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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 rôle 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 Pursuent to the Biodiversity Convention** recognizes the essential role of ICM in habitant 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 of 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 shorefront 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

Area Planning • 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	**Stewardship of Resources** • 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)
Promotion of Economic Development • 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	**Participatory Decision-Making/Conflict Resolution** • 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
Protection of Public Safety • Reduction of vulnerability to natural disasters and global changes (e.g., sea level rise) • 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	**Proprietorship of Public Submerged Lands and Waters** • Establishment of leases and fees for use of publicly held coastal and marine resources and spaces • 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 & ACTIVITES
Benguela Current	South Africa, Namibia, Angola	• significant upwelling • mangroves, sea grass beds • oil exploitation • fisheries • marine diamonds • tourism	• inadequate information for management advice • management of offshore fisheries by foreign vessels • urbanization of coastal areas • habitat degradation • industrial pollution	**National level activities** • IUCN coastal wetland profiling • Sida fisheries sector support • GIS application and coastal zone planning **Regional level activities** • 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	• 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	• 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	**National level activities:** • many donor agencies are assisting in aspects of coastal conservation, management and development including, GEF, IDRC, WB, ODA, USAID, SIDA, IUCN, GTZ, **Regional level activities** • Gulf of Guinea Large marine Ecosystem Program • IUCN/ADB Guidelines for development and planning in mangrove habitats of West Africa, • IUCN Wetlands Mapping • UNEP/FAO Regional Seas • IOC marine debris waste management
Canary Current	Mauritania, Senegal, Gambia, Guinea-Bissau and Guinea, Cape Verde.	• coastal wetlands including mangroves • fisheries • tourism • salt production	• inadequate information for management advice • land based pollution including nutrient loading • coastal erosion • habitat degradation including mangrove deforestation • monitoring and surveillance of fish stocks	**National level activities:** • many donor agencies are assisting in aspects of coastal conservation, management and development including, IDRC, WB, USAID, SIDA, IUCN-Swiss, GTZ, IUCN **Regional level activities** • 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 COATAL 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

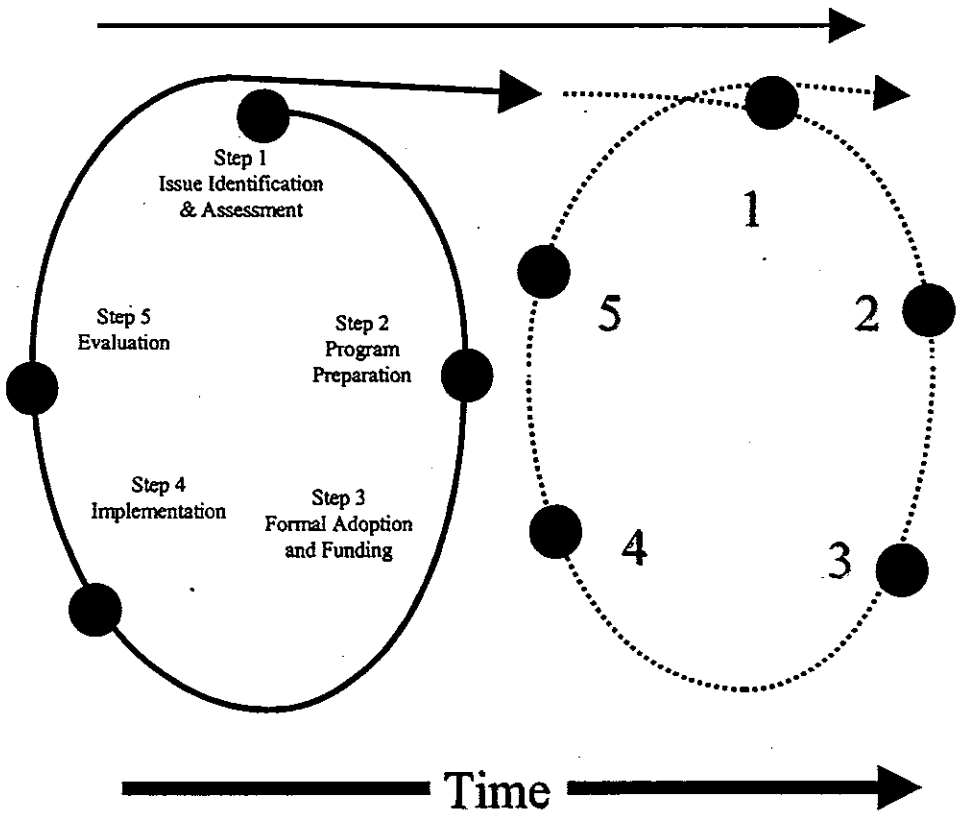
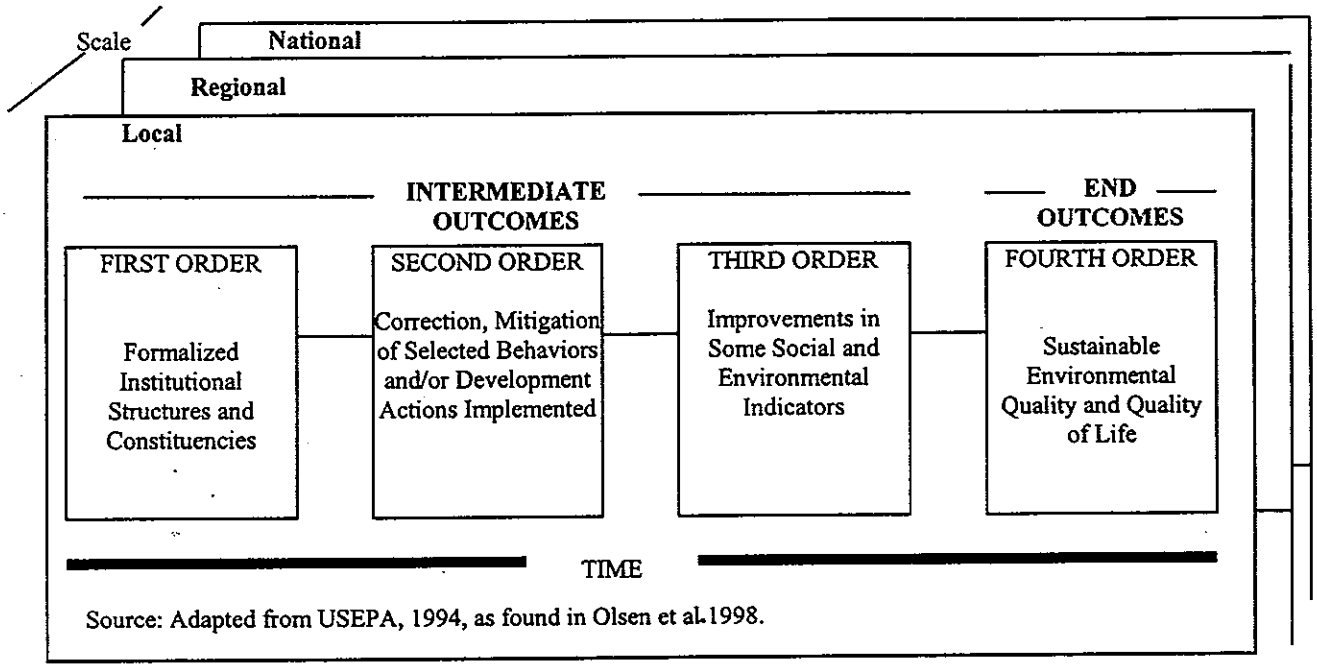


Table 3: Essential Actions Associated with the Steps of the CM Development Cycle

Step	Essential Actions
Step 1: Issue Identification and Assessment	• 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.
Step 2: Preparation of the Plan	• 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.
Step 3: Formal Adoption and Funding	• 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.
Step 4: Implementation	• 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.
Step 5: Evaluation	• Evaluate and adjust program as necessary.

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

Figure 2. Ordering coastal management outcomes



Source: Adapted from USEPA, 1994, as found in Olsen et al.1998.

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

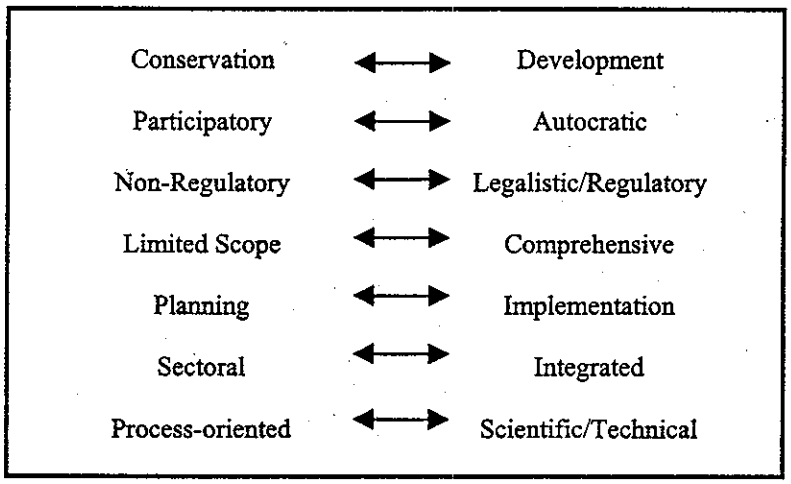
income are major accomplishments that bring credit to CM programs and justify the process by which they were achieved.

