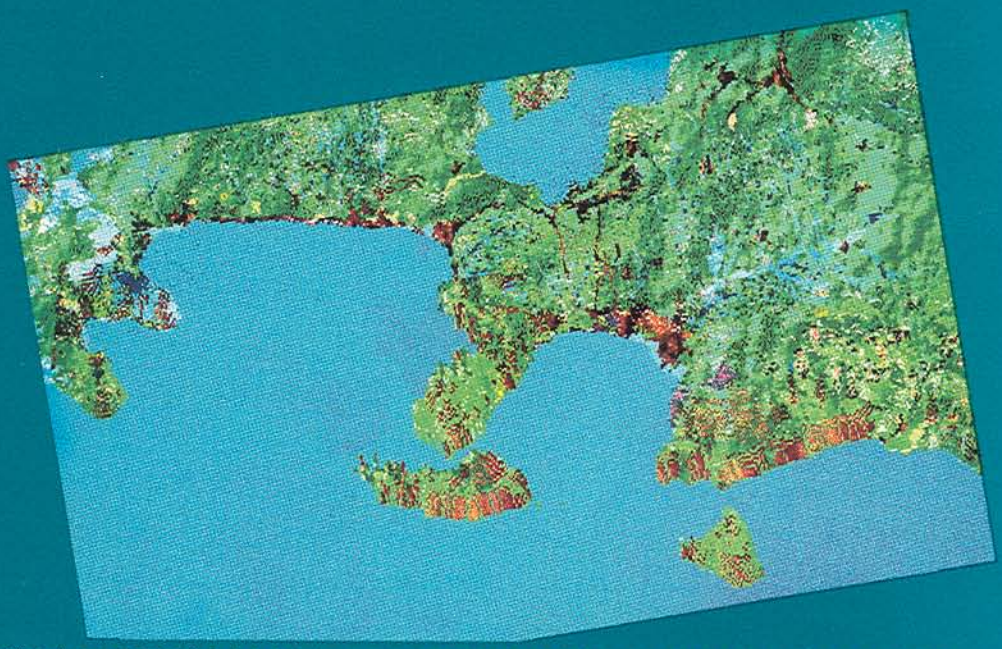
Enhancing the Success of Integrated Coastal Management

Good Practices in the Formulation, Design, and Implementation of Integrated Coastal Management Initiatives



The International Workshop on Integrated Coastal Management in Tropical Developing Countries: Lessons Learned from Successes and Failures

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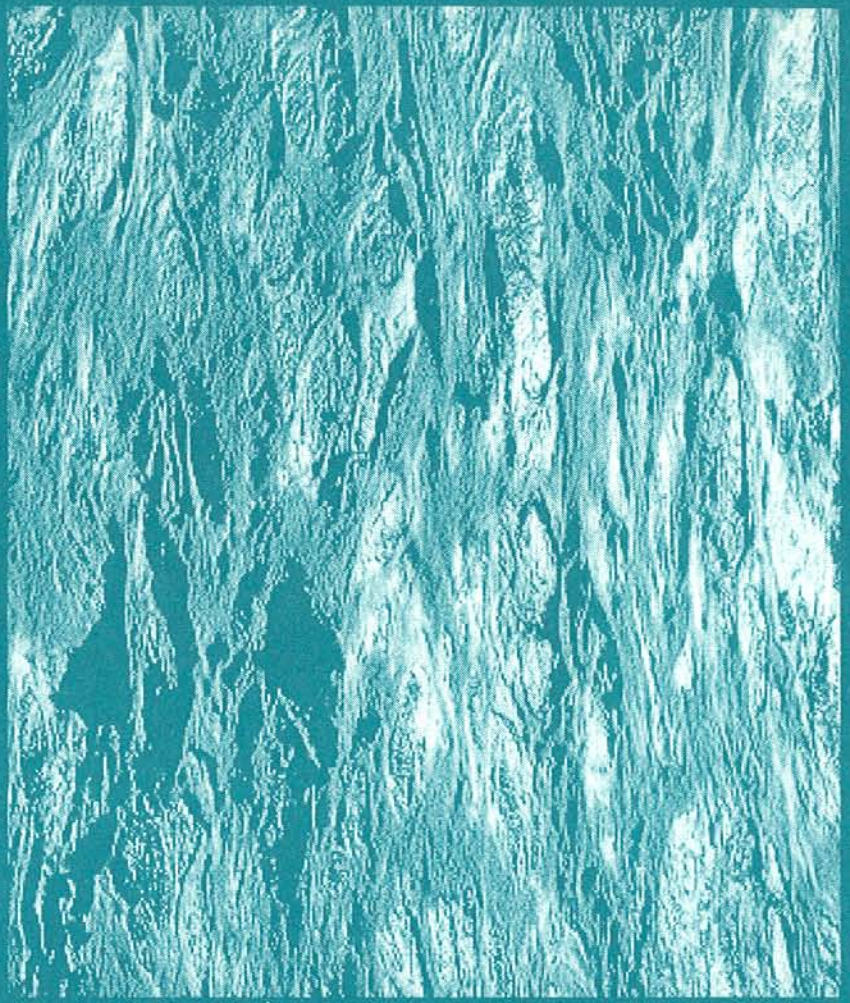

