



The Global Forum on Oceans, Coasts, and Islands

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THE ECOSYSTEM APPROACH TO INTEGRATED OCEAN AND COASTAL MANAGEMENT

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Integrated Ocean and Coastal Management and the Ecosystem Approach were considered throughout the Third Global Conference, and in particular through several dialogue sessions including the bottom line assessment dialogue chaired by: Charles Ehler, IUCN-WCPA and Chua Thia-Eng, PEMSEA.

Background

The Johannesburg Plan of Implementation (JPOI) includes several goals relating particularly to the ecosystem approach and integrated management. These goals include:

- Encouragement of the application of the ecosystem approach by 2010 for the sustainable development of the oceans, particularly for the management of fisheries and the conservation of biodiversity.
- Promotion of integrated coastal and ocean management at the national level and encouragement and assistance to countries in developing ocean policies and mechanisms on integrated coastal management.
- Assistance to developing countries in coordinating policies and programmes at the regional and sub-regional levels aimed at conservation and sustainable management of fishery resources and implementation of integrated coastal area management plans, including through the development of infrastructure.

Ecosystem approaches, as adopted by many

multi-lateral environmental agreements, provide an important framework for assessing biodiversity and ecosystem services and evaluating and implementing potential responses. The Convention on Biological Diversity (CBD) refers to the ecosystem approach as “a strategy for the integrated management of land, water, and living resources that promotes conservation and sustainable use in an equitable way.” Application of the ecosystem approach involves a focus on the functional relationships and processes within ecosystems, attention to the distribution of benefits that flow from ecosystem services, the use of adaptive management practices, the need to carry out management actions at multiple scales, and inter-sectoral cooperation. A number of other established approaches, such as integrated water resources management and integrated ocean and coastal area management, are consistent with the ecosystem approach and support its application in various sectors or biomes, including coastal and marine environments.

In fact, the application of ecosystem approaches in the marine and coastal areas builds on the concept of integrated management, already widely used for the management of these areas. Integrated management involves comprehensive planning and regulation of human activities towards a complex set of multiple, and often conflicting, objectives and aims to minimize user

conflicts among uses and users while ensuring long-term sustainability. It recognizes the need to protect the ecosystem taking into account the effects of multiple uses, and acknowledges the limitations of the sectoral approaches and the linkages between inland, coastal and ocean uses. The ecosystem approach is an evolution of integrated coastal and ocean management, with a greater emphasis on ecosystem goals and objectives and their outcomes. Moving to an ecosystem approach should be considered an evolutionary step in integrated management and action, not a break with the past.

The most important direct driver of change in marine ecosystems over the last 50 years has been fishing, which affects the structure, function, and biodiversity of the oceans. *Fishing pressure is so strong in some marine systems that over much of the world, the biomass of fish targeted in fisheries (including that of both the target species and those caught incidentally) has been reduced by 90% relative to levels prior to the onset of industrial fishing.* In these areas, a number of targeted stocks in all oceans have collapsed – having been over-fished or fished above their maximum sustainable levels. Recent studies have demonstrated that global fisheries landing peaked in the late 1980s and are now declining despite increasing effort and fishing power, with little evidence of this trend reversing under current practices.

On 21 March 2005, over 200 academic scientists and policy experts signed a consensus statement on the definition of marine ecosystem-based management (EBM): (1) emphasizing the protection of ecosystem structure, functioning, and key processes; (2) defining EBM as place-based or area-based in focusing on a specific ecosystem and the range of activities affecting it; (3) explicitly accounting for the interconnectedness within systems, recognizing the importance of interactions between target species or key services and other non-target species; (4) acknowledging interconnectedness among systems, such as between air, land, and sea; and (5) integrating ecological, social, economic, and institutional perspectives, recognizing their strong interdependence.

Several countries (e.g. Canada, Australia, and the United Kingdom) have begun to apply an ecosystem approach to large areas of their marine waters, including using marine spatial planning as a tool for implementing an ecosystem approach and the development of sea use plans. In 2004 UNEP's Regional Seas Programme agreed to promote a common vision and integrated management, based on ecosystem approaches, of priorities and concerns related to the coastal and marine environment and its resources.

By far, the most extensive applications of the ecosystem approach are the Large Marine Ecosystem (LME)

projects funded by the Global Environmental Facility (GEF) that aim to develop sub-regional cooperation toward ecosystem-based management of marine resources. LMEs represent a pragmatic way to assist over 120 countries in operationalizing the ecosystem approach within an area sufficiently large to include trans-boundary considerations. The projects cover the Red Sea and Gulf of Aden, the Mediterranean, the Black Sea, the Baltic Sea, the Patagonian Shelf, the Benguela Current, the Guinea Current, Pacific small island developing states, the Yellow Sea, and the South China Sea/Gulf of Thailand. Projects are under preparation for the Canary Current, the Caribbean, Aghulas and Somali Currents, Bay of Bengal, the Humboldt Current, and the Gulf of Mexico.

