



**CONVENTION ON  
BIOLOGICAL  
DIVERSITY**

Distr.  
GENERAL

UNEP/CBD/IMCAM/1/2  
22 June 2005

ORIGINAL: ENGLISH

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Ad Hoc Technical Expert Group on the Implementation  
of Integrated Marine and Coastal Area Management (IMCAM)  
Montreal, Canada, 11 - 15 July 2005  
Item 2.2 of the provisional agenda\*

## **STRATEGIES FOR OVERCOMING OBSTACLES TO IMPLEMENTATION OF INTEGRATED MARINE AND COASTAL AREA MANAGEMENT (IMCAM)**

### **EXECUTIVE SUMMARY**

Integrated marine and coastal area management (IMCAM) is regarded as the best approach to manage the increasing uses of the coastal zone and to halt the progressive loss of the marine and coastal biodiversity and productivity. Nonetheless, IMCAM continues to face many constraints in its implementation. These constraints fall into six broad categories: (i) lack of political support and participation, (ii) insufficient public awareness and participation, (iii) weak institutional structures, (iv) limited institutional capacity, (v) conflicting and weak legislation, and (vi) limited scientific support for management decisions. This document discusses each of these impediments in detail in order to identify their effect on the success of IMCAM programmes.

Secondly, this document examines strategies through which impediments have been overcome in a number of countries, and aims to extract lessons learned from these experiences. There exist a diverse number of enabling activities, which, if adapted to national needs, can be used to overcome specific constraints and to enhance the effectiveness of an IMCAM programme. Four such case studies are presented: (i) institutional strengthening in Tanzania; (ii) special area management in Sri Lanka; (iii) optimising public and stakeholder participation in the UK; and (iv) designation and management of marine protected areas in Belize. These case studies illustrate that the successful development and implementation of an IMCAM programme is not dependent on the complete lack of impediments, and provide insight to strategies that can be employed by decision-makers, coastal managers and other stakeholders to prioritise their activities and design more effective IMCAM programmes. The final section of the document provides recommendations extracted from the case studies that aim to assist countries overcome various constraints to implementing IMCAM.

The Ad Hoc Technical Expert Group (AHTEG) on Implementation of Integrated Marine and Coastal Area Management (IMCAM) has been tasked with identifying obstacles to the implementation of IMCAM nationally and regionally, and proposing strategies, such as partnerships, tools and other means, to overcome those obstacles. This document serves as the working document of the AHTEG, which is meant to be revised and added upon during the meeting. The document has been produced in collaboration with EUCC – the Coastal Union<sup>1</sup>.

### **INTRODUCTION**

1. Coastal areas contain diverse and unique resources, which are highly productive, renewable and are a source of income that has a potential to improve the socio-economic well-being of coastal

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\* UNEP/CBD/IMCAM/1/1.

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communities<sup>2</sup>. Artisanal coral reef fisheries reportedly account for 90 percent of the fish production of Indonesia and up to 55 percent in the Philippines<sup>3</sup>. Mangroves provide habitat for over 2,000 fish and benthic species, and protect shorelines from erosion. They also supply fuel-wood and charcoal, timber for construction and a variety of food sources, as well as acting as a barrier against flooding and storms. Yet reclamation, over-exploitation and destruction of these assets to provide additional land or aquaculture ponds is commonplace. Over the years, there has been a real failure to appreciate and account for the economic value, often intangible, that these natural resources provide in competing, free-market economies<sup>4</sup>.

2. Sectoral management of the coastal zones has clearly failed to halt the progressive loss of habitat and biodiversity over the years. Decision II/10, as adopted by the Conference of the Parties to the Convention on Biological Diversity at its second meeting in Jakarta in November 1995, encourages the use of IMCAM as the most suitable framework for addressing human impacts on marine and coastal biological diversity and for promoting its conservation and sustainable use; and encourages Parties to establish and/or strengthen, where appropriate, institutional, administrative, and legislative arrangements for the development of integrated management of marine and coastal ecosystems, plans and strategies for marine and coastal areas, and their integration within national development plans. Due to its importance, the implementation of integrated marine and coastal area management became one of the programme elements of the Convention's programme of work on marine and coastal biological diversity, which was adopted in 1998 (decision IV/5) and updated in 2003 (decision VII/5). The other programme elements are: marine and coastal living resources; marine and coastal protected areas; mariculture; and invasive alien species. Out of these, IMCAM can be viewed as the framework under which all of the activities within the programme of work are undertaken.

3. IMCAM can be defined as a continuous, dynamic, iterative, adaptive and participatory process in which a co-ordinated strategy is developed and implemented to allow sustainable resource use. Vertical integration of national, regional and local authorities as well as horizontal integration of the general public and relevant coastal stakeholders are considered to be cornerstones of the IMCAM process. Integrated management of coastal zones must be able to deal not only with current anthropogenic pressures, but also with future uncertainty regarding climate change, including accelerated sea-level rise and changing storm patterns<sup>5</sup>.

4. Given the complex nature of these pressures and the multiple users of the coastal zone, it is perhaps not surprising that the implementation of IMCAM continues to be faced with many constraints<sup>6,7</sup>. Recognition of these challenges will, however, enable policy and decision makers,

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<sup>2</sup> Costanza, R., R. D'Arge, R. de Groot, S. Farber, M. Grasse, B. Hannon, K. Limburg, S. Naeem, R. V. O'Neill, J. Paruelo, R. G. Raskin, P. Sutton and M. van den Belt. 1997. The value of the world's ecosystem services and natural capital. *Nature* 387: 253-260.

<sup>3</sup> Clark, J. R. 1996. *Coastal zone management handbook*. CRC Press.

<sup>4</sup> Crooks, S. and R. Turner. 1999. Integrated Coastal Management: Sustaining Estuarine Natural Resources. *Advances in Ecological Research* 29: 241-289.

<sup>5</sup> Turner, R. 2000. Integrating natural and socio-economic science in coastal management. *Journal of Marine Systems* 25: 447-460.

<sup>6</sup> Bijlsma, L., M. Crawford, C. Ehler, F. Hoozemans, V. Jones, R. Klein, B. Miermet, N. Mimura, R. Misdorp, R. Nicholls, K. Ries, J. Spradley, M. Stive, L. de Vrees and S. Westmacott. 1993. *World Coast Conference Report*. Ministry of Transport, Public Works and Water Management, National Institute for Coastal and Marine Management, Coastal Zone Management Centre, Noordwijk, the Netherlands.

<sup>7</sup> Cicin-Sain, B. and R. W. Knecht. 1998. *Integrated coastal and ocean management: concepts and practices*. Washington DC and Covelo, California: Island Press.

coastal managers and other stakeholders to prioritise their activities and design more effective programmes by incorporating enabling activities designed to overcome the constraints.