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, Univiersites, 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

Factor	Science	Policy
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 the1970s, 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.

7.0 NATIONAL COASTAL MANAGEMENT PROGRAM EXAMPLES:

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7.5 Ecuador 68-72

7.6 Philippines 73-80

7.1 UNITED STATES

FEATURE	DESCRIPTION
Governance	Federal Republic with 50 States.
Jurisdiction Over Coastal Area	Federal seaward boundary out to 12 nmiles territorial sea and 200 nmile EEZ with varying State jurisdiction not exceeding 3 nmiles.
Socio-economic Context	$ 25,880 GNP per capita. 50% of population lives in coastal counties (11% of land area).
Physical	Coastline of 19,800 km. Extensive and highly developed coastal zone bordering on multiple oceans and seas with wide range of coastal environments, eg. From arctic to tropical.
Key Coastal Management Issues *Trigger Issues	*Shore front over-development, *non-point sources of marine pollution, *coastal erosion, *coastal hazard mitigation. Overexploitation of fisheries (not addressed in coastal plan), habitat destruction, coastal hazards, use conflicts, urban and tourism development, offshore oil and gas development, coordination and simplification of governmental decision-making, stakeholder participation in decision-making
Coastal Management Program Structure	Federal: • The Coastal Zone Management Act (CZMA) enacted by the US Congress in 1972 to balance economic development and environmental protection in coastal areas; • CZMA is a voluntary partnership between the Federal and State governments to formulate and implement State coastal management plans (CMPs); • CMS must meet minimum federal standards; • Lack of effective coordination of Federal policies and programs. State: 31 of 35 eligible States and territories have federally approved CMPs covering 97 percent of the nation√s shoreline; Local: CMPs contain specific mechanisms for local governments to develop coastal plans. In some States, local governments may undertake a significant portion of CZM. Under CZM, considerable responsibility for CZM devolved to the State level. Once approved, Federal actions are required to be consistent with State plans.

Defining/ Delimiting the Coastal Zone	Broad definition in CZMA with both land and marine components. State programs delineate specific coastal zone boundaries which vary State by State. Flexible definition reflecting dominant issues identified in state and local programs. State programs that issue permits typically have a narrow coastal zone definition however, there is considerable variation from State to State. *California* Seaward: 3 mile territorial sea; Landward: Varies as set by legislature with 1000 yards inland in most areas and as much as 5 miles or as little as 200 feet in others. *Massachusetts* Seaward: 3 mile territorial sea; Landward: Extends 100 feet inland to major roads and up to 1/2 mile from salt marshes. *Washington* Seaward: State territorial sea; Landward: Two tiered approach: 1. *Resource boundary* State waters and associated wetlands, 200 meters inland. 2. *Planning/Administrative* From first tier to crest of coastal range and all coastal counties. Includes lakes, streams, and wetlands of designated size throughout the state.

Legislative Instruments for Coastal Program	Federal Coastal Zone Management Act (CZMA) (1972): Objectives are to: 1. Protect, restore and enhance coastal habitats; 2. Encourage and assist the States minimize loss of property and life resulting from improper development in hazardous coastal areas; 3. Protect coastal sites to meet the needs of coastal dependent activities such as ports, energy production and recreation; 4. Promote redevelopment of deteriorated waterfronts; 5. Reduce non-point source pollution to protect and restore coastal water quality; 6. Encourage preparation of special area management plans; 7. Encourage participation and cooperation of public, State and local governments as well as other federal agencies in program development/implementation; 8. Coordinate and simplify governmental decisions affecting the coast. Key features of legislation: • Establishes requirements for State programs; • Establishes federal consistency provisions to cost share and ensure federal projects adhere to approved State programs; • Provides joint funding for formulation and implementation of state programs. • Reauthorization and Amendments: 10 since 1972; significant expansions include: • Coastal Non-point Pollution Control Program; • Expanded consistency provisions; • Coastal Zone Enhancement Program providing incentives for States to make changes in eight areas of national significance. Reauthorization due again in 1999 States States design and implement CZM programs meeting the standards contained in the CZMA. State CMPs are comprehensive policies, objectives and implementing mechanisms addressing priority management issues in each State. • CMPs advance national CZMA goals; • CMPs include regulatory elements such as permits, leases, land use plans, public outreach, participation programs, land acquisition, volunteer programs and coastal resource information systems; • CMPs are updated continually. Some States passed comprehensive framework legislation and identified lead agencies (*e.g.* California). Others used existing land-use legislation and programs to establish a collaborative/networked program (*e.g.* Oregon).

Policy Instruments	Several Federal programs supplement and reinforce state coastal zone management, including: • National Estuary Program • National Marine Sanctuary Program • National Estuarine Research Reserve • Coastal America State CMPs are required to include nine areas: • Protection of natural resources; • Management of coastal development to minimize loss from natural disasters; • Give priority to coastal dependent uses; • Ensure public access; • Redevelop urban waterfronts and ports and rehabilitation of cultural and historic features; • Coordinate and simplify government decision making and management; • Consult and coordinate with federal agencies; • Ensure public and local participation; and, • Undertake comprehensive planning, conservation and management of living marine resources (overrode by Magnuson Act 1976).

Role of Lead Agency	Lead Federal Agency: Office of Ocean and Coastal Resources Management (OCRM), National Oceanic Atmospheric Administration (NOAA), Department of Commerce. (NOAA has a broad range of specialized offices to support ICZM). OCRM: • provides federal leadership on coastal policy issues • approves and funds state programs • provides technical assistance • ensures federal consistency with state programs • periodically evaluates the performance of state programs State Lead Agency: Varies from State to State. Both existing departments and new commissions used. Two primary models: Strong Lead Agency: State of California California Coastal Commission (CCC) • controls coastal development through permitting process • acts on permit appeals • responsible for federal consistency • provides advice and technical assistance to local governments State Coastal Conservancy (SCC) funds land acquisition and coastal improvement projects. Networked Program: State of Oregon State CZM Program. The CMP knits together state laws for managing coastal resources in a single, coordinated package Local: Every city and county on the coast has a State approved comprehensive land use plan. Local governments are responsible for day to day decisions.
Role of Aboriginal /Indigenous Peoples	Not incorporated directly in CZM program design. Included where Native Americans are predominant stakeholder group *e.g.* in Alaska through decentralized planning, Native Americans in certain areas have local autonomy. Increasingly important particularly in Pacific Northwest.

Role of Non-State Actors	Academic • Several university-based, centres of excellence provide technical assistance, information, research, advocacy, advisory and legal services. Sea Grant Program provides applied research grants to universities which are often of direct relevance to coastal programs. NGO • Several well funded NGOs provide advocacy especially at State level and national NGOs are typically active during Reauthorization process, generate public support, sponsor court challenges, and intervene in individual permitting Private Sector • Lobby politicians, form associations, Represented on some state coastal councils; key stakeholders in planning; increasingly are active in development of voluntary 'good practicesÓ Community Associations • At local level volunteers and community volunteer groups often active in site management, volunteer monitoring, etc.
Consultation/Participatory Process	Required under CZMA for State plan development and approval. Specific participatory requirements are included in each State CMP and varies from State to State.
Public Education / Awareness Raising	Most State programs have made significant investments in public education. NGOs are also active.
Intersectoral Coordination	Multi-sectoral involvement included as key objectives of Federal program but implemented at State level. No significant national coordinating body although a number of programs are active, including: • Coastal Zone Management Advisory Council; • Coastal America program provides for joint planning and cooperative relationship between various government agencies.
Funding Mechanisms	• Federal-State partnership in funding. • States must meet minimum standards to receive funding. • Up to initial 80% of cost of developing and administering approved State CMP covered by federal government for 3 year period. • Program implementation is cost-shared (minimum 50-50 match). • FY 1997 funding level: $46,200,000 (allocated based on coastal population and mileage ranging from about $600,000 to $2,600,000 per state). • 1990 Coastal Zone Enhancement Grants Program provides additional funding through a national competition to address 8 other key issues. These grants not continued in 1996 Reauthorization.

