

**TOWARD THE
2002 WORLD SUMMIT ON
SUSTAINABLE DEVELOPMENT,
JOHANNESBURG**

**Reports of the
Conference
Working Groups**

**THE GLOBAL CONFERENCE ON
OCEANS AND COASTS
December 3–7, 2001
UNESCO, Paris**



TOWARD THE 2002 WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT, JOHANNESBURG

Ensuring the Sustainable Development of Oceans and Coasts



Authored by the Working Group Chairs:

Sian Pullen, World Wildlife Fund, United Kingdom

Ed Miles, University of Washington, USA

Indu Hewawasam, World Bank

Gunnar Kullenberg, International Ocean Institute, Malta

Richard Kenchington, RAC Marine Pty Ltd., Australia

Marea Hatzios, World Bank

Kees Zwanenburg, Bedford Institute of Oceanography, Canada

Gerald Miles, South Pacific Regional Environment Programme, Samoa

Gayatri Acharya, World Bank

with the assistance of Bernice McLean,
Center for the Study of Marine Policy, USA

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Foreword

The Global Conference on Oceans and Coasts at Rio+10: Toward the 2002 World Summit on Sustainable Development, Johannesburg took place on December 3-7, 2001 at UNESCO, Paris. The Conference involved over 400 participants from 60 countries, assembling an array of experts from a diverse range of sectors including governments, United Nations agencies and other intergovernmental organizations (IGOs), and nongovernmental organizations (NGOs) representing environmental, industry, and scientific/technical perspectives.

The Conference occurred nearly ten years after the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, with the aim of assessing the present status of oceans and coasts and progress achieved over the past decade, addressing continuing and new challenges, and laying the groundwork for the inclusion of an oceans, coasts, and islands perspective at the 2002 World Summit on Sustainable Development (WSSD), to be held in Johannesburg.

The Conference Program was divided into seventeen panels which, for strategic purposes, were combined into nine thematic areas. A Working Group supported each of the nine thematic areas. The Working Groups were conceived of in order to stimulate meaningful dialogue among conference delegates before and during the conference and to present a synthesis of current issues facing ocean and coasts and management options for future action. Each Working Group was composed of representatives from NGOs, IGOs and governments and was supported by a core team of individuals including a Chairperson, Facilitator Rapporteur, and Secretariat Contact. The task of the team was to oversee the drafting of a consensus statement of approximately two pages per thematic area and a summary for submission to the Conference Executive Committee.

Conference delegates were encouraged to participate in online Working Group discussions prior to the conference, to identify key issues, and to prepare for in-depth discussions at the conference. Working Groups met on a number of occasions during the conference to formulate and agree upon the reports presented within this volume. Delegates committed a great deal of time and energy to the Working Group reports, the results of which contributed significantly to the Co-Chairs' Report which was presented at PrepCom 2 as a contribution to the WSSD process.

We are sincerely grateful to the many Governmental, Non-Governmental, and Inter-Governmental organizations that have provided support for the conference and which are listed in the beginning of this volume. We especially appreciate their encouragement and faith that an unusual "hybrid" meeting like this one—which brought together Governments, NGOs, and IGOs together in the same venue—could produce significant results for consideration by the international community.

We would also like to extend our gratitude to all of the participants at the conference, both for their thorough panel presentations and their enduring devotion to the working groups before, during, and after the conference.

Finally, we would like to offer our heartfelt thanks to the Conference Executive Committee, the Conference Organizing Committee, and the Secretariat Staff, for all of their work on the conference.

Sincerely,

Dr. Patricio Bernal,
Intergovernmental
Oceanographic
Commission, UNESCO

Dr. Biliانا Cicin-Sain
Center for the Study
of Marine Policy,
University of Delaware

Working Group 1

GOVERNANCE IMPROVEMENTS AND HARMONIZATION OF INTERNATIONAL AGREEMENTS AND EMERGING ISSUES

This Working Group Report 1 is presented in 2 main parts:

- i) Governance Improvements and Harmonization of International Agreements; and ii) Emerging Issues.*

PART I. GOVERNANCE IMPROVEMENTS AND HARMONIZATION OF INTERNATIONAL AGREEMENTS

BACKGROUND

The Law of the Sea Convention (LOSC) and Chapter 17 of Agenda 21 provide the overall framework for the pursuit of sustainable ocean governance at global, regional, and national levels. Chapter 17 of Agenda 21 (17.1) stresses both the importance of oceans and coastal areas in the global life support system and the positive opportunity for sustainable development that ocean and coastal areas represent. Ocean and coastal areas often present excellent opportunities for development, particularly for developing countries—opportunities that, if conducted in a sustainable development mode, can yield significant social and economic benefits for coastal communities while protecting environmental integrity.

Agenda 21, Chapter 17 emphasized the importance of the regional scale for sustainable ocean governance, with particular reference to institutional cooperation and coordination. The Law of the Sea Convention also identified the regional approach as the appropriate means to better address issues relating to: a) management of marine living resources; b) protection of the marine environment and ecosystems; and c) cooperation in marine scientific and technological research. The LOSC also emphasized the need for cooperation among nations, especially in the case of enclosed or semi-enclosed seas.

The regional approach is also indicated as one of the operational frameworks to pursue the objectives of other legal and programmatic arrangements that form the core ocean "package," namely, the Convention on Biological Diversity (CDB), the Fish Stocks Agreement, the Code of Conduct for Responsible Fisheries, the Global Program of Action for the Protection of the Marine Environment from Land-based Activities (GPA), and the Barbados Program of Action for the Sustainable Development of Small Island Developing States.

The regional rather than the global scale appears the most appropriate level to reconcile environmental and developmental needs and promote sustainable development. At the regional level, one can distinguish four main types of regional organizations:

- a) *Regional economic integration and political organizations*, such as the European Union (EU), the Association of Southeast Asian Nations (ASEAN), the South Pacific Forum (SPF), the Caribbean Community (CARICOM);
- b) *Regional environmental institutions*, in particular the action plans and conventions developed within UNEP's Regional Seas Programme as well as those developed in the Northeast Atlantic, the Baltic, the Antarctic, and the Arctic;
- c) *Regional fishery organizations*, such as the regional fishery bodies of FAO (e.g., the General Fishery Council for the Mediterranean—GFCM, or the Fishery Committee for the Eastern Central Atlantic—CECAF) and other regional fishery organizations in the Atlantic, Pacific, and Indian Ocean; and
- d) *Regional scientific organizations and programs*, such as the International Council for the Exploration of the Sea (ICES), IOC's regional subsidiary bodies (IOCARIBE, WESTPAC, etc.), the regional programs of the Global Ocean Observing System (GOOS) (EuroGOOS, MedGOOS, Black Sea GOOS, etc.), and the Global International Waters Assessment of the Global Environment Facility (GEF).

Regional sustainable development can only be realized if the different objectives of these different types of organization are pursued in a coordinated manner. Regional diversity and variations do not allow elaborating a "formula," but leaders from the political, entrepreneurial, and scientific realms must work together to achieve the critical mass needed to operate according to the sustainable development paradigm. Regional economic integration organizations and regional policy making forums with strong links to national political leaders should be aware of the regional oceans-related bodies. Meaningful decision-making connections are needed to advance sustainable ocean development.

PROGRESS

Since UNCED 1992, important progress has been made towards sustainable ocean governance: (1) A number of international agreements, voluntary instruments, and programs of action on oceans and coastal areas have been negotiated and/or come into force; (2) there have been evolving new approaches to ecosystem management; (3) regional instruments and programs

Table 1—Development of International Oceans Agreements post-UNCED

Theme	Agreement	
Law of the Sea	United Nations Convention on the Law of the Sea (UNCLOS)	1994 (entry into force)
	International Seabed Authority (ISBA)	1996 (operational)
	International Tribunal on the Law of the Sea (ITLOS)	1997 (operational)
	Commission on the Limits of the Continental Shelf (CLCS)	1997 (operational)
Marine environment	Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships	1993
	Convention on the Protection of the Black Sea against Pollution	1994
	Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA)	1995
	Agreement establishing the South Pacific Environment Programme (SPREP)	1995 (into force)
	International Convention on Oil Pollution Preparedness and Response	1995 (into force)
	Protocol to the London Convention	1996
	Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region	1996 (into force)
	Declaration on the Establishment of the Arctic Council	1996
	Annex VI to MARPOL 73/78 on Regulations for the Prevention on Air Pollution from Ships	1997
	Convention for the Protection of the Marine Environment of the North East Atlantic	1998 (into force)
	OSPAR and Helsinki Convention	1998 (into force)
	Protocol on Environmental Protection to the Antarctic Treaty	1998 (into force)
	The Protocol Concerning Pollution from Land-based Sources and Activities to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region	1999
	New timetable for Annex I to MARPOL 73/78 (Oil Discharges) for phasing out single hull oil tankers	2001
International Convention on the Control of Harmful Antifouling Systems on Ships	2001	
Stockholm Convention on POPs	2001	
Marine safety and liability	International Convention on Liability and Compensation for Damage in connection with the Carriage of Hazardous and Noxious Substances by Sea	1996
	Liability Protocol to the Basel Convention	1999
	International Convention on Civil Liability for Bunker Oil Pollution Damage	2001
Sustainable use and conservation of marine living resources	Agreement to Promote Compliance with International Conservation and Management Measures by Vessels Fishing in the High Seas (“Compliance Agreement”)	1993
	New regional fisheries management organizations established or in preparation (Commission for the Conservation of the Southern Blue Tuna—CCSBT, South East Atlantic Fisheries Organization—SEAFO, West and Central Pacific Organization, Convention for the Conservation and Management of Pollock Resources in the Central Bering Sea)	After 1993

Theme	Agreement	
	Code of Conduct for Responsible Fishing and four related International Plans of Action (IPOAs)	1995
	Agreement for the implementation of the Provisions of the United Nations Convention on the Law of the Sea Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (“Fish Stocks Agreement”)	2001 2001 (entry into force)
Marine biodiversity	Jakarta Mandate on the “Conservation and Sustainable Use of Marine and Coastal Biological Diversity”	1995
	International Coral Reef Initiative (ICRI)	1995
	Annex VI to OSPAR Convention	1996
	Protocol on Specially Protected Areas and Biological Diversity in the Mediterranean	1996
	Cartagena Protocol on Biosafety	2000
Sustainable development of small islands	Barbados Programme of Action for the Sustainable Development of Small Island Developing States	1994
Deep seabed mining	Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982	1994
	Regulations on prospecting and exploration for polymetallic nodules in the international seabed area	2000
Underwater cultural heritage	Convention for the Protection of the Underwater Cultural Heritage (UNESCO)	2001
River basins	ECE Convention on Transboundary Lakes and Rivers	1992
	UN Convention on the Non-navigational Uses of International Watercourses	1997
Rio Principles	The precautionary principle, part of the Rio Principles on Environment and Development, is increasingly being incorporated into agreements.	

continue to develop; (4) new actions have been undertaken by national authorities; and (5) considerable discussion on international mechanisms for cooperation on oceans issues has taken place.

1. International Agreements

See the table on these pages.

2. Evolving New Approaches to Ecosystem Management Ecosystem

The Global Environment Facility (GEF) is supporting new methodologies for the management of large marine ecosystems (LMEs) in Africa, Asia, Latin America, and Eastern Europe. As recommended by the GEF Operational Strategy, the countries involved utilize variants of a 5-module assessment and management methodology intended to move them toward adopting practical joint governance institutions. The institutions engage at three levels: i) multi-country, ii) national inter-ministerial, and iii) local and involve also local communities and institutions. They address blue-water and coastal issues and apply ICM methodologies in habitat restoration and conservation and addressing land-based sources of marine pollution. The whole

process is framed in a philosophy of adaptive management with monitoring and evaluation indicators. Over one-half billion dollars from the North and South are invested in eight LME-related projects with \$240 million in GEF grant finance. Sixty countries are engaged in these initiatives, with 7 more LMEs in preparation involving another 76 nations, many being LDCs.

3. Regional Developments

During the last decade, there have been a number of developments at the regional level related to ocean governance. These include:

- Growing regional economic integration, in particular in Europe (European Union—EU), North America (North American Free Trade Agreement—NAFTA), and South America (MERCOSUR).
- Growing ocean management strengths in regional indigenous organizations (Association of Southeast Asian Nations—ASEAN, South Pacific Forum—SPF, and Caribbean Community—CARICOM).
- The discussion of the interaction between globalization processes, on the one hand, and local systems, on the other,

has led to: i) increased importance to the human dimensions of sustainable development, and ii) a wider concept of diversity that explores the interplay between biological diversity, as defined by the 1992 CBD Convention, and cultural diversity including rural coastal communities, their cultural heritage and their way of life. Hence greater emphasis is being given to the concept of regional seas as those spaces where sustainable development has to be pursued by contextually safeguarding both biological and cultural diversity, and by adopting management patterns that optimize the integration between local systems and globalization processes.

