

**Application of International Experience to
Formulation of a National Policy for Coastal
Management for the Republic of South Africa**

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1.0 INTRODUCTION

The Republic of South Africa, with support of the British Department for International Development (DfID), is working to develop a national Coastal Policy that promotes the sustainable and equitable utilization of the nation's coastal resources while maintaining their productivity and biodiversity. The national initiative is being implemented under the auspices of the Ministry of Tourism and Environment through a unique Council - the South Africa Coastal Management Programme Policy Council (SACMPC) - comprised of ten members, all on an equal footing, that represent central government, provincial government, and key segments of civil society. Commonground Consultants provides Secretariate support to the SACMPC. SACMPC has undertaken a broadly participatory approach to its policy development task, supplemented by four technical studies. This paper is the international part of the effort to incorporate lessons learned from both past and on-going coastal management efforts in South Africa (Fielding et al. 1998) and elsewhere.

The scope of this paper was determined in a working session between members of the international and national lessons-learned teams held in Capetown in February 1998. At this session, it was decided to focus the international review on a number of questions and choices critical to South Africa.

A first draft of the paper was reviewed at a second working session with the South African lessons-learned team in May. Key points were also discussed with the SACMPC during a lively working session in East London. The information presented in this paper draws heavily from three sources:

- The URI Coastal Resources Center's over 25 years of experience in assisting a wide range of partners both in the United States and developing countries to formulate, implement and assess coastal management programs (Olsen et al. 1998, Hale, 1998, Olsen and Hale 1998);
- Meltzer Research and Consulting Co.'s recent work for Canada's Department of Fisheries and Oceans which reviewed international coastal management experience for its potential application to the east and west coasts of Canada (Meltzer, 1998); and
- Cican-Sain and Knecht's recently (1998) published book on Integrated Coastal and Ocean Management.

2.0 EVOLUTION OF THE PRACTICE OF COASTAL MANAGEMENT

As long as people have lived adjacent to the shore and used coastal and marine resources, there has been some form of coastal management, even if by default. Traditional societies that depended on coastal resources often had elaborate management systems that sustained the people and resources for generations, although they were not always consciously planned or intended as management regimes (Ruddle and Johannes 1983, 1989). In the nineteenth and twentieth centuries, as populations increased, technologies changed, and governments extended their reach over resources, the responsibility for management moved increasingly away from resource users to governments. For coastal and marine areas this typically meant either neglect which resulted in a *de facto* open access regime, or sectoral management of

individual resources like fisheries, or activities like transport, that too often resulted in degradation of resources, lost opportunities, and intense user conflicts.

The term coastal management came into common use with passage of the U.S. Coastal Zone Management Act in 1972. The Act recognized that the sectoral approach was not working and the misuse and overuse of coastlines and estuaries required a fresh approach to planning and management. It provided coastal states with incentives to prepare and implement integrated plans focused on selected issues of national and local significance. Since then, the concept has evolved as it has been applied to an expanding diversity of situations in many countries.

Among the principle changes are:

- **A shift from a resource-centered approach to a people-centered approach.** This shift has come with the realization that coastal management is largely a governance process rather than a technical endeavor. Coastal management is about defining, balancing and applying societal values to the use of resources, and trying to modify human behavior rather than exclusively identifying technical problems then applying technical solutions to them.
- **The perceived role of science has shifted from driving the policy process to informing the policy process.** Early on, many coastal programs believed that policy came directly from science; and that there was a "scientifically correct" policy. In recent years, both scientists and managers have recognized that this is the case in relatively few instances and more humbly recognized the difficulty of predicting natural processes, as well as the typically large margins of error inherent in scientific modeling of environmental problems. The role of science for management is still viewed as central, however science is now best viewed as informing the policy debate and clarifying options for and implications of different policies.
- **A shift from a remedial / mitigation approach to an anticipatory / precautionary approach.** With experience, coastal managers have recognized the limitations of over-reliance on the reactive, mitigation approach to management. The cumulative impacts of individually insignificant actions, the high cost of restoration, the high levels of uncertainty that surround all environmental decisions, and the frequent failure of restoration efforts have convinced managers throughout the world that application of the precautionary principle to management makes sense.
- **Expansion of the "tools" utilized to achieve coastal management objectives.** Early programs relied heavily on regulation, zoning and an impact-assessment approach to decision making. A much broader set of regulatory and non-regulatory tools are now used in coastal management. Today, the aim is often to promote stewardship of resources and places, and voluntary compliance to a management objective (whether from small-scale resource users or the private sector), so that regulation and enforcement actions become a tool of last resort. This change is both a reaction to a growing backlash to regulation in developed countries, and the absence of the preconditions required for effective regulation in developing countries.

Coastal management has also been recognized over the last decade in many international environmental treaties and regional agreements (Cicin-Sain and Knecht 1998). Key ones include the following:

- **Chapter 17 of Agenda 21** of the 1992 United National Conference on Environment and Development (UNCED) calls for all nations with coastlines to adopt Integrated Coastal Management (ICM) by the year 2000;
- **Framework Convention on Climate Change** under which the International Panel on Climate Change (IPCC, 1992) concluded that successful adaptation to the threat of sea level rise requires that efforts at vulnerability reduction be undertaken within the context of ICM;
- **Global Programme of Action for the Protection of the Marine Environment from Land-based Activities** explicitly recognizes ICM as the key tool for achieving its goals;
- **The Jakarta Mandate Pursuant to the Biodiversity Convention** recognizes the essential role of ICM in habitat and biodiversity conservation; and
- **The Ramsar Convention**, established in 1971, while often thought of having a freshwater wetland/migratory bird focus, is concerned with coastal and marine habitat protection and hence CM.

2.1 What is Coastal Management?

While there are a number of definitions of coastal management (CM), all stress the dynamic nature of the coastal management process and its emphasis on integration. A recent United Nations report (GESAMP, 1996) states the goal of coastal management is

....to improve the quality of life of human communities which depend on coastal resources while maintaining the biological diversity and productivity of coastal ecosystems.

The report defines coastal management as

...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.

But what do coastal programs actually do? There is not one answer to this question for not all programs termed coastal management share identical objectives, scope or activities. The types of activities carried out by coastal programs are summarized in Table 1. Examples of tangible achievements of coastal management programs are summarized in the box on the following page.

To date the major achievements of coastal management programs have been

institutional – better governance has resulted in cost efficiencies, harmonized policy, conflict avoidance and reduced numbers of conflicts. Environmental outcomes are more difficult to track, for baselines are usually lacking and it is difficult to separate a coastal program's specific contribution to any given outcome.

Examples of Tangible Successes of Coastal Management Programs

United States

- 97 percent of the nation's shoreline is covered by federally-approved state coastal management programs.
- Tidal wetland losses have been dramatically reduced in six states; for example, as a result of a geological review for all oil and gas-related permit applications, wetlands loss in Louisiana has been reduced from 1,500 acres/yr in 1982 to 200 acres/yr in 1990.
- Public access to the shore has been increased; for example in California where this issue has been a priority, 2,300 new public access sites were established over the last 25 years.
- State CM programs helped more than 300 cities revitalize urban waterfronts through waterfront parks, boardwalks, fishing piers; conservation of historic buildings; protection of ports and water-dependent uses; clean ups – contaminated sites; and organization of festivals that celebrate the coast.

Tanzania

- Through a community-based coastal management program, Tanga District has largely halted the use of dynamite fishing by local fishers
- District officials in Tanga have sufficient capacity to provide assistance to other coastal districts embarking on coastal programs

Sri Lanka

- The spread of illegal coral mining has been stopped; and in two areas with local level ICM programs, illegal mining has been halted.
- New hotels are constructed with adequate setbacks, reducing the demand for public expenditures for expensive shoreline protection works.
- Avoidable and costly environmental impacts of new development have been reduced through early and typically positive interaction between Coastal Program staff and developers.
- Rekawa Lagoon resident incomes are increasing as a result of implementation of an integrated management plan focused on fisheries rehabilitation and tourism development.

Australia

- Through CoastCare, multiple proactive coastal projects including dune rehabilitation, provision of access and recreational facilities, have been completed that both improve Australia's coast and build much-needed linkages between civil society and government.
- The semi-autonomous Great Barrier Reef Marine Park Authority is implementing a multiple use management regime for the world's longest barrier reef.