Capacity and Capacity Building	• Capacity building not provided for in CZMA; • Large pool of well trained and highly educated personnel in all disciplines; • Numerous institutions for higher learning and excellent employment potential; • Recent recognition of the need for ongoing professional development of State coastal managers; • Establishment of NOAA Coastal Services Center to provide States improved technical assistance and training.
Role and Use of Science and Information to support ICM	• No formal science program mandated by legislation. • In practice good utilization of science to support CMP. • NOAA's Coastal Ocean Program directs in an *ad hoc* and general manner science to needs of coastal management decision-makers. • Synthesis documents of key issues and the Sea Grant Program provide key inputs. • Practical incorporation of science into policy is usually addressed at the state level.
Conflict Resolution Techniques/ Instruments	• CZMA provides two formal mechanisms for resolving state-federal disputes: mediation and administrative appeals; • A variety of techniques are used including policy conferences and third party settlements; • Coastal America program provides a proactive approach to conflict resolution through partnerships between government levels.
Program Monitoring, Evaluation and Readjustment	• s. 312 of the CZMA makes periodic State evaluations by OCRM mandatory; • The periodic reauthorization of the CZMA becomes a review of the national program • OCRM is finalizing a 25 year evaluation of the impact of the CZMA on America√s coasts. The findings are very positive, but largely anecdotal.

Summary

The United States was the first country to establish a national coastal zone management program with the enactment of the Coastal Zone Management Act (CZMA) in 1972. The CZMA was primarily concerned with controlling development in the coastal zone, but also addresses broader air, water, and land-based pollution concerns. The Coastal Zone Management program is administered at the federal level by the Office of Ocean and Coastal Resources Management (OCRM) of the National Oceanic and Atmospheric Administration (NOAA). Responsibility for coastal zone management is divided among various governmental levels. Under the terms of the CZMA, the responsibility for management of the coastal zone is largely at the State level. Under appropriate conditions and with State supervision, local governments may undertake a significant portion of the implementation of the management program.

NOAA provides financial assistance, policy guidance and technical assistance to states in establishing and implementing state level programs, termed Coastal Management Plans (CMP). State participation in the federal program is voluntary with two primary incentives developed by NOAA to foster State involvement:

1) federal matching funds to help States meet the costs of programs, providing grants to States up to 80% of the cost of developing a CMP, and 50% of the cost to administer the plan; and,

2) federal consistency provisions require federal actions to be consistent with a State's CMP.

To receive funding, States must consider federal interests in their CMPs, complying with nine performance standards defined in the CZMA, with the intention of setting minimum standards and ensuring Federal level interests in State programs. NOAA reviews State performance and has the authority to withhold Federal funds and approval if a State fails to meet performance standards. At present, 31 states participate in the federal program, covering 97% of the coastline, including the Great Lakes. Individual State programs vary considerably with three distinct types of program approaches developed:

- A fully networked approach pulling together pre-existing laws and management programs (*e.g.* Massachusetts, Oregon). The CZM program can be integrated into the State level planning approach (*e.g.* Oregon) or it can be part of a collaborative land-use planning process (*e.g.* Florida and sixteen other States).

- A comprehensive centralized approach with the establishment of new agencies or bodies for policy and program implementation (*e.g.* California Coastal Commission).

- A mix of the two above approaches.

Many State CMPs have relied on permitting systems and land use planning as the key methods for development control in the coastal zone and to meet CMP objectives. Most State programs

have a limited coastal zone boundary within their respective CMPs, but attempt to influence upland development by "persuasion" and by encouraging "networking" with other planning and environmental laws. With the exception of the west coast, most States have not included issues beyond the 3 mile territorial sea in their respective CMPs, although the consistency provisions can provide for State influence. In 1990, amendments to the CZMA strengthened the ability of States to develop stronger coastal water protection programs. The amendments provide for non-point source pollution control, create a new Coastal Zone Enhancement Grants Program in eight areas, and expand the number of activities under the consistency provisions.

The United States federal program is considered a success for providing for the establishment of coastal management programs in most coastal States, for enhancing federal/State cooperation, and promoting public involvement. Moreover, CMPs have generally simplified and improved the State and local planning process in the coastal zone and have provided the impetus for a number of coastal protection regulations and programs. It is an example of a coastal management program with well defined roles and responsibilities for each level of government and the public.

One of the key criticisms of the U.S. model is that it is a fragmented and inconsistent management effort with a great deal of variation among State programs and their ability to address issues in the coastal zone. The U.S. model has clearly provided a high level of participation with a well integrated statutory scheme, but has failed to generate the level of partnerships and coordination in planning activities necessary among and within the levels of government. The federal consistency provisions have been controversial and criticized by some for contributing to conflict rather than cooperation and integration. Many federal activities have not been subject to the provisions and in a number of cases federal agencies have refused to cooperate with States. Similarly at the State level, local governments have had problems with State and federal government influence over local decision-making. In addition, the United States model has been criticized for being dominated by its regulatory orientation, for its inability to address cumulative impacts, and, for its failure to consider issues from the fields of economics, sociology, anthropology and the natural sciences.

The 1990 amendments have helped further define federal responsibilities in State programs. An interesting recent initiative by the federal government, Coastal America, provides a means of better integrating different sectors and levels of government in the coastal zone. Located within the Office of the President, Coastal America provides funding and facilitates coastal management projects among 22 federal agency partners, state governments, and local level stakeholders.

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7.2 AUSTRALIA

ISSUE	DESCRIPTION
Governance	Federal Commonwealth with 6 states and 2 territories.
Jurisdiction Over Coastal Area	Federal jurisdiction from 3 miles to 200 miles. State programs, *i.e.* Western Australia, from 3 nautical miles to inland boundary. These programs provide most of the basis for coastal management in Australia.
Socio-economic Issues	GNP per capita: $18,000 Population density 2.3 person/km^2 (mid-1993). Approximately 75% of the total population is located within 50 km of the coast. In metro areas, the population density climbs to 6,000 people/km^2.
Physical	Area: 7,682,300 km^2. Coastline of 36,700 km. Coral reefs, intertidal rocky reefs, coastal forests, wetlands, seagrass beds, kelp forests, marshes, mangroves, beaches, estuaries.
Key Coastal Management Issues *Trigger issues	*Water quality, *coastal erosion, *land use conflicts, *habitat loss, *lack of integration, *recreation. Sea level rise, mariculture, agriculture, forestry, tourism, sand mining, oil and gas development, marine oil pollution, introduction of exotic species and disease from ballast, impacts of fishing practices, decline of certain marine species such as dugong, turtles and sharks.
Coastal Management Program Structure	Despite the significant power of the Commonwealth, CZM remains State-driven. While the Commonwealth has issued a national coastal policy outlining roles and responsibilities, implementation is achieved through negotiated agreement with the respective States. There are CZM Programs in all States (Western Australia, Tasmania, Queensland, New South Wales, South Australia, Victoria). The States provide most of the legislative basis for planning and management of coastal zone, while the local government is responsible for day-to-day decision-making. There are a select number of local or regional plans, but now more are becoming active in developing management plans. Some local government areas, such as the North Sydney councils and the Northern New South Wales councils have been very active in CZM. There are no minimum national standards and accordingly implementation of CZM initiatives varies considerably from State to State.
Defining/ Delimiting the Coastal Zone	200 nmiles to inland impact limits, plus catchment boundary for some local plans. No formally adopted definition of coastal zone federally or in most State programs.

Legislative Instruments for Coastal Program	Federal Government: No federal legislation to support CZM policy initiatives, despite recommendations by the House of Representative Standing Committee on Environment, Recreation and the Arts (HORSCERA), 1991 and the Resource Assessment Commission (RAC), 1993. Offshore Constitutional Settlement, 1980 • Defines the jurisdictional boundaries for coastal and offshore waters and various management arrangements for resource use. The State Governments of New South Wales, Queensland, South Australia and Victoria have developed specific coastal management legislation: • Queensland Coastal Protection and Management Act, 1995 • South Australia Coast Protection Act, 1972 (currently being updated) • New South Wales Coastal Protection Act, 1979 • Victoria Coastal Management Act, 1995 Great Barrier Reef Marine Park Act, 1975 and subsequent State legislation (Queensland Marine Parks Act 1982-1988): • Conservation and management of the Great Barrier Reef.