5. Previous efforts under the Convention's programme of work on marine and coastal biological diversity may assist the work of the Ad Hoc Technical Expert Group on Implementation of IMCAM. This work includes the reports of the Ad Hoc Technical Expert Groups on Marine and Coastal Protected Areas (see [www.biodiv.org/doc/publications/cbd-ts-13.pdf](http://www.biodiv.org/doc/publications/cbd-ts-13.pdf)) and on Mariculture (see [www.biodiv.org/doc/publications/cbd-ts-12.pdf](http://www.biodiv.org/doc/publications/cbd-ts-12.pdf)). In addition, guidance on integrated marine and coastal area approaches for implementing the Convention on Biological Diversity has been developed in collaboration with the Government of the Netherlands (see [www.biodiv.org/doc/publications/cbd-ts-14.pdf](http://www.biodiv.org/doc/publications/cbd-ts-14.pdf)). Finally, principles and guidelines on incorporating wetland issues into integrated coastal zone management have been produced by the Ramsar Convention (see [http://www.ramsar.org/key\\_guide\\_iczm\\_e.htm](http://www.ramsar.org/key_guide_iczm_e.htm)).

6. A substantial amount of other work undertaken in the context of the Convention on Biological Diversity is also of relevance to IMCAM. This work includes sustainable use principles and guidelines, and guidelines on incorporating biodiversity-related issues into environmental impact assessments, as well as on-going work relating to positive incentives. Importantly, the ecosystem approach, which is the primary framework for action under the Convention, can be seen to be consistent with IMCAM. Ideally, IMCAM supports the implementation of the ecosystem approach in marine and coastal areas.

7. The Ad Hoc Technical Expert Group on the Implementation of IMCAM has been convened to assist countries reach the goal of promoting and improving the implementation of IMCAM at the local, national and regional level. Specifically, the Terms of Reference request the Ad Hoc Technical Expert Group to:

- (a) Review the work undertaken under programme element 1 (IMCAM) of the programme of work on marine and coastal biological diversity, including the existing guidance on the Convention on Biological Diversity and IMCAM developed by the Government of the Netherlands; the Ramsar Convention guidelines; relevant regional initiatives; the results of the ad hoc technical expert groups on marine and coastal protected areas and mariculture; the relevant sections of the Plan of Implementation of the World Summit on Sustainable Development; and the obstacles to implementation identified by Parties;
- (b) Based on task (a), propose a set of targeted enabling activities that could best overcome the identified obstacles to the implementation of IMCAM nationally and regionally; and propose ways and means, such as partnerships or other means, through which they could be undertaken within the context of the Convention;
- (c) Identify existing tools, including policy, institutional, technological and financial tools and mechanisms that can be used to overcome obstacles to national and regional-level implementation of IMCAM. Provide guidance to Parties on the application of such tools;
- (d) Based on tasks (a), (b), and (c), propose priority areas for the work of the Convention, aimed at the implementation of IMCAM globally.

When undertaking all of the tasks described above, the Ad Hoc Technical Expert Group is requested to consider the special needs of and difficulties faced by stakeholders in developing countries and indigenous and local communities, and identify ways and means to foster international cooperation to assist those countries.

## II. CONSTRAINTS TO IMPLEMENTING IMCAM

8. Various studies<sup>8-9</sup> have shown that the constraints to implementing IMCAM fall into six broad categories as follows

- A. Lack of political support and participation,
- B. Insufficient public awareness and participation,
- C. Weak institutional structures,
- D. Limited institutional capacity,
- E. Conflicting and weak legislation,
- F. Limited scientific support for management decisions.

9. It should be emphasised that not all six categories are necessarily found in any given country or IMCAM programme. However, the categories are indicative of the often seemingly insurmountable, obstacles that must be overcome to achieve progress in IMCAM.

### *A. Lack of political support and participation*

10. Perhaps one of the biggest problems facing governments at all levels is the vagueness of the definition of IMCAM as it relates to pragmatic management issues. The GESAMP model of IMCAM as an iterative process<sup>10</sup> and the "order of outcomes" described by Olsen<sup>11</sup> have provided IMCAM managers with a framework to structure their thinking and planning efforts, and to organise IMCAM programmes. However, the EU's pragmatic sub-division of IMCAM into 26 discrete actions<sup>12</sup> should help governments plan the steps that need to be taken to implement IMCAM and to monitor and measure the progress they are making.

11. National governments have a number of priority issues they have to deal with, and often their primary concern is a sound economy and job creation<sup>13</sup>. Governments, in general, tend to put economic considerations above environmental ones, and many coastal uses are often of a conflicting nature. This situation is exacerbated in developing countries, particularly those in debt. Consequently, perceived low priority issues are omitted from implementation and additional funds for research, management, and enforcement are, therefore, unlikely to materialise. Economic plans are often perceived to be in competition with ecological plans, even when economic development (e.g. tourism) may actually depend upon the conservation of the environment. Normally, economic development prevails. This highlights the lack of awareness amongst many politicians of the value of natural resources and the dependence of sustainable economic development on a healthy environment.

12. Most government decisions are made on 4 to 5 year election cycles and there is little attention paid to longer-term issues such as the 8 to 12 year IMCAM project cycle or the long-term gains from

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<sup>8</sup> Westmacott, S. 2001. Integrated coastal management in the tropics: identifying the impediments and evaluating management tools. *PhD Thesis*. University of Newcastle upon Tyne.

<sup>9</sup> Chua, T.-E. 1998. Lessons Learned from Practicing Integrated Coastal Management in South East Asia. *Ambio* 27: 599-610.

<sup>10</sup> GESAMP. 1996. Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection. *GESAMP Reports and Studies* No. 61

<sup>11</sup> Olsen, S. 2003. Frameworks and Indicators For Assessing Progress in Integrated Coastal Management Initiatives. *Ocean and Coastal Management* 46: 347-61.

<sup>12</sup> Pickaver, A. H., C. Gilbert and F. Breton. 2004. An indicator set to measure the progress in the implementation of integrated coastal zone management in Europe. *Ocean and Coastal Management* 47: 449 – 462.

<sup>13</sup> Baird, R. C. 1996. Toward New Paradigms in Coastal Resource-Management - Linkages and Institutional Effectiveness. *Estuaries* 19: 320-335.

sustainable resource management. Changing leadership during election cycles sometimes tend to change the focus of long-term resource management programmes.

13. Politicians and senior policy makers may not be aware of the commitments that their countries have made to various international conventions regarding coastal resources management, including the implementation of IMCAM, nor do they always adhere to such commitments. It is important for governments to take a strong and visible lead in ensuring that the use and management of the coastal zone is in line with IMCAM principles, particularly in the areas of regulation and implementation. The commitment and full involvement of government is essential for the initiation of IMCAM. Without this political will, implementing IMCAM will be extremely difficult<sup>14</sup>. However, gaining political support may sometimes be a difficult process.

14. Funding is also, most often, not commensurate with the needs of IMCAM. In Western Europe, practitioners often complain about the lack of available funds for implementation of IMCAM. However, there are also other aspects to this problem. In developing countries, too much money can often be directed towards IMCAM, resulting in funding that is not appropriate for the needs of the work. The World Bank and the Global Environmental Facility (GEF), because of their operational nature, are not able to fund small projects. Their demands for large-scale projects can be out of balance with the capacities of the countries that the funding aims to assist. In order to be economically worthwhile, they need to fund at the multi-million dollar level. In Eastern Europe, some countries have been unable to cope with IMCAM at this level, leading to contracts not being fulfilled and the funds being withdrawn. Equally important is the fact that the funds required for implementation of IMCAM are approximately 10 to 100 times greater than the amount required for planning. This is often not factored in at the beginning, leaving IMCAM plans un-used and gathering dust on office shelves. Most current IMCAM funding initiatives are still only project-based and thus last for only a limited time period. Donors need to take a greater responsibility when committing to help, beginning small and expanding gradually, recognising the longer time frame required for successful IMCAM, and the need to fund implementation and not just planning. Funding programmes need to include a means of moving towards sustainable financing.