New Zealand

- Maori (indigenous people) interests have been recognized and taken into account in management.

Ecuador

- Citizens' rights and responsibilities for mangrove use in specific areas are being negotiated and recognized by government; then formalized in user agreements.
- Enforcement of existing coastal environmental laws is being improved through improved capacity and deployment of existing field personnel through participation in a multi-agency Ranger Corps organized under the leadership of seven Port Captains along the coast.

Philippines

- Coral reef condition and fish catch have been improved in numerous locations through the creation and implementation of community fisheries reserves. New eco-tourism opportunities have also resulted.
- Through a multi-year, multi-faceted investment in training, capacity for integrated planning and management has improved significantly at Provincial and municipal levels

Table 1 Typical Activities Carried out by Coastal Management Programs

<p>Area Planning</p> <ul style="list-style-type: none"> • Studies of Coastal environments and their uses • Zoning of uses • Anticipation of and planning for new uses • Promotion and regulation of coastal development projects and their proximity to the shoreline • Public education on the value of coastal and marine areas • Regulation of public access to coastal and marine areas 	<p>Stewardship of Resources</p> <ul style="list-style-type: none"> • Conduct of environmental assessments • Conduct of relative risk assessments • Establishment and enforcement of environmental/developmental standards • Protection and improvement of coastal water quality (point sources, nonpoint sources) • Establishment and management of coastal and marine protected areas • Protection of marine biodiversity • Conservation and restoration of coastal and marine environments (mangrove forests, coral reefs, wetlands, etc)
<p>Promotion of Economic Development</p> <ul style="list-style-type: none"> • Industrial fisheries • Artisanal fisheries • Mass tourism • Ecotourism • Marine aquaculture • Marine transportation • Port development • Marine recreation • Offshore minerals • Ocean research • Access to genetic resources • Seek alternative income generating activities to reduce pressure in coastal resources 	<p>Participatory Decision-Making/Conflict Resolution</p> <ul style="list-style-type: none"> • Studies of multiple uses and their interactions • Applications of conflict resolution methods • Mitigation of unavoidable adverse effects on some uses • Inclusive planning and decision-making
<p>Protection of Public Safety</p> <ul style="list-style-type: none"> • <u>Reduction of vulnerability to natural disasters and global changes (e.g., sea level rise)</u> • Regulation of development in high-risk areas through such methods as establishment of “set-back lines” • Construction of coastal defense measures (e.g., seawalls) • Creation of evacuation plans or other measures in case of coastal emergency 	<p>Proprietorship of Public Submerged Lands and Waters</p> <ul style="list-style-type: none"> • <u>Establishment of leases and fees for use of publicly held coastal and marine resources and spaces</u> • Establishment of joint ventures to exploit non-renewable resources (e.g., offshore oil)

Adapted from Cicin-Sain & Knecht, 1998

When reviewing different activities it can be useful to think about different types of coastal management.

Enhanced Sectoral Management programs focus on a single sector or topic but explicitly address impacts and interdependencies with other sectors, ecosystem processes, and institutional capacity. In coastal areas integrated approaches are needed and frequently formulated for such sectors as tourism, habitat management (i.e. coral reef management, mangrove management), mariculture development, etc.

Coastal Zone Management programs typically include multi-sectoral planning and regulation focused upon the characteristics and needs of narrow, geographically delineated, stretches of coastline. They work to bring order to the development process so as to:

- Avoid siting and construction mistakes;
- direct development away from critical ecological, cultural or high hazard areas;
- minimize adverse environmental impacts of development; and
- reduce foreseeable use conflicts

Integrated Coastal Management programs often consider an expanded coastal geographic unit or ecosystem with the people of the place to create a "vision for its future;" then motivate and catalyze action among stakeholders—those with an interest in the area or resources—to achieve that future. In an ICM process, the area's renewable and non-renewable resources are managed in an integrated, proactive way to maximize benefits from multiple sectors, reduce impacts of one sector on another, and make progress towards sustainable development.

Most countries include examples of all three types of coastal management with the emphasis largely reflective of the issues to be addressed, existing capacity to address them, and political realities. In this report, the term coastal management (CM) is used throughout.

3.0 EXTENT AND STATUS OF COASTAL MANAGEMENT INITIATIVES IN AFRICA

Coastal management is increasingly being developed and used by governments around the world as a distinct management approach to address coastal zone problems. According to Sorensen (1993), in 1993, there were approximately 150 CM efforts throughout the world in over 60 sovereign or semi-sovereign states. In recent years there has been a particular increase in coastal management efforts in developing nations, including CM feasibility studies, pilot projects, and programs (both on-going and defunct).

3.1 Western Indian Ocean

Eastern African Nations and the Island States recognize the significance of coastal resources and regions to their national development. Throughout Eastern Africa the resource base is being degraded at an ever-accelerating rate, causing economic hardship to the millions of residents whose livelihoods are directly dependent upon these resources, loss of substantial national development opportunities, and undocumented, but significant losses in biodiversity (The World Bank 1996).

In 1985, Eastern African nations came together under the auspices of the UNEP to sign the Eastern African Regional Seas Action Plan and a number of protocols to promote regional cooperation to better manage the marine and coastal environment. In 1993, ministers from throughout Eastern Africa convened in Arusha, United Republic of Tanzania and signed a resolution stating their commitment to sustainable coastal ecosystem development and management (Coughanowr et al. 1995). In 1996, a second Ministerial meeting was held in Seychelles where they assessed their own progress in meeting the goals set forth in the Arusha resolution, re-confirmed their commitment to coastal management, and set an agenda for progress over the next three years (Shah et al. 1997, WIOMSA, 1997). For the first time, South Africa participated in this regional forum, although its delegation was from the technical rather than Ministerial level.

During the inter-sessional period between the two ministerial meetings referred to above, several regional ICM activities were organized with Sida, USAID and the World Bank have supported. These included ICM National Workshops and a Regional workshop, which drew in practitioners and experts on ICM from within and outside the region to discuss their experiences. National workshops have been held in Seychelles (February 1995), Tanzania (May 1995), Mozambique (May 1996), Madagascar (September 1995) and Comoros (October 1995). These workshops have provided a mechanism for bringing together national experts and decision-makers from different sectors with stakeholders to discuss coastal issues and mechanisms for addressing them. In all these workshops, one of the key recommendations was the need to initiate a national process for developing policy for integrated coastal management. The national overarching Coastal Management policy will guide and ensure cross-sectoral coordination at national and local levels, stakeholder participation, compliance to laws and regulations, support for research, training, education and awareness at all levels (Ngoile and Linden, 1997). The Tanga Regional ICM Practitioners and Experts Workshop (WIOMSA, 1997), which was organized in preparation for the Ministerial Conference held in Seychelles, and the recent Zanzibar Regional Workshop on Local and community-based ICM Projects have taken stock of the existing programs and projects at different in the region. These regional events have revealed the existence of a substantial number of ICM projects, most of which are operating at sub-national level. The experiences and lessons drawn from these projects reaffirm the need for national overarching ICM policy, which could provide a framework for cooperative and participatory management. The lack of the national policy has proven to be a major impediment for the successful implementation of these local level demonstration projects (WIOMSA 1997). Currently, two nations in the Western Indian Ocean Region are moving beyond the pilot stage and embarking on national coastal policy initiatives – Tanzania and the Republic of South Africa.

Tanzania. Recognizing the need for national policy for guiding sustainable development in its coastal regions, Tanzania requested the assistance of the Government of the United States, through the Coastal Resources Center, for the development of such a policy. The policy development process was initiated in April 1997. All levels of government and the civil society were consulted during the development of the formulation of the project and the elements were agreed upon by consensus at the national level (CRC, 1997).

The Tanzania CM policy development program (termed the Tanzania Coastal Management Partnership-TCMP) seeks to develop a national CM policy based on the experiences of the

existing pilot programs and indigenous knowledge. The project, which began just this year, is based in the Office of the Vice President; working level integration is achieved through issue-based working groups chaired by relevant line ministries. These working groups are responsible for the synthesis of information and distillation of policy elements related to the issue being addressed. The experiences and lessons from the existing coastal management projects is fed to the working groups through frequent interaction and inclusion of pilot project personnel in working groups. The themes feeding into the policy formulation have been grouped into four categories:

- Establishing intersectional mechanisms for addressing emerging coastal economic opportunities
- Improving enabling conditions for integrated coastal management
- Increasing human and institutional capacity in support of integrated coastal management
- Ensuring lesson-drawing projects from and support to existing sub-national coastal management projects.

