching has been halted. ASK, a C^3EM lead partner, played an important role in this process. More recently UQROO has been involved in implementation and analysis of the co-management arrangements. There

were both progress and pitfalls in the co-management strategy in forests and coastal land protection in the biosphere reserve, with periods of progress interspersed with periods of "one step forward, two steps back."

The C^{3}EM program draws much from the spirit and ideas of this forestry experience. This "inheritance," however, was not fully recognized or appreciated at the outset of this project as team members and partners viewed forests and coasts as two separate realms. Nevertheless, the C^{3}EM program and its partners have encountered and tested a wide range of these co-management situations, and have promoted making them a component of Mexico's ICM "tool box."

Regional or national levels of government must support local tests of co-management practices and agreements. This is often referred to as a "two-track" approach where concurrent efforts occur at local and national levels. However, the C^{3}EM strategy used a different approach. Only after testing local efforts and as the learning and the team matured did it scale-up to regional efforts. The hope was that as local efforts were proven successful, leaders in other local sites would hear about these and adapt the approach to their own issues. Regional or national governments also began to discover their roles in supporting implementation of policies and programs through such local action. CRC played an important role in this process as well. Since the projects on the two coasts operated relatively independently from each other, cross-program exchange was difficult. CRC, however, played a facilitator role serving as a conduit for ideas and insights between both regions and helping to spread the word to other sites.

Strategies for improving capacity of the C^{3}EM partners in site management and low-impact development practices

The sheer size of Mexico's coastal zone combined with the biodiversity focus of the USAID Mexico mission created a unique situation and challenge to the CRC Mexico team. With a small budget, C^{3}EM aimed to

make a difference in some fraction of the 35,000 kilometers of coast. This challenge was exacerbated by the high cost of doing business in Mexico.

On the positive side, there were a number of encouraging factors. Mexico has a high level of technical capability within the academic, research, and NGO communities in its 17 coastal states. Many faculty and technical staff in civic associations, including CRMP II's strategic partners, were trained in the U.S. at the Master's or Ph.D. level. The Mexican government is relatively stable. Furthermore, international donor programs concerned about biodiversity conservation, including USAID, have invested in building the capacity of civic society in advocacy, effective participation in public policy and decisionmaking, and the design and implementation of co-management arrangements.

An important part of the C^3EM approach was the definition of roles of the project team members. Most C^3EM tasks were integrated into larger programs initiated and led by CRC's partners. The partners assumed the lead role in interactions with local authorities and other groups. For its part, CRC brought to the C^3EM program a broader perspective drawn from its international contacts and experience. The presence of a respected outside organization such as CRC can help partners overcome the phenomenon that "no one is a prophet in his own land" by verifying, validating and reinforcing work which the partners were already well able to carry out themselves.

At the start of C^3EM, all partners had well-trained and technically qualified staff and consultants to help carry out biodiversity conservation. The tendency in the mid-1990s, however, was to emphasize scientific and technical expertise over advocacy. Process skills—skills in building constituencies and in negotiating and implementing successful co-management agreements—however, are essential to ICM and these skills were weak. Partner organizations recognized that their staff had little experience working with community groups, the private sector, or engaging government agencies in a non-adversarial manner. Some had little experience collaborating with other NGOs or universities. CRMP II

assisted partners in convening multi-stakeholder panels, committees and organizations that could lead to establishing ICM programs robust enough to endure the three-year cycle of staff turnover and political change at the local level. The USAID annual workplan requirements and semi-annual reporting became a team-building effort, and a time to periodically assess and adapt the program.

Initial efforts in Quintana Roo did not involve UQROO. This was primarily because UQROO was not an NGO and had no prior relationship with the USAID mission. Yet, UQROO was attractive as a potential collaborator. It had an emerging role as sponsor of conferences and workshops. It had helped prepare, at the state level, the Costa Maya environmental ordinance. It had an active social forestry program. And, it had a supportive rector. An agreement was negotiated with the university in 1998 as the second phase of C^3EM was being implemented. Adding UQROO to the C^3EM team meant a significant increase in research and outreach capacity. UQROO was interested in strengthening its own educational curriculum—improving experiential learning for students and enhancing outreach programs—to encompass coastal management themes. The university partnership expanded significantly when USAID formalized its university partnership program between Mexico and the U.S. This partnership program provided needed resources for UQROO to establish a Global Information Systems (GIS) Center and initiate a master's degree in environmental planning. CRC's colleagues at URI worked with UQROO to consolidate university and research institutions in the Yucatan Peninsula (eight in total) and increase the effectiveness for data development and distribution. Similarly, URI and UQROO, and members of a consortium of universities in the Gulf of Mexico and Caribbean, collaborated in promoting regional ICM programs.

Another important partnership was with the Autonomas University of Sinaloa (UAS) in the Gulf of California. UAS has provided important technical and logistical support through its involvement in the Bahía Santa María program. The university has contributed to a strong technical and extension program for Bahía Santa María. UAS is widely respect-

ed by participants in the process for its continuing contribution to both scientific understanding and outreach to bay user groups.

Progress, Outcomes and Impacts

The C^{3}EM project has provided Mexico with important positive experiences and innovations in coastal resource management. The national coastal management proposal set forth by the National Ecology Institute and the Federal Coastal Program in 2000 cited the work in Bahía Santa María as one of the few national examples where ICM has been made operational. The Xcalak Reefs National Park was among the last designated by the Zedillo administration. It is only the second marine park to have been initiated by a Mexican community rather than the national government. The current municipal initiative for coastal management in Chetumal is proposed as part of a pilot program for decentralized management of the federal coastal zone.

Community-based Xcalak Reefs National Park

In 1995, conservationists in Quintana Roo were actively engaged in the state's reef and coastal habitats. A similar effort was underway in Belize, Mexico's neighbor to the south. Together, Mexico and Belize shared the role of protecting the Meso-American Barrier Reef that fringes the Caribbean coast from Mexico to Honduras. The decline in the fishing industry in this area had motivated the community of Xcalak to look elsewhere for its livelihood—in this case, to the possibilities that lay in tourism. Looking at the tourism industry as it had radiated southward from Cancun, the Xcalakeños saw tourism both as a promise for economic opportunity and as a threat to their environment. In 1995, the Xcalak community, in a letter from their fishing cooperative to the federal government, requested help from the ASK, CRC and others to assist Xcalak in the complicated process of issue identification, visioning, developing a plan and getting it approved. That letter set off a series of events that led, five years later, to a ceremony attended by President Zedillo to dedicate Mexico's newest national park, Xcalak Reefs National Park. The park includes 13,340 hectares of coastal waters that include the reef system and 4,037 hectares of wetlands and lagoons.

The National Commission of Protected Areas (CONANP) now jointly manages the park with the Banco De Chinchorro Biosphere Reserve. The park has received considerable national and international attention because it is one of the first national parks initiated by a community and developed in a fully participatory manner. Its visibility helps ensure it does not become a paper park, as has been the fate of many parks in Mexico and along the Meso-American Reef corridor. The C^3EM project provided funds to hire a member of the Xcalak community as the first park ranger. A Park Management Technical Committee has been established and meets regularly. In addition to having community representation, the committee is chaired by the president of the new tourism cooperative. The active participation of the community has permitted institutions such as CONANP, which operates all federal parks, to increase their commitment to co-management arrangements.

It took four years for Xcalak to win official designation as a national marine park. During this time, the project engaged the community in several early actions to practice co-management. Local fishers placed marker buoys to protect fishing no-take zones, and the fishing cooperative and independent fishers agreed to limit their activities to certain areas and use only certain gear.

In 1996, concurrent with the marine park development, the Xcalak Community Committee was formed to develop the park proposal. The committee has gone on to influence the emergence of new forms of local participation in development decisions. Some of the committee's founding members recently established the Xcalak Community Promoters, a forum formally recognized by the municipality. The women who direct the forum focused their initial efforts on solid waste, a widely recognized problem with impacts on community health and the environment.

The Xcalak Community Strategy of 1997 provided a clear statement of how the community would effectively co-manage its natural resources and improve fisheries protection, community-based tourism, and community character. Five years later, many of the elements of this vision

were being acted on. Local fishers have received training in English, birding, and fly-fishing, and have formed an eco-tourism cooperative. The cooperative signed an agreement with a regional tourism agency, with hopes that Xcalak tours will be included in the package of cruise ship excursions from vessels docking in Mahahual, 65 kilometers to the north.

Within the park, community-based reef monitoring has been initiated. While preliminary observations in the fisheries no-take zone show increasing fish populations, additional monitoring is required to ensure the statistical accuracy of these preliminary observations.

The C^3EM project has been successful in obtaining financial support to fund the Xcalak strategy from a range of donor partners, including WWF for management plan development, the Summit Foundation for expansion of community management to Mahahual, the North American Wetland Conservation Act for environmental education, and the Japanese Embassy for a research and outreach station in Mahahual.

Integrated bay management program—Bahía Santa María

A pioneering integrated management initiative in Bahía de Santa María, Sinaloa, has formulated strategies for the conservation and wise use of the bay's natural resources. The 285,000-hectare bay and watershed is a priority site for conservation, as demonstrated by its Ramsar Convention on the Conservation of Wetlands designation. It is also an important bay for fisheries and shrimp mariculture. This was the first time in the Gulf of California region that authorities, community members, and bay users were brought together to work for an extended period on a coastal ecosystem not designated as a protected area. Their time was spent identifying issues and preparing action proposals for the coastal ecosystem. Three unique elements of this process should be noted.

First, the management strategy was developed under the leadership of CIMEX, which for the first time in the Gulf area was addressing a set of issues that could not be resolved by proposing a reserve or protected

area. Second, it may be the first time in Mexican experience where two coastal municipalities came together to develop a collaborative resource management strategy. Third, the municipalities played an active role in the design of a joint implementation mechanism that includes a trust fund. This will secure and administer funds from local and state government, the private sector and donor institutions. This has given rise to an expanded bay council comprising bay users, public officials, the education community and local communities.

At the outset, a strong technical team, mainly from UAS and the Monterrey Technical Institute in Sonora, was assembled to prepare issue characterizations in Bahía Santa María. Many members of this team had studied, taught or worked together. They shared a commitment to coastal conservation and experience working with the economically productive sectors in the coast. Working groups were created within the Conservation and Development Committee (Comisión para Conservación y Desarollo, or CCD), a voluntary management committee established to represent communities, education, resource users and authorities at the three government levels. Subcommittees were formed to address five key bay themes, review information and develop action strategies. A second, parallel effort to solicit community involvement was led by PRONATURA, a leading national conservation organization in Mexico. C^3EM assisted the program by providing training workshops and events that introduced coastal management concepts. During these sessions, the CCD crafted a vision statement and goals with specific targets. This was entitled the "Declaration of Culiacan" and was signed in October 1999 by 30 municipal, state and federal authorities, as well as key university and NGO institutions. This served to catalyze intergovernmental support and demonstrated strong stakeholder commitment early in the process.

The Bahía Santa María strategy was reviewed and refined in numerous public meetings. The CCD's focus shifted from discussing issues and preparing documents to building constituencies, providing oversight for the technical work, and guiding early actions. An important turning

point was a workshop in May 2001 on "Early Actions" held in the village of La Reforma. The workshop attracted 150 participants, most of whom were women. This was the first time many local residents were exposed to the program and the event produced an explosion of effort in the five coastal communities. The bay strategy was subsequently expanded to respond to community characteristics, issues, and needs.

The bay strategy supports conservation of priority biodiversity habitats, while enhancing the economic potential in the region. Early implementation efforts included training in shellfish aquaculture, solid waste clean-up and sanitary disposal, eco-tourism and sport fishing, converting shrimp by-products into meal, and composting using worm cultivation. These efforts address the need for supplemental livelihoods. Women, who have demonstrated a great ability to organize and implement village-level projects, have been eager participants.

A goal for 2003 was the formation of a para-municipal organization to be called "Committee for the Conservation and Development of Bahía Santa María." This unique organization will be jointly managed by the municipalities of Angostura and Navolato. The associated fund will support permanent staff and offices in such actions as small-scale production projects, technical assistance to introduce good aquaculture practices, and technical assistance on issues posed by dredging and pollution control. The organization will also work to get the bay strategy endorsed by the state of Sinaloa.

One incentive behind this mobilization is the potential advantage of using coastal management programs to achieve orderly coastal development of high-value real estate. Such development results in a greater flow of federal coastal zone concession fees to the municipality. This is the case with the municipality of Navolato, which is promoting tourism and residential development in Altata, on a wide barrier spit in the bay just south of Bahía Santa María. This new growth center will be a major source of both tourism and population pressure in the region. Events in Bahía Santa María can inform the process in Altata and provide an

example of how a council of governments and citizens can unify those charged with management of the federal zone, protected areas, fisheries, navigation and freshwater flows.

CIMEX has secured multiple sources of funding for the bay project including support from 16 local and international institutions, including a consortium of funders such as USAID, North American Wetlands Council, Ducks Unlimited, the David and Lucile Packard Foundation, and WWF. It has also secured significant contributions from UAS and local groups.

Toward the Management of Chetumal Bay

Chetumal Bay is in the extreme southeast of the state of Quintana Roo, on the Yucatan Peninsula. It is a lagoon of approximately 1,100 square kilometers. The Rio Hondo, which runs along the border between Belize and Mexico from its origins in the highlands of Guatemala, discharges into the lagoon.

Chetumal Bay was selected as the geographic focus area for UQROO following a workshop held at the university in 1997. The bay's proximity to the university campus provided UQROO with convenient learning-by-doing ecosystem management opportunities. C^3EM's initial goal was to build the capacity of UQROO in ICM. UQROO committed to incorporating ICM into its research, teaching, and extension and had engaged students in facilitating policy development and promoting the use of ICM tools. This work resulted in the formal acceptance in 2002 of an Integrated Coastal Resources Management Program within UQROO's new Natural Resources Management Center.

The situation in Chetumal differed significantly from that of Bahía Santa María. The latter started at the request of the municipality of Angostura and gathered momentum when CIMEX prepared a proposal for funding that matched the priorities of the North American Wetlands Council. In Bahía Santa María, stakeholder groups as well as authorities at the federal, state and local levels saw the benefits of participating and were

enthusiastic. In contrast, resource management in Chetumal Bay has been most closely associated with the Manatee Sanctuary established by the state government in 1996. The sanctuary covers much of the bay and its wetlands, but does not address the environmental issues in the Rio Hondo watershed and the city of Chetumal. Given the absence of an overarching initiative or clearly defined public process for Chetumal Bay, the staff from UQROO have focused their efforts on extension work, especially with the smaller bay communities. UQROO has made progress in providing knowledge and scientific information about the bay. This includes developing a GIS Center and supporting the emerging bay management network.

UQROO's coastal management group has also contributed to the formation of alliances, most notably the Quintana Roo Integrated Management Network (Red de Manejo Integrado de Recursos Costeros, or RedMIRC) and the Citizens Working Group for Chetumal Bay. Through these alliances, the university works with local organizations on planning and implementation exercises to conserve and promote wise uses of the bay region. These groups have enabled UQROO to reach a larger population of stakeholders. A socioeconomic issues profile, "Our Bay, Our Future," captures the priority issues for promoting sustainable development of the Chetumal Bay area.

Working with the Private Sector to Promote Good Practices

"Good practices" are verified techniques and technologies that mitigate the social and environmental impacts of coastal uses. These practices may be codified in a regulatory framework. More often, they are used to encourage firms building coastal developments to think systematically about how to reduce the "ecological footprint" and long-term impacts of their operations. Examples of a good practice include the requirement that hotels be built away from high-risk areas, or that shrimp farms be operated with careful control of feeds and water pumping.

In 1998, there was an opportunity to apply good management practices to the development of the Costa Maya tourism corridor. The debate over land use proposals provoked an important question about the Costa Maya development process. Would a regulatory approach encourage developers investing in Costa Maya tourism projects to avoid needless environmental damage? A problem was the absence of a clear definition of "low-impact tourism development" for authorities to follow. A series of books produced in the U.S. called "Living with the Coast," combined with the work of several URI faculty and coastal specialists, became the basis of a manual for identifying the values and vulnerabilities of the coastal features of Quintana Roo. The manual offered better ways to carry out a wide range of small to large-scale development activities.

The resulting *Normas Prácticas para el Desarollo Túristica* (also published in English as *Guidelines for Low-Impact Tourism Along the Coast of Quintana Roo* [Molina et al., 2001]), provided an entry point to train government authorities on reviewing environmental impact assessments and developing policy. Over time, the guidebook has been incorporated into the impact assessment review process and federal guidelines for managing shorefront development in Quintana Roo. A recent SEMARNAT publication has incorporated much of the text of the original manual and replicated the style of providing information in a useful format to developers. Some municipalities and developers in the Gulf of California have expressed interest in creating their own *Normas Prácticas* as a tool to communicate the forms of development that best fit within their local environmental conditions.

The Bahía Santa María program has also provided an opportunity to introduce the concept of good practices as a way to supplement what was happening as a result of government regulation in Sinaloa state. CRC drew upon its mariculture experience in Central America and leveraged funding from the David and Lucile Packard Foundation to strengthen partnerships with the mariculture industry in Sinaloa.

CRC has also brought to bear worldwide information on marina good practices. Following the announcement of the Nautical Route in the Gulf of California in 2001, CRC worked with the marina industry within the Gulf of California to develop codes of conduct and build capacity for both voluntary and formal adoption of such practices. A marina working group is being established in La Paz, Baja California Sur to advance marina good practices in the bay. The group comprises marina owners, and municipal, state and federal officials. It is staffed by ISLA, a local NGO. Current efforts include conducting a survey of existing operational practices and siting criteria for establishing new marinas. This information will influence local planning activities and provide input to the national marina guidelines. This local process will hopefully be replicated in other Gulf of California harbors as marina activity increases as a result of government-promoted development programs.

In Mexico, where collective decisionmaking typically does not occur, it is particularly important to work with the private sector. Community and private interests need mechanisms to resolve problems through negotiation, joint inquiry and learning, as private decisions will ultimately dominate what happens in practice. When business people cannot or do not engage in public policy debates and decisions, the best option is to foster the voluntary use of environmentally sound practices.

While there is a critical mass of businesses and individuals willing to adopt new low-impact measures and practices, there are few or no extension programs to accelerate acceptance and implementation of those practices. Extension is a key to promoting good practices. As a result, the impetus to design and adopt good practices must come from the industry itself. Upon reflection, *Normas Prácticas* was drafted in a political environment in Quintana Roo that did not support such partnerships. Even by 2003, the forces of change still lie within the international hotel chains and cruise ship industry. Decisions on these issues are made in Mexico City or at a firm's headquarters outside of Mexico, well away from the influence of those in Costa Maya or the Gulf of California. A recent alliance with a management consulting group has

helped the C3EM gain a better understanding of hotel environmental management systems and the Green Globe certification process. This involves a benchmark report that assesses and recommends improvements to existing operations. Once a firm meets standards, as determined by the accredited certification organization, it can then display a Green Globe-certified label.