Policy Instruments	Ocean Rescue 2000: • Department of Environment initiative with States and marine agencies to develop marine protection strategies. Replaced by Coast and Clean Seas Program. Commonwealth Coastal Action Program (CCAP), 1995: • established through Memorandum of Understanding (MOU) between Commonwealth, State, and local governments in each State • MOU also involves capacity building and strategic management • implemented since 1995-96 • includes the Coastcare program which provides funding to coastal projects involving State, local community and industry collaboration Commonwealth Coastal Policy (CCP), *Living on the Coast*, 1995: • provides a clear statement on coastal zone matters • identifies initiatives that the Commonwealth will take to improve management of the coastal zone • promotes ecologically sustainable use of the coastal zone • puts forth a CCAP of Commonwealth initiatives pertaining to coastal management • initiates the Coastcare program Strategic Planning Program • assists State and local governments in coastal planning related to issues of national importance National Conservation Strategy. National Strategy for Ecologically Sustainable Development (1992). National System of Marine Protected Areas. National Landcare Program to reduce runoff, and deal with catchment management. Dunecare Program to limit dune alteration. Coastcare to support soil conservation and re-vegetation projects and other coastal zone projects at the community level. State level CZM Plans developed by Tasmania, Queensland (proposed), New South Wales, Victoria (draft), Northern Territory (revised), and South Australia (on-going). • State level initiatives typically were driven by single issues such as erosion control and beach protection. Some States such as Tasmania and Victoria, however, have moved to more integrated approaches.

Role of Lead Agency	Federal Government Lead Agency: Department of Environment, Sport and Territories (DEST) • coordinates policy development • provide assistance to State programs The establishment of a national agency responsible for all coastal management matters was considered unrealistic and unnecessary because of the range of coastal management activities and the need to recognize the roles of all jurisdictions. Most CZM decisions will be addressed by new institutions or arrangements set up under CCP (*eg.* National Coastal Advisory Council). Development of multilateral and intergovernmental arrangements. Inadequate linkage between federal and local governments, to the point where local level governments have typically not been fully utilized. Some do not see CZM as a political priority, or they see coastal development as a major income source. To address the lack of coordination between the Commonwealth and State governments, MOUs were signed in 1995-1996. Each is different, but all attempt to clarify roles in CZM. Australia is party to many international treaties and conventions affecting the coastal zone covering maritime pollution, shipping operations, oceanic oil pollution, coastal navigation, preservation of flora and fauna, and environmental data collection. It is also involved in many South and East Asian and Pacific regional forums with a coastal or marine focus. The Australian and New Zealand Environment and Conservation Council (ANZECC) provides opportunities for the exchange of information between these countries on coastal zone matters.
Role of Aboriginal / Indigenous Peoples	Increased role for Aboriginal and Torres Strait Islander peoples recognized in RAC report. Native Title Act, 1993 recognizes rights of Aboriginal and Torres Strait Islander people over land and water according to their traditional law and customs. This has lead to a greater role in government programs. Some conservation areas are jointly co-managed by Commonwealth government and indigenous peoples. The Great Barrier Reef Marine Park Authority and Jervis Bay National Park have developed systems of Councils of Elders enabling the managing agencies to work closely with aboriginal people. Queensland has also established a similar mechanism. An Aboriginal and Torres Strait Islander Coastal Reference Group provides advice to the Commonwealth on the development of initiatives involving indigenous peoples in CZM. Other initiatives include an Indigenous Communities Coastal Management component of the Coastcare program.

Role of Non-State Actors	• Several universities have graduate coastal and marine programs enhancing local capacity with instructors who play an advisory role to government and provide technical assistance in the ASEAN region. • Several NGOs play an important role in policy formulation and advocacy. • Increasingly influential and well-organized environmental lobby groups. • Australian Marine Conservation Society plays key role in coordinating the consultative process.
Consultation and Participatory Process	Community involvement recognized as a key requirement at the policy level, and is encouraged in the Dunecare and Coastcare programs, although it has been limited to date at both the State and federal level decision-making to public hearings and public consultation. The public consultation component in policy development initiatives is increasing. Marine and Coastal Community Network facilitates dialogue and information sharing between government and communities, with important role in the implementation of the CCAP and Coast and Clean Seas Program. High level of community involvement in MPA management planning.
Public Education/ Awareness Raising	National Marine Education Program. Various initiatives under Coastcare. Marine Coastal Community Network. Great Barrier Reef Marine Park Authority has a sophisticated, well-funded public education initiative. A wide variety of extension and training programs have been developed to increase understanding World Heritage values, promote responsible behaviour and achieve greater stakeholder input into planning and management. Education accounts for approximately 10% of the overall budget.

Intersectoral Coordination	The Commonwealth is striving to achieve integration of coastal zone programs to address multi-agency sectoral management and unclear boundaries of responsibility by: • Increasing coordination between existing agencies and authorities; • Ensuring that programs share a common goal; • Ensuring that programs meet the government's objectives for coastal use. National Coastal Zone Council is not yet established, but there is an informal coordinating group. A National Coastal Advisory Committee, if created, with representation from peak national community, conservation, industry, research bodies, indigenous people, the National Landcare Advisory Committee, and State and local governments, has been suggested to advise the Commonwealth on coastal management issues. It may be incorporated into the development of a proposed national ocean policy. Coastcare is established jointly with State and local governments. Its goals are to encourage stewardship, facilitate interaction between the community and government, and provide opportunities for stakeholders to participate. Inadequate sectoral integration also occurs at the local government level, except in special areas (*eg*. Trinity Inlet, Cairns, QLD). • Historical lack of coordination between States, but some coordinating mechanisms exist between neighbouring councils.
Funding Mechanisms	Coastcare and other initiatives of the CCAP (Coastal Strategic Planning and Capacity Building measures) provide millions for State and local programs. CCAP budget (1995) of AU$ 53 million. • Constraints of budget cycles have delayed formulation of Commonwealth policy. • Dedicated budget with designated funding in State budgets. • Recognition of in kind contributions.
Capacity and Capacity Building	The Commonwealth, in collaboration with State and local governments, plans to implement a capacity-building program of professional development activities to promote increased skills among those responsible for CZM. About a third of the CCAP budget is allocated to capacity building. Dedicated to training and capacity building of local and community bodies.

Role and Use of Science and Information to support ICM	Research The Australian Institute of Marine Science (AIMS), the Commonwealth Science and Industry Research Organisation (CSIRO) and the States through their own marine and coastal research facilities, are capable of producing much of the research needed for CZM. • Linkages between scientific community and management activities increasing. • Inability at the local level to provide necessary technical assistance. • Lack of communication and extension services, rather than a lack of scientific understanding or capacity for scientific understanding seen as problem. • Limited specific support for local studies and socio-economic disciplines. Information Available information about the use and development of the coastal zone is fragmented and often inaccessible. Several initiatives to address this need for information services are: • State of the Marine Environment Reporting. • Ocean Rescue 2000 program and its replacement, the Coast and Clean Seas Program (a ten year Commonwealth initiative), have assisted in the integration of natural science reports and information into the policy stream. • National Marine Information System (NatMIS) provides marine environmental information for the Commonwealth marine program and the wider marine and coastal community. • Environmental Resources Information Network (ERIN). • Coastal and Marine Resources Information System (CAMRIS). National Resources Information Centre will provide a coastal data inventory which will become part of the National Directory of Australian Resource datasets. Commonwealth Government has established national communications network called 'Coastnet' to improve the exchange of information between researchers, coastal managers, and community groups. • An electronic Australian Coastal Atlas is being established by the Commonwealth. Recognition in certain coastal areas of the need to collect data and information for monitoring and evaluating purposes.
Conflict Resolution Techniques/ Instruments	Integrated Committee on Ecological Sustainable Development (ICESD) is a major vehicle for mediating national conflicts over policy proposals. At the State level, there is a conflict resolution processes. However, there is a lack of conflict resolution capability specifically for CZM issues at an operational level.

Program Monitoring, Evaluation and Readjustment	All States formally reviewed their coastal management programs during the 1990s with respect to process-related goals: • South Australia and NWS are attempting to implement recommendations; • Victoria and Western Australia have made changes. Despite those reviews, there remains little program evaluation on substantive (tangible) outcomes. Currently an informal network of scientists and managers for program evaluation. Very little progress to date towards a formal monitoring and evaluation system.

Summary

Australia is one of the world leaders in marine conservation, particularly due to the highly publicised success of the multiple use management efforts deployed in the Great Barrier Reef Marine Park. At present, an ICZM national policy framework administered by the federal government (the Commonwealth) in Australia is still evolving. The State governments are largely responsible for addressing most coastal issues, and have developed individual CZM programs. Most State CZM programs have focused initially on single issues, such as coastal erosion and beach protection. Recently, some States (Western Australia, Victoria and Tasmania) have expanded their program to address other issues, integrating resource management and land-use planning.