3.2 Eastern Atlantic

Similar marine and coastal issues are found but to varying degrees on the Atlantic Coast of Africa. In contrast to the Western Indian Ocean region, South Africa and other countries on the Atlantic Coast of Africa have to deal with coastal development, which is resulting from population pressure, industrial development and mineral exploitation. The best example where these pressures are experienced is Nigeria. In terms of marine and coastal resources, the management of foreign fisheries in the Canary Current and Benguela Current regions is a major issue involving agreements with the European Union. Foreign vessels are clashing with national based fisheries. Pirate fishing is rampant and it is estimated that over 40% of the marine fish yield in Sub-Saharan Africa is caught by foreign vessels.

As in Eastern and Southern Africa, the countries of the Eastern Atlantic are benefiting from a number of donor supported projects on coastal management at national and sub-national level (Table 2). However, unlike the Western Indian Ocean Region, there are no regional processes for the development of ICM. The Gulf of Guinea Large Marine Ecosystems GEF-supported Project draws in a number of countries bordering the Gulf. However, some of the countries in this region are not participants to the Program, and as such management agreements are undermined by the lack of compliance by non-participating countries. There is no regional mechanisms for the Benguela Current Region which includes the West Coast of South Africa, Namibia and Angola. Currently the World Bank/GEF is supporting the development of a Large Marine Ecosystems Program for this region, similar to the Gulf of Guinea Large Marine Ecosystem Project.

Table 2 Eastern Atlantic African Countries – Coastal and Marine Resource Issues and Management Programs

COASTAL REGION	COASTAL STATES	ECOSYSTEMS & RESOURCES	ISSUES	DONOR SUPPORTED MARINE PROGRAMS & ACTIVITIES
Benguela Current	South Africa, Namibia, Angola	<ul style="list-style-type: none"> significant upwelling mangroves, sea grass beds oil exploitation fisheries marine diamonds tourism 	<ul style="list-style-type: none"> inadequate information for management advice management of offshore fisheries by foreign vessels urbanization of coastal areas habitat degradation industrial pollution 	<p>National level activities</p> <ul style="list-style-type: none"> IUCN coastal wetland profiling Sida fisheries sector support GIS application and coastal zone planning <p>Regional level activities</p> <ul style="list-style-type: none"> project proposal for GEF support
	Gulf of Guinea	Zaire, Congo, Gabon, Equatorial Guinea, Sao Tome and Principe, Cameroon, Nigeria, Benin, Togo, Ghana, Cote D'Ivoire, Liberia, and Sierra Leone	<ul style="list-style-type: none"> upwelling area coastal lagoons, wetlands including mangroves migratory birds, turtles, cultural heritage sites and archaeological artifacts coastal fisheries including prawns important oil and gas production offshore fisheries 	<ul style="list-style-type: none"> inadequate information for management advice land based sources of pollution including nutrient loading, industrial pollutants, siltation, oil pollution over-fishing of coastal fisheries including prawns coastal erosion unplanned tourism development unplanned urbanization and human settlement monitoring and surveillance of offshore fish stocks mangrove over-exploitation land use planning
Canary Current	Mauritania, Senegal, Gambia, Guinea-Bissau and Guinea, Cape Verde.	<ul style="list-style-type: none"> coastal wetlands including mangroves fisheries tourism salt production 	<ul style="list-style-type: none"> inadequate information for management advice land based pollution including nutrient loading coastal erosion habitat degradation including mangrove deforestation monitoring and surveillance of fish stocks 	<p>National level activities:</p> <ul style="list-style-type: none"> many donor agencies are assisting in aspects of coastal conservation, management and development including, IDRC, WB, USAID, SIDA, IUCN-Swiss, GTZ, IUCN <p>Regional level activities</p> <ul style="list-style-type: none"> IUCN/ADB Guidelines for development and planning in mangrove habitats of West Africa, IUCN Wetlands Mapping UNEP/FAO Regional Seas

4.0 PROCESS BY WHICH COASTAL MANAGEMENT PROGRAMS EVOLVE

It is widely accepted that the process by which CM programs evolve can be described as a policy cycle with the same features of other such endeavors. This cycle is illustrated in Figure 1. The process begins (Step One) by identifying and assessing the issues in the stretch of coast in question, and then proceeds to set objectives and prepare a plan of policies and actions (Step Two). Next comes Step Three of formalization through a law, decree or interagency agreement and the securing of funds for implementation of some selected set of actions. Policy implementation (Step Four) is the step in which procedures and actions planned in the policy formulation stage are made operational. Step Five, too often ignored or poorly executed, is evaluation.

The policy cycle places the many actions of a program in a logical sequence (Table 3) and helps unravel the complex inter-relationships among the many elements of coastal management. Experience shows that certain features must be in place in order for a coastal management program to successfully progress toward its long-term goals. In this sense, the coastal management policy cycle is a "road map" to a complex, dynamic and adaptive process. It provides "way points" for a more efficient progression of coastal management initiatives.

4.1 Generations of Coastal Programs

Global and regional experience is demonstrating that coastal management programs mature through the successive completion of coastal management policy cycles. Olsen et al. (1998) term each cycle a "generation" (Figure 1).

The "generations" of a CM policy cycle follow a sequence of intermediate and end outcomes at different scales (Figure 2). If a program is strategic, it will define in general terms an end goal and then carefully and pragmatically define its intermediate objectives for a given generation of the CM policy cycle.

The steps of the ICM development cycle.

The dynamic nature of ICM requires feedback among the steps and may alter the sequence, or require repetition of some steps (from GESAMP, 1996). As found in Olsen et al. 1998.