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Report of the main findings from the International Workshop on Integrated Coastal Management, held in Xiamen, People's Republic of China, on May 24-28, 1996. The workshop was supported by the United Nations Development Programme (UNDP), International Maritime Organization (IMO), Danish Cooperation for Environment and Development (DANCED), Swedish International Development Agency (Sida), the Coastal Management Center (Philippines), the Coastal Resources Center of the University of Rhode Island (USA), and the State Oceanic Administration (SOA), the People's Republic of China.

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1996

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PREFACE

Since the adoption of Agenda 21 at the United Nations Conference on Environment and Development, efforts have been exerted to develop integrated coastal management (ICM) programs and their guidelines for implementation. The coastal zone is unique and is spatially and temporally dynamic. Thus, it has resulted in divergent perspectives on ICM and how it should be implemented. The varied individual experiences and disciplinary backgrounds among practitioners have contributed significantly to such divergences. Nevertheless, all past and present ICM initiatives have been carried out with the common goals of protecting the marine environment and achieving sustainable development of coastal and marine areas.

While some successes and failures of past ICM initiatives have been documented, no attempts have been made to identify good practices, that is, which practice works and which does not that should be followed for implementing future ICM programs. Following the lead of national governments, international organizations, and nongovernment organizations, donor agencies are currently prioritizing ICM in their agenda of activities. For the next decades, ICM will definitely be pervasive; hence, the identification of its good practices is timely.

ICM has been recognized to be most needed in tropical developing countries which have been characterized as having rich and diverse marine resources but high population densities along their coastal zone. Compared to developed countries, they have more prevalent incidences of environmental degradation. Such incidences were brought about by a plethora of unregulated activities that directly or indirectly affect the coastal areas.

The "International Workshop on Integrated Coastal Management in Tropical Developing Countries: Lessons Learned from Successes and Failures" was conducted in response to the above considerations. It was held in Xiamen, People's Republic of China, on May 24-28, 1996. This workshop served as a venue to draw out ideas from the participating practitioners. About 130 participants from 19 countries and 11 international and regional organizations shared various views and experiences which served as bases for the formulation of a collective definition of good ICM practices.

This document contains the main findings of the workshop. It aims to ensure that the direction of future ICM programs is on the right track.

The findings of this report are based on the contributions of the workshop participants; they represent an overview of the processes of formulating, designing, implementing, and extending the Integrated Coastal Management in the East Asian region. The findings may also be valid for other regions of the world.

To gain wide readership and to enhance awareness among its readers, this document is being translated, particularly into Chinese, Thai, Korean, Vietnamese, Bahasa (Indonesian/Malaysian), Spanish, and French.

This document was prepared through the efforts of the following: Dr. Peter Burbridge, Dr. Stephen Olsen, Dr. Richard Kenchington, Dr. Kenneth Brown, Dr. Sanit Aksornkoae, Dr. Chia Lin Sien, Dr. Jayampathy Samarakoon, and Ms. Sarah Humphrey. The contribution of Mr. S. Adrian Ross, Mr. Jimmy Ronquillo, Ms. Nancy Bermas, and Dr. Ranjith de Silva during the preparation stage is also duly acknowledged. Finally, without the generous financial support of Sida, DANCED, and SOA, this document would not have been completed.