The federal government, through the Department of the Environment, Sport and Territories (DEST) is still developing a policy framework at the national level but is reportedly hampered by lack of dedicated funds. A number of national reports and inquiries have been conducted in recent years (29 since 1980) to support the development of a national policy framework. In particular, the now defunct Australian Resource Assessment Commission's (RAC) *Coastal Zone Inquiry* provides the basis of the policy framework and ICZM program. A long process of consultation was conducted, and the final report focused upon the need to integrate efforts with State programs, to enhance community and aboriginal involvement, and to be strongly linked with broader sustainable development strategies. The Commission concluded that all spheres of government needed to cooperate to improve coastal management. Since the RAC completed its final report, the Commonwealth has negotiated with State and local governments to develop cooperative initiatives in coastal management. In 1994, the Commonwealth government agreed that it would continue its CZM efforts through intergovernmental consultation and other arrangements, rather than through a Commonwealth Coastal Act. An example of such an arrangement is the Commonwealth Coastal Action Program (CCAP) introduced in May 1995. Launched within the CCP, it was established through a Memorandum of Understanding (MOU) between the Commonwealth, State, and local governments in each State. Long-term financial commitment to coastal management and the policy development process is considered a key element of the future success of Australia's efforts.

Critics of the ICZM approach in Australia note the current fragmented nature of the various programs and the reluctance of local governments and some community interests to be actively

involved in coastal management and protection. A lack of spatial integration with different management regimes for land, coastal and marine resources administered by three separate Commonwealth agencies remains problematic. These separate programs include Landcare, Coastcare and the Offshore regime. The fragmentation problem is being addressed through Commonwealth and State coordination, as in the MOU creating the CCAP. There is no lack of ability at the local level for government involvement,"" but use of this ability varies. The need for a more integrated legislative and institutional framework is considered a key element to overcome these limitations, although some institutional arrangements already exist to facilitate interaction. A national Oceans Policy is being developed to meet obligations under the Law of the Sea and to address the lack of integration in managing marine resources. Since the development of CZM depends at least in part on political factors, particularly the tension between the Commonwealth and the States over jurisdiction and funding, a coherent, long-term program of meaningful action may be difficult to sustain.

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7.3 NEW ZEALAND

ISSUES	DESCRIPTION
Governance	Federal parliamentary government with relatively clearly defined regions.
Jurisdiction Over Coastal Area	Federal jurisdiction from 12 nmiles to 200 nmile EEZ. Regional jurisdiction between Mean High Water Springs* (MHWS) and 12 nmiles. Districts responsible for land management above MHWS, although provisions exist to extend Regional jurisdiction landward to ensure integrated management. Fisheries are a national responsibility, but are separate from ICZM plans. Federal government overseas issues that cover two or more regions, and international affairs. Regions have significant autonomy to determine specific policy. (* MHWS is the average location of the highest tides of the tidal cycle).
Socio-economic Issues	GNP/capita: $10,000 Coastal Population: 95%
Physical	Area: 329,758 km^2. Population density (1994): 13.1/km^2. Temperate island with a diversity of coastal types, including wetlands, estuaries, fjords, mangroves, salt marshes, beaches, rocky coasts. Some coastal areas are highly urbanized, others are primarily agricultural, and significant stretches (South Island) are relatively uninhabited.
Key Coastal Management Issues * Trigger Issues	*Loss of public access, *recreation and industrial development conflicts, *Treaty of Waitangi (Maori relations). Natural hazards, land claims, waste disposal, habitat loss, coastal pollution, introduction of exotic species through ballast water discharge, oil and gas exploration and production, depletion of fish stocks, aquaculture, forestry, mining.

Coastal Management Program Structure	The Resource Management Act (RMA), 1991 mandates the creation of a National Coastal Policy Statement (NCPS) under the lead of the Department of Conservation (DoC). The NCPS establishes the overarching principles and standards of ICZM in New Zealand, and stipulates in broad terms what the Regions must address. The Ministry for the Environment (MfE) has the authority to develop minimum environmental standards and regulations. Each Region (watershed) is responsible for day-to-day management of the coastal marine area, and is required to produce a Regional Coastal Policy (RCP) consistent with the national NCPS. Districts are responsible for land-use plans above MHWS (not necessarily a coastal plan). Regional and district CZM programs are to include customary Maori knowledge about the coastal environment. Coastal plans of each level of government must be consistent with the policies and practices of the level(s) of government above. Coastal management in New Zealand is viewed within the context of the general privatization and decentralization movement of the 1980s and 1990s.
Defining/ Delimiting the Coastal Zone	The coastal zone is called the Coastal Marine Area (CMA), itself part of a larger undefined 'coastal environment'. The CMA is defined as the foreshore, seabed and coastal waters, and the air space above the water, and has the following borders: Seaward: 12 nautical mile territorial sea. Landward: MHWS, and in rivers the lesser of 1 km upstream and the upstream distance equal to five times the width of the river. Can be extended inland above MHWS to implement integrated management. This definition provides a high degree of flexibility for management purposes with legal certainty for area subject to regulatory mechanisms. Problems include the difficulty in assessing the precise location of MHWS.

Legislative Instruments for Coastal Program	Resource Management Act (RMA), Act No. 34 of 1991: • Minister of Conservation responsible for NCPS, approval of RCPs, and coastal permits. • Purpose of the RMA is to achieve sustainable management of natural and physical resources in the coastal environment, preserve the natural character of the coastal environment, protect outstanding natural features, protect areas of significant indigenous vegetation and fauna, maintain public access, and to respect Maori culture and traditions. • Establishes the Regional Councils as day-to-day managers of the coast, responsible for most resource consent decisions, *eg.* water resources, pollution control, disturbance of foreshore and seabed, occupation *etc.* • Does not address transportation nor fisheries (Fisheries Act, 1996 passed after the RMA); marine farming structures and discharges are both covered. Marine Reserves Act, 1971: • Provides for the establishment and management of marine reserves in a network of marine protected areas (MPA). • Provides complementary functions to RMA and Fisheries Act, as restricted fishing areas can lie adjacent to marine reserves. Local Government Act, 1974: • Provides greater responsibilities and powers at the Regional level.

Policy Instruments	National Coastal Policy Statement (1994): • States policies to achieve the purpose of the RMA in relation to the coastal environment; • Addresses reclamation, structures, exclusive occupation, and enhancement of public access to the coast; • Establishes national priorities for coastal zone; • Controls activities involving the use or development of the coastal zone; • Adopts a precautionary approach to activities with unknown but potentially significant adverse effects; • Defines specific circumstances in which the Minister of Conservation will decide on resource consent applications (otherwise the responsibility of the Regional Council); • Defines relationship between the Crown, 12 regional councils, 5 unitary councils and the district councils; • Outlines the issues and concerns that must be covered by the RCP. Regional coastal policy statements and regional coastal plans: • Mandatory policy required for the coastal marine area; • Can be extended beyond the coastal marine area, as in the Canterbury RCP (District Councils have challenged the legality of this extension, but the position of the Regional Council has been upheld). • Incorporate principles of the National Coastal Policy, and is consistent with RMA; District Plans: • Mandatory plans prepared by district councils for coastal zone above the MHWS; • Must be consistent with all higher level Plans and Acts. While Regional and District plans must be consistent with the NCPS, the RMA regime allows for the specific conditions of the particular regions to be considered.

Role of Lead Agency	The MfE has overall responsibility for administering the RMA, but DoC is lead agency for the coastal component: • Responsible for developing NCPS, policy integration and institutional coordination. • Authority to ensure consistency of RCPs with NCPS. • National focus but also considers regional and district issues. • Strong responsibilities in many aspects of management, particularly Crown's CMA land. • Establishes the hierarchical structure of roles and responsibilities. Within this hierarchy, there are strong linkages between each level of government. • Lead MPA agency. The MfE has authority to establish minimum standards. At the international level, the Australian and New Zealand Environment and Conservation Council (ANZECC) provide opportunities for the exchange of relevant coastal information.
Role of Aboriginal/ Indigenous Peoples	The RMA recognized the Treaty of Waitangi between Maori and non-Maori (Pakeha). The NCPS requires consideration of the principles of the Treaty, and mandates the consideration and protection of Maori values and areas of importance. The formulation of the NCPS included Maori representation. Clear guidelines have been established to facilitate consultation between Maori and Pakeha, including the provision to delegate authority to a local committee.
Role of Non-State Actors	Individual and NGO participation in policy formulation, EIA of projects. Landcare groups to manage at the community level: • Waipoa Catchment -- a community-based multi-stakholder process that addresses soil erosion, sedimentation, flood hazards, reforestation, effects of changes in rural environments, and other rural concerns. NGOs and public groups may apply to have an area designated as an MPA under the Marine Reserves Act.
Consultation and Participatory Process	CZM policy and plans • Public involvement and mandatory public consultation for policy development at each level; • Public review of national policy statements; • Draft NCPS reviewed by Independent Board of Inquiry before finalized. Specific activities or projects: • Consultation in practice confined to regulators, consent seekers and immediately affected parties; • Maori representation incorporated through consultation requirements in the Resource Consent and planning process; • Each proposed MPA is subject to a detailed public consultation process.