More sustainable forms of coastal development

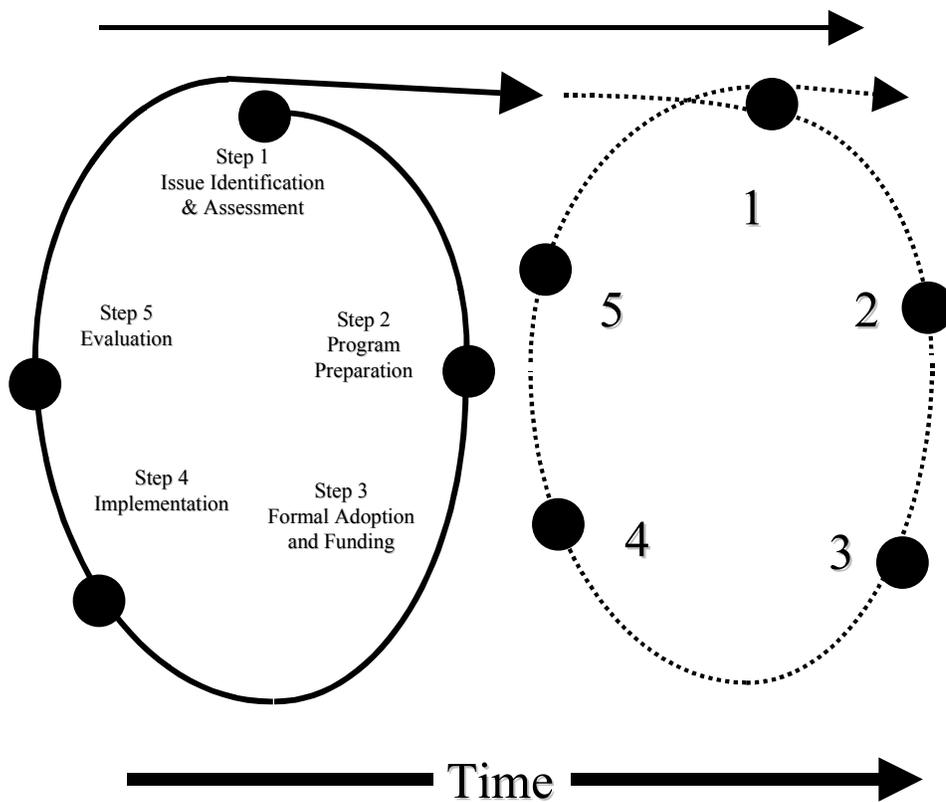
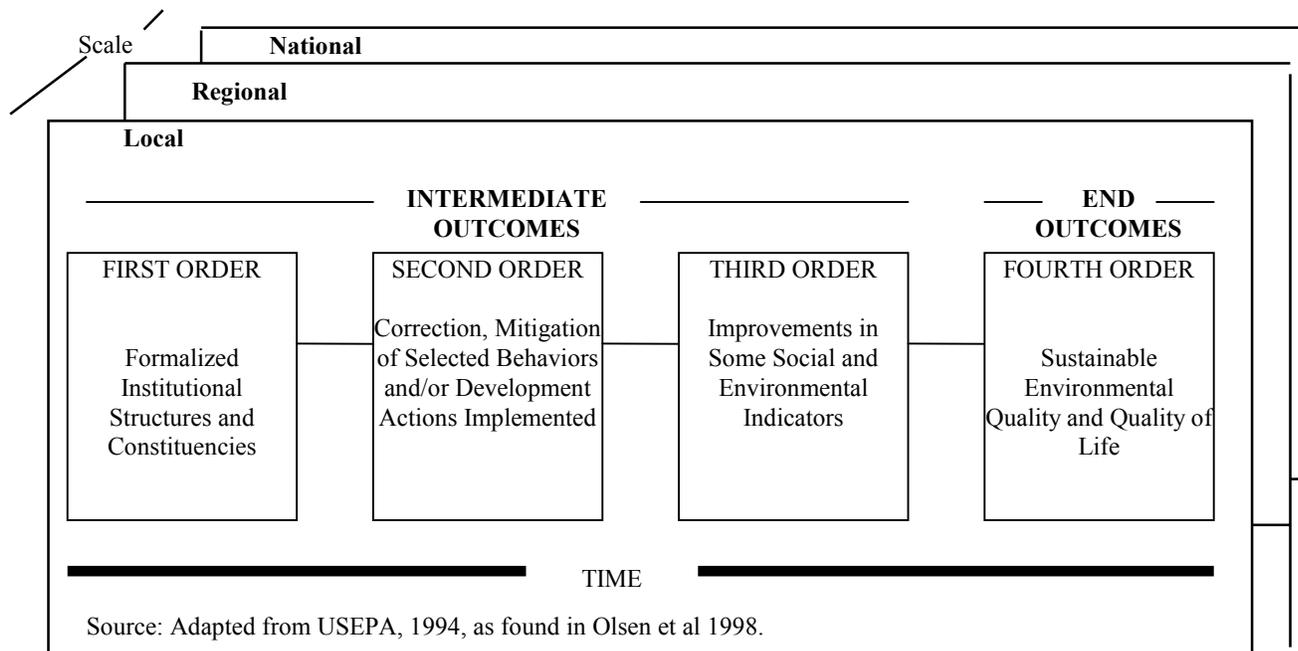


Table 3: Essential Actions Associated with the Steps of the CM Development Cycle

Step	Essential Actions
<p>Step 1: Issue Identification and Assessment</p>	<ul style="list-style-type: none"> • Identify the major stakeholders and their interests. • Identify the principal environmental, social and institutional issues and their implications. • Identify the causal web linking human uses, natural processes and adverse coastal conditions. • Define the goals of the coastal management initiative.
<p>Step 2: Preparation of the Plan</p>	<ul style="list-style-type: none"> • Conduct selected scientific research. • Document baseline conditions. • Develop the management plan and the institutional framework by which it will be implemented. • Create staff and public sector capacity for implementation. • Design institutional structure and decision-making processes for plan implementation. • Test implementation strategies at a pilot scale. • Conduct a public education and awareness program.
<p>Step 3: Formal Adoption and Funding</p>	<ul style="list-style-type: none"> • Obtain formal governmental endorsement of the coastal management plan or program and the institutional framework by which it will be implemented. • Obtain the funding required for an initial period of program implementation.
<p>Step 4: Implementation</p>	<ul style="list-style-type: none"> • Adapt the program to its own experience and to changing environmental, political and social conditions. • Improve legislation and legal authority for management. • Establish mechanisms for inter-agency coordination. • Establish conflict resolution procedures. • Strengthen program managerial capacity. • Catalyze the construction and maintenance of necessary physical infrastructure. • Encourage participation of major stakeholder groups. • Maintain the program's priority on the public agenda. • Program monitoring.
<p>Step 5: Evaluation</p>	<ul style="list-style-type: none"> • Evaluate and adjust program as necessary.

Source: Adapted from GESAMP, 1996; as found in Olsen et al. 1998.

Figure 2. Ordering coastal management outcomes



The importance of clear, specific, objectives that are amenable to objective analysis cannot be overstated. Olsen et al. (1998) summarize the sequence of typical outcomes as follows:

- a. *Formalized Institutional Structures and Constituencies for CM*: For many programs, the first priority is to create a program that has the mandate, the human and financial resources and the political backing to begin practicing integrated resource management. Programs attempting to address the growing coastal issues facing the world will have to tackle a complex set of social, economic, and environmental issues, which traditional sectoral approaches to coastal development have not been able do. Where institutional capacity is lacking and inter-agency conflicts dominate, this is in itself a major undertaking.
- b. *Correction, Mitigation of Selected Behaviors and/or Development Actions Implemented*. Once the CM program is in place and capable of functioning, it can expect to produce measurable impacts on the human behaviors selected as the focus for that generation. Here again, scale is of critical strategic importance. A CM program or project must walk before it can run. The most successful and sustainable initiatives make good judgments of what they can reasonably hope to accomplish in any particular generation. Usually the limiting factor is institutional capacity.
- c. *Specific Improvements in Quality of Life and the Condition of Target Environmental Qualities*. There is usually a lag between modifying a behavior and the effect on society and the ecosystem. The achievement of measurable improvements in selected

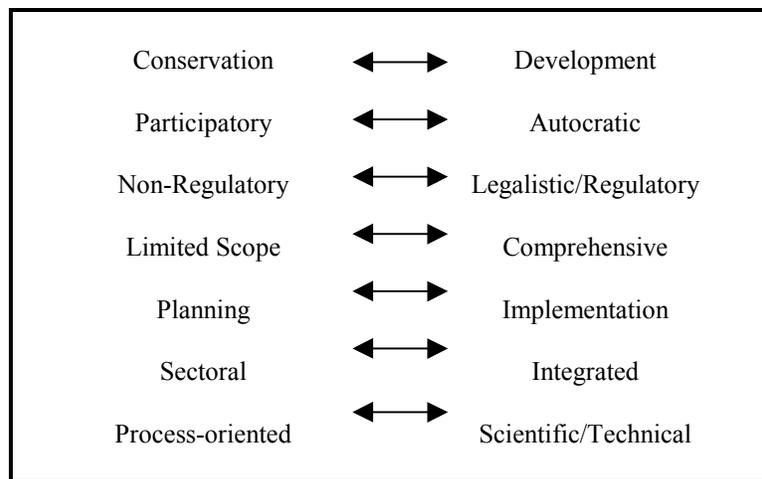
indicators of quality of life and the environment, such as fish stocks, water quality, and income are major accomplishments that bring credit to CM programs and justify the process by which they were achieved.

- d. *Sustainable Environmental Quality and Quality of Life.* Pragmatically, it is unlikely that we will see, in our lifetimes, the achievement of sustainable forms of coastal development at significant scales. What matters to us now, and matters urgently, is rather the direction of the development trajectory. Are we, as human societies, moving towards sustainable forms of coastal development, or are the actions of the societies of which we today are a part compromising the ability of our children and their children to meet their needs? CM programs must pose these questions in honest and realistic terms and attempt to answer them. CM offers a framework for addressing such questions in the context of a holistic, long-term and scientifically rigorous approach to the challenges of development and the environment.