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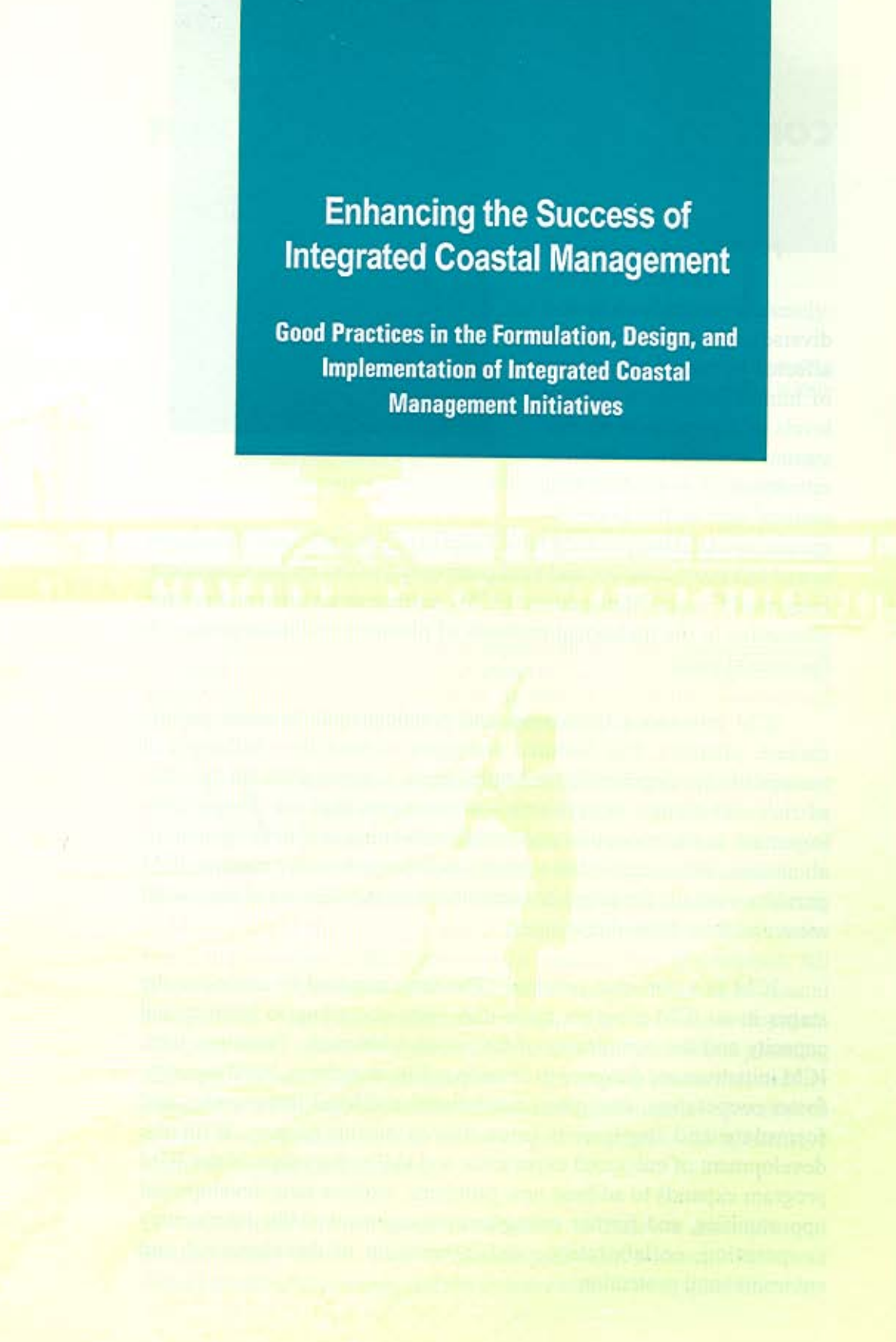


CONCEPT

A Coastal Dreamland

The sustainable development of the earth's rich and diverse coastal areas has been affected by complex patterns of human activity and high levels of competition among various economic sectors. In retrospect, it is evident that sectoral approaches to development and land use planning have failed to achieve wise and sustainable use of this most complex and vital component of our global ecosystem. Integrated Coastal Management (ICM) represents a viable and proven alternative to the traditional methods of planning and management in the coastal zone.