### ***B. Insufficient public awareness and participation***

15. Several IMCAM guidance documents and papers on successful implementation have identified

**Summary:** Lack of political support and participation includes:

1. The vagueness of what constitutes IMCAM in management terms.
2. The low priority of government commitment to IMCAM.
3. The imbalance between economics and the environment in decision-making.
4. The lack of awareness of the value of natural resources
5. The lack of a long term decision-making focus
6. The lack of active government involvement in sustainable development initiatives..
7. The lack of national involvement in local IMCAM initiatives.
8. Funds are not commensurate with needs.

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<sup>14</sup> Olsen, S. B., J. Tobey and L. Z. Hale. 1998. A Learning Based Approach to Coastal Management. *Ambio* 27: 611-619.

public participation as vital to successful implementation of IMCAM<sup>15</sup><sup>16</sup><sup>17</sup>. When local communities are faced by national government decisions in which they had no part, lack of understanding among users of coastal resources leads to distrust and feelings of resentment<sup>18</sup>. A successful IMCAM programme need not necessarily have the best technical content but it does require public approval whilst meeting the needs of a large number of stakeholders<sup>19</sup>. Those who depend upon the coastal zone are often the ones most aware of its value, although they may still prefer short-term exploitation over longer term gains.

16. Ultimately it is the public's attitude that determines society's response to management decisions. If the public does not "buy into" the decisions taken, by being actively engaged, they can often substantially delay, or even prevent, IMCAM initiatives from being taken. Creating public awareness and fostering public participation generally means that more time is required for decisions to be taken. However, experience shows that, ultimately, such an approach is more cost-effective. The absence of public awareness and the loss of confidence in management decisions and the regulatory process can create enormous impediments to IMCAM implementation. Nonetheless, there is still a widespread lack of public participation in coastal management worldwide.

17. Communities and resource users may sometimes be unaware of the environmental impacts of their actions and the development patterns taking place around them. Even if they are aware, there may be a perceived absence of alternatives to their current and unsustainable resource use patterns. This is often the case with diminishing fisheries resources, largely because these resources are viewed as common property and the growing numbers of users, and the increasing conflicts between them, leads to overexploitation<sup>20</sup>. Therefore, economic development and enhancement of livelihood options must be an integral part of IMCAM programmes.

18. Another constraint is the lack of connection between decision-makers (at the top) and those experiencing the problems of the coastal zone on a daily basis (at the bottom). This is often due to the different objectives of national level institutions and the local resource users. At the national level the main objective might be conservation and maintenance of biodiversity, while the goal of the local resource user is the well-being of themselves and their families<sup>21</sup>. Furthermore, in many cases, there is no mechanism available to resolve conflicts that may arise between different parties during the course of programme implementation.

19. IMCAM programmes need to pay greater attention to raising awareness of, and involving, the public before they can effectively move forward. There should be formal mechanisms for public participation, and communities must be enabled to participate in an effective manner by enhancing their capacity for participation. This will mean investing extra time in the overall process to allow for such awareness-raising. In situations where there is no participation at all, or it is at best rudimentary, relevant

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<sup>15</sup> Clark, J. (1995) Coastal Zone Management Handbook. New York, Lewis Publishers.

<sup>16</sup> Cicin-sain, B and Knecht, R., 1998: Integrated Coastal and Ocean Management- Concepts and Practices. Washington, D.C., Island Press

<sup>17</sup> Masalu, D. C. P. 2000. Coastal and Marine resource use conflicts and sustainable development in Tanzania. *Ocean and Coastal Management* 43: 457-494.

<sup>18</sup> Hegarty, A. 1997. Start with what the people know: a community based approach to integrated coastal zone management. *Ocean & Coastal Management* 36: 1-3.

<sup>19</sup> Chua, T.-E. 1993. Essential Elements of Integrated Coastal Zone Management. *Ocean and Coastal Management* 21: 81-108.

<sup>20</sup> Amar, E. C., R. M. T. Cheong and M. V. T. Cheong. 1996. Small-scale fisheries of coral reefs and the need for community-based resource management in Malalison Island, Philippines. *Fisheries Research* 25: 265-277.

<sup>21</sup> Jorge, M. A. 1997. Developing capacity for coastal management in the absence of the government: a case study in the Dominican Republic. *Ocean & Coastal Management* 36: 47-72.

mechanisms will need to be introduced. However, theoretical plan development without the support of the local community may be a doomed exercise.

**Summary:** Insufficient public awareness and participation *includes*:

1. The low level of public awareness
2. The low level of public involvement in decision making
3. The low level of awareness by resource users of the need to conserve marine and coastal resources.
4. The lack of conflict resolution preventing all stakeholders to resolve their differences and participate.
5. The lack of integration between the bottom-up and top-down approaches.

### *C. Weak institutional structures*

20. The case studies undertaken as preparation to the World Coast Conference (1993) identified the lack of adequate institutional organisation as one of the major obstacles to IMCAM implementation<sup>22</sup> <sup>23</sup>. The situation is not much different a decade later with the many agencies responsible for IMCAM still poorly integrated.

21. IMCAM institutions often lack direct authority over land-use practices affecting coastal ecosystems. This lack of authority and mandate of agencies blocks the ability of these agencies to address problems relating to ecosystems crossing administrative boundaries<sup>24</sup>. Existing legislation pertinent to IMCAM will involve more than one agency, often resulting in conflicting authority and jurisdiction. In many cases, there is also little or no co-ordination between national, regional and local government levels (vertical integration). Inadequate coordination results in fragmentation and duplication of efforts.

22. Without appropriate mechanisms for integration, flow of necessary information may be impeded, and the gap between planning and implementation remains. In situations where there is a lack of co-ordination between agencies, a more traditional sector-based approach to resource management will be strengthened. This situation can at times reinforce power conflicts between various agencies. As a result, decisions are taken to settle immediate, politically motivated conflicts, rather than addressing long-term, socio-economic ones. In many cases, it is more appropriate to develop new structures to meet the new challenges of IMCAM rather than strengthen old ones.

23. A lack of integration, co-operation or co-ordination between agencies will also lead to a lack of understanding of the different IMCAM objectives and, often, failure to reach consensus. In the Baltic Sea

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<sup>22</sup> Awosika, L. S., S. Boromthananarat, R. Cornforth, M. Hendry, R. Koudstaal, M. Ridgley, J. Sorenson, L. de Vrees and S. Westmacott. 1993. *Management Arrangements for the development and implementation of coastal zone management programmes*. World Coast Conference Organising Committee, Noordwijk, the Netherlands.