Despite contemporary definitions of ecosystem management that include humans (and which recognize that ecosystem management is actually the management of human activities that affect ecosystems and not the management of ecosystems or their natural components), *many projects that take an ecosystem approach do not take humans into account.* One example of an exception is a World Bank project in Tanzania and Zanzibar (Marine and Coastal Environmental Management Project (MACEMP) or "Blueprint 2050") that tackled the problem of ecological protection, marine protected area network design (protection of 10% of its seas by 2012 and 20% by 2025), while at the same time alleviating poverty and ensuring financial sustainability for the project.

Another gap in implementing ecosystem-based management is the lack of monitoring data for key ecological and socio-economic indicators at ecosystem scales, including lack of baseline data. Only a few large marine ecosystems have systematic, long-term data about status and trends of natural and social systems. With regard to coastal communities, there are no periodic assessments of socio-economic conditions, making it impossible to measure progress on the MDG goal of alleviating poverty in the context of coastal areas.

Integrated coastal and ocean management (ICM) has been the recommended framework for dealing with coastal issues under the UN Conference on Environment and Development (1992), including Agenda 21, the Rio Declaration of Principles, the Climate Change Convention, the Biodiversity Convention, the Global Programme of Action on the Protection of the Marine Environment from Land-Based Activities, and the Programme of Action for the Sustainable Development of Small Island States. Because of this international guidance and subsequent investments of substantial resources by international donors, ICM has now been implemented in about 100 countries around the world. However, many of these initiatives have been focused on estuaries and small areas of coasts instead of national programs. Successful pilot projects should now be

scaled up to national efforts on ICM.

Integrated oceans management, incorporating the 200-mile Exclusive Economic Zone (EEZ), entails the development of new concepts, procedures, and structures, and as such, nations could benefit from working with one another, sharing and drawing on lessons and best practices. As they embark on national ocean policy formulation, many nations, in particular small island developing states (SIDS), will need assistance in mapping and delimiting their EEZs and developing new institutions and procedures. A recent analysis of national actions taken towards the Barbados Programme of Action (Loper et al. 2005) indicates that integrated coastal management programs have been established only in a few SIDS countries in the last decade, thus making this area a top need for the next phase. At *The Ocean Policy Summit* held in Lisbon, Portugal, October 10-14, 2005, about 40 countries reported on their efforts to develop integrated ocean policies to deal with multiple use conflicts among uses, users and management agencies, degradation of marine resources, and missed opportunities for economic development. These different national policies are remarkably congruent in terms of overall principles and most recognize the need for transparency, public and stakeholder involvement, incentives for cooperative action, and a national ocean office with clearly articulated responsibilities. The GEF is also supporting initial development of regional ocean policies focusing on shared transboundary resources in 15 Large Marine Ecosystems (LMEs).

Regional organizations, such as UNEP's Regional Seas Programme, have a very useful role to play in assisting states in developing national policies for their oceans. Significant work along these lines is already taking place in the Pacific Islands region, the East Asia region (through Partnership in Environmental Management for the Seas of East Asia (PEMSEA) and with GEF funding), the Asia Pacific Region (through APEC), and through the European Union. With over 30 years of experience, UNEP's Regional Seas Programme and its partners encompass 18 marine regions and include participation by over 140 coastal states and territories. Fourteen regional conventions have been signed and over 20 protocols addressing oil spill response, pollution from ocean dumping, and pollution from land-based sources have been ratified. While initially focused on offshore issues, over the past 20 years, the Regional Seas Programme has increasingly worked on coastal management and coastal governance. Most recently, the Mediterranean Regional Seas Programme has drafted a protocol on integrated coastal management. An interesting and productive development has been a recent partnership between the Regional Seas Programme and Large Marine Ecosystem projects funded by the GEF

to bring a more focused ecosystem-based approach to the Regional Seas Programmes.

Conclusions

Both ecosystem management and integrated coastal and ocean management adopt a holistic, integrated approach covering both environmental and socio-economic dimensions, and are basically similar; however, the scale of operation and level of management intervention might vary with respect to geographical scale. There has been a marked increase in the application of the concept of ecosystem-based management and integrated coastal and ocean management in addressing cross-cutting environmental and sustainable development issues worldwide. Financial support from GEF and multilateral and bilateral institutions has contributed to the increased efforts in applying this concept and approach at subnational, national, and regional levels. To date, though, most efforts tend to be at the level of studies and projects, focusing on planning and exploratory stages – in particular those related to LME and integrated coastal management at the local level – with few of the projects moving to actual implementation.