To integrate good practices within a coastal management agenda, the Mexico program has built partnerships and linked with experienced organizations already working in Mexico. For example, a first step in promoting good shrimp aquaculture practices has been to collaborate with the Sinaloa Aquaculture Institute. The institute represents the state industry and has direct access to its associate shrimp farmers. Activities carried out through this partnership make it possible for C3EM to understand the incentives the industry responds to, as well as obstacles hindering movement towards the use of good practices.

Two regional networks have emerged in the Gulf since the late 1990s. These are "the coalition," a group of scientists, managers, and NGO leaders who have identified conservation priorities and threats for the Gulf; and the Alliance for the Sustainability of the Coast of Northwestern Mexico (ALCOSTA), a group of civic organizations engaged in site management programs.

Seeds for the Future

Various studies have highlighted the key obstacles, challenges and opportunities facing coastal management in Mexico as Mexico's national administration makes the transition to the first non-Partido Revolucionario Institucional presidency in 80 years. In 2002, participants at a national workshops on coastal management made the following recommendations for advancing ICM in Mexico:

- Establish a national coastal management policy

- Create an integrating mechanism to unite sectors and government secretaries, and promote broad-based public participation in decisionmaking

- Ensure sustained financing essential for implementation of new policies

- Collect and analyze the information necessary to identify coastal issues and support economic development programs that directly benefit coastal communities

- Raise awareness and educate stakeholders on environmental issues to promote understanding of and value for the coast

C^3EM offers evidence of progress on these challenges. The Quintana Roo program made direct contributions to biodiversity conservation in the Meso-American Reef System through the establishment and active management of the Xcalak Reefs National Park. The program has also put into motion a number of innovative and linked efforts by NGOs, UQROO and government authorities that are creating a unique opportunity in Mexico to move forward with resource management that applies an integrated rather than a sectoral approach. UQROO is just one of the actors that has made a major institutional commitment to integrated resources management and sustainable livelihoods. It has undergone internal restructuring, revised its curriculum and started playing a stronger outreach and extension role with municipal, state and federal officials. Most actors, including UQROO, recognize that integrated resource management initiatives can improve coastal residents' quality of life, can help secure economic investment and can conserve the rich biodiversity resources that have local, national and international significance. Most importantly, the atmosphere of mistrust and isolation that existed between business, government, academia and civil society in 1996 is being replaced by a demonstrated willingness to find common ground and share responsibilities.

At the Gulf regional level, CIMEX and CRC have contributed to the creation of an alliance of civic organizations that is formulating a regional vision for northwestern coastal Mexico. Events such as the May 2001 Gulf-wide workshop in Mazatlan, Sinaloa, have brought together large representations of researchers, conservationists and officials to share information and debate key issues. The Rapid Assessment of Conservation Economics has compiled detailed information on trends in land, coastal and marine resources use, and developed economic growth scenarios.

These actions are closely tied to Mexico's larger concerns with alleviating poverty and creating sustainable forms of economic development as expressed in its country paper submitted to the 2002 World Summit on Sustainable Development: "The conditions of poverty and marginalization in which millions of Mexicans continue to live is the most important challenge facing the nation and combating poverty is one of the highest priorities of the presidency." Mexico's 2001 - 2006 national development plan aims to achieve the twin objectives of "...environmental protection and sustainable development." The key federal agencies carrying out this agenda include SEMARNAT, the National Ecology Institute, the national Environmental Law Enforcement Agency, the National Water Agency, the Secretary of Agriculture and Fisheries, the Secretary of the Navy, and the Secretary of Communication and Transport, the Secretary of Tourism, and the Secretary of Social Development. Key governors and municipalities are also incorporated in this vision.

Centralized environmental management has not served any country well over the long run. It is decentralized systems of management and power that reside in a nested framework (see Chapter 8) that offer the mechanisms for dealing with the cross-scale and cross-discipline environmental issues that dominate in coastal regions. Putting a fully functional national coastal program in place will be one of Mexico's main challenges in

the decade ahead. The experiences embodied in the C^3EM program provide ample evidence that Mexico can succeed in meeting these challenges. Perhaps Mexico can even surpass the global goal of having 20 percent of its coast under effective management within the next decade.

PART THREE

INTRODUCTION

Stephen Bloye Olsen

This final section presents topics that were discussed in the concluding session of the Coastal Resource Center's *World of Learning* workshop in November of 2002. Each article addresses an issue that is emerging as a theme for future efforts in coastal stewardship.

The first chapter, by Don Robadue et al., applies a form of systems analysis to visually portray the complexity of interactions and interdependencies in coastal governance systems that are working to achieve societal behavioral change. The process of drawing these diagrams helps in understanding why only "nested" systems of governance—systems that build consistency of purpose and synergy of action at the scales represented by municipal, provincial (state) and national layers of government—are needed to produce the desired outcomes. When this form of analysis is applied to a portfolio of coastal governance initiatives, recurring themes and good practices emerge. This reinforces the value of collaborative learning.

In Chapter 9, Nancy Diamond examines how CRMP II responded to a finding in the evaluation of CRMP I that the program was not responding proactively to inequities caused by the exclusion, or scant participation, of women in the governance process in the field projects. CRC's response is the Women in Leadership and Development (WILD) initiative. It has made gender and demographic issues a cross-cutting theme that integrates across all field projects. Participants from each field program are now working to build their capacity in approaches and tools for addressing these issues and are applying them to their work. Collaborative learning across projects is a major feature of the initiative.

Barbara Best, in her chapter, considers the differences between programs designed around a single objective of conserving biodiversity with that of the CRMP's more inclusive approach. All CRMP II field programs were placed with biodiversity conservation projects in USAID mission "environment" portfolios. This chapter explores the differences in strategies between the two approaches and suggests how they can complement each other. When the threat reduction approach adopted by biodiversity conservation initiatives leads to actions that address international trade, the benefits to coastal management can be significant. For example, the U.S. is the largest importer of live coral and reef fish for the aquarium trade. This drives the demand for cyanide fishing and other destructive practices that are prevalent throughout coral-rich seas. When steps are taken to regulate this international market, the community-based efforts promoted by CRMP benefit.

The two chapters following Best's address issues that have become central in coastal governance. These are poverty and the growing competition for freshwater. The fact that more than one billion people struggle to survive on US $1 or less a day, was a topic that dominated discussions at the 2003 World Summit on Sustainable Development. It is becoming apparent that, so far, globalization has not brought wealth to poor nations. To the contrary, globalization appears to be further concentrating wealth within small minorities. In Chapter 11, Jim Tobey explores the

dynamics of poverty in rural coastal communities in the tropics. Here the link between the accelerating degradation of coastal ecosystems and the communities that depend upon their immediate surroundings for food and for livelihoods is strong. Richard Volk, in his chapter, describes how in contemporary societies the demands for increased fresh water have outpaced the rate of growth in population. Volk lays out in stark terms how an existing problem will become a central focus of governance and conflict resolution in many of the world's most populated regions. These chapters make it clear that the issues of equity and ecosystem stewardship will be driven in large part by the problems of poverty and freshwater allocation in the world's coastal regions as the 21st century unfolds.

The final chapter proposes a critical path to the stewardship of coastal ecosystems. It argues that an initial phase of discovery is over, and that it is now time to codify what is known about how to construct the enabling conditions that will support effective coastal governance over the long term. Such nested systems of governance need to range across scales that link to complementary systems at the municipal, district (or county), province (or state), national, regional and global scales. Similar integration is required to apply what is known about how ecosystems and human societies change and respond to the pressures at work during the Anthropocene. This chapter looks ahead and suggests priority actions that begin with codifying what has been learned. It highlights the need for increases in institutional capacity, constituencies within coastal societies and governmental commitment to sustained action. These are the critical ingredients for an advance to desirable and achievable futures in the world's coastal regions.

CHAPTER 8

NESTED SYSTEMS OF GOVERNANCE:

STRATEGIES FROM THE FIELD FOR SUSTAINING LOCAL SUCCESS AND EXTENDING THE REACH OF COASTAL MANAGEMENT INITIATIVES

Donald D. Robadue, Lynne Z. Hale and Don Seville

Upon the ground I saw a fallen nest
Ruined and full of rain; and over me
Beheld the uncomplaining birds already
Busy in building a new habitation.
– Henry Wadsworth Longfellow

INTRODUCTION

This chapter draws upon the conversations and conclusions that emerged during a day of reflection and inquiry at the *World of Learning* workshop held at the University of Rhode Island in November 2002. This gathering brought together coastal managers who have worked for the joint U.S. Agency for International Development (USAID) and Coastal Resources Center (CRC) Coastal Resources Management Program (CRMP), which was carried out from 1985 – 2003.

It begins with the factors and support systems that CRMP managers see as driving local successes in coastal management. Some of these factors find their expression mainly at the site level, while others represent important connections off-site, perhaps at another place in another province, or at a higher layer of government, or at the international level through an organization that can provide incentives or apply pressure to actors within the country. The CRMP country case studies in this chapter provide much more detail about the context and challenges each coastal practitioner faces. This section focuses mainly on those interactions which program managers have found contribute to success in moving from a promising pilot initiative to a policy with broader reach, and in moving from a general policy to success in specific places and communities.

The term "nested governance system" is used to refer to the situation where "management power and responsibility [are] shared cross-scale, among a hierarchy of management institutions, to match the cross-scale nature of management issues." (Derived from: Folke et al., *The Problem of Fit Between Ecosystems and Institutions*.) Each country in which CRMP works has a hierarchy of authority, more or less centralized, more or less capable, and more or less democratic and open to the voices of stakeholders. What all CRMP projects have in common is the recognition that they are working across and through these levels, usually at the same time, in a loosely coupled but nonetheless mutually supportive way that most effectively deals with the natural, social and political dynamics surrounding the governance of coastal resources and uses. The stories about CRMP contributions to stronger nests in each country are unique. However, many of the insights and milestones achieved along the way are similar.

Success in Coastal Management at the Local Level Needs the Supporting Framework which Regional and National Levels Can Provide

Early in his political career, Thomas P. "Tip" O'Neill, the famous speaker of the U.S. House of Representatives, ran for city council in Cambridge,

Massachusetts and lost the race by 160 votes because he took his own neighborhood for granted. His father took him aside and told him, "All politics is local. Don't forget it." This catch-phrase became the title of his memoir of a long and productive national legislative career that never saw him fail to take into consideration the needs of his local constituency as he helped lead the nation through turbulent decades.

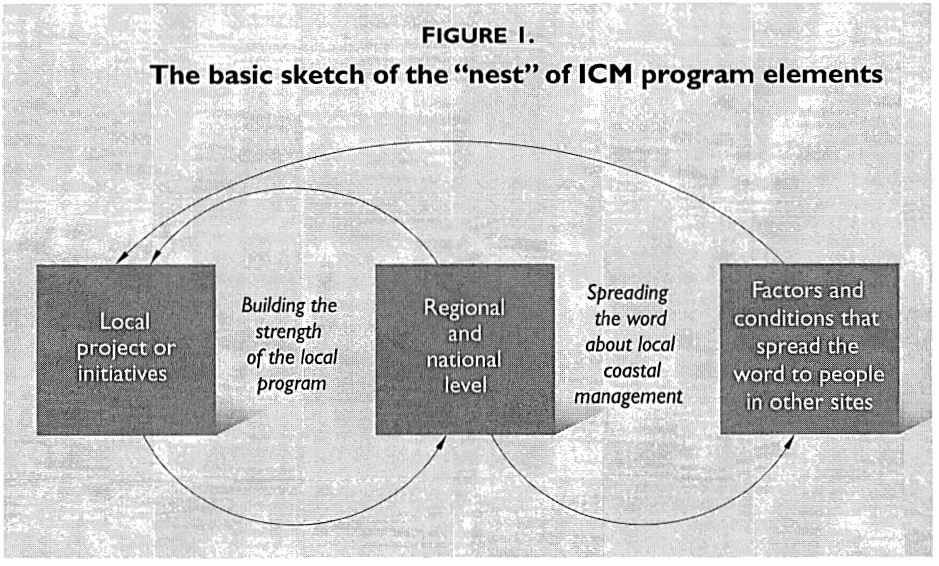
The dynamic interplay among local, regional and national levels is a common thread in each of the country program stories told during the *World of Learning* week. The flow of information and resources among and between layers of government, the economy and the social fabric of places is what sparks a village to create its own marine protected area (MPA), for example, in Blongko, North Sulawesi, Indonesia. It is also how the idea spread in just a few years to dozens of other villages in the province, and is now supported by a new provincial government law encouraging all of the 150 villages of North Sulawesi's Minahasa district to prepare a coastal management strategy.

Program leaders, meeting together for the first time during the *World of Learning* event, needed to be able to find a way to relate to each other's stories. The road map of driving forces presented here is the result of a day of reflection on the common as well as unique elements and sequences each program has followed so far, using an exercise of group modeling. Although each country program has a different starting place, each is, in fact, traveling much the same journey around the same universe of actors, institutions, processes and interactions.

Ecuador, a CRMP I (1985 - 1995) pilot site country, began its journey toward integrated coastal management (ICM) as a national government initiative—indeed, the Ecuadorian Navy sponsored the first conference on coastal issues in 1981. However, its main work subsequently focused on five special area management zones that involved thousands of coastal village residents.

In Mexico, a project beginning in the CRMP II follow-up agreement from 1995 – 2003 began by helping the 300 villagers of Xcalak, on the Yucatan Peninsula, achieve their dream of an MPA that would offer work for them within the growing eco-tourism industry. Reaching this goal involved prolonged negotiations between state and federal officials, the support of the Belize-Mexico Alliance and the internationally funded Meso-American Reef Initiative, as well as funding and staff from the National Parks Commission. President Ernesto Zedillo presided over the ceremony inaugurating the community-developed park in June 2000, after five years of local effort. A practical example of Figure 1's sketch of

FIGURE 1.
The basic sketch of the "nest" of ICM program elements



ICM nests can be seen in the case of the aforementioned North Sulawesi. Initially, the program was planned and funded from the outside. The program manager was quite familiar with the work on special area planning and locally managed marine areas in the Philippines, Ecuador and Sri Lanka that were carried out many years earlier. This "spreading the word" mainly involved the local project initiative in North Sulawesi at first, but as early successes were achieved in the villages, the district adopted a law that provides support and legal recognition for all 150 vil-

lages in its jurisdiction to carry out similar programs. Word about progress made in the villages has spread to the national (policy) and international (donor) levels, raising interest in village-level MPAs as a coastal management strategy throughout Indonesia. It is also mobilizing the financial and political support required for the program's success.

Local Project Success

What drives local project success?

CRMP program managers identified several key factors needed to change the behavior to achieve local success:

- It is important to work on problems that are of ***compelling importance*** or offer a potential benefit

- An ***engaged local team*** must be formed that is skilled enough to build a plan based on reliable knowledge. Capable local participation and capacity building to create local forums and leadership that help support the plan or strategy are also required

- The idea that a ***local action plan or strategy*** is needed might be based on perceived threats to an already good situation, or the perception, perhaps much delayed, that resources and quality are degraded to such a state that something must be done to prevent further loss, or to restore or otherwise improve conditions

- A project aimed at assisting the village must inevitably ***promote behavior that is consistent with the plan*** and discourage behavior that is not

- Through changed behavior, a village or site can claim ***local project success***—more healthy, productive lives for their residents, and the sustained flow of natural and economic goods and services

All this work takes time and is subject to delays, missteps, missed opportunities and the possibility that over time other forces will overwhelm even the best efforts, and foil the local vision for conservation or restoration. Success at the local level depends in part on building strength at other levels.

Issues To Be Addressed

Selecting a starting place

Selecting the right site at the outset is important. A range of CRMP projects employed different methods of choosing where to work.

Ecuador's five special area planning zones (*Zonas Especiales de Manejo*, or ZEMs) were chosen after a study of national issues as well as a survey and consultation process with experts and the public in each of the country's four coastal provinces. In Indonesia, three North Sulawesi villages were selected for the pilot program on locally managed marine areas after a rapid assessment survey was conducted of 20 locales to find representative, willing sites. The Tanzania project surveyed all 13 coastal districts before deciding to start work in only two of them. One district had prior ICM experience, and the other was just in the beginning stage. In Mexico a non-governmental organization (NGO), Amigos de Sian Ka'an, was selected by USAID as a partner, rather than a site. The village of Xcalak was identified later due to its request for assistance.

Assessing issues and engaging the community

Once a site has been selected, many factors come into play in the early stage and are reinforced over time. Most projects carry out rapid and participatory assessments, drawing upon local research, traditional and stakeholder knowledge, available literature and perhaps new surveys and assessments. Early on, projects take this information to identify local problems and develop a shared vision. This vision guides a project team and an engaged local leadership toward preparation of an action strategy or conservation plan. The profiles prepared in North Sulawesi were

intended to be detailed enough to enable quantitative analysis of the results of village plan implementation. In Bagamoyo, Tanzania, the ICM working group consulted all coastal villages when identifying priority issues that would be addressed by an action plan they would create.

Creating a meaningful process

Success may be defined differently at the local level than at the higher levels of government, or from the outside. Sometimes success from a local perspective lies in gaining a voice in a decisionmaking process, where otherwise community members are excluded. This creates a space for interaction that allows conflicts to be addressed and resolved in a productive manner. The participatory planning process also provides the chance to organize local groups so they can more effectively engage in opportunities for planning and management at the town or regional scale. Even when stakeholders feel well served by a process, early and ongoing actions are needed to achieve longer-term desired results. The local action planning process in Tanzania built upon the already successfully tested model developed and used by the Tanga program, which was funded by Irish Aid and The World Conservation Union-IUCN.

Drawing upon a variety of approaches

The local NGO in the Yucatan Peninsula's Costa Maya, Amigos de Sian Ka'an, focused on gathering environmental information required to prepare a successful marine park proposal to the federal government. It then turned its attention to social and economic surveys and additional local exercises to prepare the Xcalak Community Strategy.

In Tanzania, district action planning was used to carry out the National Integrated Coastal Environment Management Strategy. Detailed guidelines were published outlining the process to be used. These drew upon the experience of earlier coastal site projects not affiliated with CRMP's Tanzania Coastal Management Partnership (TCMP). Capacity building of participants in the districts proved essential. This occurred through training and mentoring by national program staff.

In nearly all CRMP examples, the local action plan or strategy was reviewed and formally adopted at one or more local and upper levels of government. District councils in Tanzania adopted the coastal action plans as the result of new authority given by the Local Government Reform Program. The pioneering Indonesian village plans in Blongko, Bentenan-Tumbak and Talise were approved at the local level and implemented through ordinances. Ecuador's five ZEMs were approved by the local committees appointed by the president. The plans were then incorporated into its National Development Plan.