- Growing incorporation within the regional conventions and action plans associated with UNEP's Regional Seas Programme and other regional conventions to protect the marine environment of sustainable development considerations. In addition, the emphasis on regional implementation of the GPA is beginning to breathe new life into many of these regional arrangements.

The UNEP Regional Seas Programme, initiated in 1974, provides a major legal, administrative, substantive and financial framework for the implementation of chapter 17 of Agenda 21. It consists of periodically revised action plans and in most cases legally binding regional conventions and protocols. These have evolved from pollution control agreements into multifunctional agreements addressing airborne pollution; land-based sources of pollution; protected species, areas and biodiversity; the impacts of offshore exploration and exploitation of oil and gas; dumping; contingency planning; and transboundary movement and disposal of hazardous wastes. In addition, they address integrated coastal area management, including in several cases links to the management of contiguous freshwater basins and conservation and sustainable use of living marine resources and marine biodiversity. They are systematically linked to global conventions and agreements. For example, protocols on pollution from oil and harmful substances and dumping from ships and aircraft are operationally linked to the IMO conventions and the London Convention; those on land-based sources of pollution are operationally linked to the GPA; those on protected areas and species are linked to the CBD; and those on transboundary wastes movement are linked to the Basel Convention. These programs have the potential to support the implementation of global agreements at a scale where both national and stakeholder participation is stronger. The global meetings of regional programs convened by UNEP promote sharing of information and experience among the regions.

Promising signs for revitalization of the Programme include: i) a marked rise in the signing of memoranda of understanding (MOUs) between regional seas conventions and other MEA's during the last two years; ii) the adoption of twinning arrangements—a form of horizontal cooperation—between regional seas program; recognition of the need to reinforce critical partnerships between UNEP and its major partner organizations in the field of oceans and coastal areas; and, of particular signifi-

cance, iii) UNEP Governing Council decision 21/13 on global assessment of the state of the marine environment, to explore the feasibility of establishing a regular process for assessing the state of the marine environment with active involvement by governments and regional agreements, building on ongoing assessments. The evolution of the Mediterranean Regional Seas Programme is summarized in Appendix I. Other examples of successful regional marine environmental cooperation are reported in Appendix 1 (North East Atlantic, Pacific, and Arctic).

Improvements are being made in incorporating and operationalizing ecosystem-based approaches, the precautionary approach, and new mechanisms to promote compliance and enforcement in regional fishery management organizations (e.g., CCAMLR, ICCAT). The global meetings of regional fishery management organizations (RFMOs), convened by FAO, are marking positive contributions to these developments and promote exchange of information and experience among the RFMOs.

4. National Actions

There has been growing awareness among governments of the importance of oceans and coastal areas for the well-being and welfare of human societies. In particular, the acknowledgement of linkages between terrestrial and marine environments has led to the proliferation of national and sub national efforts in integrated coastal management (ICM) including watershed management. It is estimated that in the year 2000 approximately 100 countries had developed national and sub-national initiatives based on an agreed set of core principles, often with the support of international donors. They often face serious difficulties in actually putting into operation the extensive coastal planning efforts they have carried out. (see Working Group 5 report).

5. Discussion of International Mechanisms for Cooperation on Oceans

Ocean governance issues and processes have been discussed within and outside the UN system in a series of consultative processes and forums. These include:

- The periodic meetings of the Advisory Committee on Coordination, Subcommittee on Oceans and Coastal Areas (ACC/SOCA) which brings together all the UN-related oceans agencies;
- The United Nations Informal Consultative Process on Oceans Affairs and Law of the Sea (2000 and 2001);
- Independent World Commission on the Oceans (1998);
- Second London Oceans Workshop (1998); and
- GPA/IGR Review (November 2001).

These initiatives have emphasized that improvement of ocean governance can be achieved through better communication, collaboration, and coordination of existing institutions and programs at the global, regional, and national levels rather than through the creation of new institutions.

CONSTRAINTS

Despite political recognition of transboundary and common problems and potential efficiencies and savings generated by pooling of financial resources (by international donors, national governments, the private sector, civil society), persistent challenges remain.

BEST PRACTICES

1. Harmonization of International Agreements

The oceans cluster of MEAs

According to one analysis, overlaps among conventions, agreements, and programs related to oceans and coastal areas are apparent in several areas. Examples of overlap include the protection of marine biodiversity in international waters, including the deep seabed area; the potential development of methane hydrates of the deep seabed area as an energy source and their impacts as greenhouse gases; and shallow marine and coastal ecosystems, such as mangroves, sea grasses, salt marshes, and shallow coral reefs where two or more international instruments apply (e.g., Ramsar Convention, World Heritage Convention, Man and the Biosphere Programme, regional instruments). The latter may lead to duplication of effort in relation to preparing and implementing management plans and reporting. Of the more than 500 multilateral environmental agreements (MEAs), 64% of these are of regional scope, and marine-related agreements represent the largest cluster (about 200 agreements).

The coordination and integration of international agreements is made difficult by a series of factors. These include:

- The reluctance of some agreement secretariats to cooperate with others for fear of losing part of their mandate. Consultations at the intergovernmental level through existing fora could help overcome this problem;
- Inadequate baseline data and monitoring to develop integrated assessments;
- Lack of awareness of inter-linkages;
- Inadequate involvement of non-state actors;
- Insufficient implementation and coordination of efforts at the national level. The greatest problem is the lack of national integrated legal and institutional frameworks with consequent effects on implementation of international rules. The integrated approach to ocean affairs requires a great deal of cooperation at the national level which certainly starts with the enactment of coherent national policy, allowing politicians, administrators and other officials and the public to have a clear view of the direction countries should take in dealing with oceans affairs. Marine agreements could be considered as a cluster through national ocean councils or national legislative bodies;
- Inadequate and inconsistent compliance and enforcement at the national level;

- The need to streamline national reporting, which represents a burden on many countries, especially small developing countries. Work is in early formative stages, and improvements could be achieved by reorganizing national reporting around a 'package' of oceans-related arguments;
- The need to improve performance indicators to measure the effectiveness of the agreements;
- Financial constraints, which are an important limiting factor in the implementation of MEAs and also affect the functions of MEA secretariats.

2. Insuring Transparency, Participation, and Accountability in Decision-making on Oceans and Coasts

Since ocean resources and areas, in most cases, are managed by government on behalf of the public, it is important to ensure transparency, opportunities for participation, and accountability in decision-making on oceans and coastal areas. Agenda 21 emphasized these values throughout its various chapters.

In the oceans and coasts area, there has been improvement in the transparency, participation, and accountability of decision making. For example, the ACC/SOCA has brought together and coordinated the work of the various United Nations agencies dealing with oceans. An important new development has been the recent establishment of a website and publication which insure that decisions made in this forum are made public. A drawback of ACC/SOCA, however, is that there are few opportunities for expression of the perspectives of governmental and non-governmental organizations.

The UNICPOLOS (now ICP) process has begun important new processes of deliberation among governments on specific global ocean issues. It is specially charged with coordination and cooperation of international bodies and programs. Some NGO's would like to see better opportunities to participate. In addition, important global ocean actors, such as the multilateral funding agencies, have been notably absent in these proceedings.

Each of the major ocean-related agreements has its own specialized decision making process which allows for some level of participation by inter-governmental and non-governmental organizations. To a large extent, however, these are specialized forums concerned with one or another ocean issue. There is a need to develop a mechanism where the inter-relationships among ocean and coastal issues can be addressed and better accessed by the full range of actors from governments, inter-governmental organizations, non-governmental organizations, local and indigenous communities, and the private sector.

3. Regional Issues

UNEP's Regional Seas Program is commonly called upon to provide an institutional framework or focus for UN system-wide responses to marine-related problems. Each Regional Seas Program has its strengths and weaknesses but few have achieved a high level of involvement and commitment by states in the region as in the Mediterranean and in the South Pacific. The regional conventions have the potential to strengthen regional

governance if used as a platform for integrated action.

The regional fisheries agreements appear to have achieved a higher level of involvement and commitment by the relevant states. The overall effectiveness of other regional oceans-related MEA's is not readily evident. This may be due in large part to the lack of specific arrangements for funding or the existence of other mechanisms for the delivery of similar outputs. Monitoring and reporting obligations under some of these conventions could be streamlined and designed to complement or avoid duplication of reporting, including under other global agreements.

4. National Issues

Nationally, it is often difficult to identify the specific outputs of regional action. Regional needs are not always seen as adding value to national efforts to effectively manage ocean resources. Transboundary problems are often ill-defined. There is also a growing sense of competition for resources where funds or programs delivered regionally are seen as funds or programs that could have been nationally executed. Support for developing the national legislation necessary to underpin regional arrangements has been insufficient. It is important to move from regional to national action.

OPPORTUNITIES

Overlaps among major international instruments also present various specific opportunities for synergism at both global and regional levels.

1. Global/ Regional Linkages

- Integrated coastal management at the local national regional and global levels;
- Mutually supportive institutional arrangements, particularly for implementation of the GPA.

2. Implementation Synergies

- Monitoring, surveillance, control, and enforcement;
- Co-ordinated approaches to developing national and regional networks of MPA's and habitat;
- Technology cooperation and transfer;
- Development of human resources and capacity building;
- Innovative methods for generating additional financial resources;
- Environmental Impact Assessment;
- Contingency planning and disaster management;
- Liability instruments;
- Integrated approaches to managing pollution and wastes;
- Integrated approaches to conserving fisheries and protecting their critical habitat from pollution and physical impacts.

3. Avoiding Duplication of Effort

- coordinated initiatives on common agendas such as methods of approach to MPAs or indicators.

COURSE CORRECTIONS

Several course corrections and recommendations related to ocean governance can be provided as an input to the World Summit on Sustainable Development:

- There is an important need to integrate the approach of Agenda 21's Chapter 17 with that of Chapter 18 (freshwater management).
- Particular attention should be paid by the WSSD to the cost and resource burdens of small nations and particularly islands trying to meet their commitments as parties to conventions.

In addition, the unsatisfactory results achieved by MEAs and the emergence of new ocean uses calls for better means to address a series of such issues as:

- Commercial fishing from an environmental perspective;
- The impact of high seas fisheries on marine species such as mammals and birdlife;
- Lack of sites on the World Heritage list nominated for their marine values;
- Coastal zone management and information;
- Impact of population, poverty and urbanization on coastal resources;
- The role of poverty and corruption in relation to environmental management practices;
- The failure to identify and make available alternatives to bad environmental practices;
- The failure to quantify and publicize the economic benefits of good environmental practices;
- Economic instruments and incentives;
- Practical indicators for measuring performance under the agreements; and
- Compliance and enforcement.

At all levels there is a need:

- to ensure full ratification, implementation, and enforcement, as well as harmonization of multilateral agreements on oceans and coasts;
- for greater communication, collaboration and coordination of international institutions and frameworks;
- to recognize that the complexity and scope of agreements has often meant that developing states have been prejudiced in their implementation due to a general lack of capacity or through excessive duplication of function;
- to achieve greater transparency, participation, and accountability in decision making; and
- to address the lack of attention to the integration of economic, social and environmental issues and new objectives in governance frameworks.

At the regional and national levels, there is a need:

- to develop integrated frameworks for the planning and management of coastal, watershed and marine areas;
- to develop legal and institutional frameworks that integrate multi-sectional concerns;
- to promote integrated implementation of global and regional oceans-related legal instruments, including those addressing trade and investment;
- to promote private and community involvement in the delivery of integrated policies;
- to ensure that national administrations demonstrate strong political will and engage fully in addressing their international responsibilities, for example, through national legal frameworks, managing their nationals in foreign and international waters, enforcement, and ensuring strong internal coordination;
- to address lack of attention to or poor drafting of enforcement provisions in legislation leading to difficulties in enforcing agreements;
- to recognize the difficulty citizens have in understanding governance mechanisms and taking appropriate action; and
- To promote regionally designed and driven multi-stakeholder fora to encourage and facilitate these actions.

For more effective implementation of the Regional Seas Program, several course corrections are needed:

- to channel UNEP programmatic support more effectively to the regional programs;
- to promote horizontal ties among regional seas conventions and action plans;
- to strengthen the linkages between the regional seas conventions and action plans and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA);
- to strengthen linkages between the regional seas conventions and action plans and global conventions and agreements, specifically the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), RAMSAR, the Global Plan of Action for Marine Mammals, the Basel Convention for the Control of the Transboundary Movement of Hazardous Wastes and Their Disposal, the IMO conventions and the Rotterdam and Stockholm Conventions on chemicals; and
- to review and ensure follow-up to the recommendations of the previous global meetings of regional seas conventions and action plans.

It would also be useful to identify and promote long-term (2015) international development targets applicable to oceans and coasts at national and regional levels, in particular for fisheries, land-based activities, and institutional capacity, and consider means to generate additional financial resources to

achieve those targets (e.g., partnerships with the private sector, possible international taxes).

Several recommendations related to ocean governance can be provided as an input to the World Summit on Sustainable Development.