ICM provides a framework and practical tools to assist policy-makers, planners, and resource managers to meet the challenges of sustainable development in the coastal areas. Coastal areas are a mosaic of rich and diverse ecosystems and resources that are strategically important to the economic and social well-being and development of all nations. When applied in a timely and comprehensive manner, ICM provides a vehicle for sound investment and sustainable use of the coastal areas and their natural resources.

ICM is a dynamic process. The time required to complete the stages in an ICM program cycle may vary, according to institutional capacity and the complexity of the issues addressed. From the start, ICM initiatives are designed to develop public awareness, build capacity, foster cooperation, strengthen institutional and legal frameworks, and formulate and implement issue-driven action plans. With the development of enhanced experience and skills, the scope of the ICM program expands to address new problems, explore new development opportunities, and further strengthen management skills, interagency cooperation, collaboration, and integration of development and environmental protection.

FUNCTIONS

ICM improves the traditional forms of development planning in four distinct ways, namely:

- Furtherance of a thorough understanding of the natural resources systems which are unique to the coastal areas and their sustainability within the context of a wide variety of human activities,

- Optimization of the multiple use of the coastal resource systems through the integration of ecological, social, and economic information,

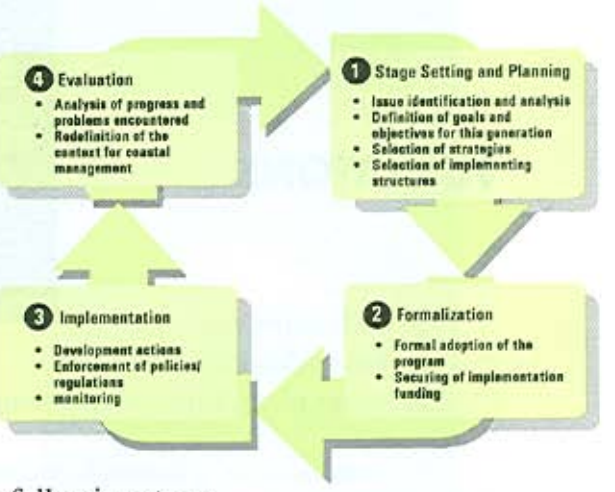
- Promotion of interdisciplinary approaches and intersectoral cooperation and coordination to address complex development issues and formulate integrated strategies for the expansion and diversification of economic activities, and

- Assistance to governments to improve the efficiency and effectiveness of capital investment and natural and human resources in achieving economic, social, and environmental objectives as well as in meeting international obligations concerning the coastal and marine environment.

What differentiates ICM from other forms of development planning is that it facilitates the optimization of the economic and social benefits derived from the use of natural resources. Where sustainable development depends upon renewable resources generated by the coastal systems, such as estuaries, ICM facilitates the multiple use management which maintains the functional integrity of the systems and a constant flow of resources. All forms of development impact on the health and productivity of coastal ecosystems. Therefore, sustainable economic and social development in coastal areas cannot be separated from sound environmental planning and management. This is as important to developing economies heavily dependent on the quality of the environment and natural resources to sustain food security as it is to developed economies with intensive forms of coastal development.

ICM also serves as an instrument to resolve international transboundary issues, such as marine pollution, overexploitation of shared stocks of resources, and the conservation of biological diversity.

PROCESS



ICM is most effective as a proactive planning and management mechanism. Developing the ICM initiatives involve the following steps:

1 Awareness

- Developing awareness of the value of coastal resources within national economic and social development programs.
- Developing awareness of the ability of coastal ecosystems to sustain more than one economic or social activity.
- Developing awareness of the common dependence of different groups on the availability of goods and services generated by the coastal systems.

2 Cooperation

- Promoting cooperation among the different sectoral institutions -- the private sector and community groups -- to achieve common objectives.