A promising development is the application of terrestrial land use planning techniques to marine areas, e.g. sea use planning and zoning; new efforts to develop marine spatial plans (sea use plans) and marine zoning in the North Sea (Belgium, The Netherlands, and Germany), the Irish Sea (UK), and Xiamen (China) are all prototypes that integrate coastal and ocean management.

The difficult job of measuring progress on implementing the WSSD and Millennium Development Goals related to ecosystem management and integrated coastal and ocean management is even more challenging, because no one institution is responsible for tracking developments in these areas. While there are now more than 700 ICM initiatives in more than 90 nations around the world (Sorenson 2002), there are no standardized evaluation criteria for measuring their performance in achieving the MDG and WSSD goals, although there are limited efforts toward this direction.

In addition, no international organization is responsible for tracking the progress of ICM planning and implementation activities, and, therefore, monitoring and evaluation progress is carried out on an ad hoc basis. International coordination is one of the major difficulties confronted in the implementation of action plans for integrated management of large marine ecosystem or coastal and marine areas due to the typical lack of existing agencies with the mandate or function to coordinate coastal and ocean management issues. Although some countries have made progress in achieving inter-ministerial or interagency arrangements at the national level, the efficiency, effectiveness, and benefits of such institutional arrangements have yet to

be fully demonstrated.

While there are relatively few successful case studies in integrated coastal management that stand the test of time (e.g. more than a decade of operation), sufficient experience and lessons have been acquired to allow the application of the driving forces of integrated management for addressing use conflicts, environmental quality degradation, habitat damage, coastal erosion, adaptation to climate change, and many other environmental threats, thus enabling local and regional authorities to achieve environmental sustainability and the goal of sustainable development.

With the increase of use conflicts in coastal and marine areas, severity of pollution, and heightened threats of dwindling marine resources, more countries will be looking to the application of integrated management models for solutions. It is an opportune time to intensify international efforts in the development of working models and good practices in integrated coastal and ocean management. In addition, interagency/inter-ministerial coordination is a major obstacle that requires strong political will and appropriate incentives to develop the willingness among agencies or ministries to work together.

The Strategic Action Programmes of Large Marine Ecosystems, as well as those at the local level, provide useful management frameworks and processes for intergovernmental, interagency, and cross-sector partnerships and cooperation at the regional, national, and sub-national levels. They also provide a useful platform for developing strategic partnerships among various multilateral and bilateral financial institutions, as well as donor communities, in mobilizing the needed financial resources for environmental improvement projects, capacity development, and implementation of international instruments.

While a timetable exists for applying the ecosystem approach (2010), no similar target exists for promoting integrated coastal and ocean management at the national level. A timetable for ICM should be established.

Finally, individual nations are increasingly asked by international organizations to develop and implement programs that deal with coastal and ocean management, land-based pollution, integrated water resources

management, fisheries, networks of marine protected areas, adaptation to climate change, and so on – usually with little or no additional financial support. Guidance on figuring out how to coordinate, integrate, or “nest” these various international commitments and demands should be developed. A more active role by the Regional Seas Programme in coordinating these requirements could be a way forward.

Recommendations to National Governments:

- Adopt integrated coastal and ocean management/ ecosystem-based management approach and frameworks to address use conflicts, transboundary issues, resource depletion and environmental degradation with adequate consideration of the socio-economic dimensions of the coastal communities and their active participation throughout the management process;
- Address interagency conflicts at national and sub-national levels through the development of inter-ministerial or interagency coordination mechanisms to enable the integrated planning and implementation of policy and management interventions for addressing the increasing depletion of their coastal and ocean resources; and
- Increase capacity development in the areas of coastal and ocean governance to develop a critical mass of coastal and ocean managers at local and national levels to plan and manage their coastal resources.

Recommendations to the International and Donor Communities:

- Develop more case studies to demonstrate the effectiveness of an integrated management approach, in particular, demonstrating the socio-economic benefits of such approaches in achieving environmental sustainability;
- Develop an appropriate and tested monitoring program to track the performance of integrated coastal and ocean management/LME programs/projects at the international level; and
- Pool resources in developing strategic partnerships using ICM/ecosystem management as the integrated framework and processes to provide a policy environment at local and national levels to enable the effective mobilization and utilization of the financial resources in achieving the goals of sustainable development.