RECOMMENDATIONS

General Issues

1. Implementation and coordination of International Agreements

- 1.1 Develop a common Global Vision for Oceans, Seas and Coasts which provides goals and objectives for governance, to which the multitude of international instruments and organizations contribute.
- 1.2 Undertake a broad diplomatic process for wider ratification and implementation of multilateral agreements related to oceans and coastal areas.
- 1.3 Encourage the joint implementation of clusters of international legal instruments and programs addressing oceans and coastal areas at global, regional and national levels, through for example:
 - Memorandums of understanding approved by governing bodies;
 - Joint work of scientific bodies;
 - Joint consideration of related agreements; and
 - Joint work programs.
- 1.4 Pursue horizontal cooperation among regions.
- 1.5 Establish and operate of effective monitoring, compliance and enforcement regimes to reinforce MEA implementation, including granting civil society the right to participate in and initiate enforcement actions.
- 1.6 Streamline national reporting around clusters of international legal instruments and programs addressing oceans

2. Regional/National Issues

- 2.1 Promote regional level ocean governance as an essential approach to pursue the sustainable development of oceans and coastal areas, to integrate global and local scales of governance, and to make progress toward ecosystem-based approaches.
- 2.2 Promote regional and national multi-stakeholder frameworks or fora to address sustainable management of oceans and coastal areas in an ecosystem context, including:
 - Develop integrated approaches to watershed, coastal and marine management;

- Promote integrated implementation of relevant regional and global legal instruments, including those addressing trade and investment; and
- Promote private and community involvement in the delivery of integrated approaches.

2.3 Encourage at national and sub-national levels the creation of legal and institutional frameworks for the formulation and delivery of integrated policy on sustainable management of oceans and coastal areas, in order to focus the attention of decision-makers.

3. Transparency, Participation and Accountability in Decision-making on Oceans and Coasts:

3.1 Promote informed decision-making at global, regional and national levels, including:

- Through transparent participatory processes;
- Based on scientific data, technical and local knowledge; and
- Respecting cultures, customary law and current capacities.

PART II. EMERGING ISSUES

In addition to the persistent challenges posed by global ocean governance, new issues are emerging and need to be addressed within a coherent framework for ocean and coastal governance. Emerging issues can be identified in six main clusters: i) Population-related and societal issues; ii) Environment-related issues; iii) Trade- and industry-related issues; iv) Issues linked to emerging uses of the sea; v) Science- and technology-related issues; and vi) Security-related issues.

POPULATION-RELATED AND SOCIETAL ISSUES

1. Population

By the year 2005, half of the world's population is expected to live in urban areas. As developed nations tend to be highly urbanized already, most of the increased urbanization is occurring in developing countries. Today, 9 of the 17 mega cities—cities with a population of more than 8 million—are located in Asia. These are Beijing, Bombay, Calcutta, Jakarta, Osaka, Seoul, Shanghai, Tianjin, and Tokyo. Cities such as Bangkok, Dhaka, Karachi, and Manila are also on the verge of becoming mega cities. By the year 2000, 13 of the world's largest cities will be located on or near the coast, most of them along the Asia-Pacific rim. The development of coastal cities in the Asia and Pacific region has strongly impacted marine and coastal environments, degrading their health and altering or destroying marine and coastal ecosystems. In this regard, the implementation of the Global Program of Action for the Protection of the Marine Environment from Land-based Activities (GPA) in a regional context is essential if the problems of coastal and marine pollution in coastal mega cities are to be

resolved. Integrated coastal management (ICM), including sustainable urban and coastal systems, should be recognized as the appropriate tool to effectively address the management and planning of coastal urban areas, and both the natural and social sciences should inform this process from start to the end.

2. Gender

Chapter 5 of Agenda 21 highlights the need to increase awareness of the fundamental linkages between demographic dynamics and improving the status of women, particularly through women's access to education, primary and reproductive health care programs, economic independence and their effective and equitable participation in all levels of decision-making. By paying more attention to ICM-Gender-Population linkages and partnering with gender and population organizations, coastal managers could benefit in many ways.

3. Indigenous People

The UN declared 1995-2004 as the International Decade of the World's Indigenous People, with a view to promote and protect their rights and their empowerment to make choices which enable them to retain their cultural identity while participating in political, economic and social life, with full respect for their cultural values, languages, traditions and forms of social organization. While progress is evident in many countries, there remains significant unresolved conflict regarding indigenous people's rights and interests throughout the world. Indigenous peoples' rights and interests with respect to coastal and ocean spaces and resources is an increasingly critical issue.

ENVIRONMENT-RELATED ISSUES

1. Invasive Species and Emergent Diseases

With the increasing volume and variety of marine transport, the number of non-native species being shipped around the world's oceans continues to increase; today, 10,000 species are estimated to be in transit around the world in the ballast water of modern vessels alone. Other marine species are being transported on the hulls of recreational yachts, on oilrigs, or associated with frozen fish products; yet others are being intentionally released as part of aquaculture projects or as a byproduct of the aquarium industry. Severe constraints related to both technology and costs limit action on this problem and certain changes can be made in the approach to regulation. To date the issue has been treated as a "single-issue" problem but it has much wider implications. It is also linked to the land-based pollution problem via non-point sources and its effects are double-edged, affecting both marine species and human health. In addition, recent evidence shows that other anthropogenic activities have resulted in increased outbreaks of emergent diseases in many marine species.

2. Adapting to Global Climate Change

The IPCC has demonstrated that the earth has warmed about 0.6 °C over the last century and will warm further as a result of anthropogenically emitted CO₂ and other greenhouse gases. A

warmer world will affect the temperature structure of the surface and sub-surface ocean with many important results for both humans and marine ecosystems. Successful adaptation strategies will require far more detailed results about impacts than we have now and considerable amounts of international cooperation concerning lessons learned and to be learned. In addition there is a need to proactively adopt policies that promote the use of non-fossil renewable energy sources and sustainable growth strategies for coastal populations.

TRADE AND INDUSTRY- RELATED ISSUES

1. Trade

While trade should be a means to create wealth that can then be invested in support of sustainable development, it can also have devastating impacts on coastal communities, coastal resources, and environmental conditions. New approaches such as eco-labeling and attention to processes of sustainable production in sectors such as aquaculture should be pursued to better balance trade and environmental needs. More problematic are the subsidies and other incentives to support ocean industries and activities that stimulate export trade but affect the oceans, for example through river and coastal pollution.

2. Tourism

As one of the major uses of oceans and coasts, coastal and marine tourism, can be a further source of stress on the marine environment, but it also has the potential to be a major instrument for the economic and social development as well as for the natural conservation of coastal/marine areas. A development that has turned out to be a severe problem for many coastal areas in the last decade is the increase in cruise ship tourism. The cruise ship business is the segment that has grown most rapidly during the last decade. The challenge, therefore, lies in a sustainable development and management of tourism that generates benefits for the local population and contributes to the sustainable development of coastal and marine areas.

3. Decommissioning of Offshore Oil and Gas Installations

An important issue relating to sea-based pollution and maritime safety concerns the decommissioning of offshore oil and gas installations (there are about 7,000 around the world and many are expected to be decommissioned in the near future). Decommissioning involves issues of cost, technology, health, safety, and environment. Rules and standards for the decommissioning and disposal of offshore installations have been adopted under the London Convention, 1982. UNCLOS requires state parties to adopt national legislation no less effective than those global rules. However, some issues, such as disposal of marine debris and the removal of pipelines have still not been addressed. Also not addressed yet at the global level is the question of control of pollution from exploration and exploitation.

4. Ports

Today, fully 90 percent of international trade is carried by sea. This trend has had its effect upon ship size. Around 7,700 TEUs are carried on today's mega-carrier, which is about 347 meters in length and has a beam of 43 meters. Shipbuilders and ship owners are considering plans for the design of mega-ships of 15,000 TEUs. As both the magnitude of trade and the size and capacity of ships increase, large changes are implied in the location and in the operation of ports. These changes may generate significant shore-based and marine environmental effects, including exacerbating the invasive species problem.

5. Recycling of Ships

The lifespan of ships is on the order of 25+ years, with oil tankers having a maximum lifespan of 25 years. Upon termination of service, ships are recycled in facilities located predominantly in India, Bangladesh, China and Pakistan. The global structure of the world fleet makes this activity a common responsibility. Three aspects are particularly important: the condition of the ship delivered for recycling, the waste produced during the recycling and human health/ workers safety aspects in the recycling facilities. The IMO, ILO and UNEP are looking into these three aspects, aiming at developing specific guidelines.

NEW USES OF THE SEA

1. Exploring and Exploiting Deep Sea Resources

As coastal resources are depleted, coastal states and distant water fishing fleets tend to expand their operations beyond national jurisdiction. Where regional agreements do not exist, or fishing states are not party to them, it is the responsibility of the flag state to insure that fishing is carried out in keeping with the UN Convention on the Law of the Sea and, if applicable, the 1995 Fish Stocks Agreement. Flag states should ensure that the precautionary approach is applied to such activities.

Concerning prospecting, exploration, and exploitation of deep-sea hydrocarbons beyond national jurisdiction, a similar responsibility lies on both the "flag-state" and the International Seabed Authority to enact measures to protect marine ecosystems.

2. Genetic Resources of the Deep Seabed

In both areas under national jurisdiction (EEZs) and in the high seas hydrothermal vents and their biological communities are potentially threatened by seabed mining, marine scientific research, biological sampling, and bioprospecting. Like polymetallic nodules, polymetallic sulphide deposits are not currently economically exploitable and the most immediate threat to hydrothermal vent systems and their associated biological communities is marine scientific research. In this context, voluntary approaches, such as self-policing, initiated by researchers may be the most expeditious way to minimize the conflicts and environmental impacts marine scientific research activities may pose.

3. Underwater Cultural Heritage

In addition to protecting underwater cultural heritage from activities directed at it, such as looting, states are also required to protect it from marine activities that might adversely affect it, such as fishing, oil and gas exploration and exploitation, and the laying of cables and pipelines.

4. The Implications of Expansions in Marine Aquaculture.

The very rapid expansion of marine aquaculture in estuaries and coastal zones raises questions about sustainability and the need for regulation. Concerns include the potential dissemination of non-native species and genetically modified species.

5. Marine Eco-Tourism

Recent years have seen the expansion of tourism which has as its focus "experiencing" marine organisms or habitats. These activities raise issues of management for sustainability. Codes of conduct are being developed, e.g., for whale watching (www.wcds.org), but greater international co-operation is called for.

SCIENCE AND TECHNOLOGY

Good policy is based on good science. Good science requires greater international cooperation than currently exists. Producing scientifically credible quantitative assessments of the status, condition or health of coastal marine and estuarine ecosystems on regional and global scales is a challenging and difficult task. To this end, the Global Ocean Observing System (GOOS) is an important component of the total required international effort and greater support is required. Extended sponsorships and partnerships are required as well as through capacity building programs such as the System for Analysis, Research and Training (START).

SECURITY

1. Piracy and Armed Robbery at Sea

Incidents of piracy and armed robbery at sea continue to grow—more than 2000 accidents since 1984—causing harm to seafarers and posing threats to the safety of shipping and, consequently, to marine and coastal environments and to the trade carried by sea. Most accidents have occurred in territorial waters while the ships were at anchor or berthed. This makes it essential to give higher national and international priority to efforts to eradicate these crimes, which are often the result of transnational crime. Effective responses to incidents of piracy and armed robbery at sea must be based on measures for prevention, for reporting incidents and for enforcement, including the training of enforcement personnel and the provision of enforcement vessels and equipment.

2. Peace and Security

The promotion and regulations of peace and security in the oceans still require efforts from the international community. Peace and security would be advanced by widespread implementation of the provisions of the Law of the Sea Convention.

RECOMMENDATION

International, regional and national governance frameworks should develop as appropriate, existing or new legal instruments and measures to address emerging issues including those beyond national jurisdiction. The use of codes of conduct, protocols and charters should be considered.

ANNEX ONE—REGIONAL CONVENTIONS AND AGREEMENTS

Mediterranean

In the Mediterranean, the Barcelona Convention (1976), the oldest of the Regional Seas Programme agreements, was revised in 1995 to broaden its geographical area of application to the coastal region and include sustainable development and integrated coastal management among its goals and objectives. The Barcelona Convention system has also given birth to the Mediterranean Commission on Sustainable Development (MCSDD), which includes official representation from ministries of development and economic affairs, environmental administrations, sub national and local authorities, as well as coastal economic interests and NGOs. In the Mediterranean, ICM has been actively promoted by UNEP as the appropriate framework to address issues related to coastal protection and development in an integrated way. The Mediterranean Action Plan (MAP) has also engaged in the promotion of transfer of environmentally sound technologies through a regional activity center.

North East Atlantic

In the North East Atlantic, the OSPAR Convention has been able to catalyze government and public opinion around the importance of the common interests that they share in the marine environment, the elements that are needed for cooperation at the regional level, the ingredients that are needed to bring these various elements together, and the problems that have to be overcome. Events such as the accidents of the Torrey Canyon, Stella Maris, and Brent Spar have played an instrumental role in this. The emergence of the OSPAR long-term Strategies and the broadening of the OSPAR Convention to cover all human activities have enabled this regional regime to deepen its scope and become more effective.