Marshalling local resources to continue coastal management efforts

A much-discussed concern is that if a pilot site is shown to have early successes, it is promised that more sites will be adopted. Sometimes, as seen in earlier CRMP projects, a special area management plan or local project attracts substantial implementation or follow-up funds. The work in extending village-based management to 24 locations in North Sulawesi, broadened the reach and assured the continuity of effort is being addressed by designing lower-cost approaches to the next round of initiatives. In Mexico, coastal municipalities are working to improve the collection and programming of funds from concessions received for the use of the federal shore zone to incorporate coastal policies into existing environmental management instruments. The Tanzanian program is also working to utilize the district structure by preparing strategies that can be woven into the government's routine program of work.

What Factors Limit Success in Local Coastal Management Initiatives?

The need for local participation

In both the Xcalak and Bahía Santa María project sites in Mexico, local participation served to unify and offer continuity in the strategy. This coalesced a number of otherwise separate, sectoral measures addressing resource management issues. However, public sector attempts to garner local and stakeholder views through formal planning and implementa-

tion mechanisms (such as stakeholder roundtables and "implementation committees") are too often done quickly or superficially in order to meet legal requirements.

Overly ambitious goals

Program managers agree that learning from "failures" can lead to better plans. However, one of the causes of these failures is when a program has overly ambitious goals that cannot be supported with the available resources for implementation. Management plans need staff, facilities, a commitment to enforcement and a recurrent budget.

Shaky transitions from project to program

Another difficulty is transitioning from a project that may receive considerable external support, funding and attention, to a continuing effort that has to draw mainly upon local support. In Ecuador, one coastal special area management plan encountered resistance when municipal authorities perceived the project was gaining credit for functions the town provided. As a result, changes in legislation have made it both necessary and more feasible to work through local administrative structures.

Short political attention spans and election cycles

In Mexico, local officials are elected every three years and cannot succeed themselves in office. Municipalities have no jurisdiction over marine and coastal areas, but can become qualified to administer the maritime zone. This generates a difficult dynamic. Each new administration is learning its way the first year, ready for new initiatives the second, and preparing to close out and leave office the third. Yet when matters at the local level are difficult, this offers the promise of renewing local leadership. However, it also decreases the window of opportunity an engaged municipal administration has for testing and adopting coastal management policies and measures.

The Value of Outside Support

To some degree, projects depend on support from outside the immediate locale of the project. This is true whether they are for site-based conservation in an area of critical concern, area-wide planning for a coastal ecosystem supporting a variety of uses, or a demonstration site that may be scaled-up at a later time. Useful support can be in the form of providing a catalyst role and leadership, contributing funds, and sharing know-how, information, staff, and access to decisionmakers. Outside support can also aid in removing political, legal or administrative obstacles. These are explored in the next section.

Regional and National Contributions to Local Success

CRMP project managers identified important enabling conditions for local success. These include:

National leadership

National leadership has made an important difference in CRMP projects. This has occurred whether the country was small or large, and if not at the outset of the initiative, at key points along the way.

Sri Lanka, with one of the oldest coastal management programs in developing countries, has always maintained a strong national presence with experienced leadership. It has assured the continuation of this by supporting the education, training and advancement of junior staff. As a regulatory program, its staff has always been involved in local decision-making. The need for local special area management plans was clearly recognized in the national coastal management plan. Thus, subsequent efforts to carry out this policy in Hikkaduwa and Rekawa had the full support of the Coast Conservation Department staff.

Ecuador's coastal program was managed at the national level by an inter-ministerial commission. The first round of local work was launched in the form of five ZEM projects selected after coastwide studies and surveys. The members of the original advisory committees in

each of the five sites were appointed by the president of Ecuador. Eventually, the national commission reviewed and accepted the plans. These were submitted for inclusion in the National Development Plan, where they then qualified for further international donor assistance as well as national funding.

The Indonesian Ministry of Marine Affairs and Fisheries is responsible for implementing a 1999 law giving control of marine resources out to four nautical miles to local districts. The law also allows provincial governments to control marine resources out to 12 nautical miles. Local work carried out in the North Sulawesi, Lampung and East Kalimantan provinces through CRMP's Proyek Pesisir, the Indonesian Coastal Resources Management Program, is helping the ministry address unique challenges and opportunities to create a nested system.

Policy alignment with ICM

CRMP initiatives have taken many different approaches to achieving a better connection between local, regional and national policy and public administrative frameworks. Some of these have preceded local site work, while others have emerged as a result of and response to insights and needs from successful local efforts.

The national coastal management strategy in Tanzania was approved in December 2002, providing a crucial strengthening of the district action planning already underway in Pangani, Bagamoyo, and Mkuranga. The district action plans are being carried out under guidelines established by the coastal partnership. These include substantive process and national consistency provisions along with financial support.

Regional and national knowledge availability

Traditionally, in most countries information flows upward to government or inward to academic researchers at a more rapid pace than it flows outward. All CRMP programs have actively tried to counteract this direction of flow to relieve a major constraint on the ability of locally initiated programs to succeed.

An example of this is the Tanzania program's effort to publish policy proposals and mariculture investor guidelines for the private sector, recognize local efforts through its annual Coastal Environmental Awards Scheme, and distribute information about the status and value of coastal resources through the landmark *State of the Coast 2000* report and geographic information system project, which mapped the country's coastal resources. All succeeded in gathering both government and public attention. The Indonesian program pioneered an atlas of Lampung Province based upon scientific studies and extensive interactions with coastal residents and resource users. The *Lampung Atlas* was unique in that it relied strongly on local information.

National and local budgets available

Regional and national governments and organizations can play a key role in obtaining funding to start local initiatives and sustain larger programs that provide resources for enhancing local success. The Sri Lanka coastal program receives recurrent allocations from the national budget, and has a stable staff and operating funds. It has also been successful over the past three decades in finding and selecting the right kind of external support for planning and implementation actions that benefit local coastal areas.

Ecuador was able to obtain eight years of funding through its collaboration with USAID, followed by a much higher level of support from the Inter-American Development Bank. In Mexico, international donors and NGOs, as well as the Mexican Conservation Trust Fund, have been moving toward greater coordination in funding site-based coastal conservation projects and work in "hot spots" or "eco-regions." These included the Gulf of California, the Meso-American Reef system and the Gulf of Mexico. The combined efforts include capacity building, regional analyses, visioning exercises and priority setting, and promoting national and regional attention to critical local situations. At the local level, a large proportion of revenues collected from concessions located in the 20-mile federal coastal zone are returned to coastal municipalities, including a fraction targeted specifically for local coastal management actions.

Decisionmaking (permitting) consistent with local effort

Many national governments are actively exploring how to place more decisions closer to the local level and reduce the costs of national bureaucracy. ICM often involves centralized national decisionmaking because coastal and marine resources are held in national trust. CRMP projects illustrate very specific, practical measures being taken to foster decentralization.

Tanzania has made substantial progress in shaping future decisions on mariculture and tourism—two key sectors capable of adversely changing local environmental quality, but which offer great economic potential. Driven by the TCMP, national task forces were convened to identify issues and local concerns, and to prepare guidance both for use by potential investors and to aid in regulatory decisions.

In Mexico, the *Guidelines for Low-Impact Tourism Along the Coast of Quintana Roo* were endorsed by the national Secretary of the Environment. Parts were included in the Costa Maya environmental ordinance and adopted by national environmental authorities for application in the state. Mexican states and municipalities do not have any legal authority over the federal coastal zone or marine waters (in contrast to the new law in Indonesia or normal practice in the U.S.). However, recent legal reforms give municipalities greater scope to enter into agreements with federal authorities for delegated policymaking and regulatory arrangements. They can also prepare very detailed local environmental ordinances for the coast. These would then be reviewed and approved by state and federal authorities as long as they were consistent with policies at those levels.

Local participation in regional policy

In some CRMP II countries, national environmental policies and plans are complemented by more detailed programs at a state or regional level. This top-down approach still relies on national experts and decisions are still made at the top. Mexico's federal and state environmental

laws require public involvement to formulate MPAs and land use ordinances at lower levels. These are the key governing policies for coastal development, as well as in the designation and management of marine and terrestrial protected areas. In the case of MPAs, a good example is the Xcalak Reefs National Park. The park was initiated locally and engaged the community in every subsequent stage of proposal preparation, management plan development, and oversight of park operations. A key negotiating point for the Costa Maya environmental ordinance was incorporating community concerns for protecting valuable wetlands associated with the marine park.

In contrast, in Mexico opportunities to fully utilize participation in the regional and local environmental land use ordinances are generally less successful. Of the dozen or so plans prepared nationwide to date, few have reached the stage of publication in the Official Register. In Quintana Roo, the track record and approval rate is much better. This includes the Costa Maya ordinance, however efforts to sustain the oversight committee meetings for the Costa Maya ordinance implementation were initially resisted by local, and state officials, who did not see why citizen groups should play a prominent role in official government business.

Regional and national coastal management capacity

Regional and national-level commitment to training in ICM has made important contributions toward building local capability that helps both site-based projects and future expansion of coastal management to other areas.

Indonesia's Proyek Pesisir has made an important investment in building the organizational capacity of the Ministry of Marine Affairs and Fisheries, which was formed out of bureaus from several different agencies. Indonesia reports that so far there are relatively few NGOs that can meet the capacity-building needs of the program. Thus, universities and even private groups of stakeholders are attempting to fill this gap. As the

country moves forward to extend the number of local villages preparing action plans, professionals capable of facilitating this process remain relatively scarce.

While the Tanzania project feels it was very slow in building capacity, the program has, in fact, used a number of techniques to overcome this apparent deficit. One key tool has been the use of inter-sectoral working groups and task forces on specific initiatives, such as the mariculture guidelines and the national coastal management strategy. These efforts have built professional relationships and a fluid network that encompasses formal and informal learning and strengthening.

Mexico has numerous NGOs, universities, regional networks and alliances, as well as government-funded training institutes that support training and leadership development to help local-level groups. A long-term view is needed, however, since staff in government offices, local NGOs and university partners can be subject to instability and fluctuation as seen in Quintana Roo. Staff may leave an organization after being trained, only to take up a leadership post in another group within the state, or even at the national level.

How can Local Success Lead to Larger-scale Implementation of Coastal Management?

What is scaling up from local-level effort to regional or national-level effort?

CRMP coastal managers identified three ways in which success at a local site can lead to extending the scale and scope of ICM in their countries:

1) Success in one community can directly inspire other communities. The impact of this depends on the perceived relevance of the local site example to other coastal areas and on efforts to spread the word.

2) Local success can create awareness of coastal management issues at the national level, leading to improvements in national policy that, in turn, benefit more areas.

3) Regional and national agencies can build their knowledge and capacity if they participate and learn from the local effort. This enables them to support additional local projects and to improve national policy.

Additional non-government stakeholders frequently participate, often providing an important regional or international spotlight on promising local initiatives. National-level NGOs can support and learn from counterparts who have participated in a local-level process. This information in turn may speed the formulation of a larger-scale civil society initiative and have influence on government policy. International donors, academic institutions and conservation organizations can and do provide valuable encouragement by spotlighting local successes; funding programs in priority ecosystems, conservation corridors or "hot-spots"; offering awards and recognition to outstanding local leadership; and formulating coordinated donor strategies. Good examples of this are the small Blongko Marine Sanctuary in Indonesia, and the Xcalak Reefs National Park in Mexico. The importance of both of these has been amplified by obtaining international recognition and follow-up funding by donors and government.

What limits scaling-up or broadening the scope?

Program managers identified four main obstacles that local efforts may face that will not allow them to serve as a catalyst for broader change or improvement in similar situations elsewhere along the coast.

1) The local effort is seen as a "**special project,**" the success of which is explainable only through unique local circumstances or the good fortune to have lots of outside support and resources. The Indonesia team noted that work in extending community-

based management in North Sulawesi required a simplification that would allow the elimination of activities, such as certain expensive scientific monitoring tasks, that would not be needed in new sites. Now that the basic premise has been shown to work in terms of its biological and social benefits, other villages can have increased confidence. The essence of what needs to be replicated in order for others to achieve similar success has also been incorporated into the new Minahasa district provincial coastal law.

2) The local effort is seen by the government as involving **increased costs** if other villages, districts or regions want to carry out similar special programs. Ecuador was able to expand from five to six ZEMs only because the European Union adopted the concept and chose to fund a new site adjacent to Ecuador's most important coastal protected area.

3) The local effort is seen by those involved in innovative local coastal management efforts as resulting in **products—rather than the process—being taken up and replicated**. The Lampung province coastal atlas in Indonesia was cited as an example of this phenomenon. Several other provincial atlases have already been produced, and all provinces in the country are scheduled to generate one. However, these replicas simply copy the document format rather than the careful information gathering and discussion effort that enabled the *Lampung Atlas* to make an important contribution to coastal management.

4) The local effort's overarching concern is the fact that **better coastal management will cost time, effort and money**, not only in more sites but to support the increased capability needed at each level. Donors will not subsidize such recurrent costs and may even become fatigued by the long-term commitment required to fully implement a comprehensive program, especially if initial demonstration projects do not succeed.

How can Stakeholders and Institutions at the Regional and National Levels Create the Enabling Conditions that Support Success in Scaling-up?

Fortunately, CRMP has successfully explored a great many practical ways to overcome these limits to scaling-up and extending the reach of coastal management.

Creating demand for coastal management at regional and national levels

CRMP staff have had good success with communications strategies that include training of local journalists to more effectively cover coastal issues. An example of this was an effective special event in Bahía Santa María that combined a photography exhibit from the IMAX film on the Gulf of California with a presentation of a video on the Bahía Santa María planning process, accompanied by the near-final version of the local bay plan (since officially approved) with color graphics. This event attracted a large number of public officials, business leaders and university faculty.

In Indonesia, a special training course for journalists was conducted with print and TV reporters from Java and Lampung. Trainers stressed how stories about the environment took in all facets of everyday life in coastal communities, ranging from social issues to the economy, and how those stories could be shaped to appeal to a broad public audience and well as political decisionmakers. The Indonesia program has developed broader and more knowledgeable constituencies to support sustainable natural resources management. The approach has included the first National Attitudinal Survey on coastal topics, and a large catalog of quality publications and extensive distribution of information.

In Tanzania, the coastal program included a sustained communications strategy in conjunction with USAID's GreenCOM affiliate, which has included publishing a newsletter—*Pwani Yetu* ("Our Coast")—and producing a videotape, "Voices from the Coast," which brought home the concerns of coastal residents in their own words. Its annual Coastal

Environmental Awards Scheme has involved as many as 100,000 participants from seven coastal districts representing civic groups, government agencies, the private sector and schools which has helped raise public awareness of coastal issues, and increased public involvement in coastal management.

Peer-to-peer study tours have also been effective in a number of programs. At the local level, villagers in Blongko, Indonesia were able to visit Apo Island in the Philippines, one of the earliest examples of a successful locally managed MPA. Residents involved in the creation of the Apo Island marine sanctuary then visited Indonesia and shared their experience with Blongko residents. Nationally, a study tour by Indonesian officials of the decentralized U.S. coastal management program had a major positive influence on creating support for and shaping current national policy proposals that support Indonesia's process of decentralization. In Mexico, community members of Xcalak made a trip to neighboring Belize to see the path tourism development had taken. What they saw was a type of development that they did not want in their village.

Coastal community residents from Baja California Sur in the Gulf of California, who have relatively little experience with but many concerns about tourism development, visited counterparts in Quintana Roo to learn from their efforts to develop low-impact eco-tourism.

Promotion of local program needs and successes works as well

The TCMP is seeing the payoff in its work to create a national constituency from Tanzanian professionals and government officers who previously had few opportunities to work together. Their inter-sectoral cooperation in the project's working groups paved the way for effective support of district plans as well as adoption of the country's national coastal policy.

The program team in Bahía Santa María has utilized its charismatic local leaders and womens' groups to act as project spokespersons, which

resonates well with both local officials and members of state political and governmental agencies.

Documentation and learning tied to policy formulation and adoption

The interplay between local insights and policy formulation can be seen in all CRMP programs.

The TCMP consulted with Tanzanian coastal districts and stakeholders throughout the process of formulating the national coastal policy. Its semi-annual retreats provide a venue for national and local programs to exchange ideas and learn from each other.

Sri Lanka based its innovation of variable setbacks for coastal development, compared to the original fixed setbacks, on scientific and pragmatic input. This decision was based upon coastal process studies and the country's early experiences in issuing permits and interacting with the tourism industry.

In Indonesia, Proyek Pesisir has successfully established an 11-member Indonesian Coastal University Network, INCUNE. The academic partnership maintains a focus on the practice of coastal management and a commitment to building capacity to enable universities to more effectively contribute to ICM policy and programs in local, regional and national arenas. The recent decentralization in the country has enhanced the opportunity for regional universities to engage in coastal management activities at the local scale.

Pressure and support from varied sources produce more effective responses from government

Coastal management programs and their NGO partners carrying out local work have also contributed to more direct, constructive pressure for adjustments and change in regional and national governance. This is helped by the presence of formal and informal networks and collaborative institutions. In the USAID-funded PROARCA/Costas program serv-

ing Central America, this is referred to as the "sandwich" strategy, since the regional Central American Environment and Development Commission (CCAD) plays an important role in sponsoring local pilot projects and exchanges among the six nations of the region. A promising local effort may get international support and recognition, but little country support, until it is brought to the attention of the CCAD. It is at the CCAD that the environment minister of the country in question hears inquiries and congratulations from his peers.

The formal adoption of the Xcalak Reefs National Park was helped by the international recognition it received when the Meso-American Coral Reef Initiative was undertaken, involving four Caribbean countries and the support of global conservation organizations. In the Gulf of California area, active networks of local and regional conservation groups, researchers and environmental managers have made it possible for donor coordination, continuous involvement with national leaders, a capacity-building network and the rapid exchange of views and formulation of position statements on developments of regional importance. An example of this is the coordinated effort to prepare a critique and alternative formulation of the Mexican government's large tourism development program that features marinas and recreational boating, called the Nautical Route. As a result of international NGO involvement, the *Wall Street Journal* recently featured a major article on the controversial government-backed project to build and rehabilitate 22 marina ports along 2,500 miles of coastline at an estimated cost of US $1.9 billion. The counterproposal called for a scaled-back approach that was based on existing recreational harbor use. It was believed that government planners were exaggerating potential demand by as much as 600 percent.

Charting a Course for Success

Each CRMP country story starts at a different point, explainable in part by each country's different social, economic and political contexts; the interests of donors; and the position of program champions, in addition

to the physical resource condition and use situation. The midpoint of one country's initiative might become the new starting point for another, for example, as local work seeks to sustain itself, or as a successful site is identified, examined and subsequently understood. This could also result in a project having its approach adapted by others.