Public Education / Awareness Raising	Public education program proposed.
Intersectoral Coordination	Integration among sectors provided through working committees. The RCP ensures consideration of all sectors. Policy integration at highest level.
Funding Mechanisms	National, regional and district government funding.
Capacity and Capacity Building	Lack of expertise in some local governments. The central government is working to increase the level of capacity so the Regions may properly assume their legislated authority.
Role and Use of Science and Information to Support ICM	Limited development of science support to date. Information: • Coastal Resources Inventory being conducted to support plans. • No comprehensive centralized body or agency exists with the mandate to collect information. • The main inventories are descriptive rather than functional, and little information has been collected so far about coastal processes and resources.
Conflict Resolution Techniques / Instruments	Appeal process of Planning Tribunal provides formal mechanism for resolving disputes involving plans.
Program Monitoring, Evaluation and Readjustment	Proposed research and monitoring programs. Monitoring of all plans upon implementation and independent review within 10 years. RMA currently under review.

Summary

The New Zealand coastal zone management program developed from the New Zealand Resource Management Law Reform process and the resulting Resource Management Act (RMA) in 1991. Over 100 Acts were amended or repealed, many of which affected the coastal environment, in order to develop a more consistent management process. The Ministry for the Environment has overall responsibility for administering the Act and the authority to develop a variety of environmental standards and regulations. The Department of Conservation oversees the coastal provisions of the Act. A variety of regulatory mechanisms are used to address coastal issues under this program.

The coastal zone management program is comprised of a four tier administrative framework among all levels of government. National policy statements are developed by the Central

Government through a statutory process that includes an independent Board of Inquiry. Regional policy statements and regional plans are prepared by regional councils, and district plans by district councils. Regional policy statements and regional coastal plans are mandatory. In addition, District level plans are mandatory and the existing plans are encouraged to be reviewed to be in line with the RMA. As these plans must be consistent with the National Coastal Policy, the opportunit for integrated rather than sectoral management is enhanced. Under this program, the planning process is considered part of the broader National Planning activities related to resource use and development. While the RMA covers natural and physical resources, fisheries are excluded.

The New Zealand approach is noted for its well defined objectives and structure, the inclusion of the principles of sustainable management in policy, and its consideration of both national and sub-national interests in coastal policy and management requirements. In practice, New Zealand has encountered many of the problems faced by ICZM programs elsewhere. While consultation is required, in many areas it is limited in practice. Sustainable management remains a goal, not an operating principle. Implementing a precautionary approach, a prominent feature of the NCPS, has remained difficult, and the burden of proof still rests with those to demonstrate that harm will occur. The current review of the RMA could well change the nature of CZM in New Zealand.

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7.4 SRI LANKA

ISSUE	DESCRIPTION
Governance	Democratic Socialist Republic with 9 provinces and 24 administrative districts.
Jurisdiction over Coastal Area	Central government has jurisdiction over a 12 nmile territorial sea and a 200 nmile EEZ.
Socio-economic Issues	GNP per capita: $640 Coastal Population: 32% (about 6 million) Population density at mid-1993: 273.4/km^2.
Physical	Area: 64,454 km^2. Coastline is 1,340 km long. Large tropical island with coral reefs, seagrass beds, coastal wetlands, mangroves, lagoons and estuaries, beaches, sand dunes, and salt marshes.
Key Coastal Management Issues *Trigger Issues	*Erosion and mining (coral and sand) issues related to over-exploitation, *habitat degradation, *fisheries. Habitat loss (especially mangrove), coastal development (tourism), coastal pollution, salt water intrusion, tourism developments, loss of cultural resources.
Coastal Management Program Structure	National coastal plan and regulatory program, with special area management for targeted areas.
Defining/ Delimiting the Coastal Zone	An arbitrary and somewhat narrow legal definition of the coastal zone. The Coast Conservation Department (CCD) has jurisdiction of the coastal zone 300 metres inland to 2 km seaward. While having a firm legislated definition that includes both land and water components, not all coastal habitats, watersheds, and issues are included in boundary.
Legislative Instruments for Coastal Program	• Coastal Conservation Act No. 57 (1981) and amended in 1988: • Required Coastal Conservation Department (CCD) to develop a CZM Plan within 3 years, and update it every 5 years; • Requires permit from CCD for all development activity (fishing is excluded) within the legally defined coastal zones; • Sets punishments for non-compliance to CCD rules; • Prohibits coral mining.

Policy Instruments	National CZM Plan, 1990, amended 1998: • Defines variable set-back line for all construction along the coast (set-back provision modified in 1998 amended version); • Defines permit requirements and environmental assessment procedures for certain types of developments; • Addresses key problems including erosion, resource depletion, degradation of cultural sites and loss of access to coast. 1998 revision adds coastal pollution and Special Area management sites; for each, issues, findings and management objectives, policies and actions are set forth. Actions include prohibitions, regulation, public works, additional research, changes in government procedures, and education strategies; • 'Situation Management' approach with Special Area Management Plans (SAMP) developed locally for priority areas.
Role of Lead Agency	• Lead Agency: Coastal Conservation Department (CCD) • Defines key issues to be addressed, research needs; • Administers development permitting process; • Aids in development of provincial and local plans by providing technical and financial assistance; • Approves lower level plans for implementation; • Produced Master Plan for Coastal Erosion Management.
Role of Aboriginal / Indigenous Peoples	
Role of Non-State Actors	Interest group representation for policy, and Special Areas Management Coordination Committees have NGO representation. Some involvement in government advisory committees.
Consultation and Participatory Process	Required consultation limited to public hearings; no formal citizen advisory committees exist. There is growing community involvement through Special Area Management Plans.
Public Education/ Awareness Raising	Education program with local officials and public, focused on erosion, setbacks, habitats and coral mining.

Intersectoral Coordination	CZM remains largely sectoral, although progress has been made: • Interagency Committee, Coastal Conservation Advisory Council (CCA), composed of senior officials from relevant ministries and private sector required by Act; • Environmental scoping committee to review EIA procedures established; • Increased consultation with many authorities and commissions in decision-making such as the Urban Development Authority. Most integration to date is on an informal basis as much of the program plan development occurs within the CCD.
Funding Mechanisms	CCD receives annual operations and capital budget from national government. Substantial donor funding received from USAID, GTZ and DIANIDA, new fund from DfID anticipated.
Capacity and Capacity Building	Considerable technical capacity has been built, especially through USAID/URI assistance. The CCD conducts an annual training program for local officials.
Role and Use of Science and Information to Support ICM	NARA set up as research institution for coastal and aquatic management. Institutional coordination between CCD and NARA has historically been poor. CCD initiates its own research, and funds management-relevant studies. The research program is applied and problem-oriented. CCD collects and manages information regarding erosion, loss of coastal resources, ecosystem characteristics, and permit compliance. Good development of coastal inventories for the purpose of management.
Conflict Resolution Techniques/ Instruments	Permit decisions may be appealed no formal mechanism for conflict resolution, and most conflicts are addressed at local level using 'Situation Management' techniques.
Program Monitoring, Evaluation and Readjustment	Ongoing monitoring program (through CCD) of permit activity and coastal erosion. No environmental monitoring routinely done. The 1981 Coast Conservation Act requires that the CZM plan be revised every 5 years.

Summary

Sri Lanka was the first tropical country to develop a centrally managed, full-scale ICZM program. The National Coastal Zone Management Plan, initiated in 1982, fully established in 1990, and revised in 1998, is administered by the Coastal Conservation Department (CCD). The initial emphasis of coastal management in Sri Lanka was to control coastal erosion and related sand/coral mining activities, habitat degradation, and loss of cultural resources. This initial narrow focus was due to financial constraints, and the lack of political acceptability of a broader program, and limited capacity of CCD. In the 1998 revision of the National Plan, the CCD built on its experience and credibility with the first program, adding coastal pollution, and special area planning rise as key problems to be addressed. The 1998 Plan continues

program devolution to the provincial and local levels, with minor permitting left to the Divisional level of government.

The Sri Lanka model adopts a problem-oriented approach to management and planning. Special Area Management in two key areas has been initiated. The primary means of control have been the permitting program and creating setbacks to limit impacts from development activities. Similarly, environmental assessment has been used and successfully implemented for major coastal developments. Although there is increasing community level involvement, this model is still criticized for ignoring social and political/economic factors beyond coastal erosion and mining concerns. The development of Special Management Areas is expected to expand activities and issues addressed, and allow more community involvement.