The Pacific

The Pacific Islands community is committed to protecting the quality of life of its people and the integrity of the environment with which island life is inextricably intertwined. There has been significant progress among Pacific Island Countries (PICs) in addressing the challenges relating to sustainable use of coasts and oceans, much of it due to effective regional coordination. It would be impossible for PICs to cope individually with the common regional issues and the increased impact of global climate and economic problems. The support of the regional organizations is critical as island countries struggle to achieve economic development while maintaining the integrity of the natural

environment on which they so heavily rely and protecting their quality of life. Since UNCED, PICs have responded by strengthening this regional framework by the establishment of the Council of Regional Organizations of the Pacific (CROP). Under the CROP umbrella a series of cross-agency sectoral working groups ensure collaboration on regional issues and activities. Ocean and Coastal matters are addressed through the CROP Marine Sector Working Group established in 1997. Other relevant WGs include Trade & Economic Development and Human Resource Development.

The Arctic

The Arctic Council, an intergovernmental forum for Arctic states, represents a unique regional regime for cooperation among governments and indigenous peoples. The Arctic Council has a very light administration and no obligatory funding. In 1998 The Arctic Monitoring and Assessment Program delivered a science-based Assessment Report on Arctic Pollution Issues. This report has strongly influenced the global negotiations on POPs and heavy metals. The Stockholm Convention on POPs 2001 is a significant step forward for the protection of the Arctic environment and for people living in the Arctic, who are dependent on harvesting as a central source of livelihood. The Arctic Council has adopted a Regional Plan of Action, which follows the UNEP methodology on the Protection of the Marine Environment from Land-based Activities. In June 2001 a report on the status and conservation of Flora and Fauna was prepared. The most important current project for the time being is the Arctic Climate Impact Assessment (ACIA). Based on scientific advice and knowledge provided by indigenous peoples, the Council contributes to a better knowledge base for decision-making. Political recommendations are agreed upon unanimously. Much of the implementation is done by the Member States themselves and appropriate international organizations. The ambition is to integrate sustainable development principles into all activities and projects under the auspices of the Arctic Council.

Working Group 1 Participants

Sian Pullen	World Wildlife Fund (Chair) Part 1
Edward Miles	University of Washington (Chair) Part 2
Lee Kimball	Independent Consultant (Rapporteur)
Charlotte de Fontaubert	Greenpeace USA (Facilitator)
Milen Dyoulgerov	Consultant (Facilitator)
Anahita Marker	University of Delaware (Secretariat Contact)
Patricia Birnie	London School for Economics and Political Science
Byron Blake	The Caribbean Community
Sally Brandel	U.S. State Department
Simon Cripps	WWF International
Louise de La Fayette	The World Conservation Union, UK
Chiara Della Mea	Central Institute for Marine Applied Research

Jeremy Firestone	University of Delaware
David Freestone	World Bank
BA Hamzah	Maritime Consultancy Enterprise (Mariconsult), Malaysia
Arthur Hanson	Department of Fisheries and Oceans, Canada
Jens Koefoed	International Maritime Organization
Barbara Kwiatowska	Netherlands Institute of Law of the Sea
Carl Lundin	The World Conservation Union (IUCN)
Thomas C Malone	University of Maryland
Elizabeth McLanahan	National Oceanographic and Atmospheric Association, USA
Ashley Naidoo	South Africa Department of Environmental Affairs and Tourism
Satya Nandan	International Seabed Authority
Mary Power	South Pacific Regional Environment Program
Lorena Aguilar Revelo	The World Conservation Union (IUCN)
Joe Schittone	UNEP/GPA Office
Mark Simmonds	The Whale and Dolphin Conservation Society
Sunil Shastri	University of Hull, UK
Dean Swanson	U.S. National Marine Fisheries Service
John van Dyke	University of Hawaii at Manoa
Marjo Vierros	Secretariat of the Convention on Biological Diversity
Kelly Vodden	Simon Fraser University, Canada

Working Group 2

TARGETING DONOR AID AND PRIVATE SECTOR

BACKGROUND

Since 1992 there has been increased donor assistance for interventions in coastal and marine resource management; whether in the formulation or improvement of policy and institutions or in the design and implementation of targeted investments. There are currently 100 coastal nations that have developed some type of integrated ocean or coastal management (IOCM) initiative either at the national or local level. This indicates a doubling of effort in IOCM, when compared to initiatives in 1993, when only 57 coastal states had launched such initiatives at the national or sub-national levels. It is significant to note that most IOCM initiatives in less developed nations have been supported by the donor community, often as a means of addressing serious poverty problems in coastal areas.

ACHIEVEMENTS

Donor and private sector support for IOCM increased significantly over the last decade, with some regions such as Latin America, totaling approximately \$1.3 billion. The type and scope of donor and private support for IOCM initiatives around the world vary. At times, donor support has been targeted directly to the national government of the recipient country or their regional organizations, while at other times, the funding has been directed to local coastal communities, often to avoid perceived inefficiencies at the central government level. Certain other funding has been targeted through a coordinating body, whether national or regional. While some donor funding supported the development of policy and institutional frameworks on a national or regional level, other funding was directed towards related sectoral initiatives, including coastal erosion control, fisheries, biodiversity management and ports rehabilitation. Some support was directed at fostering awareness and information on coastal issues management, while other funding promoted partnerships for participatory planning and investments for coastal development.

CONSTRAINTS

There is, in theory, no shortage of funds for economically viable projects. However, donor funding is constrained by 1) lack of awareness, which translates into lack of political will; 2) ocean and coastal related agencies being at an early stage of development do not receive adequate financial or other resources; and 3) lack of ability to conceptualize and develop viable projects.

While international support for IOCM initiatives around the world increased significantly, challenges persisted at many different levels, posing obstacles to implementation. These challenges included problems of governance, single issue orientation and limitations in scope and financing.

While UNCED emphasized the interconnection of environment and development issues, the focus of donor aid is often tied to a single issue, whether biodiversity, vulnerability to cli-

mate change or addressing coastal erosion. Typically there will be many such "single issue" projects funded by multiple donors in the same national context, with few connections among the projects. The challenge is to create synergy among such projects so that they are woven into a comprehensive integrated coastal and ocean management effort.

Some of the donor funding over the last decade was channeled through the Global Environmental Facility (GEF), whose mandate is to focus on global issues, e.g., biodiversity, pollution of international waters and climate change. These priorities however, are not necessarily the priorities of developing countries who often find the processes and procedures are cumbersome and excessively bureaucratic. In such situations the lack of political buy-in leads to unsustainability of the intervention after the external support is terminated.

Many donors have opted for funding small-scale pilot projects in coastal management covering only a small geographical area, in the hope that such projects will provide a demonstration of Integrated Coastal Management (ICM) approaches and methodologies which will ultimately be "scaled up" to include other parts of the nations coastal zone. Unfortunately there is considerable evidence that scaling up is difficult. Hence, in many settings much attention may be devoted to the management of a particular bay while the rest of the nation's coastal zone is subject to unguided development in the absence of a coastal policy framework. Donors and others should consider the results of these pilot approaches and consider supporting a coastal management strategies that address issues at all levels, regional, national and local.

Lack of institutional capacity for planning and management of IOCM is a challenge in most parts of the developing world. Donor-funded efforts in capacity building have supported many short term training courses in ICM organized by various entities in different locations. While these courses have served to build the information base of local participants, they have often not resulted in developing a new cadre of professional ocean and coastal managers. Instead, local universities must be assisted in building up their capacity for creating and administering education programs as centers of excellence in IOCM. Networks of universities might be tied together in regional consortia to achieve cost-effectiveness.

Finally, issues of governance including inefficiency and lack of accountability at different levels of government pose challenges to implementing IOCM initiatives. Even where a sound policy and regulatory framework for IOCM exists, and sound programs are designed with support from public and private sources, problems of governance pose significant obstacles to achieving desired outcomes. Waste of time and resources, exclusion of the powerless and uncontrolled unsustainable practices in resource management are often the outcomes in such situations. Broad

public participation in the planning and implementation of ocean and coastal initiatives, modalities for ensuring transparency and accountability in the decision-making processes are some measures that may make a difference in such situations.

WHERE DO WE WANT TO BE IN 2012?

RIO + 10 should ensure that OCM proceed towards a climate where external financial support can be better balanced with local-national, public and private sector incentives and initiatives and implementing capacity, supported by equitable governance structures. There should be a structured phasing in of the domestic public sector and private capital (both domestic and international). A pre-requisite for this, is a better greater understanding of coastal-marine ecological processes, institutional, societal and equity issues, and their interactions.

The coastal areas of the developing world are often the source of livelihoods of the last resort and disproportionately support the world's poorest citizens. A global vision and ethic of OCM must focus on the common property nature of many coastal and oceanic resources and hold governments primarily responsible for improved IOCM.

DONOR-RECIPIENT RELATIONSHIP

The principal role of donor assistance is to partner with national governments and their citizens to establish and build the 'enabling environment' for an emergent public-private partnership for IOCM. The enabling environment comprises effective and transparent institutions, and appropriate management tools that will sustain political will, government commitment, public demand, and private sector response for improved protection and sustainable use of coastal and ocean areas.

In order to better target donor support, such support should be directed in support of national plans and strategies of the recipient country. If the recipient country is willing to provide the framework and continuity, the donor agencies can furnish the facilitation, support and improvement of key elements of such frameworks, strategies and action plans. Relevant technical and financial international organizations should cooperate in providing the developing countries with access to technical advice and information about effective management regimes and about the experience from such arrangements.

If donor support for sustainable coastal and marine resource management is to actually meet its goals, it must be Sustained, Effective, and Accountable. Funding for projects and programs must be sustained over long periods of time, beyond the 3-5 years project cycles common to donors and government agencies. Towards this end, further development of endowments and trust funds should be pursued and market based mechanisms. Donor support will depend on demonstrated objective, quantitative, and independently verifiable measures of success, as well as all elements of good governance.

RECOMMENDATIONS

1 Capacity Building in Integrated Ocean and Coastal Management (IOCM)

1.1 Donors need to assist in building capacity across the critical disciplines of social and natural sciences, including the critical areas that influence decision makers – economics, law, policy and politics. The role of women is critical for sound decision making for marine and coastal management. Awareness has to be developed from primary schools level to tertiary educational institutions and society at large. Such training should be shared within and between regions.

1.2 The operational tools for IOCM are also lacking in developing countries as they continue to lag behind the rest of the world in access to the Internet and provision of adequate computing power to gather and process information and data. This is hindering the efficient exchange of knowledge on successful (and unsuccessful) lessons and mechanisms for IOCM.

2 Moving from Pilot Projects to Comprehensive National Programs

2.1 There is a need for cooperation amongst donors and governments to ensure that IOCM activities are conducted or integrated across more appropriate temporal and spatial scales for enhanced efficiency. While many small pilot projects are very successful within their sphere of operations, they need to be more integrated into national processes in order to capture and expand the lessons of success. The scales of operation need to reflect the critical nature of marine and coastal ecosystems, in order to highlight the interconnectivity between these ecosystems.

3 Multilateral, Bilateral and Other Sources of Financing

3.1 Funding mechanisms for ocean and coastal management need to be more accessible and adapted to local conditions. Hence phased financing involving a greater role for government as well as the private sector to ensure the sustainability of programs. Market-based incentives should be identified, to cover the full range of ocean and coastal issues.

3.2 In recognition of the complexity of processes and procedures for accessing funds from financing institutions such as the Global Environmental Facility (GEF) for addressing coastal and marine issues, it is recommended that transparent operational guidelines and eligibility criteria be developed for mobilizing such funds. For example:

- With regard to resources from the GEF, clear guidelines should be developed for integrated ocean and coastal management (e.g. Operational Programs: OP2 on Biodiversity; OP 8, OP9 and OP10 on International Waters; and OP12 on Integrated Ecosystem Management).

- Eligibility for grant funding for ocean and coastal management should be based on a certification system verifying the economic viability, environmental soundness, social acceptance, political commitment and transparency in decision-making processes.

3.3 Special financing mechanisms should be set up for addressing ocean and coastal issues. Such funds should be at the regional level and regional entities could administer "Small grants" of usually less than \$25,000 per project to: (a) build capacity, particularly at the provincial or local level and in nongovernmental organizations to implement ocean/coastal interventions in support of national/regional ocean/coastal policy; (b) disseminate good practice; (c) prepare larger project/program proposals in ocean/coastal management.

3.4 There is wide recognition that the regional scale of ocean management is an essential approach to pursue sustainable development of the oceans and to integrate the global approaches with local issues, to achieve ecological integrity, economic efficiency and social equity. The GEF supports regional ecosystem approaches to recover depleted fish stocks and degraded habitats, so as to improve socioeconomic benefits from the shared resources of large marine ecosystems. These programs aim to foster priority transboundary issues responsive to the objectives of the CBD, GPA and the UNFCCC. The Third Replenishment of the GEF should support the wider adoption and implementation of such ecosystem approaches in the coastal and marine realm.