CRMP has worked to become fuller and more robust as it has proceeded from its inception and learned from its varied experiences. There are no instances where local projects remained isolated, or where regional and national efforts failed to take into account local variations in capability and conditions. The final section captures some of the observations and recommendations presented as reflections for CRMP projects as they look ahead.

Building Better "Nests" that Nurture Local Success and Increase the Flock of Coastal Management Success Stories

Over time, each CRMP project has tried to move from a starting point along its initial route to eventually come in contact with and begin to influence additional flows of resources, and build the support needed to nest and extend ICM initiatives. In Tanzania, the starting point might be the need for a national policy. In Mexico, it might be to generate local results and experiences that point the way to how a coastal resource governance situation that looks good on paper can be put into practice. Or, as in Indonesia and Ecuador, it might begin with a full head of steam on both fronts.

While there are periods of intense work to create and gain adoption of a management plan or policy, program managers agree that it is the longer run that matters. Coastal management capacity needs to be created in the right proportion at all levels. It needs to draw upon the experience of others, reflect deeply on its own efforts, and be aware of the changing situation it finds itself in over time. In this case, patience by all involved parties is a virtue.

What are the Preconditions for Starting Up?

Adhering to core principles

Core principles that need to be established at the outset include transparency in decisionmaking and information sharing, sustainable financing, keeping decisionmaking at the most local level possible, and keeping a focus on equity in results at the local level.

Taking necessary "pre-program" steps

Program managers feel that there needs to be a careful "pre-program" step that looks at the nature of the demand for assistance, the character of the local mandate for change, and the role of the catalysts for change both in the place and from the outside. Attention needs to be focused very early on in achieving a common vision before launching into a detailed characterization or planning stage. From an outside perspective, a specific site may look like the right locale at which to start. But, in fact, there may not be reliable knowledge that prompts potential stakeholders to believe there is a compelling reason to become engaged in what inevitably will be a long journey and a process of change.

Assessing local context and resources

Some additional factors to consider, above and beyond those already discussed, include:

- Choosing a site which has a local catalyst for action—this could be a person or a focusing event
- A measure of the perception that, from the outset, a coastal management initiative is relevant and potentially helpful
- A cultural setting that is sufficiently open to ideas and help from the outside
- Potential supporting groups and institutions that exhibit the possibility of becoming productively engaged

- Prior successful experiences by the community or local group in working with outside collaborators

- Ensuring there is clarity in and understanding of the incentives which exist, or which might be brought to the fore, that can encourage local change

What Regional or National Enabling Conditions Should be Identified from the Outset?

Even though work might begin at the local level, it is important to look across the regional and national spectrums to detect the strength of existing enabling conditions. This includes where attention might need to be paid in order to allow a pilot project to thrive, and the extension of promising approaches to take place over time. Other factors that may influence progress include:

- Some expression of national legitimacy must be provided to the initial local effort or pilot before it starts

- National leadership can usefully be brought to bear even in projects that start with local situations and examples

- The administrative culture of the participating agencies and organizations must be understood to detect potential resistance, as well as to cultivate important allies

- In-place decentralization processes can be helpful. But the credibility of the regional and local levels of government may actually become worse if increased responsibility is not followed by required resources

- Self-defeating laws, which might be at work that directly contradict the goals of a local coastal management program—for example, the fact that states and municipalities have no legal jurisdiction over coasts, rivers or marine waters

- Alignment, or consistency, in decisions among levels of government may not be occurring

- Accountability mechanisms and procedures need to be in place. The coastal program can potentially make contributions to improving governance practice in this area

What Roles Can and Should Donors Play?

Donors are in the position to be very helpful, but often can play an unproductive role. Donors are helpful when they act as responsible catalysts for change, coordinate amongst themselves to provide coherent programs of support in an area, and provide training and build local capacity even if this takes more time. Donors can get the attention of government authorities in a way that local people cannot. They may be able to set objectives that favor excellent work without overreaching. Donor flexibility allows for learning and redesign if initial assessments were inaccurate or a situation suddenly changes.

Donors can also be a source of trouble. Their overwhelming presence can skew local priorities and wrongly discredit promising locally generated solutions. Donors can provoke a "project" mentality that sees local groups stringing along a variety of activities that lack the power of a local vision and a longer-term program. Donor-funded training, if it is overseas, may result in a serious mismatch between what a participant learns and what he or she needs to know upon return. Donors can be rigid in their monitoring and results requirements, bypassing what local managers know to be more effective. Donor funding cycles and timing may be a poor match for the pace and level of effort required for local success. The transition to local, sustained effort is often not incorporated in a realistic manner.

Are CRMP Countries Able to Build the Nested Systems They Need to Bring Their Fledgling Pilot Projects to Full Programs?

The answer in a word is: Yes.

All coastal management projects need to show that a material difference is being made in resources that are being conserved, protected and, where necessary, restored. The long-term agenda of CRMP professionals demonstrating how this difference is being made in ways people throughout a country's coast can perceive and appreciate. Coastal managers need to look outside the immediate situation in a specific place for some of the ingredients of success. However, it is the hard work carried out at the local level, especially in pioneering efforts, that will inspire, inform, and ultimately influence the spread and usefulness of coastal management concepts and tools.

A better nest contains local, regional-national and external-international elements, and these work together to reinforce local progress. This better nest also relies upon local projects to inspire and motivate regional and national decisions and policies, but it also stimulates interest and support apart from government, among other communities, or even at the international level among donors, researchers and activist groups. In response, regional and national levels return resources to help the local initiative, while external or international groups offer support, attention and perhaps even criticism, to nudge and encourage central levels of government to work more effectively at the local level. This outside support can play a direct role as well by independently creating ICM capacity in an existing or new location, incorporating those areas into a larger web of support.

Another answer to the question is that it is difficult get the whole package right, to build the nest "just so" the first time around. It is important to not only focus on individual project products, but to be strategic. This may be done by moving earlier to build up some of the key factors out-

side the local situation that come into play at later stages, as bright ideas move into implementation. With a more complete road map in mind from the start, it may become at least a little bit easier to ask questions and find answers about criteria for starting up, roles of donors and agents of change, and the status of enabling conditions. Bringing a group of practitioners to work closely together to sketch out a common map from their various experiences, as happened during the *World of Learning* events, is a fruitful way to explore each country's experience for clues, hints, reminders, and insights into what might work better at home.

CHAPTER 9

RE-FOCUSING WITH A GENDER LENS:

A HISTORY OF CRC'S EFFORTS TO MAINSTREAM GENDER ISSUES INTO INTEGRATED COASTAL MANAGEMENT PROGRAMS

Nancy K. Diamond

INTRODUCTION

How "integrated" is the practice of integrated coastal management (ICM)? Is coastal management decisionmaking inclusive and are diverse stakeholders represented? What type of information and processes are used for making decisions? What type of program partners are selected and tapped for expertise? Who receives benefits from coastal management programs and who bears the costs? How are coastal management programs affecting both men and women and how are they making a positive contribution to gender equity (i.e., gender mainstreaming). (See Box 1.) Over the last nine years, the University of Rhode Island Coastal Resources Center (CRC) has taken a number of institutional and operational steps to mainstream gender issues into its international programs.

Drawing from staff interviews and the author's experiences as CRC's primary gender advisor, this chapter summarizes these valuable lessons learned about more inclusive forms of coastal management.

BOX 1. DEFINITIONS: GENDER AND GENDER MAINSTREAMING

The term "gender" refers to the socially constructed roles, rights and responsibilities of women and men, the relationships between them and changes over time.

"Gender mainstreaming" efforts aim to transform the mainstream to achieve greater gender equity within programs and policies by promoting more equitable benefit distribution and/or reducing existing gender inequalities. As part of gender mainstreaming, coastal managers assess the implications and impacts of any planned action for both women and men. Gender-related information is collected, analyzed and applied to coastal management strategies so that both women's and men's concerns and experiences are integrated during program design, implementation and evaluation phases.

METHODS

Several sources provided data for this report. This included 12 key informants with extensive knowledge of gender-related activities under the second phase of the Coastal Resources Management Program (CRMP), which was funded by the U.S. Agency for International Development (USAID). Both current and former CRC project staff were part of this informant group. To reduce bias, multiple informants were interviewed for each country program and interviews were conducted individually and in pairs. As well, a review was made of relevant reports and project

documents. Because the author served on the 1994 evaluation team for the first phase of CRMP and has intermittently served as CRC's gender advisor since 1995, the author's observations (and biases) are also reflected in this report.

Findings

Gender-Blind (1994)

The CRC gender mainstreaming story begins in 1994. As part of a renewed effort by USAID's Office of Women in Development (G/WID) to provide technical assistance to sectoral projects, the new gender and environment advisor (the author) met with the USAID project manager for CRMP to discuss opportunities for collaboration. The CRMP project manager invited the G/WID advisor to join the external evaluation team that would examine the first 10 years of CRC's work and provide recommendations for CRMP's second phase. As a result of this collaboration, the 1994 evaluation included the first comprehensive look at how gender, participation and social science issues were being addressed in CRC's international ICM work. The findings from this evaluation (Towle et al., 1994) indicate that in the first 10 years of the CRMP Cooperative Agreement, CRC had undertaken few steps to address gender issues. Key deficiencies included:

- Little involvement of social scientists, gender specialists and related institutions, as well as weak in-house capacity in these areas
- Very limited collection and use of primary and secondary data related to gender and social science topics for site profiling, project monitoring and evaluation
- An absence of social and gender-related information and methods in CRC-sponsored courses for international coastal professionals (e.g., the bi-annual Summer Institute in Coastal Management and regional courses)
- Limited attention to gender and social science topics in CRC publications

- Lack of explicit and gender-sensitive criteria related to the selection of country project stakeholders, participants and activities at the community level

- Significantly lower levels of participation by female URI faculty, consultants, trainers, trainees and graduate fellowship participants

Box 2: Gender Mainstreaming Signals and Support from USAID

The focus and beneficiaries of CRMP had shifted during its first decade. The original design of CRMP in the mid-1980s focused on policy and planning activities and the direct beneficiaries were seen as coastal management professionals and policy-makers. Gender and participation issues were not addressed by the original project performance criteria. Although all USAID projects were supposed to include and benefit women under the 1973 Percy Amendment to the U.S. Foreign Assistance Act, agency support was weak.

By the early 1990s, the CRMP focus shifted to participatory coastal management under a project amendment. The direct beneficiaries of CRMP now included everyone who lived in, worked in, and visited the coastal zone. In addition, gender mainstreaming in sectoral projects was given an additional boost of agency resources after a highly critical 1993 U.S. General Accounting Office evaluation of USAID's progress—or lack thereof—with gender mainstreaming.

Learn by Seeing: Creating a Gender Lens (1995-2000)

From 1995 - 2000, CRC took several important steps to mainstream gender into the second phase activities of CRMP. Key actions undertaken during this period included:

- Providing financial support for gender-related technical assistance from USAID for the new Ecuador monitoring and evaluation plan (1995)

- Capacity building for home office staff via gender training and individual technical assistance (1996)

- Capacity building for international coastal management professionals via gender sessions at four Summer Institutes in Coastal Management (1994, 1996, 2000, 2002), and a group discussion among CRC female staff and Summer Institute female participants in 2000

- Regional capacity building for coastal management professionals in East Africa via a gender module in the CRC-Western Indian Ocean Marine Science Association "Learning & Performing" courses offered in 1999 and 2002

- Publishing the first gender-focused issue of the *InterCoast Network* newsletter (Fall 1996) and increasing the visual representation of community women engaged in coastal management

- Supporting baseline and interim data collection with gender-disaggregated analysis of perceptions and project participation in Indonesia (Pollnac et al., 1997; Crawford et al., 2000)

- Paying the full costs for gender-related field support in Indonesia (1998) and supporting an intern's gender research (Cook, 2000)

- Leveraging gender-related field support and data from other projects in Tanzania (1998)

- Promoting and/or hiring three women to become senior staff at CRC and additional female field project managers at CRC

- Hiring additional female staff (Indonesia and Mexico) and inviting more professional women to join ICM working groups (Indonesia, Tanzania)

While the efforts from 1995 - 2000 indicated increasing commitment to gender issues, some staff remained dissatisfied with CRC's progress in this area. They recognized that CRC lacked a vision for gender-related work; that staff lacked the skills and confidence necessary to accomplish gender mainstreaming; and that there were too few institutional incentives for program managers to incorporate gender concerns into an already busy workplan. While in theory everyone was responsible for mainstreaming gender, in practice it was seldom addressed. Funding for gender-related activities or technical assistance was vulnerable when unanticipated events changed project priorities, such as with Indonesia's political upheaval. (See Box 3). Project publications included few articles on gender, equity or socioeconomic topics. And while project indicators now counted male and female participation at CRC-sponsored field meetings, trainings and events, no targets for improvement in these numbers were set and in most situations—with the exception of Mexico—females generally accounted for one-third of all participants at the local, national or international level. As a result, most staff felt these indicators were inadequate measurements of gender mainstreaming. And while women leaders and managers were well-represented in CRC's home office, little attention was given to women's leadership in CRC's program communities and to the women's leadership in the coastal management profession in host countries. CRC staff summed up their early efforts as little more than "add gender and stir."

Box 3: The Best Laid Plans: Gender Mainstreaming in Indonesia

During the first year of activities in Indonesia by CRMP's Proyek Pesisir, CRC requisitioned a preliminary, short-term gender assessment to identify key gender issues via literature and key informant and group interviews in Jakarta and North Sulawesi (Diamond et al., 1998). This report was intended to lay the groundwork for future gender-related technical assistance that would create and build ownership for a focused and coherent gender action plan for the 1998 - 2003 period. In addition, the assessment would be an opportunity to build CRC's collaboration with local gender experts from academic institutions near Jakarta and in North Sulawesi.

Indonesia's political and economic climate became unstable in the spring of 1998 and project activities operated at a reduced level for a few months when expatriate project staff were evacuated. Unfortunately, CRC redirected funds for gender technical assistance during the life of the project. Most of the recommendations of the preliminary gender assessment, including the gender action plan, were not implemented and opportunities were lost. However, the project managed to hire more female extension staff and community organizers, routinely consult with all-female groups at the community level and increase the number of female professional participants sent for training. Proyek Pesisir continue to track the number of female participants at project-related meetings. A gender component was added to the community-based coastal resource management module and will be used to collected gender-related data in villages where Proyek Pesisir will be scaling-up.

Putting Gender in Focus (2001-2003)

The Women in Leadership and Development (WILD) initiative arose from a CRC strategic planning process in 2001. CRC staff expressed interest in becoming a better "learning organization" and creating dialogue on critical topics that cross-cut their geographic teams. Equity was one of these cross-cutting themes. A small group of University of Rhode Island (URI)-based female staff (including both senior and mid-level managers from both the international and Rhode Island-focused teams) decided to adopt a catalytic approach to raise the profile of gender equity issues. The initial focus—as evidenced by the acronym used in the initiative—was on women's leadership. They did not intend to entirely focus on women but liked the positive and energetic image of the word "wild." They decided, at least during their initial activities, to keep their group small and include only female members. They began by identifying and networking with a selected group of potential new gender/women's leadership partners and donors and re-connecting with their former gender advisor (the author). The initiative to explore coastal management-gender-population linkages was launched with the help of small grants from two of CRC's existing donors.

In June 2001, the first two-day WILD workshop (WILD I) brought together a diverse group of 22 academics, scientists, field practitioners, advocates, and donors from around the world who shared a common interest—discussing both the challenges of and the solutions for better mainstreaming of gender and population considerations into coastal programs and vice versa. Throughout the workshop, there was an extraordinary give-and-take of substantive information, sharing of resource materials, discussion of experiences, and individual thinking about answers to the question, "What can I change in my own program to better address issues around gender and population?" After the workshop, CRC focused on getting the word out about the critical linkages between gender, population and coastal management and their influence on ICM field programs. (See Box 4.) In addition, CRC strengthened their relationship with two national groups in East Africa (Tanzania Women

Box 4: WILD 1 Workshop Outcomes

Getting the Word Out

CRC used several means to disseminate the conclusions about ICM-gender-population linkages:

- Publishing a second gender-focused issue of *InterCoast Network* (Winter 2002)
- Writing a policy paper for and providing a presentation to the December 2001 Oceans and Coasts preparatory meeting of the World Summit on Sustainable Development in Paris
- Disseminating the policy paper and workshop summary at the 2002 World Summit on Sustainable Development in Johannesburg
- Publishing journal articles in *Tropical Coasts* and *Marine Policy*

Making a Difference in CRC's Field Programs

- CRC's co-managers for the Mexico program were able to form new gender-related partnerships with the gender staff in the Ministry of the Environment, Ministry of Women's Affairs, a state-level Women's Institute and two local gender consultants. They expanded income-generating/business leadership training and activities for community women
- An economist with expertise in gender issues was part of a recent assessment team that was tasked with planning the next phase of CRC

Leaders in Agriculture and Environment and the Kenya Professional Women in Agriculture and Environment). Both groups provide a pool of females who are potential candidates for professional positions, appointments or internships. CRC also formed an important new partnership with a World Conservation Union-IUCN global gender advisor, who became part of the WILD team and provided her services and extensive training materials. She also facilitated gender partnerships for CRC's Mexico activities and helped CRC form a collaborative relationship with the Population Reference Bureau, an international non-governmental organization (NGO) with demographic expertise. The WILD team's work had expanded considerably to address more than only women's leadership—as was implied by the name of the initiative. While the name was retained, the initative now looked at broader issues of gender equity and sought to understand the links between demographics, population and gender and ICM.

Based on the positive accomplishments of the initial WILD work, the WILD team began a second phase of activities in the spring of 2002. The goal of this second phase was to move beyond networking and awareness raising and undertake activities on the ground that would impact the field activities of CRC and other ICM projects. CRC obtained a second and much larger grant from a private foundation for an ambitious 22-month program. As well, the USAID program officer for CRMP continued to show support for these efforts by providing the initiative with technical assistance from USAID Water Team members. The second phase began with a nine-day workshop, "Strengthening coastal conservation and management programs: gender and demographic dimensions" (WILD II) in February 2003. When planning the workshop, ICM, gender and demographic experts worked together to identify, adapt and create mainstreamed ICM tools appropriate for each stage of the ICM cycle.

Workshop participants were carefully selected to include 15 representatives from CRC and other coastal projects in six countries (Fiji, Mexico, Indonesia, Philippines, Tanzania and Kenya). Participants represented gov-

ernment agencies, NGOs, universities and CRMP, and IUCN gender specialists, as well as host country gender and demographic experts. By the end of the workshop, the country teams had built their capacity for understanding not only approaches and tools for gender and demographic mainstreaming, but also for how they could apply these in a practical way in their field projects. Participants created individual and group action plans for mainstreaming gender and demographic issues into their existing project work plans and learned how to capture their experiences in case studies that will be finalized during a final workshop and then circulated within the WILD learning network. CRC hopes that these efforts will catalyze a critical mass of coastal managers who recognize the importance of gender and demographic linkages and have the skills to create new relationships and program synergies.