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7.5 ECUADOR

ISSUE	DESCRIPTION
Governance	Republic with 21 provinces (including the Galapagos Islands), and local governments.
Jurisdiction Over Coastal Area	National jurisdiction to 200 nautical miles.
Socio-economic Context	GNP per capita: $1,280 Coastal population: 45% (about 5 million people) Population density (per square km) in mid-1994: 41.2.
Physical	Area: 272,045 square km. Coastline of 2,237 km. Developing country with a coastline formerly dominated by mangroves (now extensively transformed), tropical rainforest, and beaches. The southern area is very dry.
Key Coastal Management Issues *Trigger Issues	*Shrimp mariculture development, *declining fisheries, *mangrove loss. Urban and development pressures, water quality, tourism, forestry.
Coastal Management Program Structure	• Federal Programa de Manejo de Recursos Costeros (PMRC), was established by Executive Decree 375 (based on URI strategy), 1989, and superceded by Executive Decree 3399 in 1992. This is a strong central program focussed on the local level. • Established Inter-ministerial National Coastal Resources Management Committee (NRMC) in 1989 to formulate natural coastal resource management policy for Presidential approval. • Decree establishes Special Area Management (SAM) zones at the local level as 'test sites' for ICZM where field officers, local advisory, and executive committees develop SAM plans. • To date, 6 SAMs established in target areas, covering 8% of the total coastal area. • Once the SAM plans are approved they become part of the National Development Plan. • The Provincial governments have little or no role in coastal management.
Defining/ Delimiting the Coastal Zone	Seaward: 8 miles. Landward: 8 metres for public access. Delimitation of coastal zone in SAMs considered on a case-by-case basis. Boundaries for each SAM vary depending on issue.

Legislative instruments for coastal program	Executive (Presidential) Decree 3399 (1992) established national coastal program to: • Preserve and develop coastal services in stipulated provinces; • Designate institutional responsibilities through NRMC; • Establish special zones (SAMs) as a model or test site for integrated management to achieve sustainable stewardship of coastal resources and improve the quality of life.
Policy Instruments	• Special Area Management Plan (6) adopted by local groups and National Planning Agency. • Ranger Corps Enforcement Manual • National Policies for mangrove management and mariculture drafted.
Role of Lead Agency	NRMC (National Commission): • Inter-ministerial body within the Office of the President; • Representation from six agencies involved in coastal zone management; • Non-regulatory agency with coordinating and networking role with other agencies; • Formulate policy for Presidential approval; • Designate and provide assisstance to the Technical Secretariat (PMRC). Coastal Program Secretariat (Executive Directorate): • Administer and execute national program; • Provide technical assisstance to every aspect of the program; • Present workplans and budgets for approval by NRMC; • Conduct studies and present plans on national issues; • Recomment additional, fewer or expanded SAMs to NMRC. Special Area Management (SAM) Zones (Local Management Zones): • Local coordinatore and committee oversee SAM implementation. Ranger Corps Units: • Inter-agency group responsible for enforcement of policies and regulations. Headed by a Naval Port Captain in each region.
Role of Aboriginal / Indigenous Peoples	No special provisions.
Role of Non-State Actors	• High degree of NGO involvement. • Fund-acion Pedro Vicente Maldanado is an NGO active in coordinating and implementing community participation. • NGO participation has helped raise national awareness of CZM issues.

Consultation and Participatory Process	• NRMC established a public consultation process for the formulation and implementation of the SAMs. • Resource users are actively involved. Participation is built into each step of the SAM plans. • The SAM permanent committees include citizens and resource users and are supported by a local coordinator. úUser group agreementsî are generated as informal agreements among a variety of local stakeholders.
Public Education/ Awareness Raising	Funding is allocated to community-based research, education and information collection. The education program helped bring national attention to CZM. The program has used a wide range of media to broadcast their message, as well as public workshops. (See also Capacity Building)
Intersectoral Coordination	NRMC is composed of representative from the Public Administration; Planning; Agriculture and Livestock; Industry, Commerce, Integration and Fisheries; Defense; Energy and Mines; Ecuador Tourism Corporation, to jointly address coastal issues. In general, coordination and facilitation functions are well defined at each level. National and local level initiatives are closely linked, and the integration of social and economic concerns are an important component. This integration of local and central level initiatives is especially strong in selected coastal areas. The Ranger Corps is an interagency group of field personnel under the convened leadership of the Port Captains to coordinate resources for the purposes of enforcement.
Funding Mechanisms	National Government. US$ 14 million IDB 5 year loan, approved in 1994 to support each SAM. A 1986-1994 USAID funded coastal zone management in cooperation with the Coastal Resources Center, Rhode Island.
Capacity and Capacity Building	Extensive training and education program within government and at selected community sites with a variety of targeted coastal users. The Coastal Resources Center was recently established to aid in training and education, for which Fund-acion Pedro Vicente Maldanado provided considerable assistance. A core of trainers now exists.
Role and Use of Science and Information to support ICM	The applied research program is currently being strengthened through growing university linkages. Research generally has a natural science concentration. Increasingly, natural science data and information is integrated into national CZM policies through experts from different disciplines. Fund-Acion Pedro Vicente Maldanado compiles and organizes existing information.
Conflict Resolution Techniques/ Instruments	There are active and permanent multi-stakeholder committees at local and national levels (*eg.* SAM Committees). These committees serve as the forum for conflict resolution. The capability for conflict resolution is well-developed at the local level.
Program Monitoring and Evaluation	While there is a research and monitoring program, there is the need for standards for key issues. A monitoring program has been instituted, and the PMRC has hired a monitoring coordinator. A full scale assessment of progress made will be conducted in 1998-1999.

Summary

The CZM strategies in Ecuador have been simultaneously developed at the central and local government levels. At the central government level, advisory and executive committees began working in early 1990 to review technical documents, build public awareness and support, and guide the drafting of policies and actions on important coastal issues. A variety of existing agencies enforce regulations and are responsible for many sectoral decision-making activities. The National Resources Management Commission, an interagency committee composed of seven key ministries, is designed to play an important networking and coordination role with an emphasis on building constituencies among various sectors.

The Ecuador Coastal Resources Management Program is strongly oriented towards providing a "bottom-up" approach to both designing and implementing management activities at the local level. Special Area Management plans are being implemented in six areas, representing the full range of coastal issues. Initial trials of implementing the SAM policies have taken place through sets of small "practical exercises in management" selected and executed by the local advisory committees. Better coordination of law enforcement efforts by a Ranger Corps based in the offices of three of the seven coastal port captains has assisted in the implementation of these policies. The NGO, Fund acion Pedro Vicente Maldanado, assists in facilitating the partnership between government and local communities.

Attention is now focused on setting national policy on coastal management issues, extending coastal management to other critical areas in the coast, improving decision-making and enforcement on coastal matters, and strengthening local capability to manage coastal areas and establish environmentally sustainable patterns of economic development.

The overall strength of the Ecuador approach is its adaptive and incremental approach which results in practical experience that can then be applied to specific situations with one important; tangible result being "growing management competence." This is seen as more important than creating general national guidelines that may not be appropriate for all regions and management issues. The program is considered successful in developing local capacity to address management issues and building awareness.

Reviewed by (earlier draft)

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7.6 PHILIPPINES

ISSUE	DESCRIPTION
Governance	Republic divided into provinces, municipalities and barangays (citizens' assemblies).
Jurisdiction over Coastal Area	National government is responsible for waters from 8 to 200 nautical miles. National management of forest lands, fishing beyond municipal waters, mining, environmental impact assessment, protected areas, land, and ecosystems research. The local governments (municipalities) have authority to create and enforce law pertaining to all coastal activities occurring in municipal waters (8 nmiles). Municipal jurisdiction extended seaward in 1992 from 7 km to 15 km (or about 8 nmiles).
Socio-economic Issues	GNP per capita: $950 Over 80% of major settlements located within 10-20 km from shoreline. Population density (per square km), May 1990: 202.3.
Physical	Approximately 7,100 islands with 18,000 km of coastline. Area: 377,750 square km. Coral reefs, beaches and dunes, lagoons and estuaries, mangroves, sea grass and algae beds, and fish stocks.
Key Coastal Management Issues *Trigger Issues	*Poverty in coastal areas, *critical habitat destruction (mangrove, sea grass and coral reefs), *overfishing and destructive fishing practices. Marine environmental quality (land-based and marine), resource use conflicts, shorefront development.
Coastal Management Program Structure	Since 1987, Department of Environment and Natural Resource (DENR) responsible for formulating national marine policy framework, establishing national standards, and coordinating 23 agencies. The Department of Agriculture (DA) through the Fisheries Sector Program has overlapping responsibility in the coastal zone providing technical assistance and capacity development for marine conservation and management. There are four tiers below the national level (Regional, Provincial, Municipal and Community), however, coastal resource management largely focuses on fisheries and is undertaken at the municipal and community level. Each municipality is responsible for establishing and implementing coastal zone management, including fisheries, out to 15 km, in principle in accordance with national minimum standards and policy. With donor assistance, several municipalities cooperated in creating a Resource Management Council to oversee a large ICZM program, *eg.* Lingayen Gulf, under the National Economic and Development Authority (NEDA), to enhance capacity and provide technical assistance for critical area management.
Defining/ Delimiting the Coastal Zone	Seaward: to the 100 fathom or 200 metre isobath or 15 km (8 nmiles), whichever is farther; Landward: no more than 1 km from the highest tide point.