4. Improved Knowledge Management in Oceans and Coastal Management

4.1 Donors should proceed from simple knowledge sharing, whereby there are informal mechanisms to facilitate more effective inter-donor coordination in OCM towards true knowledge management, that ensures that the information and technologies are made readily available and useful. Such a system should permit donors to gather and share information on donor and national projects with all major issues, themes, locations (regions and countries), duration and scales emphasized.

5. Private Sector

5.1 Economic incentives, market forces and informed consumer demand are essential to sustainable development of oceans and coasts.

5.2 The response of the private sector to its responsibility to provide environmentally and social sustainable goods, services and practices in oceans and coastal areas will be facilitated by:

- Public/private partnerships;
- Appropriate regulations, policy and programs;
- Catalytic seed funding for industry transformations;
- Public commitment by companies and industry associations;
- Third party certification of ocean and coastal efforts, e.g. UNCED, UNCLOS, CBD; and
- Private sector participation in intergovernmental negotiations on oceans and coasts, e.g., UNCED, UNCLOS, CBD.

Working Group 2 Participants

Indu Hewawasam	World Bank (Chair)	Lennox Hinds	Canadian International Development Agency (CIDA)
Peter King	Asian Development Bank (Facilitator)	Paul Holthus	Marine Aquarium Council, USA
Olof Linden	Global International Waters Assessment (Rapporteur)	Geoffrey Lipman	Green Globe 21, UK
Evelia Rivera-Arriaga	Universidad Autonoma de Campeche, Mexico (Secretariat Contact)	Philip Reynolds	United Nations Development Programme (UNDP)
Christos Fragakis	Commission of European Union	Hiroshi Terashima	The Nippon Foundation, Japan
David Freestone	World Bank	Richard Volk	U.S. Agency for International Development
Peter Greim	Frozen Fish International, Germany	Clive Wilkinson	Australian Institute of Marine Science

Working Group 3

ASSESSING AND MANAGING THE MARINE ENVIRONMENT

BACKGROUND

1. The Coastal Marine Environment at Risk

Human resources are concentrated near coastal marine and estuarine systems and the number of people living in coastal drainage basins is rapidly increasing. Human demands on the coastal system to provide commerce, recreation, and living space will continue to exert an intense pressure on the coastal system.

There is universal concern about the rapid and serious deteriorations of coastal environments. Fisheries are declining with 60 percent fully exploited or over-fished. Coastal pollution is a growing issue worldwide. Nitrogen from land-based sources is a growing threat despite attempts to mitigate point source discharge. Serious gaps exist in the collection and interpretation of scientific data related to ocean and is generally inadequate for the assessment of coastal impacts and environmental changes over all scales.

Natural hazards as well as food safety associated with aquaculture, sanitation, sewage disposal, and freshwater contamination are becoming critical issues in many countries. Rapid global climate change is also generating increasing risks and reducing margins of environmental safety for the survival of marine species, for many coastal areas, small islands and low-lying countries.

Although coastal management continues to be mainly sectorally focused, important progress towards an integrated approach has emerged at the global level through the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (UNCLOS). The Global Programme of Action on Land-Based Activities (GPA-LBA) is also moving in this direction and the work of the ACC sub-committee on Oceans and Coastal Areas involves all relevant United Nations bodies, serving as the Task manager for Ch.17. of Agenda 21.

2. Intergovernmental Initiatives (1992-2001)

A number of initiatives have been taken by the intergovernmental agencies, which will provide a framework for the global application of scientifically based and coordinated action. These include:

- Global Ocean Observing System (GOOS) - introduced by the IOC in 1991 and co-sponsored by WMO and UNEP;
- Global Coral Reef Monitoring Network (GCRMN);
- UNEP Regional Seas Program;
- Large Marine Ecosystems (LME) - introduced through the Global Environmental Facility in the UNEP framework;
- Global International Water Assessment (GIWA) - led by UNEP; and

- E.C. Water Framework - introduced by the European Union (Nov. 2000).

3. Scientific Programs

There are several programs that have been launched on a global scale to study the interaction of the biological, chemical, and physical process, viz.

- International Geosphere Biosphere Program (IGBP);
- Joint Global Ocean Flux Study (JGOFS);
- Global Energy and Water Cycle Experiment (GEWEX);
- Global Ocean Ecosystem Dynamics (GLOBEC);
- Land Ocean Interactions in the Coastal Zone (LOICZ); and
- World Ocean Circulation Experiment (WOCE).

The last decade has seen the completion of the WOCE, which has provided the first near-complete picture of the dynamics of the whole world ocean, and defined its role in the global climate system. The data assembled under WOCE has enabled the initialization and validation of ever-improving numerical models of the ocean in the coupled ocean-atmosphere system with the prime objective of climate forecasting.

4. The Global Ocean Observing System (GOOS)

Effective management and sustainable use depends on the ability to continuously detect and anticipate changes in environmental status on national to global scales. GOOS is intended to provide an international framework for integrating, coordinating, and enhancing ocean monitoring activities worldwide on a planned, timely, quality-controlled, sustained and operational basis. As such, it embraces the economic and environmental applications of marine data and enables these applications to be better linked with scientific research, so becoming an essential underpinning for managed sustainable development in coasts and oceans. GOOS is also a part of an integrated strategy for global observation and the common implementation tasks relevant to ocean and climate that have led to the creation of a joint IOC/WMO Commission for Oceanography and Marine Meteorology (JCOMM). Importantly, GOOS is mainly to be built on existing observing activities and organizational entities.

GOOS has been divided into two thematic areas, each developed by their own expert panel:

- An Ocean and Climate Theme focused upon physical observations, especially relating to oceanic influences on weather and climate. This theme is already partly developed and critical pilot activities are underway to test its operational feasibility. However, further national commitment will be needed for its full implementation;

- A Coastal Theme focused on the rapid detection and timely prediction of environmental phenomena affecting public safety, well being, and the health of marine ecosystems, and the sustainability of living marine resources. Due to the complexity, the variety of variables to be included and the lack of pre-existing observing systems on which to build, the development of this theme is proceeding more slowly and with less national commitment.

The mechanisms for national and regional development are emerging in the form of national GOOS programmes and regional GOOS alliances that allow systems to be tailored synergistically to regional concerns and capability while benefiting from the global framework.

ASSESSMENT OF THE MARINE ENVIRONMENT

1. The Need for Coastal Assessment

Coastal oceans are dynamic and complex. Many of their controlling mechanisms are understood in principle only. Others, such as cross-shelf transport and water formation mechanisms, are poorly understood or even remain to be identified. The coasts of the most developed nations are relatively well explored. While, most coasts of developing countries or located in remote and hostile environments await exploration.

Why should we focus on the coastal ocean? Because a large number of the human population is concentrated along the coast and this population is increasing rapidly. As the population increases, the demands on the coastal ecosystem increase to provide more commerce, recreation, and living space from a limited resource. Thus, we must better understand the coastal ecosystem in order to make better decisions that ensure the coastal resource is managed using best management practices.

International conventions and initiatives have been convened in order to enable improvements in environmental protection, resource management, and conservation on a global scale. Protecting the coastal ocean is not just the responsibility and effort of one nation alone. The protection of the ocean requires the attention and effort of all nations together because the ocean is fluid and does not respect political boundaries. With this in mind, we should unite to achieve the goal of assessing our individual nation's coastal oceans in a systematic, quantitative, accurate, and periodic method in order to use this information in making coastal management decisions.

2. Research in the 21st Century

Biogeochemical cycles, sediment fluxes, and ecosystem dynamics will set the scene for a new realism in research on both interdisciplinary processes and regional dynamics in the next decade. Priority areas of application include eutrophication, functionality and stability of ecosystems, harmful algal blooms, habitat modification, and regime shifts. New observational techniques, both remote and in situ, and coastal interdisciplinary numerical modeling with data assimilation are rapidly evolving. Emerging novel concepts, contemporary scientific

results and research, a new generation of observational platforms and sensors and the advent of realistic modeling on multiple scales provide the basis for powerful four-dimensional (space and time) field estimations in regions of the global ocean.

3. Developments

A first generation of Coastal Ocean Observing and Prediction Systems (COOPS) are just now being established in several regions off the coasts of scientifically advanced nations, and a symbiosis with the global ocean observing system (GOOS) as it becomes implemented in the coastal zone is likely. COOPS will provide an entirely new level of quantitative support for the management of multi-use coastal regions and exclusive economic zones.

4. Climate and Global Climate Change

Climate variability and global climate change have an impact on human activity and the marine environment. The world ocean plays a fundamental role in determining the climate pattern by redistributing heat and freshwater around the planet. It also has an influence on coastal seas through such events as sea level rise, carbon sequestration, the food web structure, biodiversity.

During the past decade, research on global ocean circulation and its interactions with the atmosphere and marine ecosystem dynamics have resulted in a new level of understanding of the mechanisms underlying global processes. This next decade of research should produce a synthesis of the interactions of these processes, enhance the predictability of climate dynamics and global change and provide the basis for the management of the interdisciplinary global ocean, especially with respect to the regulation of anthropogenic activities.

5. Pressures and Changes in the Marine Environment

Coastal waters have continued to decline in environmental quality due to pollution and contaminant from predominantly land-based sources (See Section 2.6). This reflects the continued growth of coastal cities and townships, increases in coastal tourism, industrialization, expansion of fish farming and aquaculture, and port developments. Constructing dams and altering river drainage systems and extracting water for agriculture have drastically changed flow of water to the ocean and associated suspended loads. In some regions with decreased flows, this is leading to coastal erosion with impacts on social and economic conditions; in other regions, ineffective management of agricultural, deforestation and land use changes in river catchments is yielding excessive loads of sediments and nutrients (especially nitrogen and sewage) impacting on coastal marine ecosystems and habitats.

5.1 There are two major pollution issues in the coastal zone:

(A) Nitrogen Management in Food and Energy Production

Humans have dramatically altered the Earth's nitrogen cycle, doubling the amount of newly fixed nitrogen entering terrestrial and coastal marine ecosystems. This increase relates to the

large amount of nitrogen fertilizer used to grow food for the increasing world population and to the combustion of fossil fuels supplying energy for an increasingly industrialized society. While increased production of food with high nutritional quality and the production of energy are highly beneficial to humans, increased nitrogen has numerous negative effects on:

i) Human Health

- cancer risk from nitrate contaminated drinking water;
- increased cardiac disease and stroke risk from diets that are increasingly rich in meat (whose production depends upon the greater use of N fertilizer);

ii) Environment

- depletion of stratospheric ozone by N₂O emissions;
- tropospheric ozone-induced injury to crops and forests;
- biodiversity losses in terrestrial and aquatic ecosystems;
- acidification in freshwater ecosystems; and
- eutrophication and hypoxia in estuaries and coastal ecosystems.

Nitrogen is now considered the biggest pollution problem in coastal waters.

(B) Sewage and Health Hazards

Sewage contamination of the coastal marine environment is leading to significant increases in the incidence of human disease. These include:

- Infectious diseases related to bathing and swimming in coastal waters contaminated with wastewater discharge;
- Infectious diseases involving the consumption of seafood harvested from these coastal waters; and
- Diseases associated with the contamination of shellfish and other seafood and toxins from toxic algal blooms.

The impact of sewage in economic terms is large, reaching billions of USD annually.

6. Management

Since UNCED, there has been increasing recognition that changes in living marine resources, water quality, the character and extent of habitats, and biodiversity are related and that the effects of human activities on them can be most effectively managed in an ecosystem context. For example, overfishing of primary consumers (e.g., filter feeding bivalves and fish that consume phytoplankton) can exacerbate the effects of anthropogenic nutrient inputs on water quality (e.g., oxygen depletion of bottom waters) and habitat loss (e.g., coral mortality) just as the loss or modification of essential fish habitat can reduce the carrying capacity of ecosystems for fish populations and increase the susceptibility of coastal ecosystems to eutrophication. Thus, ecosystem-based approaches are needed for the formulation and implementation of environmental policies that encompass and integrate the management of land-use practices (control of land-based sources of pollutants), utilization of

marine environments, and living marine resources. Such approaches can only develop through sustained observations of the marine environment and scientific advances in the understanding of the structure and function of marine and estuarine ecosystems with particular emphasis on the interdependence of physical processes and the dynamics of species populations, predator-prey interactions, and nutrient cycling.

An integration of scientific knowledge into ocean and coastal governance processes is an adaptive and multi-layered process. It requires all stakeholders to be actively involved in the management and decision making process including, governmental organizations, non-governmental organizations, and the private sector. The use of integrated assessment allows complex issues and their interrelationships to be considered out at different spatial scales (local to global), time scales (short to long-term) and different domains (socio-cultural, economic, environmental, institutional) in order to present multiple scenarios from different perspectives. These multiple scenarios can be used by decision-makers in choosing the most desirable management option.