5.0 PRINCIPLES FOR EFFECTIVE COASTAL MANAGEMENT

There is no formula for developing coastal management programs. Each nation and place must invent the program that reflects the nation's values and aspirations, and will be workable and effective within their unique socio-political cultural context. Hence successful programs can be found on many places along a continuum of attributes (Figure 3)

Figure 3: Range of orientation of coastal management programs



There are, however, a number of critical features that appear to be essential. These features are based on Coastal Resource Center's quarter century of national and international experience in the practice of coastal management; the experience of other CM practitioners and experts in the fields of CM planning and implementation science (e.g., Hennessey 1994, Imperial, 1995, Olsen et al. 1996, Olsen and Tobey 1997, Sabatier and Mazmanian 1979, Sorensen 1997, Chua and Scura 1992); and the results of a UNDP financed-survey of CM evaluative questions being asked by international donors (Olsen et al., 1997). Each feature is briefly discussed below.

Features of Successful First Generation Coastal Management Initiatives

- Local and national ownership of the program
- Leadership
- Stakeholder participation in all phases of the program
- Strategic, issue-driven program focus and goal driven/action oriented solutions
- Matching program activities to the capability of the people and institutions
- Integration across sectors and scales of management
- Integration of scientific information into the policy process
- Individual and institutional Capacity
- Implementation actions that occur concurrently with planning
- Learning and adaptive management

5.1 Local and National Ownership.

Since a coastal management program articulates in specific terms a nation's shared goals and policies for a geographically specific region or regions, it is essential that the process by which it is developed and refined is "owned" by the government and people of the country. Key parameters of ownership are:

- Broad stakeholder participation in all phases of program formulation and implementation
- Government (National, provincial and local) endorsement and active involvement in the process
- Sustained support from national and local government, NGOs, Universities, private sector and resource users.

At the national level, coastal management should be understood as an effective means for implementing international obligations, promoting sustainable economic development, for addressing the problems resulting from fragmented sector-by-sector decision making, maintaining areas and resources that are of national importance, promoting biodiversity conservation, balancing national and local interests, ensuring a fair return for the use of public resources, reducing conflicts and maintaining the coast's ecological systems and essential process.

State and local government also must feel ownership of a national program. Typically, however national programs are resisted, because they are perceived as shifting power away from local government, reducing or constraining the discretion available to local government, and/or adding cost or other burdens to the local level without commensurate benefits. As pointed out by Cican-Sain and Knecht (1998), the strongest local support can be expected for national programs perceived as:

- Providing new and/or established tools, resources and technical assistance to address important problems;
- Flexible and adaptable to the varying situations in different localities; and
- Making maximum use of the talent, expertise and experience of the other spheres of government.

National programs also must recognize that more local levels of government are “proprietary” about “their” place. This feeling must be acknowledged and taken into account if broad ownership of a program is to be achieved and productive national/local partnerships formed.

Ownership also ultimately implies a willingness to pay for a program. Unless a coastal management program becomes part of regular government work, with regular, recurrent budget it will never be locally owned or sustained. Local and/or national budgets can and almost always are supplemented—in the case of developing countries by donors, in the case of developed countries by national government funding to lower levels of government. To sustain this “external” funding, there also must be perceived benefits to the donor/national government. Such benefits may include testing of innovative concepts, making progress on issues of national or international importance such as the overarching goals of more sustainable forms of development and/or democratization.

5.2 Leadership

Effective and committed leadership at both the political and practical levels is essential for a successful coastal program. It is simply not possible for any coastal program to ever have all the authority it wants or needs to achieve its goals. Hence leaders who can recognize and act on opportunities, seek and obtain cooperation from key actors, and keep the program a priority for the nation, are essential.

5.3 Stakeholder Participation in all Phases of the Program Design and Implementation

Successful coastal management programs provide for the meaningful involvement of those who are affected by the coastal development process and the implementation of coastal management policies. International experience repeatedly demonstrates that programs are successfully implemented and sustained where there are constituencies who are active advocates for improved resource management. Participatory methods engage people who have a stake in the outcome of the management effort, and give them a voice in management decisions.

The mechanisms by which the public is involved must be tailored to the culture and traditions of the nation, but should strive to assure that key participants at both the national and local level participate in all phases of the policy process. Many programs have embraced "participatory rural assessment" and other techniques such as visions that involve stakeholders in the initial identification and characterization of issues. But only a few proceed to ensure participation in the subsequent phases of plan formulation and policy selection, in implementation, enforcement monitoring and evaluation. Participation is often best accomplished by making public education and consensus-building important components of the management process. Public education and outreach programs raise awareness of the need for sustainable coastal management and thereby help to create constituencies and political support for resource management.

5.4 A Phased Strategic Approach to Selecting Issues and Addressing Them in a Goal-Driven/Action Oriented Manner

The importance of maintaining a strategic focus throughout a coastal management program's development and implementation process cannot be overstated. No single program, even an integrated one, can solve all the problems of the coastal region. Deciding which issues to address; and where and when to address them is among the most crucial decisions that a program makes. Programs fail when they try to do too much at once, are spread too thin, and then are seen as either irrelevant or a barrier to solving the problems they were created to address.

Hence considerable time is needed to define and redefine the issues, problems and opportunities upon which a program should focus its efforts-based on input from decision-makers, the public and scientists. To maintain a strategic focus, it is important to prioritize coastal problems. Low-priority and issues too complex for progress over the medium-term should be incorporated in the later stages of program development, after initial successes have been realized. The Sri Lanka program has been especially strategic in their issue selection process.

Issue Selection in Sri Lanka

In Sri Lanka's first generation coastal management plan, initiated in 1983, the issue identification process was conducted primarily by staff of the Coast Conservation Department (CCD). Among all the potential coastal resource management problems, CCD staff chose to emphasize coastal erosion, degradation and depletion of coastal habitats and loss of significant historic, cultural and scenic resources in coastal areas. Coastal erosion was part of the historic mandate of the department, they had substantial engineering expertise already in place, and there was broad public recognition that coastal erosion constituted a significant problem. Hence, erosion control was an obvious choice. Habitat management and the protection of cultural and historic sites were viewed as difficult, but potentially 'tractable' problems over which the CCD could exercise some influence through a regulatory program in the narrow (300 m) coastal zone identified in the Coast Conservation Act. Other important coastal concerns, such as industrial discharges in estuaries, were viewed as outside the expertise and management capacity of the department. However, coastal water quality was added in the second-generation plan (1997).

5.5 Integration Across Sectors and Scales of Management

The integration in coastal management is what distinguishes the endeavor from traditional sectoral programs. Coastal regions, with their burgeoning populations and many competing human activities, natural resources and ecological processes, are where integrated approaches are most urgently needed. The forms of integration required by coastal management are several.

Among governance levels. One dimension of integration is between "top-down" and "bottom-up" approaches to resource management and policy reform. This is the principle underlying the "two-track" approach to coastal management that is utilized in the US, Australia, the Philippines, New Zealand, and Ecuador, and is currently evolving in Tanzania

and Canada. A "top-down" approach focuses upon central government, its procedures and structures, and the need for national policy reform. A "bottom up" approach works to enable change at the community and local government level, with the hope that success at the local level can be transferred and multiplied across society.

The two-track strategy combines both approaches by simultaneously and incrementally building capacity both within central government (both national and provincial) and at selected community 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 this approach lies in creating a dialogue that links the tracks and promotes a sense of shared purpose at all levels.

Among sectors, institutions and disciplines. This is an imperative in coastal management planning, research, policy formulation and implementation. The complex overlay of issues and institutions along coastlines makes it impossible for a single agency to meet the challenges of management alone. Success lies in forging partnerships among institutions, among user groups and those who provide technical assistance. Building such productive and sustainable partnerships is not easy; and incentives, such as those shown below are essential. The many new opportunities of utilizing computer technology and optimizing the "information highway" to promote integration are only just being recognized.

Incentives for Achieving Interagency Cooperation

Financial incentives. If funding is tied to interagency cooperation, that cooperation usually occurs, although it can disappear when the funding disappears.

Perception of a shared problem. If the problem being considered can be seen as a problem shared by a number of agencies and not solely the responsibility of one, cooperation clearly becomes easier.

Perception of shared goal. If the realization of an identified common goal can only be achieved through the collaborative efforts of different agencies

Shared professional values. To the extent that issues can be expressed in professional or technical terms and not in terms of agency missions, cooperative action is facilitated.

Perception of political advantage. If policy-level leaders above the agencies in question make it clear that the issue is also important to them and to the higher levels of government generally, cooperation is more likely to result.

Availability of fora for cooperation. Regular opportunities for discussion, accommodation, and, eventually, cooperation-preferably on neutral ground-can be very helpful.