Conclusions

While CRC has begun to address not only gender mainstreaming, but also the need for understanding demographics, the rest of this chapter will focus on the Center's program on mainstreaming gender.

CRC has made considerable progress since 1994 with gender mainstreaming. The WILD initiative has helped to consolidate previous efforts, reach out to new partners, develop capacity, fill information gaps and create momentum at CRC and elsewhere for gender mainstreaming. The WILD team has now expanded to include three male staff members at CRC, and added a number of male members to the project teams. Furthermore, the WILD initiative has served as an organizational model for future cross-cutting topical efforts and has helped CRC to make significant strides in its efforts to address equity issues writ large. CRC staff have made the time and given the commitment to addressing gender issues and have realized that it need not be overly onerous to do so. One WILD team member noted, "It's the right thing to do and it's been fun." CRC's lessons learned about gender mainstreaming include the following:

Experts and partners

Coastal projects benefit from multiple sources of gender expertise, including both international and host country advisors. The timing of assistance is also important. The ICM and environmental community may not know where to find gender and social science/social service expertise for other field activities so it is necessary for ICM projects to conduct their own institutional searches for host country and international partners and share information. These searches should identify civil society and government partners that share both a social science and/or a social service agenda for community development (including livelihood and health concerns). They also need to be creative about finding free sources of gender-related technical assistance and materials—e.g., using donor-funded gender experts, sharing costs for the technical assistance, or sharing gender experts with other coastal projects. Gender experts appear to have the greatest impact when they are involved in the early stages of program, project and activity planning. However, their initial input must be reinforced by periodic assistance, adequate budget and support from senior management and staff. It is also helpful to have the consistency of the same advisors over time.

Capacity building

Coastal project staff, counterparts and partner organizations need capacity building. For example, gender training is often necessary for ICM partners and ICM training may also be necessary for gender partners. Gender-related training is most effective when it is tailored to specific locations and cultures. Coastal managers need tools and concepts and whenever possible, these aids should be integrated into topical ICM training rather than taught in stand-alone workshops and modules. It is also helpful to have female and male gender trainers, to take time to address participant concerns and to focus on the practical ICM payoffs resulting from addressing gender issues. In addition, foreign female professionals may also need additional support for English language training to qualify for international training. To balance training opportunities among women and men, projects should ask communities or organi-

zations to first nominate women candidates and then add male candidates for remaining slots.

Knowledge and Data

ICM professionals need to build their capacity to undertake and manage social research and to translate research findings into operational strategies. Basic social information, including gender and demographic variables, has not always been analyzed. Nor has there been good analysis of coastal training needs assessments with an eye towards understanding the different needs and interests by gender. In terms of methodologies for primary data collection, coastal projects should consistently collect data from both male and females in the same households to understand differences in knowledge, attitudes and priorities of resource use. Meaningful gender-disaggregated indicators can also help guide program directions.

Operational Choices

Every coastal project or program has the opportunity to make small but significant operational adjustments that can make a huge difference in women's lives. For example, holding separate male and female group meetings before or as a substitute for a mixed-sex meeting can provide critical information and build a constituency for coastal management. It is important to schedule meetings and project activities during free times for women. Employing female extension workers can enable coastal projects to more easily hear women's voices and concerns. Coastal managers can help communities identify which activities will benefit women and men by making decisionmaking criteria more transparent and participatory. Selecting new gender-neutral income-generating activities can also provide women with greater opportunities than activities that are already assigned to one sex or the other. In addition, ICM projects can avoid a male bias by broadening their focus to both sea and land and focusing on supplemental livelihoods.

Costs

While some dedicated resources are extremely helpful for gender mainstreaming, the costs involved are not necessarily high. For around US $40,000 in staff time over 18 months (approximately 1 percent of the overall annual CRMP budget during that same period), CRC staff were able to launch the WILD initiative. These funds enabled staff to plan and attend meetings and the WILD I workshop; plan and conduct a panel session at the bi-annual Coastal Zone meeting; prepare for, attend and deliver a key presentation at the preparatory meeting for the World Summit on Sustainable Development (WSSD); and attend the WSSD, conduct research, co-author articles and prepare a successful, follow-up grant proposal. This staff time contribution leveraged approximately US $200,000 in private foundation money (US $1:$4 ratio).

Message

Gender issues need to be consistently addressed by communications within projects and in external communications. Organizational policies on gender are quite helpful as are consistent messages about the importance of gender equity from senior staff to junior staff and from staff to counterpart organizations. Gender issues and equity must also be consistently addressed in external publications and media campaigns.

Teamwork

Gender champions are needed at different levels within an organization or a project. Having a critical mass of these champions is important. Gender mainstreaming progressed more rapidly at CRC when there was senior management support and a small, dedicated "engine" team that created momentum and allowed for rapid consensus and action. Lone gender officers often burn out and other team members do little. While some male CRC staff felt excluded from early WILD efforts, the all-female team felt this initial period was necessary for them to build their intellectual capital, confidence, momentum and critical mass before they became more inclusive. Gender mainstreaming at CRC headquarters has

had the added benefit of helping CRC staff to understand matrix management and has created new opportunities for cross-team communication, learning and synergies.

Recommendations: Creating a Gender Vision of the Future

The next steps and opportunities for CRC staff include:

- Creating their own vision, agenda and priorities for gender mainstreaming over the next three to five years as part of CRC-wide and country project gender program that sends clear and consistent signals about the value of equity and inclusiveness to all staff, partners and colleagues

- Matching committed funding and routine technical assistance to an organization-wide gender policy

- Developing incentives for, and buy-in from field staff and others who are implementing coastal management programs (e.g., incentive funds, small grant programs, performance-based funding), as well as gender mainstreaming accountability strategies

- Devoting additional attention to the hiring and capacity building of more female staff at all levels in the field, including chiefs of party and staff in counterpart organizations

- Building leadership capacity for women in communities, particularly for youth, young women and those without literacy skills

- Making coastal management decisionmaking tools and participation procedures more transparent and standardized (e.g., develop guidelines) so that gender and demographic/population issues can be more easily mainstreamed into coastal management decisionmaking

- Filling gender-related data gaps, and then collecting and using gender-disaggregated information and cultivating gender-related contributions to CRMP publications

- Identifying more meaningful gender-related internal indicators and establishing targets that aim to improve women's participation beyond one-third of the total and improve their access to benefits, resources and decisionmaking

- Devoting more attention to gender mainstreaming at the town/municipality and provincial levels of governance and identifying gender-related barriers to participation and benefit distribution for ICM national policies

- Building gender-sensitive strategies for future CRC work on poverty alleviation, economic development and legal literacy, including greater attention to health and integrated water management

In sum, gender mainstreaming is much more than a simple matter of adding more female staff (who are given extra responsibilities for gender issues) or adding one female member to a committee or tagging on a small women's income-generating activity to an ICM program that devotes most of its funding and effort towards fishermen. It is important to recognize differences among women and among men, rather than lumping women into one stakeholder group. Coastal management practitioners need to understand that equity is not an optional choice. It is a much-needed transformative perspective for forms of coastal management that are both integrated and inclusive.

For over three decades CRC has worked with partners to develop strategies for effective management of coastal environments—formulating and refining policies and actions to promote a better balance between coasts and the people who inhabit them. Core to this work has always been the underlying principles of participatory democracy, equity and sustainable

development. Yet, CRC has also recognized that the challenge of achieving sustainable coastal resource use, conserving biodiversity, and enhancing the quality of life of coastal people is made much more difficult by the reality of rapidly expanding coastal populations and the lack of equity for certain segments of the population, especially women. The challenge for CRC until now has been understanding how to take the next steps—i.e., how to translate this understanding of the reality into meaningful action on the ground. The WILD initiative has helped CRC begin to make this translation.

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CHAPTER 10

CONSERVATION AND INTEGRATED COASTAL MANAGEMENT:

LOOKING BEYOND MARINE PROTECTED AREAS

Barbara Best

Globally, coastal and marine ecosystems are undergoing rapid changes, degradation, and loss of biodiversity and ecosystem function. Degradation and loss of these vital ecosystems seriously jeopardize the social and economic well-being, food security and development potential of billions of people. Some of the major human-induced threats contributing to this crisis are habitat loss, overexploitation and destructive fishing practices, poor land use practices and land-based sources of pollution, invasive species and climate change (Burke et al., 2002).

In response to the pressures facing coastal and marine ecosystems, two major approaches (or fields) have emerged over the last several decades—integrated coastal management (ICM) and, more recently, marine biodiversity conservation. While both fields may share the same ultimate end goal—that of healthy, sustained ecosystems—and utilize similar tools, the fields do have differing priorities, focuses, and often geographic scopes that distinguish them.

Marine protected areas (MPAs) have received considerable attention over the last several years and are one of the tools shared by both biodiversity conservation and ICM practitioners. MPAs may encompass a broad range of zoning for different uses, including "ecological reserves" or no-take reserves to protect biodiversity and enhance fisheries (Ward et al., 2001). While MPAs are necessary to conserve and protect marine biodiversity and critical sites, MPAs by themselves may be insufficient to afford full protection against broad-based threats such as decreasing water quality and land-based sources of pollution (Jameson et al., 2002). Thus, both effective ICM and conservation approaches should be promoted to protect and conserve coastal and marine ecosystems.

This chapter explores the similarities and differences between ICM and biodiversity conservation with an emphasis on how MPAs are utilized by practitioners, and looks beyond single site-based efforts as both groups expand their impacts on the ground. Two major questions will be addressed, within the context of ensuring that the goals of these two fields are mutually reinforcing:

- What can ICM learn from biodiversity conservation?
- What can ICM contribute to biodiversity conservation?

The Parallel Evolution of ICM and Biodiversity Conservation

The fields of biodiversity conservation and ICM arose from different academic roots, giving rise to different professional organizations, institutions and groups of practitioners. In many ways, Agenda 21 at the 1992 United Nations Conference on the Environment and Development reinforced and accelerated the distinctive evolution and divergence of fields with separate chapters on Conservation of Biological Diversity (Chapter 15) and Protection of Ocean and Coastal Areas (Chapter 17). Agenda 21 also contains a separate chapter on Protection of Quality and Supply of Freshwater (Chapter 18), which has led to separate groups and institutions focusing on freshwater issues and the promotion of integrated water resources management (IWRM). Unfortunately, the emphasis

placed on the titles of these three chapters has sometimes deflected from the need for fully integrating them. For example, the quantity and quality of freshwater inflow into coastal areas is critically important for maintaining seawater quality and marine biodiversity, as well as the function of coastal wetlands and estuaries—some of the most ecologically productive areas on earth.

Agenda 21 can serve as a reuniting, integrating framework if one moves beyond the chapter titles to examine the major actions highlighted in each chapter:

CHAPTER 15. CONSERVATION OF BIOLOGICAL DIVERSITY

- Integrate biodiversity into national development plans
- Establish *in situ* protected area systems

CHAPTER 17. PROTECTION OF OCEAN AND COASTAL AREAS

- Integrate coastal management, including the Exclusive Economic Zone
- Establish protected areas
- Address land-based sources of marine pollution

CHAPTER 18. PROTECTION OF QUALITY AND SUPPLY OF FRESHWATER

- Integrate water resources development and management
- Protect water resources and aquatic ecosystems

Both chapters on biodiversity conservation and ICM call for the establishment of MPAs, with the biodiversity chapter emphasizing the need for systems of protected areas. In addition to sharing MPAs as a tool, both fields are currently trying to scale-up these site-based field activities for greater geographic impact or to establish networks of MPAs. Both fields share an emphasis on accountability and on measuring results, and are also developing learning portfolios and paradigms to promote effective lesson sharing and knowledge management. The challenge is to ensure that biodiversity conservation, ICM and freshwater issues become more integrated and mutually supportive.

The Main Goals of ICM and Biodiversity Conservation

In general, the goals of ICM are broader than those of biodiversity conservation, with a strong emphasis on the governance process and the well-being of people. The main goals of ICM can be generalized as to: (1) improve the governance process that is supported by and benefits communities and nations; (2) improve the economy, health and social well-being of people who depend upon coastal resources; and, (3) improve environmental quality to maintain biodiversity and ecosystem productivity. In contrast, the main goals of biodiversity conservation are often stated as to: (1) conserve biological diversity, and (2) conserve ecosystem function. In ICM, "governance" can be defined as the process by which policies, laws and institutions address the issues of concern to a society; governance establishes the fundamental goals, institutional processes and structures that are the basis of planning and decisionmaking. In this context, governance sets the framework within which management occurs, where "management" is the process by which human and material resources are organized within an institutional structure (such as a protected area) for a known goal (such as fisheries enhancement or biodiversity conservation).

While the end goals of both fields may be similar—that of maintaining or conserving ecosystem function—the priorities and emphases differ between these two fields. To paraphrase the goals and approaches of these fields, the aim of ICM is to "promote the people, while trying to preserve the place," and the aim of biodiversity conservation is to "preserve the place, while engaging the people." ICM places an emphasis on the people, and ICM practitioners usually function as impartial, neutral brokers for communities and various resource users, whereas conservation practitioners are typically advocates for the environment. Essentially, conservation organizations give voice to those groups who cannot speak for themselves—the animals and plants in the environment. At the international level, as witnessed at the 2002 World Summit for Sustainable Development, there appears to be a higher demand for biodiversity conservation than for ICM, while at the local level there appears to be more of a demand by communities for ICM and meeting

the needs of people rather than those of biodiversity. How does one rectify this difference?

There are several ways in which ICM practitioners can be more supportive of biodiversity conservation without sacrificing their role as neutral brokers. First, coastal practitioners should ensure that conservation and environmental groups are involved in stakeholder discussions, and are thus speaking for the environment. Second, they should ensure that conservation efforts are responsive to the local community, and show clear benefits to the community as well as the environment. Third, they should ensure that biodiversity conservation is incorporated into ICM activities. ICM practitioners need to clearly link the benefits of biodiversity conservation, as well as environmental management, to community concerns such as fisheries, tourism, clean water, and human and environmental health. For example, in the case of ecological reserves or no-take areas, the importance of habitat preservation—and thus biodiversity conservation—to larval settlement, protection for little fish, and healthy food webs should be clearly related to the potential for catching bigger fish in a more sustainable way. When environmental linkages to community benefits are made, one needs to be more explicit about linking biodiversity *per se* to the environment and to community benefits. Coastal practitioners must ensure that communities learn about and understand the term biodiversity in an inclusive and positive manner, and as an integral component of both environmental and human health.

A Broad Repertoire of Biodiversity Conservation Activities

Biodiversity conservation encompasses a broad range of activities to protect marine biodiversity and change the impacts that humans are having on the global environment. Conservation activities may include, among others:

- Changing global trade policies, such as through the World Trade Organization
- Strengthening international and regional conventions

- Transforming global businesses and corporate governance, and promoting eco-certification schemes

- Reducing fishing threats from overexploitation, destructive fishing practices and illegal fishing

- Working on site-based activities, such as MPAs

The selection of field sites is usually determined on a global scale by identifying where global or regional biodiversity and/or endemism is highest and the human-based threats are greatest—so-called biodiversity "hotspots" (Roberts et al., 2002b). Once a site or eco-region is selected, a threats-based approach is applied. An assessment is made of the biodiversity and environmental status, the major environmental threats are identified and prioritized in importance, and the major economic, social and political factors that lead to those threats are identified and an intervention plan designed to reduce their impact.

Over the years, there has been a trend towards scaling-up biodiversity field approaches. Initially, emphasis was on individual site-based MPAs that addressed overexploitation within the site and protection of key species. This concept evolved into the protection of key or representative habitats, and a representative suite of species, through a network of MPAs. More recently, in light of a greater understanding of ecosystem function, the emphasis has shifted to an eco-regional or seascape approach, and on establishing functional, ecologically connected networks of MPAs. For example, conservation of coral reefs also requires the protection of mangrove forests and seagrass meadows, as these habitats are all part of functional reef ecosystems, as well as spawning aggregation sites. Connected networks of coral reef MPAs are needed for resilient and robust ecosystems that can survive a range of threats, including overfishing and bleaching events.

Current Issues in Biodiversity Conservation: What can ICM Learn from Biodiversity Conservation?

Some of the current issues in biodiversity conservation are similar to those within the ICM field. For example, there are ongoing discussions on how to integrate learning into programs and portfolios (Olsen et al. 1999), how to measure management effectiveness (Ehler et al., 2002), and how to measure and increase program accountability, both fiscal and biological (i.e., What is the impact on biodiversity conservation and what is the cost per unit effort?). We must ensure that the discussions occurring within each field are enriched by cross-fertilization and comparisons between fields. One such attempt to integrate both fields is being undertaken within the Convention for Biological Diversity where working groups are developing guidelines for integrating, operationalizing and strengthening biodiversity issues—such as precautionary and ecosystem-based approaches to management, genetic resources and invasive species—into integrated marine and coastal area management plans.

ICM practitioners should carefully examine the ongoing discussions within the conservation arena for measuring progress and program accountability. As mentioned earlier, the short-term goals of biodiversity conservation differ from that of ICM, and biodiversity programs may be held accountable for short-term, measurable improvements in biodiversity and the environment. Within ICM projects, it is generally recognized that sustained efforts over decades are needed to achieve the ultimate goals (termed Fourth Order outcomes in Chapter 1) of sustainable quality of human life and sustainable well-being of ecosystems over a significant geographic scale. Progress in coastal programs may be measured in terms of meeting First Order outcomes (i.e., institutional structures formalized, management plans adopted), Second Order outcomes (i.e., changes in target group behavior, conflicts reduced, development plans adopted), or Third Order outcomes (i.e., improvements in some social or environmental indicators) (Olsen, et al., 1999). Thus, in ICM, direct environmental benefits and sustainable ecosystems are considered as Third

or Fourth Order outcomes (with the possible exception of small MPA demonstration sites). Will biodiversity conservation programs measure up to these higher standards of success—effectively conserving the environment per cost of effort over short-terms? If they are successful, what methods and approaches allow the programs to achieve these marked improvements in the environment? Will the programs continue to show success over the long term as well, or over larger geographic areas as they attempt to scale-up?

Most biodiversity MPA projects immediately key in on achieving direct benefits to communities, such as through fisheries or tourism, and use strong regulatory and enforcement measures as well as non-regulatory incentives. Many ICM programs may have to explore ways to focus not only on larger governance and institutional strengthening issues, but also on key activities and economic drivers to reduce impacts on the environment. For example, once a community has agreed upon a set of actions, such as the need to address destructive fishing practices, prompt and strong enforcement of the regulations can ensure that cheaters do not benefit and instill a sense of fair play for all. ICM programs can also more directly engage with major businesses, such as commercial fisheries, agro-businesses, and large-scale tourist resorts for proper siting, construction and best practices.