Legislative Instruments for Coastal Program	Philippine Constitution, 1987: • Requires the State at the national level to protect, develop and conserve marine resources; • DENR and DA derive their CZM mandate from the 1987 Constitution; • Encourages NGO and community participation in coastal management. Local Government Code (LGC), Republic Act 7160, January 1992: • Requires local officials to adopt measures to safeguard and conserve the resources of the Province and Municipalities; • Promotes community-based management of coastal resources; • Provides authority to enforce all fishery laws in municipal waters, including the conservation of mangroves. Presidential Decree 704, 1975 (Fisheries Act), replaced by Fisheries Code, 1998 (Act No. 8550): • Acknowledges fisheries management out to 15 km is responsibility of the municipal/ city governments. Bureau of Fisheries and Aquatic Resources, responsible for fisheries management beyond municipal water; Presidential Proclamation 156, 1993: • Declares the Lingayen gulf and environmentally critical zone and establishes the Gulf Commission. Republic Act 7586 National Integrated Protected Areas System (NIPAS), 1991: • Provides general guidelines on the management and protection of protected areas through management plans; • Establishes the Protected Area Management Board to administer the system, with representatives from national government, local government, NGOs and communities.

Policy Instruments	• The Coastal Resources Management Program (CRMP) of the DA, funded by ADB beginning in 1990, provides technical assistance and capacity building for coastal communities. • The Coastal Environment Program (CEP) of the DENR (Administrative Order 19) launched in 1993 to create national policy for all coastal programs, projects and initiatives, and to address shorelands, mangroves, fishery and wildlife resources, and minerals. Overlaps with the CRMP of DA. • Three fundamental principles underlie DENR coastal programs: a. Sustainable use and management; b. Regeneration or restoration of natural resources; c. Equitable access and use of resources. • National Marine Policy formulated at cabinet level. • Philippine Vision 2000, an initiative to achieve sustainable development, recognizes CZM as an important component of the initiative. • Comprehensive National Master Plan for Coastal and Environmental Marine Management in the offing. Consultations are ongoing, coordinated by DENR.
Role of Lead Agency	Ongoing institutional overlap for CZM between two main departments: DENR and DA. DENR: • Composed of 6 Bureaus (Minerals and Geology, Environmental Management, Forest Management, Ecosystem Development and Research, Land Management, Parks and Wildlife); • Responsible for the conservation, management, development and proper use of the environment and natural resources; • Coordinates and consults with the 23 other agencies with marine and land resource mandates, including the Department of Science and Agriculture, Department of Agrarian Reform, and Department of Science and Technology; • National coastal policy formulation and establishment of minimum standards. DA: • Provides policy direction on CRM implementation; • Provides technical assistance to the Local Government Units (LGU) for CRM plans.
Role of Aboriginal / Indigenous Peoples	Coastal indigenous groups ('tribal peoples') are not accorded specific representation, but are included in the community.

Role of Non-State Actors	Local NGOs have been actively involved in fishing community organization, coastal resource management, promotion of interactive livelihood projects, *etc.* In particular, the HARIBON Foundation, Tambuyog and others are active in a variety of coastal projects. Donor agencies enhance capacity and provide technical assistance to municipalities (*eg.* Lingayen Gulf) to formulate ICZM policy, complement ICZM programs, and integrate the fisheries sector into management plans. Siliman University and the Marine Science Institute of the University of the Philippines involved in basic research and are increasingly involved in NGOs. University initiatives have been worked into government policy, especially with respect to the integration of socio-economic concerns. Long-term research initiative on Sumilon Island and Apo Island. Silliman University established the Marine Conservation and Development Program (MCDP) in 1984 to address coral reef destruction through community-based initiatives. MCDP also established 4 other research sites. Political pressures have on occasion overtaken or reversed non-state actor conservation efforts, e.g. on Sumilon Island. ICLARM is involved in fisheries projects, especially in capacity building and technical assisstance.
Consultation and Participatory Process	The CEP and CRMP include: • Communities as principal partners in enhancing sustainable resource use; • Expanded sectoral participation in coastal resource management. There is active citizen participation in the planning process of the Lingayen Gulf region pilot study, and 15 community-based management projects have been initiated. Diverse forms of community involvement including advisory councils, government advisory committees, interest group representatives, public hearings, information gatherings, community meetings, broad dissemination, brochures, media campaign, user group training.
Public Education/ Awareness Raising	National government, local governments and NGOs publish and disseminate relevant information through print, radio and television media. Additionally, the CEP and CRMP include an Information, Education, and Communication (IEC) campaign. Each project incorporates both a formal training and informal information components.
Intersectoral Coordination	Six agencies have major CZM responsibilities and are poorly coordinated. Both the DA and DENR have interagency committees that attempt to integrate activities. Generally, their function is to: • Provide policy recommendations for CZM; • Develop long term program; • Conduct inventory of coastal zone resources. There are also a number of coordinating committees and councils addressing multisectoral coastal issues, *eg.* the Batangas Bay Management Council, and the provincial environment and natural resources office (PENRO). Communication between national departments and between the national level and community efforts remains limited, but improving.

Funding Mechanisms	ADB, several donor agencies and NGOs have provided significant on-going support for integrated CZM programs since the 1980s.
Capacity and Capacity Building	National government and NGOs provide technical assistance to the municipal level to plan and implement resource management. For example, the Philippine Council for Aquatic and Marine Research and Development (PCAMRD), Department of Science and Technology, conducts ICZM seminars through regional centres. Local capacity varies by region, but is generally improving. National universities and experts associated with donor agency-sponsored CZM projects have considerably enhanced the capacity of Philippine nationals to formulate CZM national policy and implement programs at the local levels.
Role and Use of Science and Information to support ICM	Research on CZM supported by DENR and DA, the academic community and ICLARM. The PCAMRD coordinates and monitors fishery and marine research. The local government participates in information collecting [LGC Sect. 17(b)2i].
Conflict Resolution Techniques/ Instruments	Provisions for dispute resolution in LGC (Sects. 118-119; 408-419).
Program Monitoring, Evaluation and Readjustment	• Lack of effective enforcement by some communities. • Philippine National Police (Department of the Interior and Local Government) and PNP-Maritime Command engage in monitoring, surveillance and enforcement in Municipal waters; application varies widely between municipalities. • DA deputizes wardens from the local community ('bantay dagat') to enforce Municipal laws. • Program evaluation built into each project, but application is uneven.

Summary

The national CZM program in the Philippines is fragmented between the Department of Environment and Natural Resources (DENR) and the Department of Agriculture (DA). Both have an inter-ministerial coordinating committee to address overlap and duplication. The DENR Coastal Environment Program (CEP) and the DA Coastal Resource Management Program (CRMP) are similar in intent and application. Despite a National Marine Policy at the cabinet level, and the inter-ministerial efforts, coastal management at the national level remains largely uncoordinated with considerable institutional overlap.

The 1992 Local Government Code affirmed the principle role of local government and communities in the implementation of CZM in the Philippines. Local communities are authorized to enact and enforce laws in municipal waters for all activities including fisheries out to 15 km, in accordance with national policy and minimum national standards. Monitoring and enforcement of minimum standards is difficult to achieve. Community-based coastal

resource management is focussed on fisheries and is considered effective in many communities where there is the requisite cooperation and commitment.

Integration is better developed at the local level, where municipalities must consider all aspects of coastal management. While the CZM structure in the Philippines allows for a high degree of flexibility, capacity varies from municipality to municipality. Although both the national government, NGOs and universities are working on capacity building, the local governments require greater help in this area to effectively implement national polices, and to enforce local management strategies. Integration between many municipalities remains a problem, and greater coordination and networking between municipalities is needed. Some municipalities have collaborated and formalized the institutional arrangement to achieve integrated coastal management as in the Lingayen Gulf region.

The CZM pilot project in the Lingayen Gulf is more formal and institutional than other regional initiatives, and could be considered a 'special area management' model. The experience of Lingayen revealed that existing institutional arrangements for the management of the Gulf's coastal resources were inadequate, and that the immediate needs of the local community often conflict with the long-term perspective of CZM designed to achieve sustainable development. A regional CZM plan was produced from this project but a lack of sufficient funds from the national government and foreign donors prevented it from being implemented.

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