<sup>23</sup> Bijlsma, L., M. Crawford, C. Ehler, F. Hoozemans, V. Jones, R. Klein, B. Miermet, N. Mimura, R. Misdorp, R. Nicholls, K. Ries, J. Spradley, M. Stive, L. de Vrees and S. Westmacott. 1993. *World Coast Conference Report*. Ministry of Transport, Public Works and Water Management, National Institute for Coastal and Marine Management, Coastal Zone Management Centre, Noordwijk, the Netherlands.

<sup>24</sup> Baird, R. C. 1996. Toward New Paradigms in Coastal Resource-Management - Linkages and Institutional Effectiveness. *Estuaries* 19: 320-335.

region, there are two inter-governmental bodies that have been set up to oversee IMCAM in the region. One of these approaches IMCAM from the viewpoint that nature conservation should underpin all IMCAM decisions whereas the other approaches it from the viewpoint of spatial planning and sees nature conservation as simply one of many competing sectors. Both regard themselves as *the* authority on IMCAM in the region and, inevitably, relations between the two organisations do not foster cooperation. Compounding the problem, the EU Member States within the Baltic region (8 of the 9 countries involved) also have to take into account any IMCAM strictures emanating from Brussels.

24. In many cases, IMCAM is being implemented on a project-by-project basis with no underpinning, national policy. This often means that decisions are taken at the local level divorced from similar decisions taken elsewhere. Furthermore, in many countries there is a distinct imbalance between executive decision-making involving multiple government ministries. Traditionally, fisheries departments have more authority than environmental departments in matters relating to coastal waters.

25. There is need for decentralisation with more involvement of local authorities, who are in a better position to engage with the community. It is only through decentralised implementation that the gap between policy goals created at the national level and the activities implemented at the local level can be narrowed. Local level management efforts should be fully supported by the national government, national policy and budgets. The institutional framework should also recognise and support co-management, and empower resource users to take part in management and enforcement of regulations.

26. Clearly, effective integrated management requires coordinated actions and shared roles and responsibilities among a number of governmental and non-governmental agencies in multiple levels of governance. Designing such a system includes allocating responsibility, creating understanding about roles and responsibilities, insuring adequate resources for management tasks at all levels, building capacity among implementing officials, developing systems for monitoring performance and insuring accountability<sup>25</sup>.

**Summary:** Weak institutional structures *includes*:

1. The poor, internal organisation of institutions.
2. The lack of sufficient authority within IMCAM institutions to be effective.
3. The absence of mechanisms to allow or ensure horizontal integration.
4. The large number of agencies involved in IMCAM.
5. Institutional jurisdictions in conflict.
6. The lack of vertical integration.
7. The failure to (fully) integrate all relevant management plans.
8. Irregular communication between IMCAM institutions.
9. The lack of co-ordinating mechanisms for institutions with similar or overlapping mandates.
10. Decision-making which is predominantly either bottom up or top down.

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<sup>25</sup> Lowry, K. 2001. "Decentralized Coastal Management", *Coastal Resources Management Project*, University of Rhode Island Coastal Resources Center.

#### ***D. Limited institutional capacity***

27. Perhaps the greatest impediment to successful implementation of IMCAM lies in *integration*. Traditionally, in order to understand complex ideas, humans have tended to break down problems into their component parts. This automatically leads to compartmentalisation and fragmentation. Organisationally, this tendency works against integration. It is perhaps not surprising that IMCAM is difficult and complicated to manage when those responsible are spread over different ministries, and departments within the same ministry, at national government level. Magnify this through the increasing number of relevant regional and municipal authorities which are often organised in a different way, and it is easy to understand why vertical integration can be such a great obstacle.

28. IMCAM requires a change in attitude towards resource management and institutional arrangements, demanding a variety of experiences, expertise and knowledge in both the planning and implementation phases. In many countries, these requirements are often lacking or absent<sup>26</sup>. Even if management mechanisms are in place, the experience of working in an integrated manner is frequently absent. A shortage of trained personnel and collective resources ranked highly in an IMCAM survey carried out for the World Coast Conference<sup>27</sup>. Lack of financial capacity and personnel will lead to the institutions being unable to carry out any research or monitoring and consequently being unable to fully evaluate the impacts of developments and the IMCAM programme itself. This lack of resources also affects the technologies used and available equipment.

29. The size of the area to be managed is also an important factor when examining the resources required for effective management. Large areas, such as the Great Barrier Reef in Australia require a huge quantity of resources to be effectively managed<sup>28</sup>. On the other hand, small island states may have smaller areas to manage but their financial capacity and available expertise to manage these areas may be equally limited<sup>29</sup>.

30. Development of critical skills such as problem solving, strategic planning, project/programme monitoring and evaluation and conflict resolution is imperative. Skills enhancement at both national and local levels is important. Capacity building at the local level, however, is often constrained by the need to run programmes in the local languages. While it is important to increase the number of skilled coastal managers and expand their knowledge base, it is also equally important to create an enabling environment in which these practitioners can work.

31. Last, but not least, the information needed for good IMCAM decisions is disparately scattered amongst a plethora of diverse institutions.

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<sup>26</sup> Jorge, M. A. 1997. Developing capacity for coastal management in the absence of the government: a case study in the Dominican Republic. *Ocean & Coastal Management* 36: 47-72.

<sup>27</sup> Bijlsma, L., M. Crawford, C. Ehler, F. Hoozemans, V. Jones, R. Klein, B. Miermet, N. Mimura, R. Misdorp, R. Nicholls, K. Ries, J. Spradley, M. Stive, L. de Vrees and S. Westmacott. 1993. *World Coast Conference Report*. Ministry of Transport, Public Works and Water Management, National Institute for Coastal and Marine Management, Coastal Zone Management Centre, Noordwijk, the Netherlands.

<sup>28</sup> Craik, W. 1996. The Great Barrier Reef Marine Park, Australia: A model for regional management. *Natural Areas Journal* 16: 344-353.

<sup>29</sup> Dahl, C. 1997. Integrated coastal resources management and community participation in a small island setting. *Ocean & Coastal Management* 36: 1-3.

**Summary:** Limited institutional capacity *includes*:

1. The fundamental difficulty of humans to integrate at an organisational level.
2. The low level of IMCAM experience.
3. Lack of human resources to manage large areas.
4. Absence of international language skills at local level.
5. Fragmentation of knowledge.

### ***E. Conflicting and weak legislation***

32. A major constraint to effective management of coastal and marine resources is often said to lie with the lack of specific legislation. However, in a recent study of the Baltic States it was shown that, although no specific IMCAM legislation is in place in any of the nine riparian states, all of them conduct IMCAM to some extent using their existing legislation as a framework for implementation<sup>30</sup>. Indeed, when adequate legislation appears to be lacking, there is always the possibility of using the UN Convention on the Law of the Sea as a framework to protect marine resources. Lack of legislation may be more of a perceived impediment than an actual constraint.

33. Regulations may be complex, poorly understood, or even misunderstood, which, in effect, will limit the ability to enforce them. The legislative process may also be lengthy, and enforcement of legislation is often associated with high costs and long delays. This will ultimately be detrimental to effective resource management and may provide outcomes too late when dealing with high impact issues. Although there is often a lack of funding for adequate enforcement, the goal should be to reach a situation where enforcement is not needed.