Desire to reduce uncertainties. Virtually all agencies seek to reduce uncertainty in their environments; cooperating with other agencies is one way to do this.

Source: Adapted from Weiss 1987, as found in Cincin-Sain & Knecht, 1998

5.6 Integration of Scientific Information in the Policy Process

The management of complex ecosystems subject to significant human pressures cannot occur in the absence of science. The natural and social sciences are vital to understanding how ecosystems function, to clarifying the origin of human-induced problems, and to finding solutions that can be implemented. It is important that science has clearly defined roles within the planning process science can be used to help characterize problems over time and establish management priorities; link causes to specific environmental problems; understand ecological systems in order to develop policy options and legitimize management decisions; and, monitor existing conditions in order to evaluate the effectiveness of policies and attainment of plan objectives.

Some coastal management programs have focused too much on "science" that has proved to be peripheral to effective management practice, and concentrated too little on governance processes; others have done the reverse. Research and technical tools (GIS systems, impact assessment, ecosystem modeling, surveys, and inventories) are of little value if the institutional and societal context in which they are introduced cannot absorb the insights that such tools can provide.

Judgments on what research and what technology will be most useful and appropriate in a given setting is best made by managers and scientists working together through all the steps in the coastal management process. Increasingly scientists and managers are also recognizing the important contributions of traditional ecological knowledge provided by indigenous people and traditional resource users. Integration of user group information with "scientific" information has successfully been done in numerous coastal programs in Alaska (US), Tanga, Tanzania, Philippines, Mexico, and Nicaragua, as well as in Maputaland in northern Kwa Zulu-Natal. The results are both improved scientific information and local ownership of products.

Some ways to improve science-policy interactions are to: (1) improve mechanisms for interaction between scientists, coastal policy makers resource users and indigenous people; (2) employ integrated and adaptive approaches in coastal policy making and implementation; (3) deploy resources to support the foregoing objectives (NRC, 1995); and (4) locate field stations along the coast which provide for both scientific research and extension activities.

The Need for and Challenge of Bridging the Science and Policy Gap

The Need

Despite great differences in the social, economic and ecological conditions in countries, there is remarkable consistency in the lessons learned about the contributions of science to ICM. They demonstrate that scientists and managers must work together as a team if scientific information generated for ICM is to be relevant and properly applied for management purposes. Since the two professions have different perspectives and imperatives (see Table 7.3) and approach the solution of problems differently, the objectives and priorities for programs must be derived, tested and periodically re-evaluated by scientists and managers working together. (GESAMP, 1996).

The Challenge

*Behaviors and Points of View Typically Associated with
The Cultures of Science and Policy*

<u>Factor</u>	<u>Science</u>	<u>Policy</u>
Valued Action	Research, scholarship	Legislation, regulations, decisions
Time frame	That needed to gather evidence	Immediate, short-term
Goal	Increase understanding	Manage immediate problems
Basis for decisions	Scientific evidence	Science, values, public opinion, economics
Expectations	Understanding is never complete	Focus on broad outline
Grain	Focus on details, contradictions	Focus on broad outline
Worldview	Primacy of biological, physical, chemical mechanisms	Primacy of political, social, interpersonal, economic mechanisms

(From NRC, 1995)

5.7 Individual and Institutional Capacity

Many coastal management studies, plans and even regulations that have little or no discernible impact on either the resolution of user conflicts or the degradation of coastal ecosystems have been prepared and adopted. A major reason for this is the scarcity of people of the place with the required skills and knowledge to carry out the steps in the coastal management process.

The participatory and issue-driven nature of coastal management and its emphasis upon collaborative action among many levels of government and agencies with distinct missions make coastal management significantly different from more traditional approaches to development and resource management. Technical and governance complexity requires the formation and nurturing of multidisciplinary teams whose members are prepared to think and act strategically, resolve conflicts, administer complicated projects, understand how coastal ecosystems function and work collaboratively with coastal residents. There is currently paucity, and in some nations, an absence, of professionals with the knowledge, skills and experience required to design and implement effective coastal management programs. This, in turn, translates into weak institutional capacity for coastal management, within both the public and private sectors. Short- and long-term initiatives in capacity-building in a country fosters growth in knowledge, awareness and options for addressing coastal management issues. Efforts to create an expanded human capacity will catalyze and sustain constituencies for improved coastal governance.

Investments that build capacity for effective coastal management may be more likely to produce positive dividends than the upheavals brought by institutional restructuring. There is considerable evidence that reallocating responsibilities among governmental agencies, restructuring ministries and creating, for example, new ministries of the environment do not necessarily bring the anticipated benefits. Major human activities will continue to be organized and managed by sector. The challenges lie as much in promoting collaborative behavior, and rethinking the objectives of development, as in restructuring how responsibility and power is allocated within the bureaucratic structures of government.

5.8 Matching Program Activities to the Capability of the Institutions

One of the most common mistakes in the design of first generation coastal management programs is to set objectives and place workloads on implementing institutions that outstrip their capacity and financial resources. Lowry (1985) has referred to the inconsistency between a policy plan and its implementation as the "implementation gap". The result is that tasks are poorly executed, the time required to meet key objectives lengthens and the credibility and efficiency of coastal management endeavors are put at risk. It is important to realistically match the scale and objectives of a program with the capacity of the institutions involved and the strength of the constituencies affected. While this focus may not yield the "best" plan from a technical standpoint, it does help to produce a "realistic" plan containing recommended actions, which can be implemented given available resources.

5.9 Implementation Actions that Occur Concurrently with Planning

Early implementation of actions, which solve simple coastal management problems needs to occur during the coastal management planning phase, and not wait until planning is "finished." Such actions are tangible expressions of improved management, help build support for the coastal management process, provide specific opportunities for horizontal and vertical coordination and provide a basis for learning successful approaches and constraints to implementation. It is crucial, however, that such actions emerge from a participatory process; have clear objectives linked to the coastal management process; build or strengthen the community and inter-institutional partnerships essential for coastal management; be modestly scaled; and, be within the capacity of agencies and stakeholders to implement.

Examples of Successful Early Implementation Actions

Beach Clean-Ups have been carried out successfully all over the world. In places as different as Texas in the US, and Playas in Ecuador, such events have been used to build awareness of and support for coastal programs.

Construction of community centers with materials supplied by the coastal program and labor by the community has been a common early action in community-based programs in the Philippines. These centers are then used as the location for education and participation activities.

Protection and rehabilitation of dunes, estuaries and wetlands through the CoastCare Program in Australia and the CZM enhancement grants in the US.

Water and sanitation facilities have been important aspects of community-based coastal programs in Ecuador, and have been essential for building community and political support for the program.

Mooring buoy installation and coral reef clean ups have been successful early actions in a wide range of countries with tourism/reef issues including Sri Lanka, Thailand, Indonesia and Kenya.

Construction of boardwalks in mangrove areas to promote community-based ecotourism in Ecuador.

5.10 Learning and Adaptive Management

This lies at the heart of any coastal management initiative that is working to forge new forms of integration and experiment with new resource management techniques. Programs need to develop mechanisms for sustained learning on how to improve efficiency and effectiveness based on the results of monitoring and previous implementation experience. They must be able to seize new opportunities and adapt their work plans and priorities to the often rapidly changing political, economic, and socio-cultural conditions in which they operate. Such an incremental and adaptive approach requires a flexible program design and agile administrative mechanisms that will permit -- even encourage -- programs to be flexible. Specific mechanism that enhance learning during the development of a coastal management program include:

- Use of a series of pilot projects to test management strategies;
- completing the loop between planning and implementation as quickly as possible;
- learn "by doing";
- monitoring of program activities in a manner that provides timely, useful and useable information that managers can and will act upon; and
- creation of "space" for regular, participatory self-assessments of program objectives, strategies, activities and outcomes.