Many ICM programs have established relatively small MPAs, which are appropriate on the local community scale to demonstrate early returns from the ICM process. However, there is major concern within the biodiversity field that small MPAs will contribute little to biodiversity conservation and ecosystem resilience (Roberts et al., 2001). Recent studies highlight the need for larger-scale MPAs and ecological reserves to maintain not only ecosystem function and biodiversity, but also most commercial fisheries (Pauley et al., 2002; Roberts et al., 2002a). To achieve sustainable ecosystems, ICM programs should consider how they can support the establishment of large MPAs and functionally connected networks of MPAs, as well as institutional and governance frameworks that support large-scale land/marine zoning and management schemes that

integrate across land and marine resources. Sustainable financing schemes for MPAs are being explored and documented by many conservation groups. Financing schemes may involve tourist operators, concessions and park fees for financial sustainability. ICM practitioners may find it useful to explore the range of options being pursued by conservation groups for financing and cost recovery, in addition to traditional line items in municipal and national budgets, or to directly engage with industries for environmental performance bonds and monitoring fees.

The Use of Marine Protected Areas in ICM Programs

MPAs are used for a variety of purposes in ICM programs. As "learning sites," MPAs are used for developing context-appropriate programs within a country or region. As "demonstration sites," MPAs are used for:

- Engaging and empowering the community
- Demonstrating early returns and benefits from the ICM process
- Achieving both community and government buy-in for ICM
- Demonstrating that social, economic and environmental benefits can be mutually accrued

As fisheries management tools, MPAs are used to enhance fisheries and to create buy-in by fishers for co-management, self-enforcement and other management actions. And as explicit biodiversity conservation tools and eco-tourism tools, MPAs are used to create local awareness and buy-in for alternative economic opportunities.

The Contribution of ICM to Biodiversity Conservation

Conservation practitioners are currently exploring issues that ICM practitioners have been dealing with for many years and thus have much to offer. These issues include addressing biodiversity threats that are external to MPAs, such as land-based sources of marine pollution, and effectively scaling-up from relatively small or single MPA sites, so as to create functional networks of MPAs, eco-regional efforts, or large ecological reserves for commercial fisheries.

There are several areas where ICM can clearly contribute to biodiversity conservation efforts to scale-up impacts beyond MPAs. ICM programs typically engage all or many levels of the government, which will be vital in addressing larger-scale threats and trans-boundary issues, and strengthening management and enforcement efforts. ICM is already making significant contributions by creating the enabling environments and policy framework to support site-based efforts, MPAs, and co-management schemes. It can further play an enhanced role in supporting larger-scale efforts and networks of MPAs.

While MPAs are necessary to conserve and protect marine biodiversity and critical sites, MPAs by themselves may be insufficient to afford full protection against broad-based threats such as decreasing water quality and land-based sources of pollution (Jameson et al., 2002). ICM is helping to address land-based sources of pollution through effective zoning, siting and improved land use practices, and can thus help to reduce impacts external to MPAs. ICM can make significant contributions to conservation by laying the political and legal framework for zoning of both land and sea areas, and by including ecological reserves specifically for conservation. (See Box 1 on Quintana Roo, Mexico.)

By working at the national and sub-national scales, ICM will help to more evenly distribute benefits and encourage sound planning/governance over a larger area, and thus serve to reduce human population pressures on isolated islands of MPAs. ICM practitioners are also developing effective replication approaches—working with local, district and national governments—to scale-up programs for greater dissemination and geographic impact, which may even lead to catalyzing efforts for national MPA networks. (See Box 2 on North Sulawesi, Indonesia.)

Mutually Reinforcing Approaches to ICM and Biodiversity Conservation

The ICM governance process and biodiversity conservation can be mutually reinforcing across the span of levels at which they work, drawing upon each other's strengths. (See Table 1 at end of chapter.) For

Box 1: Addressing Tourism Challenges and Threats in Quintana Roo, Mexico

The villagers of Xcalak, a small fishing community of about 300 people in the Yucatan Peninsula of Mexico, felt that their way of life and livelihoods were threatened by the intense, high-impact tourism development occurring in Cancun and extending southward toward the village. A request for assistance to the state government by the residents was directed to a local non-governmental organization, the Amigos de Sian Ka'an, which has been instrumental in protecting the Sian Ka'an Biosphere Reserve, which lies between Cancun and Xcalak.

The overall project goal of the Coastal Resources Management Program in Mexico was to conserve critical coral reef ecosystems and biodiversity through an ICM approach. Three intermediate goals addressed improved governance, quality of life and the environment by: (1) establishing tangible demonstrations of site-based, participatory ICM as a tool to promote sustainable tourism development along a reef-lined coast with low population density; (2) promoting development and use of low-impact practices for tourism; and, (3) building the capacity of the Amigos de Sian Ka'an, the Xcalak community, and the Mexican government to carry out site management and low-impact tourism practices.

This program was implemented by the University of Rhode Island Coastal Resources Center with their local partners—the villagers of Xcalak, the Amigos de Sian Ka'an, and the University of Quintana Roo. The Xcalakenós identified several key issues of importance to them, including the character of the community, their traditional economic livelihoods and way of life, and the protection of the natural resources. Through the efforts of the partners, the Xcalak Reefs National Park was established in 2000. Encompassing 18,000 hectares, the park contains a variety of designated use zones and sets limits on the tourism development along the coast in the park.

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Besides the establishment of one of the first community-driven national marine parks in Mexico, the program and its emphasis on governance processes had several significant outcomes beyond the boundaries of the park. First, it changed the trajectory of development along the Quintana Roo coast. Second, the state and federal planning process has become more responsive to the needs of local communities and the environment, and tourism good practices, such as low-impact practices, have been incorporated into zoning ordinances and national decisionmaking. Third, the process has strengthened the partners and partnerships in the region that will continue to promote sound development and reduced environmental impacts both within and beyond the national park.

example, international conservation efforts are important for helping to reduce threats from global economic drivers, such as international trade and unsound tourism, and the destructive impacts they can have on coastal ecosystems, governance processes and sustainable management efforts. International efforts and assessments can also help set global and regional goals, and create shared visions.

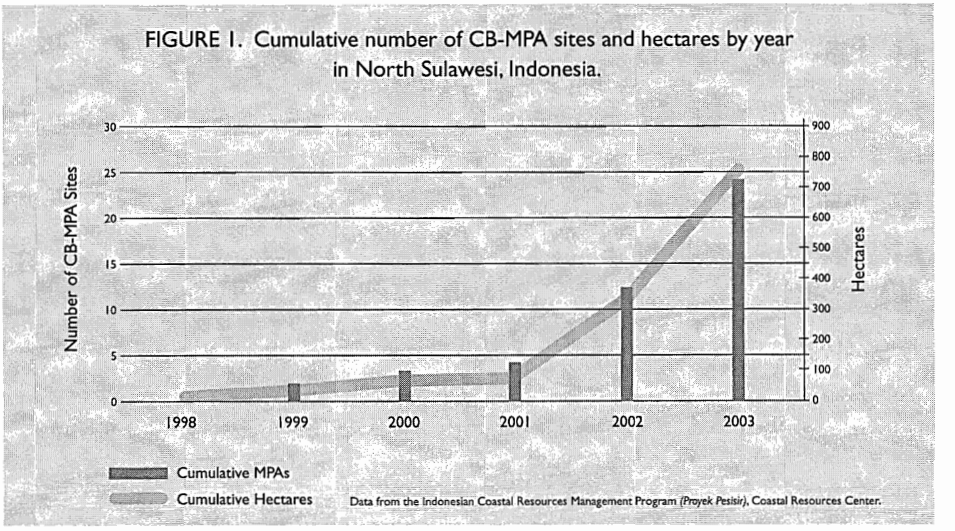
Eco-regional strategies can address regional threats, harmonize shipping and cruise ship regulations, and support the establishment of functional networks of MPAs. ICM frameworks and capacity building at the national level can establish strong institutions and enabling conditions—policy, legal, judicial and regulatory—that support national MPA networks and local MPA efforts, as well as reduce external threats to MPAs.

It is at the local level, however, that communities must decide what their goals and visions are, and how the international goals relate to their own. By working together, the ICM process and biodiversity efforts can be useful in connecting the international and local goals, and ensuring that biodiversity and human needs are both addressed.

Pressures and gentle persuasions must come from both the bottom up and top down to change the way humans view and use the environment and its resources. This "sandwich" approach can be especially effective for promoting change, and has been shown to be particularly useful in motivating national governments to be more receptive to environmental and governance issues.

International pressures can also be used to support biodiversity conservation and ICM efforts by promoting sustainable management of coastal and marine resources, especially when those resources enter the international market. In these cases, importing countries should assume responsibility along with exporting countries for promoting more sustainable resource use. Importing countries can require demonstration that species on the Convention on International Trade in Endangered Species list came from areas under sustainable management in the source country, or require individual importers to certify that animals were taken by non-destructive and legal practices. By creating positive incentives for responsible management, importing countries can assist exporting countries in strengthening their ability to manage and conserve their own

FIGURE 1. Cumulative number of CB-MPA sites and hectares by year in North Sulawesi, Indonesia.



Box 2: Promoting Community-Based Coastal Management in North Sulawesi, Indonesia

The work done in North Sulawesi, Indonesia through the Coastal Resources Management Program (CRMP) is also an excellent example of ICM contributing to biodiversity conservation. The goals of this project were to develop models of community-based coastal resource management through the ICM approach, especially with respect to the decentralization process underway in the country, and to strengthen local, district and national governments.

One of the first intervention points was the creation of small no-take marine reserves as part of broader community-based management plans in four pilot village sites—Blongko, Talise, Tumbak and Bentenan. The project demonstrated the community benefits derived from local self-governance through the ICM process, as well as the economic benefits from the small marine reserves. From the community standpoint, the marine reserve supported fisheries sustainability, enhancement via spillover from the reserve and, in some villages, potential tourism benefits. Promotion of the marine reserve concept at the community level initially emphasized fisheries management, not biodiversity conservation. However, recent community surveys show that residents now understand the benefits that reserves can provide beyond improved fisheries, including the aesthetic qualities of pristine areas, contributions of healthy reefs to shoreline protection, as well as marine conservation benefits. Hence, this is a win-win situation where multiple benefits and objectives were achieved.

The ecological and economic benefits to communities in the original demonstration sites are already evident. In the villages of Tumbak and Blongko, monitoring studies have shown that coral cover is increasing in the MPA. One spear fisher remarked that "catches have increased from 5 kilograms per day previously to 7.5-10 kilograms per day." Illegal coral mining is on the decline, as is bomb fishing, ending practices that threaten highly productive coral reefs.

Unlike usual approaches to marine park planning and establishment, the areas chosen for the community-based marine reserves were not necessarily the best areas for a reserve from an ecological or biodiversity conservation perspective. Social factors played an important role in reserve siting, in addition to ecological criteria shared with the community by local marine

experts. Reserve areas tended not to be important fishing grounds nor the most biodiverse areas of reef adjacent to the village; reserves were usually located in close proximity to the village settlement areas to enhance community compliance with the permanent no-take rules. Recent studies in these sites have shown that compliance is higher in areas closer to settlements, so the likelihood that the reserve effects will be achieved is greater at these sites. In addition, the community-based coastal management process has resulted in the reduction of destructive fishing practices not only in the no-take reserves but in the surrounding reef areas as well.

Through the project, both MPAs and models of ICM governance were established, and district laws on community-based ICM were adopted. Due to successful demonstration of governance and fishery benefits, district government offices are now demanding training in the ICM governance process. Within CRMP, the staff functions as facilitators in the ICM approach, building the capacity of government officials to train other officials in the governance process, and thus enhancing replication impacts.

The initial demonstration sites have generated strong interest and demand for replication of the process, the establishment of more reserves, and the reduction of destructive fishing practices in the region. With the enactment of the new district community-based coastal management law that promotes the establishment of village-level no-take reserves, the project has been working with local government to scale-up from the original four pilot sites to a larger number of coastal villages. As of March 2003, there are now 25 community-based no-take reserves in the district covering a total of over 700 hectares. (See Figure 1.)

Interest and demand for these small marine reserves are also contributing to discussions of a province-wide and national MPA network strategy. This is particularly important in North Sulawesi since these community-based marine reserves complement existing marine conservation efforts located in the same province and eco-region, such as the larger-scale Bunaken National Marine Park, one of the outstanding pearls in the string of MPAs dotted across the Indonesian seas. This example highlights how the ICM governance process can create the demand by local communities and levels of government that are vital for replication and scaling-up of field projects and their impacts.

coastal resources. For example, the U.S. is the largest importer of live coral and fish for the aquarium trade, and of dead corals and invertebrates for the curio and jewelry trades. The U.S. could have a major impact in many source countries by creating market incentives through creative trade measures that require demonstration and accountability of sustainable and responsible products (Best, 2002).

By working together strategically, ICM and biodiversity practitioners can mutually support efforts to promote conservation of coastal resources and the well-being of the people who depend upon them. Mutual efforts should be directed not only within and around MPAs, but also beyond MPAs for greater impact, and at local, national, regional and international scales.

TABLE 1: INTEGRATING THE STRENGTHS OF ICM AND BIODIVERSITY CONSERVATION

Theme	ICM	Biodiversity Conservation
Focus	Emphasis on development: promote the people, preserve the place	Emphasis on conservation: preserve the place, engage the people
Goals	Improve the governance process, economy, health, social well-being, and environmental quality to maintain ecosystem productivity	Conserve biological diversity and ecosystem function
Public role	Neutral brokers	Environmental advocates
Site selection and project design	Development and issue-based approach (i.e., decentralization, strengthen local communities)	Global biodiversity assessments and threats-based approach
Site-based approaches and strengths	Emphasis on governance process helps establish legal, decision-making and enabling environments across local, sub-national and national scales; establishing strong national ICM policies, frameworks and institutions that support local efforts and reduce external threats to MPAs	Emphasis on establishing and strengthening management schemes in MPAs; land acquisition, concessions and debt-for-nature swaps; target critical marine biodiversity and ecosystems in need of immediate protection; garner international funds and resources
International approaches and strengths	Promote international awareness of the need for integrated approaches to coastal management and capacity building; mainstream ICM into development plans	Change global trade policies and transform businesses; reduce threats from global economic drivers, such as unsustainable fishing and tourism; strengthen international conventions
Scaling-up approaches and trends	Coastal watershed and basin-scale management; establish strong national ICM policies, frameworks and institutions; use local government units to replicate efforts; establish authorities to integrate across land and marine resources	Establish functionally-connected networks of MPAs; Eco-regional and seascape approaches to biodiversity threats

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Chapter 11

Coastal Management and Poverty Alleviation

James Tobey

What is Poverty?

Poverty alleviation has become the renewed focal point of international aid and development assistance in recent years. At the 2002 World Summit on Sustainable Development, governments around the globe declared that eradicating poverty is the greatest global challenge facing the world today, and an indispensable requirement for sustainable development. Given the fact that 1.3 billion people continue to live in abject poverty, the world community reaffirmed the goal of halving by 2015 the proportion of people whose income is less than US $1 a day and the proportion of people who suffer from hunger.

Many of the more than one billion people living in grinding poverty are in coastal areas in tropical developing countries. Nearly half of the global human population is coastal and two-thirds of the world's great cities are on the coast. In addition, the human population is increasing rapidly in these areas, so that in developing countries the population at the coast is increasing at twice the rate of other regions.

A common indicator of poverty by virtue of being easily quantifiable is income. US $1 per day is a benchmark for absolute deprivation. But this measure does not accommodate for the importance of non-monetary dimensions of deprivation such as physical quality of life, self-esteem or even vulnerability, all of which determine standard of living. In effect, poverty signifies a state of deprivation where the individual is unable to meet personal needs or has limited access to opportunities for socioeconomic progress. It is a multidimensional phenomenon with different sets of indicators illustrating different factors that exclude people from a minimally acceptable way of life within their own society. These factors include:

- Social and political exclusion
- Inequality (income disparities, gender inequality, etc.
- Vulnerability and food security
- Educational attainment
- Water, sanitation and health
- Access to resources
- Housing and property ownership

Today, much more attention is given to the non-monetary dimensions of poverty than in the past. This is a reflection of the current consensus that development must be people-centered to be sustainable and include the human dimensions of development such as participation in decision making, empowerment, equity and capacity development.

Box 1: Poverty Facts in the Coastal Zone

Incomes are lower and poverty is more widespread in rural areas. About 75 percent of the world's poor people reside in rural space.

The rural poor in coastal areas depend heavily on communally held natural resources and linked ecosystems (fish, other aquatic products, and mangroves) for survival and income. In their daily struggle for survival, the poor have little time to think of the impact of their activities on the environment.

Fish caught by local small-scale fishers provide up to 80 percent of the animal protein in coastal communities of tropical developing countries. Millions rely on fish as a cheap and accessible source of protein and nutrients in their diet.

Small-scale fisheries employ 50 of the world's 51 million fishers, practically all of whom are from developing countries. If the fishery disappears from people that have no real access to other resources, they will become really poor in all aspects.

Africa's economic and development future cannot be separated from the management of its natural resources. In a continent where 70 percent of the people earn their living from natural resources, the key questions boil down to who has access to those resources, how are they managed, and who reaps the benefits?

Poverty Alleviation and ICM

Integrated coastal management and poverty alleviation are intimately interwoven. Sustainable development and poverty reduction cannot be achieved without healthy, well-managed and productive marine and coastal ecosystems. Overfishing, pollution, degradation of habitats and natural disasters increasingly undermine the ability of coastal

populations to meet basic health, economic and social needs. The result is loss of income and food security, greater health risks and greater vulnerability.

Achieving the goals of integrated coastal management (ICM)—improving the quality of life of human communities that depend on coastal resources while maintaining the biological diversity and productivity of coastal ecosystems—by definition attacks many key dimensions of poverty.

Many of the operational strategies and principles of ICM are pro-poor. In fact, the U.S. Agency for International Development (USAID)-supported coastal management effort in Ecuador in the 1980s was often referred to as "the project of the poor." ICM sees sustainable poverty reduction as attainable only when external support works with people in a way that is congruent with their existing context, capacity, and inspiration. The ICM approach involves:

- Fine-tuning solutions to local conditions by understanding the social, economic and environmental context in which communities live
- Evolving solutions through strategies owned and implemented by people of the place
- Reducing environmental dependency and improving livelihood options of the poor
- Counteracting inequities and the influence of power strongholds through good governance, as expressed by improved accountability and transparency, stable institutions and flexible inter-sectoral linkages
- Supporting decentralized planning that facilitates participation and ensures that services will be more relevant to the needs of communities and households

- Shifting toward more pluralistic approaches to decisionmaking, which incorporate the participation of a range of stakeholders

- Developing community-based decisionmaking and local environmental management to help coastal inhabitants maintain their livelihoods and gain equitable access to resources

- Building long-term capacity by bridging community movements with formal institutional arrangements

Sustainable Management of Coastal Resources and Food Security

In developing countries, the livelihood imperative of a healthy environment and access to natural capital is acute. Coastal inhabitants of poor tropical nations are directly dependent on the environment for livelihood and as a consequence are also vulnerable to environmental change.