**Summary:** Conflicting and Weak Legislation *includes*:

1. The lack of clarity of legislation.
2. Insufficient legislation.
3. Lack of enforcement.

### ***F. Limited scientific support for management decisions***

34. Decisions taken as part of the IMCAM process should take into account, and be based upon, good scientific information. However, although there may be a substantial amount of scientific and technical research being undertaken throughout the coastal zone, in many cases the results of this research are not

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<sup>30</sup> Pickaver, A. H. Integrated Coastal Zone Management in the Baltic States - State of the Art Report. HELCOM Habitat 2002.

communicated between scientists and managers in a language that is easily understandable to those making day-to-day management decisions<sup>31</sup>.

35. The problem lies within both the scientific and management communities: organisations creating scientific knowledge may not be disseminating it rapidly enough or in an understandable form to ensure timely science-based management decisions. Likewise, managers may not be defining what their needs are to the research community.

36. The IMCAM process usually requires answers to local questions, whilst agencies supporting scientific research will not fund research with only local benefits. However, local agencies may not have sufficient funds to support the necessary research themselves. Furthermore, scientific research programmes are often carried out by external scientific institutions, including regional institutions, with goals different from those required to produce input into the IMCAM process. Such programmes are not designed to provide data for management but rather undertake scientific research<sup>32</sup>. Networking to get better contact between local managers and scientific institutions has been shown to be helpful.

37. Another constraint is that data collected by scientists may only be available to the manager when it has been published in peer-reviewed journals, often a year or more later. Pressure on scientists to publish their work in high-ranking journals will impede rapid information transfer. With increasing

**Summary:** Limited scientific support for management decisions *includes:-*

1. The inability of scientists to communicate in a non-scientific language.
2. The failure of managers to adequately state their needs.
3. The low level of communication between scientists and managers.
4. The irregular dissemination of information from scientists to managers.
5. Dissemination of scientific work stays within the scientific community.

pressure on coastal environments, there is little room for managers to wait for years before acting on scientific data and recommendations.

### III. ENABLING ACTIVITIES

38. Despite the constraints mentioned above, there are a considerable number of good examples of IMCAM being successfully implemented around the globe. All constraints do not occur at the same time in any given country, and it is possible to effectively implement IMCAM even in the presence of some constraints. The presence of a constraint can, in many cases, be too easily used as an argument to do nothing, and the implementation of IMCAM can be started even under less than ideal conditions. It is quite acceptable to begin with a different, parallel processes and still have good IMCAM in practice. Table 1 shows a set of enabling activities, which could be used to overcome various individual constraints. The list is not exhaustive.

<sup>31</sup> Done, T. J. and R. E. Reichelt. 1998. Integrated coastal zone and fisheries ecosystem management: Generic goals and performance indices. Ecological Applications 8: S110-S118.

<sup>32</sup> McCorry, D. 1996. the Worldwide Status of Coral Reef Monitoring Programmes, 1994. MSc dissertation. Newcastle Upon Tyne: University of Newcastle upon Tyne.

**Table 1.** Constraints to the implementation of ICZM and some suggested enabling activities<sup>33</sup>.

<b>Constraints</b>	<b>Enabling Activities</b>
The vagueness of what constitutes IMCAM in management terms.	Adopt and use IMCAM-relevant indicators, such as the EU ICZM Progress Indicator Set.
The low priority of government commitment to IMCAM.	Harness the cooperation of like-minded States with similar constraints.
The imbalance between economics and the environment in decision-making.	Develop a strategic vision emphasizing the goods and services that flow from a natural ecosystem.
The lack of awareness of the value of natural resources	Introduce environment costing.
The lack of a long term decision-making focus	Develop an IMCAM Strategy.
The lack of active government involvement in sustainable development initiatives.	Commit to a programme of enabling conditions that ensure policies, plans and actions can be successfully implemented.
The lack of national involvement in local IMCAM initiatives.	Highlight specific case studies of particular relevance.
The low level of public awareness	Use participatory forms of dialogue that focus on articulating public values at an early stage in the policy process
The low level of public involvement in decision making	Establish a process that will provide an opportunity for a broad cross-section of the public and civil society to engage in informed debate about the management of human activity in the marine environment.
The low level of awareness by resource users of the need to conserve marine and coastal resources.	Promote alternative resource use.
The lack of conflict resolution preventing all stakeholders from resolving their differences and participating.	Promote negotiation as a major mechanism for conflict resolution
The lack of integration between the bottom-up and top-down approaches.	Build bottom-up and top-down approaches into regulatory structures.
The poor, internal organisation of institutions.	Devise new structures to meet new IMCAM challenges.
The lack of sufficient authority within IMCAM institutions to be effective.	Establish defined roles and responsibilities.
The absence of mechanisms to allow or ensure horizontal integration.	Establish a highly motivated and committed group of leaders from businesses, environmental organizations, civil society and government to work together on common and unambiguous goals.

<sup>33</sup> Adapted from the Steering Committee for Changing Currents: Charting a course of action for the future of oceans. 2005. Centre for Coastal Studies, Simon Fraser University.

The large number of agencies involved in IMCAM.	Bring together those responsible within the different agencies.
Institutional jurisdictions in conflict.	Develop clear guidelines. Institutionalise inter-departmental and inter-institutional meetings.
The lack of vertical integration.	Bring together those responsible within the different levels.
The failure to (fully) integrate all relevant management plans.	
Irregular communication between IMCAM institutions.	Hold periodic meetings of relevant staff.
The lack of co-ordinating mechanisms for institutions with similar or overlapping mandates.	Investigating synergies between the various, responsible institutes.
Decision making which is predominantly either bottom up or top down.	Promoting decentralised planning and decision-making.
The fundamental difficulty of humans to integrate at an organisational level.	Use original thinking to highlight the need for new mechanisms and frameworks to achieve good governance.
The low level of IMCAM experience.	Use of training programmes, for example the UN Train-Sea Coast programme.
Lack of human resources to manage large areas.	Embrace local skills in smaller programmes.
Funds are not commensurate with needs.	Dialogue with the funding organisations.
Absence of international language skills at local level.	Exchange programmes.
Fragmentation of knowledge.	Position communication at points where relevant persons interact with the IMCAM process.
The lack of clarity of legislation.	Provide an open appraisal of where the problems lie.
Insufficient legislation.	Use the UN Convention on the Law of the Sea as a framework if national legislation is lacking.
Lack of enforcement.	Introduce an enforcement infrastructure that can rapidly alter management practices in response to new information.
The inability of scientists to communicate in a non-scientific language.	Improve, or alter, training programmes.
The failure of managers to adequately state their needs.	Develop institutional arrangements to bring together science and technology to inform the development of management plans.
The low level of communication between scientists and managers.	Formally introduce third parties to bridge the gap.
The irregular dissemination of information from scientists to managers.	Better networking between local managers and scientific institutions.
Dissemination of scientific work stays within the scientific community.	Develop accessible knowledge management systems.

39. These enabling activities are illustrated through four case studies, each of which incorporates several aspects of the enabling activities listed in the above table. It is therefore not intended that each case study relates to only one of the major groups of impediments. The nature of *integrated* management means that each case study will embrace more than one of the constraints and enabling activities.