6.0 CRITICAL CHOICES FOR FORMULATION OF A NATIONAL COASTAL POLICY: An Analysis of Selected National Examples

Each nation embarking on a national coastal management initiative must make critical choices about how to proceed. Within the overall framework of "good practice", there are many choices to be made. In this section we examine the diversity of choices made by six nations - each with different histories, levels of development, governmental contexts, and coastal issues - about what their national coastal management program would be. The six nations chosen for in depth analysis include the following countries:

- **United States:** the nation with the longest history of a separate, well-funded, national coastal management program. The US program is driven by national legislation, and a voluntary partnership approach between national and state government.
- **Australia:** a nation with a history of unevenly developed and implemented state coastal programs, relatively weak relationships among the spheres of government, and a relatively recently adopted national policy with no legislation in the offing. Australia is also globally recognized for the semi-autonomous Great Barrier Reef Marine Park Authority.
- **New Zealand:** an Island nation with a decentralized program with a strong theme of reconciling Aboriginal claims within a privatization and economic growth context.
- **Sri Lanka:** the developing nation with the most robust coastal program that now has strong national and local tracks.
- **Ecuador:** a developing nation with a weak national governance context that has focused on building the constituency and structures for coastal management at the local level, within six demonstration sites.
- **Philippines:** a developing nation with perhaps the greatest number and diversity of coastal management initiatives at multiple scales, but largely focused at the municipal and community levels, although there are recent developments of note at the Provincial level. There is an evolving national policy to further link and network the suite of local programs.

For each nation, a summary table and text is presented (section 7) that summarizes critical choices/aspects of each program. Table 4 lists the attributes described for each country.

Table 4
Definitions of Country/Coastal Program Attributes

Governance: Style or type of government at national and sub-national levels.

Jurisdiction over Coastal Area: The jurisdiction of both national and sub-national agencies over marine and coastal areas.

Socio-economic Context: The coastal State's general level of economic development as indicated by GNP per capita and coastal population.

Physical: The key geographic features of the coastal State.

Key Coastal Management Issues: The issues addressed by the ICZM program. Those marked with an * served to initiate or trigger the process.

Coastal Management Program Structure: The framework of coastal management, giving a programmatic definition of roles and responsibilities.

Defining/Delimiting the Coastal Zone: Legal definition of the seaward and landward limits of the coastal zone for purposes of the national coastal program.

Legislative Instruments: The legislation and regulatory measures used to implement and enforce the CM program, and other general statutes concerned with CM.

Policy Instruments: Specific CM policies and general policies affecting CM, their objectives, goals and means of implementation, and specific CM plans and their requirements at all levels of government.

Role of Lead Agency: The lead agency charged with CM responsibilities, its mandate and objectives, the role of other agencies that have coordinating functions, and the degree of vertical integration.

Role and Interests of Aboriginal and/or Indigenous Peoples: The opportunities for and level of involvement of aboriginal peoples in the CM program

Role of Non-State Actors: The function of individuals, institutions and NGOs in coastal management, including research, advisory and advocacy groups.

Consultation and Participatory Process: The formal requirement and opportunities for community involvement and public participation in the CM program, joint or co-management mechanisms, and techniques of public or community involvement.

Public Education/Awareness Building: Programs that increase the knowledge of coastal management and coastal process among the general public

Intersectoral Coordination: The mechanism for integration among sectors concerned with CM, such as interagency committees that attempt to enhance integration.

Funding Mechanisms: The sources of funding for CM programs, including the details of external sources, and how the money is used.

Capacity and Capacity-Building: Initiatives for professional and government education training in CM.

Role and Use of Science and Information to Support CM: The support and use of research and science in the CM program, together with the State's capacity to collect information, store it in accessible databases, and disseminate it as needed to support CM plans.

Conflict Resolution Techniques/Instruments: The mechanisms used to resolve and avoid conflict in the CM program, and appeal procedures for challenging allocation or permitting decisions made under it.

6.1 Coastal Issues Addressed

Which issues are addressed in coastal management plans vary from nation to nation. While fisheries and water quality are always important problems, they tend not to be the focus of national coastal programs, but rather continue as enhanced sectoral programs. The Philippines is a notable exception, as fisheries issues both at the community and Bay levels have been central; and now in the US, the National Estuaries Program, administered by the Environmental Protection Agency focuses on pollution caused by non-point sources. On the other hand, national coastal programs in developing countries such as Ecuador and Sri Lanka which have initiated local tracks, have found it essential to include water supply and sanitation elements in order to make programs salient to people's real needs, and gain support for other coastal management themes.

More typically, issues addressed by first generation programs have included shorefront development (Sri Lanka, US, Ecuador), public access, hazard reduction, and habitat protection (Ecuador, US, Philippines, New Zealand). Marine protected areas are incorporated within some national CM programs (US has a Marine Sanctuaries program, Philippines uses municipal reserves); in other programs they are separate (i.e. Great Barrier Reef Marine Park Authority in Australia, National Park Departments in US, Sri Lanka). Governance issues, especially vertical and horizontal coordination over specific decisions have dominated many first generation programs. As programs move through successive generations, additional issues are typically tackled.

6.2 Boundaries

Boundaries are always a thorny issue for coastal programs, especially national programs. Only in the case of Sri Lanka does the National Coastal Management Act designate a legal coastal zone that is uniform throughout the country. In other nations, either the boundary is undefined (i.e. Ecuador), or the national program provides guidance and broad parameters under which local units (States, Districts, etc.) delimit specific geographic boundaries (United States, New Zealand). Exactly where boundaries are set, of course, depends on what issues are being addressed and what is being managed (see Clark 1996 for an excellent discussion on boundary definition). Regulatory programs such as Sri Lanka and states within the US, typically have a narrow coastal zone in which a permit program operates, then a broader focus area for planning and non-regulatory initiatives.

6.3 Legislative and Policy Instruments

The United States (1972), Sri Lanka (1981) and New Zealand (1991) national coastal programs were launched with the passage of a national law. In all three countries, the law provided the necessary authority and framework for more detailed plans and regulatory programs to be developed at either the national level (Sri Lanka) or lower levels of government (States in the US; Regions in New Zealand). The US initiated the coastal program with comprehensive legislation and appropriated sufficient financial resources to realize the program. In both the US and New Zealand programs, standards, or thresholds, must be met by lower level plans. In New Zealand, the central government harmonized over

100 Acts in preparing the 1991 Resource Management Act. The statutory requirements promote integration at every level and established independent boards to review national and regional policies and programs. In Ecuador the national program was created through Executive Decree with no plan for new legislation. This is due to the fact that a careful legal review revealed that while Ecuador's laws were not perfect, existing law provided sufficient authority to achieve the program's objectives. Therefore, the program decided to instead devote its energy and resources to building an active constituency for management, and improving implementation of existing laws through the creation and support of an interagency "Ranger Corps". In the Philippines, national programs have lagged behind local programs, with over a decade of local level implementation experience is meaningful coordination and programming is now occurring at the national level to provide the necessary technical support and back up enforcement for local initiatives. The most significant legal change in the Philippines to affect coastal management was the new Local Government Code, which gave substantial new authorities to Provinces and municipalities, including local jurisdiction over waters. In Australia, a national coastal policy emerged several years after a national coastal zone inquiry. The policy is NOT regulatory, rather it emphasizes supportive and facilitative programs, aimed at building productive intergovernmental relationships, providing incentives for good management (Coast Care and Strategic Planning), and technical support (capacity building programs and information services) to localities.

6.4 Lead Agency

With the exception of the Philippines, in each nation there is one lead agency for the nation's "coastal management program." This statement is, however, somewhat misleading, as in every nation multiple agencies carry out programs that could be called "coastal management" (e.g. in the US, the National Estuaries Program is a CM program, that focuses on water quality improvement and emphasizes larger geographic areas and non-regulatory approaches). The national CM lead agency is found in a variety of "Ministry" equivalents - in the Dept. of Commerce in the US, in the Ministry of Fisheries in Sri Lanka, in the President's office in Ecuador, and in the Environment Ministry in New Zealand and Australia. In Philippines, strong coastal programs are found in two Ministries - Agriculture and Environment and Natural Resources.

The roles of lead agencies also vary. In Sri Lanka, the lead national agency - Coast Conservation Department - issues permits (although it has de-centralized "minor" permitting to District Administrators) along with having planning and policy functions. In other nations, the lead national agency is more focused on planning and policy, and providing support (financial through grant-making and technical) to more local levels of government who actually develop programs that can be implemented (US, Australia). In the Philippines, the lead agencies provide technical assistance to municipal governments to develop and implement local coastal programs. Frequently national agencies also are charged with evaluating local programs and coordinating / facilitating national government interactions with sub-national programs

6.5 Roles of Special Groups (Aboriginal Groups)

In New Zealand, and to a lesser extent, Australia, there has been a concerned effort to settle aboriginal land and resource claims. The coastal program legislation in New Zealand has made special provisions for the Maori. In Alaska, in the Northern US, the State program is decentralized so that “Coastal Resource Service Areas” roughly correspond to Native Corporation boundaries. This process has allowed for a high degree of self-determination and a forum for addressing conflicts between new and traditional uses.