CONSTRAINTS AND CHALLENGES

New observations and discoveries are expected in the coastal ocean. Recently, it was established that coral reefs occupy only one tenth of one percent of the oceans, a figure much smaller than previously estimated. Similar discoveries will be made that will change many long held facts. The discoveries will be met by many challenges including, fisheries management, developing sustainable use without peace and security, and organizing international agreements.

The fisheries challenge is how to manage the sector to ensure sustainable utilization, i.e., prevent over-exploitations (FAO Code of Conduct) and ensure sustainable options for aquaculture. Similarly, the human pressures exerted on the coastal domain require advent of effective management processes coupled with assessment programs such as COOP.

However, can sustainable uses and developments be achieved without peace and security? Security now has economic and environmental dimensions and therefore an integrated response is necessary. Regional co-operation is a possible option. Joint regional surveillance and enforcement programs are already in operation and more are in their development stages.

The shift of population towards the coast, the urbanization, the change of economic paradigm to a service economy and the concern for global change, all have led to a current focus on the land-sea interface, the coast and the ocean, the ocean services and economics, the need for a related education and appropriate mechanism to achieve that, including the necessary enhancement of awareness and participation. While the ocean is a last resource to help address poverty and inequality, poverty and ignorance are also main obstacles to solving the problems.

RECOMMENDATIONS

1. Issues

Coastal ecosystems (from estuaries to the seaward limits of the EEZ) are increasingly and inadvertently being altered by human activities. The production of food and energy and the pressures of human population are directly linked to these alterations and some attempts at direct manipulation of the coastal environment are now underway without adequate management and regulation.

The world ocean plays a fundamental role in controlling atmospheric climate. In turn, climate variability and global climate change affect human activities and the marine environment.

The effective management of coastal and oceanic ecosystems in this changing environment will require the causes and effects of these changes to be fully understood.

2. Status

Over the past decade ocean science and technology have advanced very rapidly. New concepts and methods for observing and predicting the ocean now provide a technical basis for effective assessment and management of the coastal environment. Furthermore, the growing capacity to acquire, disseminate and analyze environmental data in near real-time should enable the scientific community to provide timely and quantitative advice to aid in decision making and rapid response.

3. Vision

A major challenge for the next decade is formulation and implementation of comprehensive environmental policies for integrated management of the marine environment and its natural resources. Meeting this challenge requires: (i) significant advances in the acquisition, analysis, and synthesis of interdisciplinary environmental data; and (ii) the establishment of mechanisms to enhance the exchange of data and information between the science and management communities. A central element is the implementation of an operational observing system that is adequate for the detection of changes occurring in the marine environment from estuaries to the deep sea and the development and application of modeling and forecasting techniques to achieve operational capabilities analogous to weather prediction.

4. Actions

The recommendations below are made to enable nations and regions to more effectively meet the mandates of multi-lateral conventions and agreements today and in the future by strengthening, promoting and improving joint science-management actions. They will also provide the information needed to "cluster" these agreements regionally for more effective implementation. In this regard, it is noted that enhancement of national and regional capacities for implementation is crucial and urgently needed.

Action 1:

Considering the need to detect and predict changes in the coastal ocean in a more timely fashion and with greater skill to meet the needs of integrated management and other applications, high priority should be placed on continued development and expansion of the Global Ocean Observing System with particular effort applied to the implementation of the coastal components of that system from estuaries to the limits of the EEZ.

This system is essential to provide the data and information required to (i) routinely produce quantitative assessments and predictions of changes in the status of marine ecosystems, public health risks, and the sustainability of exploitable living marine resources, (ii) improve operational marine services and forecasts and (iii) predict the effects of global and basin scale climate events (e.g., ENSO) on coastal ecosystems and society. It must enable all nations to contribute to and benefit from the observing system, and it must be designed to adapt over time to accommodate the evolving needs of user communities (the environmental and resource management community, NGOs, private enterprise, the science community, and educators) and to incorporate new technologies and knowledge.

Marine and estuarine environmental issues of common regional concern can be aided through the formation of regional alliances (for example, GOOS Regional Alliances enable the address of specific observational needs among groups in the service of regional conventions and agreements) as a means to (i) build a global federation of regional observing systems, (ii) stimulate capacity building enabling all nations to contribute to and benefit from the system, and (iii) support pilot projects that contribute to this process. Particular emphasis should be placed on projects that provide integrated assessments and scenario-based options for management actions.

Action 2:

Advance the scientific understanding of interactions among marine, terrestrial and atmospheric systems and of how human activities influence these interactions through synthesis and improved understanding of (i) the ocean-climate system and of (ii) coastal systems that are affected by the ocean-climate system and land-based human activities as follows:

- Enhance the predictability of climate variability and change to provide the basis for decision-making for adaptation to and mitigation of global change, based on data and information provided by a global ocean observing system that is integrated, interdisciplinary, and operational. The system must include sustained satellite missions, in addition to both broad scale and long time series of in situ observations; and
- Achieve and advance the comprehensive, interdisciplinary understanding of the dynamics of coastal systems with the goal of developing a robust classification scheme that will enable more effective detection and prediction of changes in coastal systems on local, regional and global scales. Such a scheme must be based on an understanding of the dynamics

of coastal systems and the forces impinging on them from the ocean basins, coastal drainage basins and the atmosphere.

Action 3:

Improve the linkage between science and management through partnerships that enable more effective use and exchange of data and information to the benefit of communities and society as a whole.

This action should include collaboration between the management community and other user groups jointly with the scientific community to:

- specify, prioritize and develop new applications;
- establish a framework for the timely, routine and periodic reporting of quantitative assessments of marine ecosystems;
- enable the transfer of new knowledge, technologies and the capabilities for their use to all nations for the benefit of society.

It is recognized that societal and economic measures and values must be applied in order to identify and report on trends and scenario-analysis to define options and specify possible outcomes.

Action 4:

Maintain and broaden scientific studies of the effects of human alterations of major global biogeochemical cycles, including C, N and P.

Attention has been directed to alterations to the global carbon cycle and their economic and ecological effects. That should continue. In addition, fully interdisciplinary studies are needed to assess the societal, economic, policy and environmental implications of changes in other biogeochemical cycles. In particular, a focus is needed on Nitrogen, the increasing use of which is related to food security, energy security, industrial development and systemic environmental degradation. This warrants an interdisciplinary and international approach.

Working Group 3 Participants

Gunnar Kullenberg	International Ocean Institute (Chair)
Chris Crossland	Land-Ocean Interactions in the Coastal Zone, The Netherlands (Rapporteur)
Amy Diedrich	Intergovernmental Oceanographic Commission (Secretariat Contact)
Zanial Arifin	Indonesian Institute of Sciences
Manuel Barange	Global Ocean Ecosystems Dynamics, UK
Roberta Boscolo	International CLIVAR Program Office, UK
Leo Brewster	Coastal Zone Management Unit, Barbados
Niamh Connolly	University of Cork, UK
Alessandro Crise	National Institute of Oceanography and Experimental Geophysics, Italy
John Cullen	Dalhousie University, Canada
Valerie Cummins	University of Cork, UK
Peter Dexter	World Meteorological Organization Switzerland
M. Gerges	Intergovernmental Oceanographic Commission
Tom Malone	University of Maryland, USA
Teruko Manabe	World Meteorological Organization
Angus McEwan	Commonwealth Scientific and Industrial Research Organisation, Australia
Matti Perttila	Finnish Institute of Marine Research
Kimberly Puglise	Sea Grant Fellow, U.S. Congress
Allan Robinson	Harvard University, USA
Inger Rosvik	Norwegian Ministry of Fisheries
Sybil Seitzinger	Intergovernmental Oceanographic Commission
Jan Stel	International Centre for Integrative Studies, the Netherlands
Colin Summerhayes	Intergovernmental Oceanographic Commission
Umit Unluata	Intergovernmental Oceanographic Commission

Working Group 4

MARINE BIODIVERSITY AND PROTECTED AREAS

BACKGROUND

The legal and programmatic basis established at UNCED in the area of conservation and protection of marine and coastal biological diversity can be found in the 1992 Convention on Biological Diversity (CBD) and Agenda 21 (Ch.17) as applied within the framework established by UNCLOS. The 1971 Convention on Wetlands of International Importance, 1972 World Heritage Convention Especially as Waterfowl Habitat (RAMSAR), the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the 1979 Bonn Convention on the Conservation of Migratory Species of Wild Animals, and the 1995 International coral Reef Initiative represent other global multilateral agreements aimed at promoting biodiversity conservation on a global scale.

The CBD entered into force on 29 December 1993 and has been ratified by 182 states to date. Its three stated objectives are to promote:

“the conservation of biological diversity,
the sustainable use of its components, and
the fair and equitable sharing of benefits arising out of the utilization of genetic resources.”

One of UNCED's main achievements, the CBD underscores the interdependence among environmental protection, food security, property rights, trade, and technological innovation, and exemplifies UNCED's perspective on the nexus between environment, poverty, economic development, and the forces of globalization as evident in the cross-boundary commercial flow of knowledge, goods and services.

In the last decade, CBD has established itself as the recognized forum for the development of policy measures in the biodiversity subject area, including marine and coastal biodiversity. However, its implementation has been fragmented, hampered in part by the vast complexity of the issues within its scope and the need for additional dedicated resources. Notably, the work under the Convention has generally fallen short of meeting the expectations for integration of the environmental and economic and trade streams of globalization -- this despite, or, perhaps, precisely because of the fact that biodiversity provides a potent indicator of whether or not our consumption and production patterns, natural resource utilization practices, and other types of interaction with the environment are sustainable.

Reflecting the change brought by UNCED toward a holistic approach in international environmental law, CBD moves away from specific single-sector instruments and toward framework agreements with increasing reliance on “soft law” instruments for their operationalization. Emphasizing the need for integrated approaches for achieving biodiversity protection, the Convention's global programme of action in the marine area,

the 1995 Jakarta Mandate on Marine and Coastal Biodiversity, identifies five priority areas:

- Promoting integrated marine and coastal area management (IMCAM, also ICZAM or ICM) as the framework for addressing the human impact on marine and coastal biological diversity;
- Establishing and maintaining marine and coastal protected areas (MCPA, also MPA);
- Using fisheries and other marine and coastal living resources sustainably;
- Ensuring that mariculture practices are environmentally sustainable; and
- Preventing the introduction of, and controlling or eradicating, alien species that threaten ecosystems, habitats, or species.

After a slow start, work on the priority areas is slowly gaining momentum. The promise for integrated approaches, however, has failed to materialize so far, with implementation progressing largely on issue-by-issue basis: first on coral reefs, and more recently on marine protected areas and on alien species.

The Biodiversity Convention specifically calls for countries to establish a systematic approach for the establishment of marine protected areas; develop special measures to conserve biological diversity; and to manage these areas. Substantive work on MCPAs under the CBD is now getting momentum through the work of the MCPA Ad Hoc Technical Expert Group, which is to assess how the ecosystem approach can be applied to MCPAs at the global, regional, and national levels. Beyond the CBD's immediate programmatic work, the last ten years ushered in a new era of marine protected area management. Recognizing that the new paradigm shift toward ecosystem management requires new tools to implement comprehensive, representative marine protected areas at national, regional and global levels, we believe that the MCPA subject merits separate consideration in the discussions leading U.S. to Johannesburg.

ACHIEVEMENTS

1. Marine and Coastal Biodiversity

To appreciate the full scope of CBD's progress since Rio in the realm of marine and coastal biodiversity, one needs to consider first a number of broader developments under the Convention that also bear direct relevance to its blue component. Leading among those is the adoption of the Cartagena Protocol on Biosafety in January 2000. Other achievements include compiling rosters of experts and the establishment of an information clearinghouse mechanism, the 1995 Global Biodiversity Assessment, the 2001 Ecosystem Assessment, as well as a number of decisions by the CBD conference of parties (COP) on biodiversity and climate change, the ecosystem approach,

access to genetic resources, sustainable use, biodiversity and tourism, incentive measures, identification, monitoring, assessment and indicators, environmental impact assessment, etc.

Perhaps the single most important broad development, however, is the continuous donor commitment to enable biodiversity-related work either in direct investments or via support for the operation of the Global Environmental Facility (GEF). The GEF alone has expended \$244 million under its biodiversity initiative for the period ending in 2000. This comes in addition to the funds expended for ICM-cum-biodiversity projects under the GEF international waters initiative (a total of \$438 million over the same period).

Regarding integrated coastal and marine management, CBD has joined the many global agreements to recognize and adopt IMCAM as the appropriate and most effective instrument for implementation. It has fallen short so far, however, in turning this commitment into practice despite the fact that on a global level IMCAM's conceptual foundation has already been established and the attention is now focused on implementation.