### *A. Institutional strengthening*

#### **Case Study: Tanzania**

40. Tanzania's mainland coastline stretches for over 2300 kilometres and includes five regions as well as large islands like Mafia Island, and numerous islets including their catchment areas. About two thirds of the coastline has fringing reefs, often close to the shoreline, broken by river outlets including the Rufiji, Pangani, Ruvuma, Wami, Matandu and Ruvu. The continental shelf is 5.8 kilometres wide, except at the Zanzibar and Mafia channels where it extends to a width of about 62 kilometres<sup>34</sup>.

41. This coastal area is of critical importance to the development of the country. The five mainland coastal regions contribute about one third of the national Gross Domestic Product (GDP)<sup>35</sup>. Currently, 75 percent of the country's industries are in urban coastal areas. Newly initiated activities in the coastal region, including coastal tourism, mariculture development and natural gas exploitation are seen as becoming increasingly important in the future for promoting national economic development. There is also substantial but un-tapped potential for agriculture, offshore fisheries, shipping, urban development, small-scale mining and manufacturing. These economic opportunities need to be developed for the benefit of the nation and coastal people, in a manner that links growth to wise management and protection of the resource base.

42. However, as elsewhere, pressures on coastal resources are increasing, and resource depletion is already occurring. Sprawl, uncontrolled land use and major developments threaten large tracks of coastal area. This is made worse by unplanned settlements, both in urban and rural areas, where there is no access to potable water and sanitary systems, leading to health problems like cholera and diarrhoea. Coral mining is increasing to supply building material for construction along the coast. In addition, exploitation and uncontrolled use of mangroves is on the increase. International fishing trawlers are impacting significantly on fishery resources that are important for local users. There is also increased pressure from tourism, industry and population growth and the related new infrastructure.

43. As a result, in 2002, a National Integrated Coastal Environment Management (ICM) Strategy was published following several years of community consultation and input.<sup>36</sup> It recognises seven different strategies that need to be applied by the year 2025, and which are currently at different stages of implementation.

44. In order to carry out the National ICM Strategy, three levels of institutional structure have been created under the National Environment Management Council, which reports directly to the Vice-President's office. These are a National Steering Committee on Integrated Coastal Management (NSC-ICM), a planned Integrated Coastal Management Unit (ICMU) and various inter-sectoral working groups.

45. The National Steering Committee's main responsibility is to provide a policy oversight and guidance on the conduct of overall activities. The Steering Committee is comprised of the Permanent Secretary for the Environment, who appoints members to the Committee and serves as its Chair; three coastal district representatives; a representative from the Mafia district; one member from the private sector; one member from non-governmental organizations; and nine members from the central government. Central government representation is drawn from departments of lands and human

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<sup>34</sup> Linden, O and Lundin, C. (ed.) 1995. Integrated Coastal Zone Management in Tanzania.

<sup>35</sup> World Bank (1996), Tanzania, *The Challenges of Reforms: Growth, Income and Welfare*. Report No. 14982-TA, Vol.1.

<sup>36</sup> The United Republic of Tanzania. 2003. *National Integrated Coastal Environment Management Strategy*. Vice President's Office. Dar es Salaam.

settlements; fisheries; forestry; tourism; agriculture and mining. Other members include the Director General of the National Environment Management Council, the Director of the Division of Environment and a representative from the ministry responsible for local government. The Committee has so far met once and plans to meet again, with an aim to meet, in principle, every six months.

46. The Tanzanian Coastal Management Partnership<sup>37</sup> currently coordinates and facilitates the implementation of the strategy and carries out relevant coastal activities. These tasks should be taken over by the ICMU in the near future. However, the inter-sectoral working groups provide the main vehicle for implementing IMCAM. The working groups, which include a core technical working group, issue specific working groups, and science and technical working groups, are composed of technical experts and representatives of different disciplines and sectors. They may also include representatives from the private sector and from communities<sup>38</sup>.

47. Finally, in order to achieve implementation, various mechanisms and actions have been chosen, some of which are new whilst others re-emphasize or build upon previous experience at local or national level. Various institutions have been given specific responsibilities, with a time frame allocated to make the process effective.

### ***B. Vertical integration and local community involvement through Special Area Management***

#### **Case Study: Muthurajawela Marsh and Negombo Lagoon, Sri Lanka**

48. The Muthurajawela Marsh - Negombo Lagoon coastal wetland complex, 6,232 ha in extent, is located along the western coast of Sri Lanka. The 3,068 ha marsh extends southwards from the lagoon, which is 3,164 ha in extent and connected to the sea by a single narrow opening. The entire wetland is separated from the sea by a sand barrier formed during past sea level changes. Freshwater from catchments of 727 km<sup>2</sup> drains into the system via Dadugam Oya at the point where the lagoon and the marsh meet.

49. The government of Sri Lanka enacted the *Coast Conservation Act No. 57 of 1981* which culminating in the development of a Coastal Zone Management Plan in 1989. The Plan was adopted in 1992<sup>39</sup>. The plan outlined strategies for providing greater management emphasis on coastal erosion and habitats in the coastal zone, including the designation of coastal setback areas in which building construction was virtually prohibited within 300m from the coastline. In parallel, a strategic environmental education and awareness program for coastal resources management and conservation was prepared<sup>40</sup>. A resource management strategy further recommended<sup>41</sup> that a second generation coastal resources management strategy be implemented at the national, provincial, district and local levels, with more monitoring and research and an enlarged public awareness and education program. It also

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<sup>37</sup> Torell, E., G. Luhikula and L. M. Nzali. 2002. *Managing Tanzania's coast through integrated planning: Reflection upon the first year of distriy ICM action planning*. Tanzania Coastal Management Partnership.

<sup>38</sup> Torell, E.C., M. Amaral, T. G. Bayer., J. Daffa., G. Luhikula., and L. Z. Hale. 2004. *Building enabling conditions for integrated coastal management at the national scale in Tanzania*. Ocean and Coastal Management 47 339-359.

<sup>39</sup> Central Environment Authority. 2000. *Conservation Management Plan: Muthurajawela Marsh and Negombo Lagoon*. Wetland Conservation Project, CEA & Euroconsult. Colombo.

<sup>40</sup> Greater Colombo Economic Commission. (1991) *Masterplan of Muthurajawela Marsh and Negombo Lagoon*. GCEC & Euroconsult.

<sup>41</sup> Olsen. S., D Sadacharan, J.I.Samarakon, A.T.White, H.J.M. Wickremeratne & M.S. Wijeratne. 1992. *Coastal 2000: A resource management strategy for Sri Lanka's coastal region*. Vols. I & II. CRC Technical Report No. 2033, Coastal Conservation Dept. Univ. Rhode Is.

recommended the design and implementation of Special Area Management (SAM) plans “to be implemented at specific geographic sites of ecological and socio-economic significance.”

50. Special Area Management is a locally-based, geographically-specific, planning process that allows for the comprehensive management of natural resources with highly participatory practices and the active involvement of the local community as the main stakeholder group. It involves co-management of resources whereby government institutions and other planning agencies assume the role of facilitators, while local community groups are considered the custodians of the resources being managed. In this way, livelihood practices allow for sustainable natural resource use and management within the designated area.