6.6 Consultation and Participation

When coastal management was initiated in the US in the 1970s, the program required an unparalleled level of public input to and transparency in plan formulation. Since then, participation in coastal programs has expanded to include stakeholder (both resource users and private sector) involvement in all aspects of coastal management including implementation. In Australia, public consultation and information sharing is required by law in four State programs. The Commonwealth Policy also has a highly developed public participation and consultation process. In New Zealand all proposed development activities receive public review and comment. In many countries, CM programs are among the first tangible expressions of participatory democracy (USAID, undated). Indeed, in all the programs reviewed, the required, desired, and actual levels of participation are substantial.

6.7 Public Education

All national coastal programs have emphasized public education. In nations with well-developed environmental education programs such as the US, the national coastal program does relatively less public education (since NGOs and other groups do so much) than in countries where there are few other organizations providing this service. Australia’s national policy recognizes the importance of public education and has dedicated significant resources to raise awareness at all levels. This investment is both to increase awareness, but even more importantly to promote effective participation in the coastal management process, promote compliance to regulatory programs, and to build and sustain constituencies essential for ultimate program success. NGOs often play key roles in developing and delivering public education programs. Over the past several decades, public aquaria have played an important role in increasing public awareness of marine environments and support for their management.

6.8 Intersectoral Coordinating Structures-

A national coordinating mechanism is viewed in the literature as a key institutional element of coastal programs. The typical functions of a coordinating structure are as follows:

Functions of the ICM Coordinating Mechanism

- Promote and strengthen interagency and intersectoral collaboration
- Reduce interagency rivalry and conflict
- Minimize duplication
- Provide a forum for conflict resolution among government sectors regarding coastal and ocean uses and, in the process, promote policy intergration.
- Monitor and evaluate the progress of ICM projects and the overall program.

(Cincin Sain and Knecht, 1998)

Such **national** coordinating mechanisms exist in Ecuador (an Interministerial Commission), in Sri Lanka (though the Coast Advisory Committee), and in the Philippines two interagency committees. In none of these countries, however, is the Committee actually achieving the objectives set forth in the table. Standing, intersectoral committees do not exist at the national level in the US, Australia (although there are currently a number of proposals for such a committee) or New Zealand (although New Zealand requires intersectoral plans at the regional and district levels). At lower levels of government, and for specific tasks, there are more such coordinating structures, and they have better track records. In the US, nearly all State CM programs have intersectoral groups which typically include representatives of government (often a mix of local and state representatives) as well as representatives of Civil Society. While typically members of such groups are appointed (by the Governor, Legislature, or Agency Director), in some cases, such as rural Alaska such groups are directly elected. For Special Management Areas in Sri Lanka, Philippines and Ecuador, Intersectoral Committees or Councils also frequently exist, with attributes similar to those described in the box.

6.9 Role of Non-State Actors

In the US, Sri Lanka, Australia, and New Zealand, the “state” is the major player in management, although in all four countries, there is a great diversity of roles played by civil society - by Universities, Private Sector, NGOs and individual resource users. In the US and Philippines, Universities often conduct research for state and municipal coastal programs, and NGOs in the US, Australia and Philippines typically act in an advocacy and public education role, creating a forward pull for policy development and effective management. In the Philippines, both NGOs and Universities have been leaders in coastal management, not only on the technical side, but also in community organization and training key stakeholder groups and government officials. In Ecuador, two national NGOs and a University have responsibility for execution of major elements of the national coastal program (public education, personnel support to the local special planning zones; implementation of sanitation programs, and all capacity building efforts). The private sector also has had a major role in management - both as the focus for regulation, but also as a key player in the formulation of policy. In the United States, there are increasing numbers of government and industry partnerships where the government sets management objectives, for example,

reduction of non-point sources of pollution from Marinas and boaters, then industry develops a voluntary program to meet those standards. If the outcome is not as expected, the government will begin a more typically regulatory approach.

6.10 Funding

Financing national coastal programs is a challenge in all six nations reviewed. Maintaining national support for appropriations through different administrations requires that the program enjoy broad-based public support. Such support maintained the US coastal program during the years of the Reagan administration when the Executive Branch proposed eliminating the coastal program. Similarly, in Sri Lanka, national budgetary support has been sustained, despite a deteriorating economy, largely because CCD is viewed as providing a vital government function (coast protection). The Australia commonwealth has provided funding to the states directly through transfer payments, and indirectly through CoastCare and related programs. New Zealand provides funding and in kind support at all levels.

Donor funding has been essential for all coastal programs in all developing countries, with tens of millions of dollars in external support going to Sri Lanka and Ecuador, and hundreds of millions to Philippines. In all nations, assistance started as bi-lateral grant programs; now in all three programs, coastal management is supported by a combination of national funds, donor grants, and development bank loans. In developed countries, coastal programs are financed through a combination of national and sub-national funds. In the US, Australia and New Zealand, grants-in aid to sub-national governance units were essential for sustaining the national program.

6.11 Capacity Building

With the exception of the US, the national coastal programs reviewed have, from their inception, invested in capacity building, of both “sister” agencies at the level of the lead agency, as well as building the capacity of other key participants in the management endeavor. It is interesting that one “pillar” of the Australia national policy is a capacity building program, and in Sri Lanka, Ecuador and Philippines training of communities and local level officials has been a major national program activity. In the US, state programs have provided significant training to local governments, and the national program is now initiating a major new training program for its state managers on critical issues - the first being “Hazards.”

6.12 Use of Scientific Information

How science has been formally incorporated in each coastal program varies. There are a number of key questions. One is how the coastal program utilizes scientific knowledge generated through other programs and the second is what type and how much “science” should the coastal program directly fund. The utilization of existing information is largely a function of staff capacity and the existence of structures/forums for interchange to occur (reasonably well developed in US, Philippines, Australia). The priority given to CM program-funded science is difficult to gauge but is substantial in most programs. In Sri Lanka, they have done an especially good job of commissioning research that directly

benefits management. The priority Australia, has a relatively well developed research capability at both the federal and state levels directly linked to its coastal program. Several new initiatives have been established in Australia to collect, analyze and disseminate information to assist stakeholders and decision-makers. New Zealand is developing a Coastal Resources Inventory and the Philippines has donor funded research programs at the national level, as well as in communities, which are often implemented through Universities.

6.13 Program Monitoring, Evaluation, and Readjustment

Monitoring and evaluation of CM programs is not yet a well-established field. Both the US and Sri Lanka programs have statutory requirements for program review and readjustment. There are multiple objectives for both monitoring and evaluation, the principle ones being to meet policy review or revision requirements, for learning, for tracking program impact, and for program accountability (Olsen et al. 1997).

In the US, Section 312 of the CZMA requires the federal Office of Ocean and Coastal Management to periodically review each state's performance. The focus for each such review is negotiated between the national and state program up to a year ahead of time, and the review is carried out by a team of federal and state practitioners in a broadly participatory manner. These reviews have been very useful for making incremental adjustments in state program performance. The US has done less well in systematically monitoring and assessing the national impact of its coastal program. A recently completed 25 year review revealed rich anecdotal material about CM improvements and successes, but the evaluation suffered from a lack of baselines, and clearly stated objectives. In Sri Lanka, the national program is required to be updated every five years, and indeed, the amended national plan was recently approved by Cabinet. In Ecuador, annual self-assessments linked to the work-planning process was a major event which helped build project cohesion and move the process forward. In Philippines, a number of reviews of community-based coastal management efforts have recently been completed and work is underway to more quantitatively determine success factors. There is also considerable effort underway globally to develop a common methodology for monitoring and evaluation for learning (Olsen et al. 1997). A self-assessment manual has been developed (Olsen et al. 1998), and is currently being field-tested. It is useful to note, that this manual helped to facilitate the cross-nation comparison presented in this document.