3 Coordination

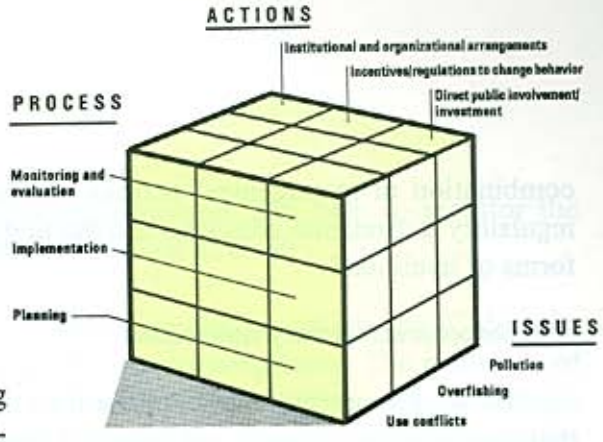
- Developing coordinated policies, investment strategies, administrative arrangements, and harmonized standards by which performance can be measured.

4 Integration

- Implementing and monitoring policies, investment strategies, administrative arrangements, and harmonized standards as part of a unified program, and making adjustments, if necessary, to ensure stated objectives are being met.

ICM can operate at all levels of governance. It is not necessary to wait until the national policies are in place before attempting to use its principles, concepts, and guidelines to address coastal management problems or to stimulate new forms of development at the local level.

GOOD PRACTICES



The following sections outline the good practices which apply to all coastal management situations:

- **Adopt a Systematic, Incremental Approach in Developing and Implementing ICM Projects and Programs.**

ICM should be developed in a systematic manner which allows time for soliciting financial resources and building local managerial and technical capacities to support the identification and implementation of appropriate technological interventions; promoting interagency and stakeholders cooperation; and fostering perception and attitude changes among policy-makers, resource and economic managers, and research scientists.

It is appropriate to apply ICM at a local level and then proceed to more ambitious district, provincial, and national programs after sufficient expertise has been developed. While it is beneficial to have a broad base of national support which can facilitate sectoral cooperation and consistency in policies, it is essential that ICM initiatives build strong public support through the integration of interested and affected parties (stakeholders) into the ICM planning and management processes.

a. Apply ICM framework for sectoral management.

Systematically employ the ICM framework to administer a combination of policy, management and technological interventions to address issues arising from sectoral economic development. The ICM general framework can help in the effective management of fisheries, aquaculture, tourism, ports, marine parks, etc.

b. Use a combination of management actions.

In developing an ICM initiative, consider the application of a

combination of management actions, including market-based and regulatory instruments, education and training programs, and alternative forms of livelihood.

c. Adopt precautionary approaches.

Adopt the precautionary approach to development. This means that development should not proceed where there is insufficient information on the possible social, economic, and environmental effects on which to base a decision as to whether such effects are acceptable. This will prevent or minimize use conflicts, adverse impacts, and irreversible loss of future development options.

d. Strictly follow the ICM procedure.

Follow the step-by-step processes of planning, implementation, monitoring, and evaluation. These processes are integral and sequential parts of the ICM program design. Strict compliance ensures the successful implementation of the program and the improvement and refinement of its management measures.

- **Involve the Public in the ICM Process.**

Involve the stakeholders at all phases and levels of an ICM program development and implementation. Broad public support helps to enhance awareness of the special features and values of the coastal zones at all levels from local communities to decision-makers. The public and private stakeholders can contribute to the identification of use conflicts and environmental management problems, determination of their causes and effects, and assistance in their resolution. A broad body of public support also provides a mechanism for consultation, coordination, and, eventually, integration of the efforts of different government agencies to bring about sustainable coastal development.

- **Integrate Environmental, Economic, and Social Information from the Very Beginning of the ICM Process.**

Emphasize the integration of environmental, economic, and social information at the very start of the coastal development projects and programs. Due to the complex and dynamic nature of the coastal systems, it is very important to have good scientific information. Sound scientific information can strengthen

the planning and management processes and help to monitor the effectiveness of plans and management strategies.

Information gathering is a continuous process in the ICM cycle, enriching our knowledge as the process progresses. The main role of research is to ensure the availability of information at each strategic stage of ICM development. While much of the baseline information may be available, hard data on ecosystem dynamics and interactions between the resource users and coastal ecosystems are often lacking.