Natural resources are a key element of the risk management strategies of the rural poor. Small-scale fisheries and other primary resource industries such as sand mining, coral mining, and woodcutting for domestic use and for sale are the livelihoods that sustain a large proportion of the very poor in the tropics around the world. If there is a failure in agriculture or fisheries in one season, many poor countries have to import food. Further, most of the poor do not have the wealth to buy food from the market. If the environment fails to support these people, they immediately go on food relief. For sustainable economic livelihood to support coastal inhabitants, a productive environment is required. In many tropical coasts, there is already concern that the coastal environment is becoming irreversibly degraded by human activities.

Where people depend on the environment and struggle to survive, it is necessary to maintain a balance between agriculture, fish exploitation and natural resources. This calls for policies that can adequately ensure the sustainable management of natural resources. It also calls for measures that will reduce people's direct dependence on natural resources.

ICM helps conserve the very resources that the poor depend on and offers strategies for reducing that dependence. For coastal ecosystems such as linked coral reefs, seagrasses and fringing mangroves, the goods and services and the links between them are diverse. The inshore fisheries are often dependent on the coastal ecosystems of coral reefs, seagrasses and the intertidal area, and mangroves. Thus, improving food security and the livelihood of small-scale fishers involves the conservation and sustainable use of fisheries and their associated ecosystems.

> *In our village, this is a very small catch. What you see here in front of me is very, very little. In the old days we got 10 times this much. But because of dynamite fishing, lots of corals, which support the fish population, have been destroyed.*
>
> – Old man in Mafia, Tanzania

The threats to nearshore fisheries in tropical coastal areas include not only fishery overexploitation and destructive fishing practices but also the largely negative impacts of cumulative environmental change from pollution and habitat change, and the potential of combined rises in sea levels and surface temperatures in the future. Land-use change leads directly to nutrient and sediment loading, which affects the quality and productivity of the marine environment, often in unpredictable ways. Sustaining the productivity and the availability of renewable natural resources such as fisheries is therefore a great challenge. It requires

greater attention to understanding environmental threats, human behavior and people's use and misuse of coastal and marine resources.

Today, small-scale fisheries employ 50 million of the world's 51 million fishers, practically all of whom are from developing countries. And together, they produce more than half of the world's annual marine fish catch of 98 million tons, supplying most of the fish consumed in the developing world. In Kenya and Tanzania, for example, nearly all of the fishing is artisanal and caught inshore of reefs. Of the 120 million people involved in activities directly related to the capture, processing and sale of fish, perhaps 95 percent live in developing countries.

Although fish supply approximately 6 percent of the world's protein requirements, they are particularly important to people in low-income food deficit countries. Fish caught by small-scale fishers provide a high percent of the animal protein consumed by people who inhabit the coast. Overall, fish comprise 7 percent of the total dietary protein in Tanzania. Of this, only three percent is from saltwater sources. However, coastal fisheries are the main source of food and income for coastal villages. In the Philippines it is estimated that small-scale marine fisheries provide 80 percent of the animal protein consumed by coastal inhabitants. Even on a national and regional level, fish is an important food source in Asia. Fish provides approximately 25 percent of total animal protein in Asia, and overall about 50 percent of the animal protein in the Philippines.

Given the importance of marine fisheries to livelihood and food security, the world community declared at the 2002 World Summit on Sustainable Development the goals of eliminating destructive fishing practices, establishing marine protected areas (MPAs), and maintaining or restoring depleted fish stocks to levels that can produce the maximum sustainable yield. Specific goals for Africa included supporting countries in developing and implementing food security strategies.

To ensure sustainable management of natural resources and food security, ICM strategies target linked coastal ecosystems and the multitude of environmental threats through a diversity of action strategies, namely:

- Reducing fishing effort to sustainable levels
- Stopping illegal and destructive fishing practices
- Protecting coastal and marine habitats through, for example, zoning and protected area management
- Controlling land-based sources of pollution and uncontrolled development and habitat change
- Enforcing coastal management regulations at the local and municipal level
- Strengthening capacities for community-based management and co-management

Poverty alleviation is a national policy priority in Tanzania. Livelihoods, environment, and poverty alleviation are key elements of the national ICM strategy developed by the Tanzania Coastal Management Partnership (TCMP) through a deliberative and inclusive process. The goal of the national strategy is "to preserve, protect and develop the resources of Tanzania's coast for use by the people of today and for succeeding generations to ensure food security and to support economic growth." One of the principles of the Strategy is that "coastal development decisions shall be consistent with the government's priority of poverty alleviation and food security." The TCMP has been helping coastal districts develop coastal management plans, including strategies for the conservation and sustainable use of fisheries and associated coastal habitats.

In Indonesia, the Coastal Resources Management Program's (CRMP) Proyek Pesisir has established a community-based marine sanctuary in Blongko, North Sulawesi. The results of monitoring show clearly that the available biomass of fish species and coral cover increased significantly almost immediately after the designation of the marine management area. This has benefited the local artisanal fishing industry, and has served to showcase to the rest of the island and Indonesian archipelago what is considered a pioneering MPA.

In Mexico, the Xcalak Reefs National Park was created by presidential declaration in June 2000. With the external assistance of the University of Rhode Island Coastal Resources Center (CRC), it is one of the first national marine parks initiated by a community rather than by the federal government. Small-scale fishers from the community are primary stakeholders in the establishment and management of the park. The Xcalak experience has provided invaluable knowledge and skills for protected area management throughout the Bay of Chetumal in Central America. In this area, unique coastal ecosystems contain interlinked marine, wetland and terrestrial habitats in a maritime border between Mexico and Belize. The ecosystems, which run from the Rio Hondo through the Bay of Chetumal to the Boca Bacalar Chico on the Caribbean coast, contain many endangered species.

Both the Indonesian and Mexican examples illustrate the effectiveness of co-management and the use of MPAs as fisheries management tools and as parks protecting unique habitats and resident marine communities. All MPAs are in effect related to a desire to maintain or increase ecosystem values, environmental services, and socio-cultural values. Co-management involves a sharing of responsibility and authority between the government and a defined community of local users in the management of a resource. In comparison, purely community-based MPAs are often not sustainable. Because these community organizations remain outside the formal institutions of government, the effort lacks long-term stability and fails to change the legal and governance frameworks controlling the

use of and access to coastal resources on any level other than the most immediate local scale.

A critical area of resource vulnerability in tropical coastal areas is the availability and quality of freshwater resources. Water issues in developing nations are another example of how poverty, health and environmental degradation are interwoven in complex ways. In the Nyali-Bamburi-Shanzu coastal area of Kenya, poor water quality and inadequate potable water supply is a major problem. Piped water meets only 65 percent of the water demand in the area. To meet the shortfall, residents turn to groundwater sources. Yet, groundwater is contaminated with salt water and by fecal coliform from inadequate sanitation services. Surface waters from Tudor Creek and Port Reitz Creek provide another source of drinking water, a source that is also contaminated with fecal coliform and industrial discharges. Thus, residents as well as visiting tourists face significant health risks from contacting or drinking the water and consuming contaminated seafood harvested from the area. Action strategies of the Kenya Coastal Management Initiative include establishment of an Integrated Water Resource Management Technical Working Group, awareness raising, construction of rainwater harvesting tanks, and training of local beneficiaries.

Reducing Dependence on Natural Resources

ICM helps populations in coastal areas reduce stress on the environment by conserving resources and by fostering pathways for generating coastal income that improves individual and household standards of living without degrading the natural environment. This recognizes that a diversified portfolio of income and employment opportunities for resource dependent people is required to reduce poverty and vulnerability to environmental shocks and food insecurity.

Reducing fishing pressure on overexploited nearshore fisheries by promoting alternative income-generating options (especially mariculture) is referred to by ICM professionals as the alternative livelihood strategy.

This strategy is summarized well by a quote from a specialist working with the national ICM initiative in the Philippines:

> "Seaweed farming helps protect our remaining coastal resources by building up other marine life and providing alternative livelihood for coastal fishermen, who might otherwise have resorted to cyanide and dynamite fishing." (*Sun Star Manila*; February 25, 2000).

A clear understanding of the merits and potential weaknesses of the alternative livelihood strategy is still evolving. For example, the strategy implicitly assumes that small-scale fishers overexploit and degrade the commons because they are poor and dependent on open access natural resources. However, there is a consensus that poverty itself is not necessarily the root cause of overexploitation and degradation of the commons. Overexploitation is equally widespread in the fisheries of the wealthiest countries of the world.

A second major assumption is that alternative ways to generate income will reduce pressure on fisheries. But, a comparative study of coastal resource management in the Pacific islands found that most alternative income generation programs have not been successful in reducing pressure on coastal resources. Fishery experts have shown that small-scale fishers enjoy the characteristics of fishing and are not necessarily willing to give up fishing for other income-generating work. Also, there is invariably a labor surplus in low-income rural villages. Thus, removing some of the fishers from the fishery will not necessarily reduce fishing effort.

The alternative livelihood strategy was tested in the North Sulawesi pilot sites of Proyek Pesisir, CRMP's Indonesian project. The results of a careful assessment of the strategy show that livelihood development (seaweed farming, pearl farming and tourism resort development) adds significantly to employment in coastal villages, but has little impact on overall fishing effort. Leaders of Proyek Pesisir conclude that fostering

alternative ways to generate income by itself is not an effective strategy for reducing pressure on fish resources.

Another finding of the experience in North Sulawesi is that care must be taken to ensure that coastal investments in alternative livelihoods benefit local people. Managerial jobs in the large-scale businesses have gone to outsiders while a lack of skills forces people from the coastal villages into the lower paying jobs. Where the enterprises have partial foreign ownership, profits are "leaked" abroad while the local community reaps few income-generating benefits. Thus, to alleviate poverty, the type and ownership of the enterprise should be considered in advance and job training may be necessary to increase local employment benefits.

Finally, the alternative livelihood strategy implicitly posits that alternative livelihoods do not generate new forms of environmental degradation or resource use conflicts that further impoverish the poor who are resource dependent. Depending on the specific situation, we know that tourism, mariculture and other income-generating activities can be environmentally damaging. Again, drawing from the North Sulawesi case, both tourism and pearl farming can lead to conflicts with small-scale fishers and others in the village. There are cases cited where fishers have thrown rocks on divers over conflicts of sea space. ICM professionals must, therefore, anticipate and plan for such conflicts when introducing poverty alleviation strategies.

The overriding priority of income generation and poverty reduction in poor coastal communities makes alternative livelihood strategies an important component of ICM. Poor people want opportunities for socioeconomic improvement, and it has been found that promoting wealth-generating businesses as part of community-based coastal management improves stakeholder interest and participation, and therefore the likelihood of success. An empirical study of community-based coastal management efforts in Philippines showed that those coastal projects with a sustainable livelihood component were more successful in marine conservation. So, in spite of the uncertainties and complexities

that surround alternative income strategies, those strategies will continue to be an important element of ICM projects.

Integrating Coastal Conservation and Development

One role of ICM is to balance development and conservation. It is a role that has perhaps the most significant impact on the trajectory of coastal development and the multiple dimensions of poverty. In coastal regions, and in small island nations in particular, there is a close interaction between water resources, land use and the coastal environment. Degradation is likely to impact the sustainability of livelihoods of local populations and the long-term viability of any development strategy, including tourism. For example, degraded coastal areas can lead to a decline in overall tourist revenue with serious consequences for local economies, and can lead to negative impacts on food systems. Recognizing these cause-effect relationships, ICM fosters sustainable economic development through approaches and tools that integrate the interrelated and complementary objectives of conservation and development.

Bahía de Santa María, Mexico, is a good example of balancing choices about development and conservation strategies, and about trade-offs between different goods and services and different uses and users. In this globally important ecosystem there is a close interaction between development, water resources, land use and the coastal environment. With the assistance of the CRC and Conservation International/Mexico (CIMEX), informal organizations such as non-governmental organizations (NGOs), users and stakeholders have established an integrated management plan with a focus on fisheries, freshwater inflows, and bay circulation to sustain the fisheries and the bay's natural productivity. The plan helps define a balance between long-term economic growth and conservation, recognizing that the ecological and economic systems have linkages—often with direct and immediate feedback.

Tourism, export-oriented mariculture, mining, port development and industrial development are often the target of ICM initiatives and when developed responsibly can be driving forces for poverty alleviation. For example, the guidelines for mariculture and tourism development prepared under the leadership of the TCMP have the goal of promoting income-generating businesses while protecting the coastal environment. Similarly, CRC has developed good tourism development practices with local partners for the state of Quintana Roo, Mexico. These practices promote a better balance between development and conservation, thereby fostering a tourism industry—tourism is the number one contributor to income in Quintana Roo—that will be sustainable in the long term. In Quintana Roo, as in so many coastal communities, when coastal areas become degraded, tourist revenues decline, creating direct and negative consequences for local economies.

Management Actions Integrating Development and Conservation

ICM integrates development and conservation through management actions such as:

- Formulation of coastal activity management guidelines and recommendations
- Environmental impact assessment procedures
- Coordinated agency permit review and approval procedures
- Zoning and use permits
- National or provincial land use plans and regional plans
- Village ordinances

In addition to these formal rules, regulations and institutional arrangements, there are usually a variety of informal organizations involved in coastal management, either as users or stakeholders. Informal organizations are often loose coalitions of individuals or groups with similar interests or objectives, such as NGOs, community-based organizations, and private sector organizations. Informal, or community-led collective action, provides flexibility to change and can adapt management approaches that formal institutions often cannot. Increased participation of civil society groups is also part of the current global political economy in which central and local governments in developing countries have retrenched, lacking the resources necessary to undertake effective management, while local groups take up the campaign against coastal degradation.

In Sinaloa, Mexico, the CRC and CIMEX work with shrimp farm organizations and the marina industry to integrate development in these industries with environmental stewardship. Experience shows that private businesses are willing to accept responsibility for their actions and to consider alternative actions that will increase the value and long-term viability of their activity. In Indonesia, Proyek Pesisir has worked with a village on the island of Sumatra to improve the economic and environmental sustainability of shrimp farms. Actions involving community stakeholders have included operation of a demonstration pond, study tours, environmental education, and mangrove replanting.

The Ecuador coastal management program has also involved many community-led processes that involved the government in integrating development with resource management. The program recognized that the status of ecosystems and the quality of life for coastal residents are interdependent. Community-based practical exercises encouraged local populations to perceive the linkages between ecological and human systems and to attempt to resolve environmental and social issues within this context. Local activities involved stakeholders and resource users, including people who collect wild shrimp postlarvae for the mariculture

industry, people concerned with eco-tourism development in the coastal community of Atacames, and people who collect and sell wood for charcoal and collect cockles for food in mangrove forests.

Conclusions

The contemporary emphasis on poverty alleviation in development and resource management reflects wider social and policy changes. In every policy sphere affecting international development, from the World Bank's poverty reduction strategies to changes in USAID priorities, there is a belief that success in sustainable development needs to be defined by the simultaneous objectives of poverty alleviation and conservation. ICM does not take place in a vacuum. It is subject to the same global movements that pervade all areas of public policy, natural resource management and project development. ICM can accommodate this global policy change, just as it has accommodated other social and policy changes such as participatory management, public-private partnerships and decentralization.

Decisionmaking structures, property relations and the institutions that give them authority underpin the causes of poverty and challenges to alleviating poverty. The piledrivers of ICM tools and approaches need to be the first on-site to work with stakeholders to improve existing social structures and networks, and simultaneously build livelihood opportunities and protect the environment. ICM approaches can promote changes that positively impact on social and economic opportunities and equity. They include identifying and promoting stakeholder interests and dialogue, envisioning and prioritizing environmental and social outcomes through inclusive and deliberative analysis, and facilitating appropriate institutional forms for delivering legitimate decisions. ICM influences power relations through transformative participatory processes that bring about a change in institutions, legal systems of property rights and access to resources. These kinds of changes to social order are the basis for improving the socioeconomic condition of the poor and people that are under-represented in coastal societies.

CHAPTER 12

FRESHWATER MANAGEMENT IN COASTAL REGIONS

Richard Volk

THE EMERGING GLOBAL WATER CRISIS

During the past century, the world's population tripled while human demand for freshwater increased more than six-fold. As the population grows by approximately 80 million people each year, freshwater demand grows by about 64 billion cubic meters—an amount equivalent to the entire annual flow of the Rhine River. Of course, there is no more freshwater on Earth today than there was 2,000 years ago when the population was less than 3 percent of its present size.

Although Earth is water-rich and known as the "blue planet," over 97 percent of its water resources are salty or brackish. Of the less than 3 percent remaining that is freshwater, the majority is tied up in inaccessi-

ble polar ice caps, glaciers, or deep aquifers. This leaves about 0.03 percent of total water that is accessible—in rivers, lakes, and shallow aquifers—for human use. But even that water is not evenly distributed in space or time, or located where the largest concentrations of people reside.

Today, more than 480 million people (8 percent of the population) face serious shortages of freshwater. By the year 2025, however, that number will grow to about 2.8 billion people (35 percent of the projected population). Although a majority of the projected water-scarce countries will be in the Near East and Africa, virtually every region of the globe will face water shortages to varying degree.

The worldwide freshwater demand is being pushed to new heights by industrialization, irrigated agriculture, massive urbanization, rising standards of living, and growing populations. Another way to look at demand is the fact that slightly more than one-half of available freshwater supplies are now used for human purposes, and the world water demand is doubling every 20 years.

The Relationship of Freshwater Management to Coastal Management

There are many dimensions to the emerging global water crisis, but of special interest to coastal managers are changes to water quantity and water quality that affect coastal ecosystems and their human inhabitants.

We know that water quality profoundly affects human health. Today, roughly 20 percent of the world's population (1.2 billion people) lacks access to clean water, while roughly two-thirds of the population lacks access to sanitation. This translates into a significant portion of illnesses in the developing world that are attributable as water-related diseases, including four billion cases of diarrhea resulting in three to four million deaths each year. Of course, there are a multitude of human health issues associated with how freshwater is managed, but a full discussion of them is beyond the focus of this chapter.

On the environmental health side, we know that some 80 percent of total pollutant load to the marine environment is derived from land-based activities, including both point and nonpoint sources. In the U.S. during the period 1972 - 1992, approximately US $125 billion was spent to construct or expand publicly owned treatment plants, with federal grants picking up about 75 percent of the costs. Developing countries, as a whole, are nowhere close to achieving the same level of infrastructure, and so point source discharges remain a huge and growing threat to the health of coastal ecosystems and their human residents.