51. SAMs are now an integral component of the national coastal zone management policy of Sri Lanka, and as a result several important activities have taken place. A re-location and community development package for encroacher communities living on Muthurajawela Marsh has been developed. An area designated as a mixed urban zone was sand-filled with drainage and transport infrastructure. A cost-recovery system for the management, in the form of a visitor centre, has been introduced<sup>42</sup>. Last but not least, a land use plan including screening of investment proposals has been set up<sup>43</sup>. A detailed conservation management plan was also endorsed aiming at sustainable use of lagoon resources, pollution control, job creation and community involvement in management. The Departments of Wildlife Conservation and Forestry were made responsible for different aspects of the Plan and an area of 1777 ha. has been declared a wetland sanctuary.<sup>44</sup>

52. Participation of community and other stakeholders in planning and management is central to the SAM concept. A basic premise is that it is possible to organize local communities to manage their natural resources, and that they will continue to do so if they perceive that they derive tangible benefits from better management. In this process government agencies serve as ‘catalysts’ or ‘facilitators’ helping organize communities to engage in resource management and providing technical support. They also act as ‘mediators’ to help balance competing demands in resource management, or as ‘partners’ of communities by engaging in ‘co-management’ with community groups. Therefore, while the national coastal management program is based largely on a regulatory strategy, the SAM plans included several types of management interventions, including education and awareness programs, collaborative self-management, capital development projects and micro-enterprise development.<sup>45</sup>

53. The experiences from SAM implementation in Sri Lanka demonstrate that this tool seems to have been successful in developing a community-level approach to coastal resources management that complements the national approach. User groups appear to be motivated to collaborate with each other and with the government to improve the condition of coastal resources. It should be kept in mind, though, that user groups would not be able to legally manage access to resources without assistance of the government, and therefore government co-management of SAM projects with user groups provides the

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<sup>42</sup> Samarakoon J. and van Zon H. 1996. *Integrated development and management of a coastal system – the case of Muthurajawela Marsh and Negombo Lagoon, Sri Lanka*. Tropical Asia 6. pp. 1-8.

<sup>43</sup> Mahanama M. 2000. *Planning and management aspects of Muthurajawela Marsh and Negombo Lagoon*. In Farmer N. ed. Workshop on effective management for biodiversity conservation in Sri Lankan wetlands: Muthurajawela Marsh, Negombo Lagoon & Chilaw Lagoon. Report 55. Centre for Economics and Management of Aquatic Resources, Univ. of Portsmouth.

<sup>44</sup> Emerton L. and Kekulandala L.D.C.B. 2003. *Assessment of the economic value of Muthurajawela wetland*. Occ. Pap. IUCN, Sri Lanka, 4 1-28.

<sup>45</sup> Negombo Lagoon Special Area Management Community Coordinating Committee. (undated). *Special area management plan for Negombo Lagoon*.

basis for effective management. Government funding and regulation are also critical to the success of such management.

### *C. Optimising Public and Stakeholder Participation*

#### **Case Study: Dorset coast, UK**

54. The Dorset Coast is located on the central south coast of England, and is 146 km in length. It comprises stretches of undeveloped coastline, which is of great importance to wildlife, as well as to landscape and geological conservation. There is a substantial urban region in the east where much of the population of 647,245 inhabitants is concentrated. This area is also home to one of the world's largest natural harbours, including a substantial port and recreational fleet, as well as Europe's largest onshore oilfield. The inshore waters are important for tourism (Dorset's biggest industry), water recreation and an inshore fishing industry. The area is also used for military training and commercial shipping.

55. The management of coastal resources in the UK is extremely complex, with over 80 Acts of Parliament dealing with the regulation of activities both on land and within the marine environment. In addition, many organisations and landowners are involved. The lack of a single Act dealing with the Coastal Zone, combined with the number of competing activities within a relatively narrow area, means that many organisations attempt to manage different activities with no overview or lead agency. Above low water mark, the Local Authorities have planning responsibilities, and have historically taken a lead in co-ordinating management initiatives. The situation is different below the low water mark, where management responsibilities are organised on a sectoral basis, with many decision-making powers residing at the national level.

56. In 1993, the regional government of Dorset County Council recognised that there were a number of issues concerning the coast that were not being addressed properly. In the autumn of 1994, a coastal seminar involving stakeholders was held. As a result, the stakeholders agreed to form a forum, and in 1995 the Dorset Coast Forum was established. The overall aim of the Forum is to promote a sustainable approach to the management, use and development of Dorset's coastal zone, which will ensure that its inherent natural and cultural qualities are maintained and enhanced for the benefit of future generations. Membership in the Dorset Coast Forum is open to organisations, which have a vested interest in the Dorset coast. It currently has 121 members<sup>36</sup>. Importantly, the partnership includes key funding organisations, including the regional government itself. The forum has no mandate to take on statutory functions, but it can help with co-ordination of coastal policy or management. It works by generating ideas, co-ordinating discussion, encouraging friendly relations and providing good networking. Empowerment is by consensus, peer review and willingness to commit to jointly agreed actions. Nonetheless, the Forum is run with a very small staff of only 4 persons.

57. The Forum has developed the Dorset Coast Strategy<sup>46</sup>. There are four key elements to the Strategy: a clear vision for the coast up to the year 2050; a series of principles leading to a widespread agreement on future planning and management; nine priorities for the future management of Dorset's coast; and detailed policies and actions to achieve progress with each priority. The Strategy drew on the conclusions of a regional biodiversity plan for South West England, which in turn was designed to implement the UK national biodiversity plan. The Forum enabled the Strategy to be developed by consensus, working to integrate the different mandates and activities of organisations with coastal responsibilities, while focusing on local needs and priorities to improve the planning and management of the Dorset coast.

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<sup>46</sup> Dorset Coast Strategy, Strategy Action Plan, 1999, Dorset Coast Forum.

58. The Forum is now involved in the process of implementing the actions contained in the Strategy<sup>47</sup>, including establishing an integrated policy and guidelines for more detailed coastal management plans; identifying strategic opportunities for resource development and solutions for sustainable coastal development and management; developing participation of a wide range of partners and a co-ordinated approach to strategy implementation; and evaluating and reporting the results.

59. A key part of the Strategy was the establishment of ways to implement the recommendations. The main mechanism that has been found to be useful is the establishment of working groups, with membership drawn from the Coast Forum. These groups are designed to address specific tasks within the Strategy, and are formed according to need. They are made up of members of the Forum staff team, and Forum members. At present time, there are five Working Groups operating under the Forum addressing archaeology, marine issues, pollution and water quality, and recreation and tourism. Actions in the Strategy not covered by one of the Working Groups are directly dealt with by the Steering Group and the Forum. Work in relation to biodiversity is carried out through the group on marine issues.

60. The approach of developing a policy-based Strategy through the work of a Forum has facilitated the establishment of a mechanism that can help address otherwise politically difficult sectoral questions. The Strategy has also, through the accompanying activities, been able to identify those areas, which are less amenable to integrated management.