Filling such data gaps may require considerable research effort and time. Most countries have a wealth of secondary information relating to demography, the physical environment, and the political, cultural, and socioeconomic conditions which will influence the formulation of coastal policies and environmental management strategies. However, much of the available information may be in the custody of line agencies, the archives of universities, and the personal collections of experts. Therefore, these sources of information should be identified and arrangements made to retrieve, process, and analyze the available information to form a systematic coastal environmental profile. The coastal profile will help identify critical gaps in information which may have to be filled through new research.

a. Promote management-oriented research.

Set the research agenda to narrow the information gaps and to strengthen the scientific basis for management. It must be emphasized that the collection and analysis of environmental, social, and economic data can be very expensive and time-consuming. Priority should be given to the acquisition of information that will help solve important problems and issues and provide a sound base for formulating plans and management strategies.

Effective research can identify alternatives for the sustainable economic development of the coastal areas and resources and anticipate potential adverse impacts. Effective measures to mitigate potential adverse impacts can be identified and built into the ICM projects that would complement the set economic, social, and environmental development objectives. Where unavoidable adverse impacts are identified, Environmental Impact Assessment (EIA) may be required.

b. Integrated EIA in ICM program development and implementation.

Applying EIA at an advanced stage of the project or program planning often has proven less effective in modifying project/program design. The proactive use of environmental, economic, and social information early in the ICM process can reduce greatly the need for costly and time-consuming EIAs. It clearly identifies the nature of impacts and factors needed to be assessed in order to determine whether modifications to the project design or additional mitigation measures can reduce the adverse effects to acceptable levels.

Use the Integrated Environmental Impact Assessment (IEIA) as an effective screening and diagnostic tool for measuring adverse environmental changes caused by the cumulative or synergistic impacts of economic activities. IEIA enables the ICM program to establish proactive or reactive responses within the limits of the environment's carrying/absorption capacity. ICM enables IEIA to be more focused and effective in areas or zones designed for multiple forms of development.

c. Consider common property features in economic assessments.

Ensure that the common property features of the coastal resources are fully incorporated into the economic assessments of the value of coastal areas and alternative forms of development. The long history of coastal development in Asia and other tropical regions has led to the development of complex patterns of resource use and rights of access to natural resources. Many of the natural systems, e.g., coral reefs, estuaries, mud flats, seagrass beds, and mangroves, are considered part of the public domain or *common property* of society. Traditional forms of resources management often cannot be maintained under conditions of rapid population growth and pressures to expand and intensify development. ICM helps avoid or alleviate the problems associated with overexploitation and degradation of common property resources by such measures as allocation of user rights, zoning areas for multiple-use management, and the introduction of improved resources management practices.

d. Include cost-benefit analysis in the assessment of development alternatives.

Conduct a cost-benefit analysis to facilitate the adoption and approval of the ICM program. Consider both the direct and indirect values of natural resources, i.e., the economic and environmental goods and services generated by the coastal ecosystems. Exercise caution in the valuation of cultural, *spiritual*, or less tangible aspects which can be highly variable, depending on the interests of different social or economic interest groups. Qualitative values associated with the non-consumptive use of the coastal and marine resources can be important to policy-makers.

- **Establish Mechanisms for Integration and Coordination.**

Develop institutional mechanisms which facilitate integration and coordination of the ICM program. Integration and coordination are mutually supportive elements.

Integration brings about the harmonization of policies and legislation between national, provincial/state, and local governments; closer management linkages between resource systems; and better functional coordination among concerned resources governance and management agencies. Integration begins at the initial planning stage.

Coordination plays a central role in fostering understanding and cooperation among stakeholders, line agencies, researchers, policy-makers, and resource managers. An institutional mechanism for coordinating the development and implementation of the ICM program is essential, especially at the local level. Such a mechanism is more acceptable for it is built upon an existing management structure.

- **Establish Sustainable Financing Mechanisms.**

Develop sustainable financing mechanisms within the ICM program in order to ensure program continuity. This is equally important as the establishment of appropriate institutional mechanisms. In the formulation of an ICM project or program, sources of finance which can be used to sustain management activities should be explored before finalizing the project or program plan.