With the resolution of the impediments to the wide acceptance of UNCLOS in the mid-1990s, the global legal regime for sustainable use of marine and coastal living resources was finally put firmly in place and it is now up to the individual states to build on this framework. A selected number of states have already adopted coherent national policies that span across their various marine jurisdictions and include their exclusive economic zones (EEZs). In general, however, progress on sustainable use of marine and coastal living resources has remained largely issue-driven. Among the issues, coral reefs have emerged as one of the major focal points of action since the adoption of the Jakarta Mandate. Notably, the position adopted by the COP on coral bleaching extends beyond species and habitat considerations to incorporate a strong social and economic component. In addition to coral bleaching, COP has also taken positions on over-capitalization of fishing fleets and, in consultation with UNDOALOS, on the conservation and sustainable use of genetic resources of the sea floor in areas beyond national jurisdiction.

Progress can also be identified in the protection of critical habitats and species at risk. Thus, consumptive pressure on marine mammals continues to decline. The need to base marine living resource management on the ecosystem approach is now widely recognized and accepted (at least in theory), with related major regional initiatives having already entered their implementation phases (e.g., the marine component of the Mesoamerican biological corridor, Gulf of Maine initiative). Importantly, environmental impact assessments and valuation studies are increasingly becoming an integral part of developmental planning and decision-making.

Both mariculture and marine biotechnology have experienced rapid growth in the post-UNCED period. The access, property rights, and liability issues related to these activities have been charted at the international level (with the exception of genetic resources on the sea floor in areas beyond national jurisdiction) and the first access regimes at the national level are

already in place. We also have ample examples of industry-government partnerships in terrestrial bioprospecting that are waiting to be transferred to the marine area.

Marine invasive species are one of the greatest threats to threatened and endangered species on land given that they are often habitat modifiers, and they undoubtedly have as important a role in the marine environment. While voluntary international guidelines are in place for one vector (ballast water on commercial trading vessels) there are no guidelines for other vectors that have been as important in spreading alien species (aquarium trade, recreational vessels, oil and gas platforms, hull fouling, and fish processing). This issue is confounded by the fact that there is no efficient technological solution to effective treatment of ballast water. As more ports become infected with invasive species, the risk of their spread to other ports increases.

2. Marine and Coastal Protected Areas

The emergence of biogeographic priority setting for conservation over the past 15 years has set new challenges for science-based MPA management and underscores the need to address connectivity of marine ecosystems.

Increased use of highly protected areas for biodiversity conservation and fisheries management is to be lauded, but it remains inadequately applied at the ecosystem level. Increasingly, MPAs are being created as exemplary systems of coastal management – a key tenet of national ocean policy planning – moving beyond MPAs as isolated islands of conservation to work at the watershed scale.

Diverse forms of participatory management appear to be widely accepted and applied, such as co-management and community management, though it is now recognized that neither top-down or bottom up management models work well in isolation. Multiple management regimes are being used to address the various political and social realities of marine protected areas from a sustainable development context. Traditional and non-traditional, broad-based alliances with stakeholders is required. Marine no-take reserves are increasingly being recognized as a critical component of MPAs. These areas have demonstrated benefits to fisheries, ecosystem structure and function and enhance non-extractive activities such as diving.

CONSTRAINTS

1. Marine and Coastal Biodiversity

Our many achievements of the past decade notwithstanding, the reality on the ground is that the rate of biodiversity loss is still accelerating as a result of habitat deterioration on biodiversity. According to the 1998 Status of the World's Coral Reefs Report, approximately 26% of the world's coral reefs have been lost because of over-fishing, destructive fishing practices, invasive alien species and the effects of global climate change. Additionally, biodiversity loss can be witnessed on a species basis: of the 126 species of marine mammals, 88 are still on the IUCN red book.

The first area-specific program of work adopted under CBD, the Jakarta Mandate, charted the way for the subsequent development of the Convention's terrestrial programs of work. The price of learning, however, has been a slow and sector-driven implementation and CBD's continuing inability to fulfill the integrating role that was expected from it. Respectively, one can identify a remarkably similar set of constraints that cuts across the Jakarta Mandate priority areas as well as the issues of critical habitat preservation and the protection of species at risk. A non-exhaustive list follows:

- Information and scientific knowledge constraints: Perhaps the single biggest concentration of efforts and resources post-Rio has been in data acquisition, analysis, and management, monitoring, assessment, and integrating information technology in management decisionmaking. Yet, if there is a consensus emerging across all five priority areas, it is focused on the lack of sufficient information and scientific knowledge.
- Socioeconomic constraints: Consumption patterns and anthropogenic pressure continue to grow with little promise for reversing the trend. And, while the consumptive pressure on living marine organisms has marked a decrease outside of the fishing sector, other anthropogenic pressures on habitats are mounting--pressures that require an integrated ecosystem approach to management.
- Poverty constraints: Poor people are the social class most reliant on biodiversity. This relationship creates a negative feedback loop that harms both communities and the richness of species. It was not until late in the 1990s that institutions such as the World Bank finally made poverty eradication their leading priority and that poverty alleviation started to figure more prominently in the GEF-financed initiatives, including those on biodiversity.
- Socio-economic considerations, which usually determine the success or failure of MPAs are inadequately addressed in project design and management constraining community compliance and aspirations for community development.

Failure to assess the management effectiveness of MPAs at the site and national level not only undermines adaptive management, but also the community and political confidence that MPAs provide both local and national benefits not just to biodiversity but also to economic development.

Most national/regional systems of MPAs have yet to address the role of existing or future MPAs in maintaining ecosystem function, including the central role that highly protected areas must play in building a representative system of marine protected areas.

NEW CHALLENGES

1. Conservation and sustainable use of genetic resources of the sea floor in areas beyond national jurisdiction

The current regimes that exist to control the exploration, equitable distribution of benefits and conservation of these

resources offer no legal recourse for their collective management. Initiatives directed at creating new regimes or adapting UNCLOS and/or the CBD to manage these resources need to be formulated.

2. Marine and Coastal Protected Areas

The verdict is still out among many sectors on the value and contribution that marine protected areas make in marine conservation. Clearly, continued evidence of habitat degradation and declines in commercial fishing are not very marketable signs of improvement. A systems based approach is required. Quantifiable evidence of benefits must be measured to obtain both political and economic support. MCPAs should not be developed and managed as stand alone measures but incorporated into ICM programs.

RECOMMENDATIONS

1 Issue

In the past 10 years, scientific research has developed a better understanding of marine biodiversity and ecological processes. There has been a disturbing loss of marine habitats, disruption of ecosystem function and a general failure to conserve marine biodiversity. These are directly linked to declining fisheries productivity, uncertainty in food security, adverse impacts on human health and loss of economic development opportunities.

2 Vision

Accountable management achieving healthy, diverse marine and coastal ecosystems ensuring food security and sustainable economic development.

3 Conserving Marine biodiversity, threatened species and habitats

3.1 Recognizing that the conservation of marine biodiversity and maintenance of functioning and viable marine ecosystems requires approaches ranging from sustainable resource management to highly protected reference sites, we call on the global community to:

- establish, develop and apply policies and management practices embodying the ecosystem and precautionary approaches; and
- establish and implement the goal of demonstrable sustainability for all human activities that impact upon coastal and marine ecosystems, trans-boundary regions, the high seas and migratory routes and threaten biodiversity including:
 - loss of coastal habitats;
 - land and sea based sources of pollution;
 - overexploitation;
 - by-catch;
 - destructive fishing practices;

- global change;
 - alien species and genotypes;
 - the quantity and quality of freshwater inflow into coastal ecosystems; and
 - inappropriate and environmentally unsound aquaculture.
- 3.2 Recognizing the fundamental importance of involving all parties with an interest in planning and implementing resource management and that approaches drawing on rights based management can be useful tools in reducing pressure to overexploit resources and, provided they clearly define the responsibilities that should accompany the rights, can create an incentive for users to think in the long-term, we call on the global community to:
- implement approaches based on public participation including empowering indigenous and local communities; and
 - develop and use effective tools to conserve marine biodiversity and achieve demonstrable sustainability.
- 3.3 Recognizing that to achieve sustainability there must be systems of accountability and performance reporting, we call on the global community to:
- support research to develop such systems with particular regard to individual, incidental and cumulative impacts on biodiversity.
- 3.4 Recognizing that existing international instruments on the marine environment are generally inadequately implemented and difficult to enforce, and that actions are often limited in providing guidelines on national conservation efforts, we call on the global community to:
- commit to an urgent and substantial effort to effective implementation and enforcement of international instruments and to strengthen integration of management, inventorying, monitoring, performance evaluation, enforcement and liability.
- 3.5 Recognizing that the existing global governance of oceans has largely failed to achieve co-ordination and co-operation in conservation and management of marine biodiversity and that there are no effective measures in place to address this important need, we call on the global community to:
- assign the highest priority to rectifying this problem as soon as possible;
 - develop mutually supportive environmental and trade measures that increase protection for species threatened by trade; and
 - urge the world trade organization to incorporate and strengthen environmental safeguards.

4 Marine Protected Areas

4.1 Recognizing that:

- marine protected areas can be effective, spatially-based tools for managing human activities in coastal and oceanic environments and that marine protected areas may range from areas that are managed for different sustainable uses to highly protected reference sites;
- recent scientific research shows that highly protected reference sites and other no-take zones (IUCN Category I/II Marine Protected Areas) increase marine resources of areas beyond their boundaries;
- marine protected areas can contribute to sustainable economic development and food security by:
 - conserving marine biodiversity (including threatened and migratory species);
 - maintaining healthy ecosystems;
 - maintaining sustainable fisheries; and
 - providing for economic opportunities including tourism;
- a high proportion of the existing marine protected areas are 'paper parks' which fail to achieve their objectives; and
- the biogeographic coverage of marine protected areas is inadequate,

We strongly recommend that:

- states, regional organizations and international agencies, and the global community co-operate to design, implement and adequately resource the effective management of marine protected areas.
- such areas should be established:
 - in all major bio-regions including open ocean as well as coastal environments;
 - at the scale of ecosystem functions;
 - with the legislative authority required for effective management;
 - with extensive input from indigenous and local communities, so that they reflect culture, local knowledge and need (no one size fits all);
 - using the best available scientific, socio-economic and cultural information (however imperfect information should not be used as a delaying tactic);
 - with the capacity to measure how well they are achieving their stated objectives;
 - with the capacity to adapt to both anthropogenic and environmental change; and
 - as an integral part of larger frameworks for national development and integrated coastal and ocean management.

- the global community work urgently to complete the task of establishing and expanding a comprehensive global representative network of marine protected areas that includes regional and national systems of highly protected/no take areas for the maintenance of connectivity and corridors within an overall integrated coastal and ocean management system achieving healthy and diverse coastal and marine ecosystems ensuring food security and sustainable economic development for the world's peoples;
- accord high priority to creating marine protected areas or special management areas for high seas biodiversity and recently recognized ecosystems including sea mounts, hydro-thermal vents, ocean trenches and abyssal plains and implement a moratorium on fishery and other resource use in such areas until appropriate and effective management regimes are in place; and
- support systematic research to underpin the design, implementation and evaluation of the effectiveness of marine protected areas against their stated objectives.

Working Group 4 Participants

Richard Kenchington	RAC Marine Pty Ltd. Australia (Chair)
Lyle Glowka	Biodiversity Strategies International Germany (Facilitator)
David Souter	International Coral Reef Initiative (Rapporteur)
Seth Race	University of Delaware (Secretariat Contact)
Slavatore Arico	MAB Programme, UNESCO
Barbara Best	U.S. Agency for International Development
Peter Bridgewater	United Nations Educational, Scientific and Cultural Organization
Harm Dotinga	Netherlands Institute for the Law of the Sea
Giselle Firme	U.S. National Oceanic & Atmospheric Administration
Miguel Fortes	University of the Philippines
Nelia Forest	University of California-Berkeley
Kristina Gjerde	Environmental Investment Partners, Poland
Claudia Hamacher	Rio de Janeiro Catholic University
Hans Herman	North America Commission for Environmental Cooperation
Helene Marsh	School of Tropical Environment Studies and Geography, Australia
Lisa Max	U.S. National Oceanic and Atmospheric Administration
Stefan Olafsson	Ministry of Fisheries, Iceland
Nicolas Pilcher	Universiti Malaysia Sarawak
Mario Luiz Soares	University of the State of Rio de Janeiro

Working Group 5

INTEGRATED COASTAL AND OCEAN MANAGEMENT

BACKGROUND

The management of coastal zones and exclusive economic zones is dealt with specifically in Chapter 17 (A) of Agenda 21, "Integrated management and sustainable development of coastal and marine areas, including exclusive economic zones." Coastal zones are characterized by conflicting pressures between economic and social activity and the maintenance of environmental quality. The coasts are home to more than half of the world's population, with two-thirds of the world's largest cities located on coasts. Coasts are highly valued as sites for major economic activities, such as port and harbor facilities, power generation plants, fishing operations and processing facilities, aquaculture, recreation, and tourism. But these values can be diminished or even lost; pollution of coastal waters has greatly reduced the production of fish, and a large proportion of coastal nursery grounds and other valuable habitats have been degraded or eliminated. The storm protection afforded by fringing coral reefs and mangrove forests is lost when corals die or mangroves are removed. Inappropriate development and accompanying despoilment reduces the attractiveness of the coastal environment, greatly affecting tourism potential.