#### ***D. Horizontal integration through the designation and management of Marine Protected Areas.***

##### **Case Study: Belize**

61. The Belize Barrier Reef is the largest barrier reef in the Western Hemisphere (260 km.) with extensive and diverse coral reef ecosystems as well as abundant mangroves and sea-grass beds. These reef habitats are of considerable economic importance, with fishing and tourism being the two main uses<sup>48</sup>. The reef is, however, threatened by a number of human activities, such as nutrient enrichment from land-based pollutants (sewage and agricultural run-off) and sedimentation. Transportation of oil and fuel poses an ongoing threat, while tourism may lead to reef damage, deterioration of water quality, illegal camping, litter, and damage from diving, snorkelling and boating activities. Over-fishing, e.g. of lobster and conch, is another main source of impact on reef systems. Climate change is believed to be responsible for the increase in coral bleaching and may be a contributing factor to several coral diseases.

62. The Coastal Zone Management (CZM) programme in Belize began in 1990 due to concerns about these impacts on the Belize barrier reef system. It was agreed that an integrated plan was required for the entire coastal area, which would require the close coordination of many different agencies, including government, non-government and private sector organizations. Basic to this need for integrated coastal zone planning and management was the understanding that the future economic sustainability of Belize is closely interlinked with its coastal and marine resources<sup>49</sup>. Two of the country's major industries, tourism and fisheries, rely on maintaining the ecological health of its coastal systems.

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<sup>47</sup> [www.dorsetcoast.com](http://www.dorsetcoast.com).

<sup>48</sup> Pomeroy R.S. and Goetze T. 2003. Belize case study: Marine protected areas co-managed by friends of nature.

<sup>49</sup> Olsen, S., and M. Ngoile. 1998. *Final Evaluation Global Environmental Facility Belize: Sustainable development and management of biologically diverse coastal resources*. Coastal Resources Centre. Coastal Management Report No.2207.

63. Belize has, therefore, developed and adopted an Integrated Coastal Zone Management Strategy<sup>50</sup>, which was endorsed by the government in 2003. It was developed through a broad and extensive process of inter-sectoral, inter-agency, inter-disciplinary and public consultations. The Strategy has three major objectives: Setting and maintenance of targets and standards for environmental and natural resources management in the coastal area; Supporting planned development; and Building alliances to benefit Belizeans. A major focus of the CZM programme, run through a specially created Coastal Zone Management Authority and Institute (CZMA&I), has been the expansion of the marine protected areas network.

64. The establishment of marine protected areas (MPAs) is increasingly being considered a useful option for management of vulnerable marine habitats, including coral reefs. Many of the MPAs prohibit all extractive uses, while some may protect only a particular species or locally prohibit specific kinds of fishing. The motivation for establishing these protected areas varies, but high on the list are economic benefits of tourism, maintenance of fisheries, conservation of coral reef ecosystems and protection of traditional use.

65. Local communities and user groups participated in the planning process for establishing marine protected areas. It has been recognized that stakeholders within an area must have an input into the decision-making process if management and conservation strategies are to be successful. Participation is also encouraged beyond the planning phase to include management. To this end, partnerships with community groups and non-governmental organizations have in some instances been active in the management of marine reserves.

66. To date, fourteen marine protected areas have been established and the Belize barrier reef has been designated as a World Heritage Site. MPAs are now being used to protect representative samples of all coastal and marine habitats that lie within the territorial waters of Belize, as well as critical habitats of several endangered species, such as marine turtles, crocodiles and manatees. The role of MPAs in enhancing fisheries productivity and management is also being investigated. As multiple-use reserves, these areas also provide opportunities for nature-based tourism. The financial sustainability of MPAs is being enhanced<sup>51</sup>, and several different revenue-generating mechanisms are currently being explored. Belize advocates community and private sector involvement in the management of its resources, and in marine-related tourism. Tour guides have to undergo a series of ecological and environmental training courses and a license is granted only upon successful completion of the courses. Carrying Capacity Studies are also being recognized as an important tool to aid in effective management of MPAs, in particular to control visitor numbers and activities at heavily visited coral reef sites.

67. Once designated, good management of the reserves is essential. To this end, MPAs are currently being managed either by the Fisheries Department or the Belize Forest Department, depending upon their designation. A number of these MPAs are also being co-managed with community groups and NGOs. Further, Belize has a National Coral Reef Working Group, which allows for the sharing and dissemination of information as well as discussions on monitoring parameters and standardization.

#### IV. CONCLUSION & RECOMMENDATIONS

68. The transition from IMCAM planning to implementation is a challenge for many coastal management programmes because of the great number of constraints present. It is fortunate, however, that

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<sup>50</sup> Coastal Zone Management Authority and Institute. 2003. The National Integrated Coastal Zone Management Strategy for Belize. Belize City.

<sup>51</sup> Coastal Zone Management Authority and Institute. 2003. Operationalising a financing system for coastal and marine reserve management in Belize.

not all of these impediments are encountered in any given country at the same time. Experience shows that specific legislation for IMCAM, while perhaps desirable, is not a pre-requisite for implementation, provided that some kind of legislative framework is present that will facilitate the application of IMCAM. Very few countries in the world have IMCAM-specific legislation, but globally there are many examples of good IMCAM practice to draw from.

69. This document has highlighted a series of enabling activities, which can be used to overcome certain impediments. Any one of these enabling activities, if adapted to specific national needs, will add to the effectiveness of an IMCAM programme. Four case studies are also presented, illustrating ways in which a country can take further steps towards implementing a number of important aspects of IMCAM. It is not the intention that these examples be rigidly followed, as the national circumstances of each country are unique. However, they do provide examples of how specific problems have been overcome through strengthening IMCAM institutions, optimising public and stakeholder participation, improving vertical integration through special area management, and horizontal integration through the use of marine protected areas. All of these actions are key elements in any national IMCAM strategy. Each of the case studies also incorporates other useful elements of IMCAM. For example, the Tanzania case study incorporates public participation, while the Belize case study takes into account the development of public-private partnerships. The fact that each case study includes several important components of successful implementation of IMCAM demonstrates the underlying approach of integration.

70. Based on the discussions in this document, the following seven recommendations could bring substantial improvements in IMCAM implementation:

*Recommendation 1.* All coastal countries should be encouraged to assess their baseline level of IMCAM implementation through the adoption and application of indicators, such as the European Union ICZM Progress Indicator Set.

*Recommendation 2.* As a pre-requisite to any IMCAM implementation, all countries are encouraged to develop and adopt a National IMCAM Strategy based upon one of the many available examples.

*Recommendation 3.* Major efforts should be undertaken to significantly improve capacity building, without which IMCAM will remain a series of isolated actions. Several programmes already exist, for example the UN Train-Sea Coast programme and the training course on integrated coastal zone management developed by the Caribbean Environment Programme.

*Recommendation 4.* Public participation should be institutionalised in the IMCAM process through one of the many adaptable methods available (see UK case study).

*Recommendation 5.* Marine Protected Areas, and their management, can be a simple IMCAM tool to protect marine resources and to undertake many facets of the IMCAM process, such as vertical integration (see Belize case study).

*Recommendation 6.* Special Area Management can be applied as a simple IMCAM tool to introduce other facets of the IMCAM process, such as horizontal integration of stakeholder groups (see Sri Lankan case study).

71. *Recommendation 7.* Institutional strengthening should be improved through the introduction of appropriate structures (see Tanzania case study).

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