- **Develop ICM Capacity at All Levels.**

Strengthen the capacity of stakeholders to effectively contribute to the ICM program. A major constraint in ICM program is the lack of technical and management capacities, especially at the local level. ICM requires coastal managers with broad-based environmental management training to lead and coordinate program development and implementation. However, coastal managers with interpersonal skills to coordinate interagency activities, to mobilize human and financial resources, and to direct management-oriented research and information development are not readily available. Unless such capability is established, ICM program formulation and implementation will be difficult. A wide range of technical and professional management skills are required to support the formulation, design and implementation of successful ICM, including:

(a) Environmental Evaluation and Resources Analysis,

(b) Environmental Economics,

(c) Environmental Impact Assessment,

(d) Geographic Information Systems (GIS) and Information Management,

(e) Sociology,

(f) Law,

(g) Policy and Land Use Planning,

(h) Pollution Mitigating Technologies,

(i) Programme Development, and

(j) Communication.

ICM program needs to employ strategies aimed at strengthening human resources and institutional capacities. One of the best ways to acquire knowledge and practical management skills is through in-service training and active participation in existing ICM programs. Attention also needs to be given to strengthening the abilities of stakeholders to contribute to ICM. This can be addressed through public meetings, extension services, and workshops.

- **Monitor the Effectiveness of ICM Projects and Programs.**

Monitor environmental, social, and economic impacts throughout the life of the ICM program. Due to the complex and dynamic nature of the coastal systems, it is not always feasible to accurately predict the economic effectiveness and environmental performance of ICM projects and programs. This is especially true for tropical coastal systems where scientific knowledge is often limited. Identify factors to be monitored and set out standards and procedures for monitoring early in the ICM process.

Monitoring provides a powerful tool for assessing the performance of projects and gives early warning of adverse effects so that corrective action can be taken to modify the design and management of projects to avoid irreversible impacts. Monitoring also provides means of assessing the effectiveness of the ICM project or program in meeting the established goals and objectives.

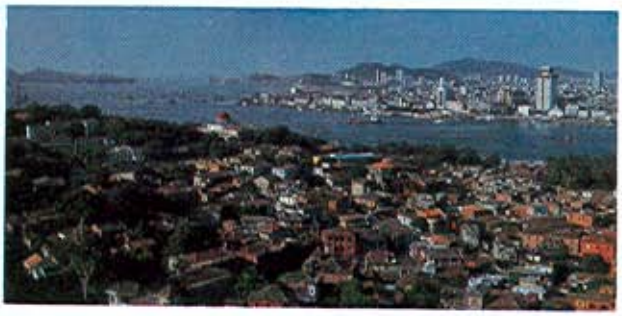
Good ICM Practices

1. *Adopt a systematic, incremental approach in developing and implementing ICM projects and programs.*
2. *Involve the public in the ICM process.*
3. *Integrate environmental, economic, and social information from the very beginning of the ICM process.*
4. *Establish mechanisms for integration and coordination.*
5. *Establish sustainable financing mechanisms.*
6. *Develop ICM capacity at all levels.*
7. *Monitor the effectiveness of ICM projects and programs.*

EVOLUTION

ICM programs mature through the successive completion of its cycles. Each cycle follows the essential ICM processes in addressing management issues, formulating and implementing policies, strategies and actions plans, monitoring progress, and evaluating impacts. ICM begins with a few urgent issues in the first cycle. Through successive cycles, the geographical scope and scale of the program can be increased to incorporate new and more complex problems and issues.

The evolution from a small ICM demonstration project to a full-fledged national program can be described as follows:



Demonstration

Establishing an ICM Demonstration Project

1. Create management support.

Establish broad, long-term goals for ICM with national government and specific, short-term objectives for a demonstration project.

2. Select a demonstration site, based on the following criteria:

(a) Manageability: The area of the site and the issues to be addressed are within the financial and human capacity of the project.

(b) Transferability: The institutional framework and management practices will be applicable to other areas.

(c) Significance: The site and the issues are important enough to merit attention.