On the other hand, improvements in nonpoint source control have been slow everywhere, in both developed and developing countries. This is due to the large number of diffuse sources, a general resistance to regulatory solutions, and the multiple pathways through which pollutants may reach coastal and ocean environments. Pollutants from nonpoint or diffuse sources include those released into the atmosphere through the burning of fossil fuels and other wastes, as well as water runoff from the land carrying—among other pollutants—pesticides, oil and grease, nutrients, and sediments.

Continuing with this snapshot of freshwater quality and quantity issues, humans have been in the business of building dams for water storage for many decades—or actually centuries. Today, there are over 45,000 large dams (defined as being 15 meters or greater in height) in over 150 countries. Over half of these are located in China. But there are a much larger number of smaller ones as well. The U.S., for example, has nearly 5,500 large dams and over 100,000 small dams. Although most planners believe that the era of large dam construction has passed its peak, the world community is still constructing an average of 200 - 250 new large dams each year.

There is now compelling evidence that humans have become a significant force in the transformation of the earth's hydrology. In a number of ways—both direct and indirect—we are significantly altering the volume, timing, and quality of freshwater flows to the estuarine and marine envi-

ronment. Human demand for freshwater is outpacing supply, and we have responded by constructing more and ever-larger dams and pipelines for inter-basin transfers. We are profoundly reshaping important landscape features, including forests that serve to naturally regulate water runoff. We allocate close to 80 percent of our available water supplies to often water-inefficient agricultural systems. We are destroying wetlands and losing their free ecological services. We are undergoing rapid and massive urbanization, where we are concentrating water demand and waste loads at unprecedented scale. And finally, with global warming, we face the prospects of altered patterns of precipitation and evaporation, and more frequent and severe storms.

What does this all mean for the estuarine and marine environment?

Estuaries and the Effects of Altered Freshwater Inflows

It is important to understand that freshwater is what defines an estuary. Estuaries are biogeographic features where usually colder freshwater from the land flows into and on top of denser saltwater from the sea. A salinity gradient is formed—from fresher to more saline—moving from an estuary's upper tidal reaches towards the ocean or sea. Water temperature and density differences result in considerable mixing of the fresh and salt waters.

The word "estuary" comes from the Latin root "estuare" which means "to boil, surge, or be in commotion." The vertical mixing of the water column described above, coupled with tidal and wave energies and replenished nutrient supplies from water runoff from the land, allow these to be the most productive ecosystems on earth in terms of energy transfers and biomass production. As a result, estuaries offer a myriad of free ecological goods and services, and it is little wonder that humans have demonstrated a propensity to settle on their shores throughout history.

But just why are freshwater flows so critical to the health and productivity of estuaries? There are many reasons, but the three most important contributions from flows are: salinity gradient, nutrients and sediments.

Although there are many kinds of estuaries with a wide range of defining characteristics, estuarine species have evolved over time to be adapted to a range of salinities, especially during their juvenile life stages. The salinity gradients act as physical barriers to marine predators, parasites and disease, giving estuaries their special significance as nursery areas. Nutrients are essential for biological productivity and are delivered by flows from throughout a river basin. Likewise, sediments are needed to maintain the physical morphology of shorelines, including that of barrier islands, dunes, beaches and adjacent wetlands.

When freshwater flows are reduced, either naturally as during drought or through human activity (from dams, diversions, or other landscape changes), tidal waters extend further into the upper estuary. Overall salinities increase, and there is less vertical mixing of the water column. As already mentioned, such conditions allow marine predators and parasites to move further into the estuary and wreak their havoc on estuarine species. Meanwhile, fewer nutrients are brought into the system, translating into reduced biomass production and changes to biotic community structures. A reduced influx of sediment can lead to increased coastal erosion and the loss of wetlands. As saltwater intrudes into coastal aquifers, human communities that rely on this source of freshwater are faced with yet another set of challenges.

Incorporating an Integrated Water Resources Management approach into Integrated Coastal Management

Despite the emerging global water crisis and its particular impacts on ecosystems and people, most experts agree that the goal of achieving global water security is not limited so much by water scarcity, but by the

absence of effective management of water resources. In recent years, the global community of water resource managers has come to fully realize the interconnected nature of hydrological resources, and has embraced Integrated Water Resources Management (IWRM) as an alternative to the sector-focused, top-down management styles of the past.

Several key principles are now recognized as essential precursors to effective IWRM. First among these is the recognition that water resources must be managed at the basin or watershed scale, including the integration of land and water, upstream and downstream, groundwater, surface water, and coastal resources. Closely tied with this principle is the recognition that it is critical to utilize an inter-sectoral approach to decision-making. Basin-scale issues involving multiple sectors require serious investments of time and effort to establish a transparent and fully participatory process involving all relevant stakeholders. It is only by forging a common vision and sense of mutual trust and respect among these diverse interest groups that IWRM can be sustainable over time.

Secondly, today's water resource managers recognize that enabling policies, laws, and institutions are essential precursors to successful IWRM. Just as with integrated coastal management (ICM), water resources management is primarily an effort in improved governance. The effort to harmonize policies, laws, and institutional frameworks is an essential first step, and one that should take place simultaneously at all relevant levels of government. While the goal in most cases should be to decentralize the authority for water resources management to the lowest appropriate level, that can only be achieved with approval and commitment from the country's highest executive and legislative officials. Decentralizing authority to the lowest appropriate level will help to ensure close linkage between the users of water resources and those who must be held accountable for water resource sustainability.

Finally, successful IWRM must invest in the accumulation of data, information, and reliable knowledge to help guide decisionmaking. Sound science is an integral component of any resource management endeavor

today, and is no less important in the field of water resources management. Understanding a river basin's water budget is fundamental to any discussion on how water resources should be allocated among the many human and ecosystem needs for freshwater. The collection and analysis of relevant data—including hydrological, environmental, economic, and social data—are best approached under the auspices of the relevant river basin organization which will call upon such information to promote consensus on a given course of management action.

Readers who are familiar with global trends and developments in the field of ICM will have recognized that these three key principles of IWRM—an ecosystem approach; democratic governance based on improved policies, laws and institutions; and the use of sound science for management—are the same key principles that govern today's most successful ICM efforts. As coastal practitioners become more informed of the efforts of their freshwater colleagues, they will likely find that not only the key principles, but also many of the tools and methods that underlie consensus-building and governance development processes in the field of IWRM are much the same as those for ICM.

Adopting a river basin approach, however, is no small endeavor, and coastal practitioners will need to be highly strategic in deciding how best to connect with such initiatives. Clearly, the successful management of freshwater is of central importance to coastal resources management, and every effort should be made to support an IWRM agenda wherever such programs are in place. And where such broader, more holistic thinking about national or regional freshwater resources is lacking, it may be critical that coastal managers step forward to promote such dialogue. Coastal managers have not only an environmental, but also a social and an economic imperative to do so.

But after that is said and done, it must also be recognized that the growing urgency and complexity of issues that confront estuarine and marine environments worldwide will continue to require their own investment in science, education and governance. The complexity and scale of ICM

issues necessitate multi-disciplinary dialogue and inter-sectoral coordination that is—albeit overlapping with the IWRM dialogue—unique and deserving of its own parallel focus.

The quantity and quality of freshwater flows to coastal ecosystems will be of increasing concern for billions of people as the global water crisis deepens. The social, economic and environmental consequences of present trends are at once sobering and a call to action. As coastal managers, if we are to succeed in our goal of sustainable development for coastal communities, we cannot ignore the central importance that successful freshwater resources management will ultimately play in our achievement of that goal. It is of tantamount importance that—without further delay—we begin the dialogue with our water resource manager counterparts, and that we begin to understand and incorporate an IWRM approach into ICM. Not only will downstream communities and ecosystems benefit from this collaboration, but so too will IWRM and its river basin management programs. The field of ICM has a rich history of experience in stakeholder processes that should be of considerable value to water resource managers. Most importantly, we must collectively work to dissolve the often-arbitrary distinction of interests that separate our upper basin, lower basin, and coastal communities. The time has come for a proper recognition of the ecological continuum that exists from the upper reaches of a river basin to the outer edges of its submerged marine landscape.

Chapter 13

A Critical Path to Desirable Coastal Futures

Stephen Bloye Olsen

The Status of Coastal Governance Today

An initial phase of discovery is over. The defining features of the practice of coastal governance are known and widely recognized by their practitioners. Molly Kux's hunch, as recalled in the Introduction to this volume, was correct. There is indeed much that is transferable in what is being leaned about coastal stewardship in the North and in the South. Furthermore, there is much to be gained when the learning flows both ways.

In the Anthropocene, the planet's coastal regions have become the primary habitat for humans, the dominant species. This makes coastal regions—defined as the first tier of watersheds, the estuaries and the productive coastal waters extending out over the continental shelves—the crucible in which we must halt and then reverse the headlong rush

to ever less sustainable forms of societal behavior. This is a massive challenge, but like other forms of change in complex ecosystems, it may occur quickly when long established patterns crumble and give way to the forces that demand restructuring the systems through which resources and power are distributed.

In an increasingly crowded and interconnected global society we know that it is the ability to *integrate* across what we know and what we do that is most critical. This integration must occur at many scales and across many previously compartmentalized bodies of knowledge. First, we must integrate and apply our knowledge of how ecosystems function and respond to human actions. Ecosystems must be defined as living systems that include our species as one of their components. Human societies may currently be a dominant force on this planet but this does not place us above or otherwise insulate us from the fundamental laws and processes that govern all life. The second priority for integration lies in constructing and maintaining nested systems of governance that unite planning and decisionmaking at the scale of a community to planning and decisionmaking at the scale of the planet. We have come to recognize that biodiversity is a crucially important feature of a planet that is healthy and welcoming to us and to our fellow species. We have yet to learn that cultural diversity may be equally important, if not necessary, to the long-term health of a planet that is friendly to our species. Both forms of integration require significant change to the values and the behavior that mark contemporary global culture. In the Anthropocene, an era of dramatic change, the task is not to resist change itself but to harness the energy released and give it a positive direction.

A major lesson has emerged from three decades of experimentation in coastal governance by people in a wide range of settings. It is that the *values* that underpin the coastal governance approach described in this volume—values such as participation, transparency, accountability—do indeed build constituencies. The overt recognition that many problems are rooted in social inequity is refreshing. We have learned that the application of the best available knowledge to solving problems and grasping opportunities contributes to a sense of empowerment.

In an initial phase of experimentation, most integrated coastal management (ICM) projects and programs in low-income nations adopt a strategy to focus their resources on small geographic areas. This permits them to hope for a discernible impact and avoid a confrontation with the institutions and groups that would otherwise see the participatory and integrating approaches of ICM as a threat if advocated at a national scale without first demonstrating their practicality and effectiveness. The "pilot project" approach has therefore been a dominant strategy of externally funded investments in coastal management in low-income nations. Pilot projects have indeed demonstrated repeatedly that it is possible to achieve many, if not all, of the First Order enabling conditions and to document changes in behavior that, when sustained, can produce a harvest of improved societal and environmental conditions. But it has also become clear that isolated small-scale efforts, while valuable as demonstrations of what is possible, have great difficulty in surviving over the long term once external subsidies, technical assistance, and moral support are withdrawn. The problem lies in the forces at work within the larger systems that are functioning by another set of values and rules. Recognition that enabling conditions must be constructed simultaneously at several layers in the governance system has its initial expression in "co-management" and what CRC has called the "two-track" approach. Both recognize that small-scale demonstrations must involve and be supported at higher levels in the governance hierarchy.

Examples of sustained effort and progress today exist largely in the North. These examples have all been constructed as expressions of "nested systems" in which actions at the local level are expressions of goals and policies that have been negotiated and formally endorsed at larger scales. In the U.S., major elements of state coastal zone management programs are implemented at the municipal and county scale as expressions of formally constituted state programs that are also approved, and partially funded, by the federal government. The coastal management directive of the European Union may be an initial step in the same direction. The successes of regional programs that have been operating for two decades or more—such as the Chesapeake Bay Program, The Wadden

Sea Cooperation and the programs implemented by the Great Barrier Reef Authority—all operate at large enough spatial scales to influence societal behavior, build constituencies and attract resources for sufficiently long periods. They are reaping harvests of significant environmental and social benefits.

Since nested systems of coastal governance are essential to sustained progress, the priority for the next generation of coastal governance is to put in place the necessary enabling conditions (First Order outcomes) across a range of spatial scales. During this period, we must continue to discover and codify how best to achieve the changes in values and behavior that are essential to the practice of coastal stewardship. The long-term results of programs must be documented and analyzed in order to build a robust body of experience on how to achieve and sustain the goals that define coastal stewardship.

The implementation of policies and programs will signal the transformations that are required if more sustainable—rather than less sustainable—patterns of behavior are to take root. In this period, we can also hope that the pioneers will define "sustainable forms of development" in clear operational terms in specific locales and will be able to offer models and inspiration to others.

In a final phase, we will have turned the corner and will see that the trends of resource overuse, misuse and destruction have been halted and that that the gulf between the haves and the have-nots that produces the poverty, inequalities and social instability of today is being bridged. We will have entered a time when development is defined as qualitative improvement rather that quantitative growth.

Achieving an Initial Threshold of Enabling Conditions across Spatial Scales

If the next phase in the advance toward more sustainable forms of development in coastal regions is to create the enabling conditions, what are

the major categories of actions that are required? The enabling conditions discussed in Chapter 1 can be grouped into three large categories.

Capacity to translate the principles of coastal stewardship and participatory democracy into an operational reality is today the primary factor limiting forward progress. Such capacity must first be instilled within individuals and then expressed through institutions. CRMP concluded that learning-by-doing, complemented by education, specialized training and exchanges among practitioners together form effective strategies when these are tailored to the identified needs in specific places. The integrating forms of analysis and thought that are central to coastal governance are beginning to find expression in some university curricula but there is much to be done to equip the next generation of professionals with the concepts and tools required to link across disciplines and function effectively as interdisciplinary teams.

Today much that is being learned is undocumented and remains within the personal experience of the individuals concerned. There is much reinventing of the wheel. Many projects and programs falter or fail when attempting to make the transition from planning and analysis to the implementation of a plan of action. Often, this is a consequence of designs that do not recognize that success is best defined and measured by the change in behavior of target groups and institutions. Too many funding organizations persist in demanding Third Order outcomes—more fish, restored environmental conditions, and higher incomes—in the compressed time frame of a generously funded project. They underestimate the challenges of achieving the specific changes in the practices required of specific groups within a society. The result is inefficiency, frustration and cynicism.

These misjudgments can be countered by the codification of what is known, and what have been repeatedly demonstrated as good practices. Such good practices are needed as a guide to the sequences of actions, and the linkages among actions, that bridge between periods of planning and periods of implementation. Such codification must address the

challenges of constructing nested systems of governance. As illustrated by the cases in this volume, such practices must be refined and adapted to the needs and capacities of individual places. This, in turn, requires investment in extension programs that are designed to both disseminate and apply what is known and to feed back the adaptations that are needed and the new topics that require the attention of the research and policy-making communities. Extension services are recognized as essential in public health and in agriculture, and likewise they must become a feature of a phase dedicated to creating the enabling conditions for effective coastal governance.

It has become obvious that the governments of many low-income nations cannot, or will not, make the monetary investments required to sustain promising first generation coastal governance programs. It is also unclear to many what defines a program deserving of sustained support. This suggests that an international coastal governance certification process should be developed and implemented. A defining feature of such certification should be the articulation of a set of standards, endorsed by an appropriate international institution, and reliance upon a peer review process to determine what programs meet such standards. Certification would provide a program with visibility and status. A subsequent, and equally important step, will be to provide sustained core funding for certified programs. Such core funding would sustain the basic structure and operations of a program and put it in a position to compete for the resources required to carry out its programs. Certification renewals would be determined in part by the demonstrated ability of a program to attract the additional resources required to advance its agenda. A certification program will need to define thresholds of institutional capacity and be designed to incrementally advance incipient but sound programs to greater levels of capacity. Such categorization of the institutional capacity of coastal governance programs could do much to avoid misjudgments in assigning agendas and budgets to an institution that call for a complexity of actions which outstrip its capacity.

Constituencies that are informed and motivated to actively support a system of values and a plan of action lie at the heart of social change. Indeed, the experience of the last decades has demonstrated that the participation of those affected by a program (the "stakeholders") is central to success. This is because only a small fraction of the changes that are required to achieve project or program goals can be imposed. Success lies primarily in voluntary compliance. This calls for the construction of informed and motivated constituencies.

It has been demonstrated, but is not widely understood, that behavioral change does not result from providing a society with information (McKenzie-Mohr, 2000; Stern, 2000). A connection must be made to the values and the beliefs of an individual or a society. When this connection is successfully made, the support and the energy released can be very large. Since "all politics is local," it follows that constituencies must be built place by place. Effective coastal governance cannot shun the importance of values and must see its efforts as an expression of the politics of a place. In the Anthropocene, the forging of alliances among groups and institutions with shared values and shared goals is a central part of the agenda for the next phase and beyond. This, too, is an expression of politics.

Commitment to a coastal governance agenda needs to be formalized if it is to have legitimacy. The rules must be made explicit or standards of transparency and accountability will be prone to misunderstandings if not to self-serving re-interpretation. In a nested governance system the formality and the political complexity of winning formal commitment increases at higher levels of hierarchy. However, if the necessary constituencies, the institutional capacity, or both are weak or missing, a formal commitment by a national government can have little real meaning. The result is a commitment that exists only on paper, and a proliferation of "paper parks," dormant laws and squandered budgets. Thus, formalized commitments are no more important than the other two expressions of enabling conditions and the three must be constructed in concert. In a

coastal governance system, such commitment should signal the beginning of a long-term effort with the authority and the financial and other resources required for the implementation of public policy. Only a small portion of the financial resources may flow from government. But government commitment is essential. Government provides legitimacy and a legal framework for negotiating conflicts, assessing progress and imposing standards of accountability.

We are learning that in the Anthropocene the most critical feature of formalized commitment is the endorsement of unambiguous goals for the social and environmental outcomes that the program is working to achieve. In a nested system, where authority is decentralized, and where the local culture and context shapes *how* something is done, it is clear that goals—not complex plans—give a program identity and purpose.

Strategies to Catalyze Positive Behavioral Change at All Spatial Scales

In conclusion, the second generation of an advance to global stewardship of the primary human habitat has begun. This phase must be different from the first. It requires codifying what is now known about the practice, certifying and sustaining programs that meet explicit standards of good practice, and implementing regional and global networks designed to ease the dissemination of new knowledge. At the regional and national scales, we need networks of institutions capable of providing extension services that connect the web of practices that mark the path to a future that is both desirable and achievable. The methods and indicators for assessing progress, for gauging the capacity, and for evaluating the performance of individual programs is a first step along the path—and it is a step that needs to be made without delay.

References

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