3. Focus on a few specific issues whose resolution will likely build political and public support for ICM.

4. Create public awareness and policies to support ICM initiatives.

5. Formulate the ICM program.

6. Establish an institutional coordinating mechanism to foster interagency cooperation.

7. Build capacity at the local level.

8. Initiate research on selected management issues.

9. Strengthen legislation governing coastal land and water management and marine resources.

10. Solicit funding source for program implementation.

11. Implement the ICM program.

Consolidation

Consolidating Achievements and Gaining Confidence in the Broader Application of ICM

1. Monitor progress and assess impacts.

2. Distill lessons learned and reassess operational strategies and methods.

3. Refine ICM plans and management arrangements; also, update management information based on monitoring.

4. Implement a refined ICM program.

5. Evaluate achievements against set objectives and goals.

6. Sustain the ICM program at the demonstration site.

7. Consolidate experience, knowledge, approaches, methodologies, and skills acquired from the demonstration project.

Replication

Expanding the Application of a Normally Established ICM Program

1. Market the success of the demonstration site and promote ICM in other areas by showing that its institutional framework is functioning and its role is understood and accepted by other government agencies and the public.

2. Demonstrate that selected coastal problems are being managed successfully at a significant scale and opportunities for sound development as well as needs for proactive action, are recognized and acted upon.

3. Promote adoption of ICM in other coastal areas at the local level, using the same or modified typologies.

4. Further improve ICM approaches and methodologies for application in the management of sectoral development, including fisheries, aquaculture, port, harbor, tourism, and industries.

5. Develop coastal policies at the provincial and national levels to establish ICM programs in the coastal areas.

6. Increase the national and provincial capacities in ICM within the government, academe, and private sectors.

7. Ensure and sustain stronger political commitments and priority for ICM.

Extension

Developing an Effective National Coastal Program

1. Establish an appropriate coastal policy to facilitate ICM program development at national, provincial, and local levels, determined by the coastal area's geographical size and physical and socioeconomic conditions.

2. Establish an appropriate coastal program which responds to evolving national, provincial, and local development goals and objectives and environmental conditions.

3. Harmonize local, provincial, and national coastal and marine legislation to increase the effectiveness in management and law enforcement.

4. Enhance interdisciplinary research on common management problems and develop standardized environmental quality monitoring protocols.

5. Ensure a balance between private and public rights and between local and national interests.

6. **Integrate the ICM processes with effective procedures governing the use of watersheds and coastal seas.**

7. **Promote the adoption and implementation of international conventions and agreements to resolve transboundary issues between nations.**

8. **Establish a long-term capacity-building program to share experience and skills development.**

9. **Develop sustainable financing mechanisms at the national level to enable the mobilization of financial resources from the government, the private sector, donors, and resource users.**

10. **Integrate the ICM program into the national economic development plans.**

11. **Apply the ICM approach to the resolution of international problems and issues.**

The evolution of ICM can extend to the resolution of transboundary issues at an international level. For example, the ASEAN member countries have cooperated in the development of a regional initiative on ICM by exchanging information and scientific expertise. The demonstration projects in each of the member countries have provided models for expanding ICM at the provincial and national levels and for addressing common issues, such as the need to reduce marine pollution and to protect coastal habitats which support common fish stocks.

Denmark, Germany, and the Netherlands have established a Trilateral Convention and inter-governmental working parties to help harmonize their respective national policies, legislation, and management arrangements to facilitate the sustainable development of a coastal ecosystem they share -- the Wadden Sea. Both initiatives demonstrate that ICM can help address national and international issues affecting the sustainable use of coastal and marine systems.

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CMC	Coastal Management Center, Manila, Philippines — Ms. Nancy Bermas; Dr. Edgardo Gomez, and Dr. Ranjith de Silva.
DANCED	Danish Cooperation for Environment and Development, Copenhagen, Denmark — Dr. Kirsten Worm.
FAO	Food and Agriculture Organization, Bangkok, Thailand — Dr. Veravat Hongskul.
IMO	International Maritime Organization, Manila, Philippines — Dr. Chua Thia-Eng; Ms. Socorro Guerrero; Mr. James Paw; and Dr. Huming Yu.
IUCN	The World Conservation Union, Gland, Switzerland — Dr. Magnus Ngoile.
NORTH SEA CENTER	Hirtshals, Denmark — Dr. Sten Sverdrup Jensen.
SIDA	Swedish International Development Cooperation Agency, Stockholm, Sweden — Dr. Anders Granlund.
UNDP	United Nations Development Programme — Mr. Arthur Holcombe and Ms. Huo Xinan, Beijing; Dr. Philip Reynolds, New York.
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