To address the complex task of managing coastal zones and exclusive economic zones, the concept of integrated coastal and ocean management (ICM) has gained support as the most appropriate organizing framework for achieving long-term goals for both conservation and development. Chapter 17 of Agenda 21 called upon all coastal nations to formulate and implement coastal management programs by the end of the decade.

Since Rio, a variety of global and regional international treaties have embraced the concept of ICM, including the Framework Convention on Climate Change (FCCC), the Convention on Biological Diversity (CBD), the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), the Barbados Programme of Action for the Sustainable Development of Small Island Developing States, and the International Coral Reef Initiative (ICRI). These conventions assign a central role to ICM in carrying out commitments to the conservation and sustainable development of coastal areas.

The goal of ICM is to achieve sustainable development of coastal/marine areas while improving the economic and social well-being of their inhabitants. ICM analyzes implications of development, conflicting uses, and interrelationships between physical processes and human activities. It promotes linkages and harmonization between sectoral coastal and ocean activities. A key aspect of ICM is the design of institutional processes of integration/ harmonization that overcomes the fragmentation inherent in the sectoral management approach and in the splits in jurisdiction between levels of government at the land-water interface.

The concept and features of ICM have become increasingly well defined through extensive field practice and a proliferation of books and manuals, professional journals, conferences, research centers, workshops, newsletters, web pages, and academic programs. International guidelines based on an agreed core of principles have been formulated and disseminated by intergovernmental organizations and international non-governmental organizations.

ACHIEVEMENTS

There has been an impressive growth of ICM efforts since the 1992 Earth Summit. In 1993, 59 nations were engaged in some ICM initiative at national or local levels, while in 2000, more than 40% of coastal nations have initiated a coastal management process. A precise accounting of these efforts is difficult since the objectives and the outcomes of ocean and coastal management initiatives are not reported in a consistent manner. It is proving useful to segregate such outcomes into four orders:

- **First Order outcomes** call for the institutional capacity to undertake integrated coastal planning and decision making as well as the authority, funding and other resources that make it feasible to implement ICM policies and actions;
- **Second Order outcomes** are evidence of successful implementation of ICM efforts. They include implementation of collaborative decision making procedures, actions taken on issues of management priority, and behaviors of coastal users modified to reduce or eliminate destructive impacts;
- **Third Order outcomes** are improvements in environmental quality and resource condition and socio-economic benefits that mark physical evidence of progress towards sustainable forms of coastal development; and
- **Fourth Order outcomes** fully achieve desired end conditions of sustainable development.

Some initiatives have not proceeded into a phase of implementation (Second Order Outcomes) and others have not been sustained after a promising beginning. In a number of regions where national enabling conditions are not yet present, much of the donor funding has gone to fund local pilot projects in ICM to build capacity, form constituencies for coastal integrated coastal management, and demonstrate the effectiveness of integrated management. However, ten years after Rio there are as yet relatively few examples of functioning management programs that are successfully producing Second and Third Order outcomes at a national scale or within coastal ecosystems that transcend national boundaries.

Notwithstanding these limitations, much substantive progress has been made that establishes the essential preconditions to achieving effective and sustained coastal and ocean management at large scales:

- ICM efforts have produced a wealth of management plans, enabling legislation, policy, and institutions to instigate action on coastal management issues;
- There are many examples of coastal users having modified their activities to reduce or eliminate behaviors that are destructive to coastal qualities;
- Institutions within government and civil society are coming together to form the collaborative partnerships that ICM requires;
- Some ICM initiatives at various geographic scales are succeeding to restore environmental conditions and social benefits lost through the misuse and over-use of coastal resources;
- Good-practice guidelines have been developed and adopted by private and public organizations for a wide range of coastal activities including the siting and operation of tourism facilities, shrimp farms and transportation facilities; and
- The integrated management of coastal and marine ecosystems is building capacity for ICM and attracting dedicated constituencies at the local, national and international levels.

WHAT HAS BEEN LEARNED IN MAKING AGENDA 21, CHAPTER 17 OPERATIONAL?

We have learned that ICM at the local scale will not flourish unless national government has provided national enabling conditions, including policy, legislation, and coordinating mechanisms. Success in scaling up ICM and successful sustained local efforts require governance systems that can produce mutually reinforcing and integrated planning and decision-making that ranges from individual communities to provinces, nations and to collaborative regional efforts.

ICM provides the tools, processes, and management frameworks to build and strengthen the linkages between environmental quality and sustainable development, including protection from coastal hazards, equity, poverty alleviation, food security, population and health. These linkages can be further advanced by more explicitly and strategically incorporating goals of sustainable development in ICM initiatives and by assessing performance against these goals.

ICM efforts are most effective when they incorporate the management principles of science and adaptive management. This requires defining in specific terms the outcomes they seek to achieve in terms of both improved coastal ecosystems quality and human well-being, articulation of assumptions, establishment of indicators and robust monitoring, and the feedback of results to adapt and learn.

Regional networks are proving to be particularly effective in advancing ICM learning when they promote information exchange on ICM efforts, issues, approaches and techniques. At the regional scale, interests of countries coalesce around a common agenda, and can attract external support for coordinated action.

The principles and practices of ICM must be tailored to local conditions, governance, customary use and access rights, capacity and needs, including environmental, demographic, and economic conditions. The focus of ICM efforts at any given time requires balancing the capacity of institutions involved against the scale/complexity of the issues to be addressed.

CHALLENGES

Along most coasts the trends remain negative. Human activities have and continue to significantly reduce the capacity of coastal ecosystems to produce the goods and services that together are the life support system for increasing populations and intensities of coastal use. Ecosystems such as coral reefs are being degraded on a massive scale and sixty percent of the world's fishery resources, for which there is information, are now fully fished or over fished. While there are a few regional successes in arresting or reducing eutrophication, habitat destruction and overfishing, the dominant global trends are in the wrong direction. Not only are the qualities of the natural environment under assault, but so are the health and well-being of millions of people who depend on coastal resources as their primary source of food and income.

In many regions, the combination of these ecosystem changes and the intensifying human pressures are overwhelming the gains produced by improved coastal planning and decision making. Restoration of lost or degraded ecosystems is far more costly than preventive action.

In addition to human impacts, ocean related natural disasters, which include the effects of extreme El Nino events, long-term sea level rise, tropical cyclones and their associated waves, storm surges and flooding, and tsunamis, have their maximum impacts in coastal areas and small islands. These impacts result in massive loss of human life and property as well as the destruction of coastlines and natural habitats, and restoration measures cost billions of dollars annually to developing and developed countries alike. The Conference recognized that impacts and associated costs could be substantially mitigated through adequate warnings and preparedness measures, within the context of integrated coastal management.

There is no escaping the fact that coastal development is among the highest priority environmental issues on Earth today. The rationale for ICM as a practice for sustainable coastal development is stronger today than ever before. The result is the need for effective ICM being in higher demand now than ever before.

The establishment of EEZs also creates new opportunities and poses challenges for ICM. The ultimate geographic scope of ICM must encompass coastal watersheds, in light of the hydrological cycle and land-based sources of marine pollution, and the EEZ, in which ecosystem processes and resources are increasingly impacted by human activity. National capacity for EEZ management is generally limited, and only a few nations have been experimenting with the establishment of institutions and processes for EEZ management. In Australia, for example, important innovations are being introduced to ensure more strategic planning of the EEZ using an ecosystem-based regional approach.

RECOMMENDATIONS

Understanding that:

- ICM has been shown to be an effective mechanism for the implementation of Agenda 21, the Convention on Biodiversity, the Convention on Climate Change, the GPA and many other international conventions that address the governance of oceans and coasts;
- ICM provides an effective policy and management framework that facilitates good governance, especially increasing accountability, transparency in decision making, and the alleviation of poverty through ensuring livelihoods, food security, and public health, and reducing vulnerability to natural hazards--thereby advancing towards sustainable development; and that
- ICM creates the enabling conditions for investment opportunities within the context of sustainable development.

We call on governments to:

1. Develop national coastal/marine policies and other enabling conditions to implement ICM as a nested system of planning and decision-making that operates at a range of spatial scales; this will require increasing the capacity of local governments and community based groups to manage coastal and marine areas within a large system-wide context, drawing on appropriate scientific inputs and participatory processes.
2. Enhance the necessary environmental monitoring, modeling and prediction capability to enable more accurate forecasting of ocean related natural disasters, with longer lead times, to facilitate preparedness and mitigation measures.
3. Create policy environments, including appropriate laws, regulations, and incentives that enable the mobilization of domestic and international financial resources for appropriate investments in development consistent with the management frameworks of ICM programs.
4. Take decisive actions to ensure effective management measures for the coastal areas of each nation by committing to the following targets:
 - 20% of national coastlines under management by 2012;
 - 60% of national coastlines under management by 2022; and
 - 100% of national coastlines under management by 2032

Working Group 5 Participants

Marea Hatzios	World Bank (Chair)
Yves Henocque	French Research Institute for Exploitation of the Sea (IFREMER) (Facilitator)
Stephen Olsen	University of Rhode Island (Rapporteur)
Miriam Balgos	University of Delaware (Secretariat contact)
Robert Koami Akpabli	Carl Duisberg Gesellschaft, Germany
Fatima Alves	Universidade de Aveiro, Portugal
Francisco Arias-Isaza	Marine and Coastal Research Institute of Colombia (INVEMAR)
Stefan Asmundsson	Ministry of Fisheries, Iceland
Milton Asmus	Fundação Universidade do Rio Grande
Sapna Batish	U.S. National Oceanic & Atmospheric Administration
Kathy Belpaeme	European Programme, Belgium
Raphael Bille	École Nationale du Genie Rural des Eaux et Forêts (ENGREF)
Thia-Eng Chua	International Maritime Organization
Jeremiah Daffa	Tanzania Coastal Management Partnership (TCMP)
Dieng Ousseynou	Ministry of Tourism, Senegal
Caroline Dublin-Green	Nigerian Inst. for Oceanography & Marine Research
Sten Engdahl	Intergovernmental Oceanographic Commission
Anamarija Frankic	Virginia Institute of Marine Science
Bernhard Glaeser	Social Science Research Center Berlin (WZB)
Nicole Glineur	World Bank
Cécile Grignon-Logerot	Ministère de l'Équipement, des Transports et du Logement, France
S.M. Haq	Independent
Nakahara Hiroyuki	Research Institute for Ocean Economics, Japan
Antonio Hogueane	Eduardo Mondlane University, Mozambique
Diane James	Victorian Coastal Council, Australia
Hartwig Kremer	Land-Ocean Interactions in the Coastal Zone, The Netherlands
Maurice Knight	University of Rhode Island
Anthony MacDonald	Coastal States Organization, USA
Bin Mao	People's Republic of China to the International Seabed Authority
Yuriy Mikhaylichenko	Ministry of Industry, Science & Technology, Russian Federation
Francisco Montoya	Ministry of the Environment, Spain
Nicole Morcom	Adelaide University, Australia
Jacques Morelli	Centre National de la Recherche Scientifique (CNRS), France
Magdalena Muir	University of Calgary
Armann Olafsson	Ministry of Fisheries, Iceland

Hermes Pacule	Ministry for Coordination of Environmental Affairs, Mozambique	Chandrika Sharma	International Collective in Support of Fishworkers, India
Edward Patterson	Suganthi Devadason Marine Research Institute, India	Paula Sierra-Correa	Marine and Coastal Research Institute of Colombia
Jonathan Phinney	American Society of Limnology and Oceanography	Jens Sorensen	University of Massachusetts
Veronica Sakell	National Oceans Office, Australia	Keisuke Taira	University of Tokyo
Christel Schipmann	Carl Duisberg Gesellschaft, Germany	James Tobey	University of Rhode Island
Joe Schittone	United Nations Environment Programme/GPA	Ivica Trunic	United Nations Environment Programme, UNEP/PAP/RAC/Mediterranean, Croatia
Andre Share	South Africa Department of Environmental Affairs and Tourism		

Working Group 6

SUSTAINABLE FISHERIES AND AQUACULTURE

BACKGROUND

Chapter 17 of Agenda 21 is concerned with the protection of the oceans, all kinds of seas and coastal areas, and the protection, rational use and development of their living resources. The objectives of Chapter 17 that are relevant to sustainable fisheries and aquaculture in areas under national jurisdiction and in the high seas focus on the protection and restoration of species and ecosystems to ensure sustainable fisheries production that can meet human nutritional and development needs. The strategies identified to achieve such objectives included: the improvement of the governance framework; development of environmentally sound technologies; reduction of waste; development and use of scientific results; protection of biodiversity; development of management capacity; adoption of multi-species and ecosystem-based management; development of sustainability indicators; wide application of the precautionary approach; use of traditional knowledge; and recognition of traditional rights.

Since the 1992 Earth Summit, the situation has improved for some fisheries and worsened for many more. The annual rate of increase of marine catches decreased to almost zero in the 1990s indicating that the world oceans have reached their maximal production under the present fishing regime. In 1999, among the 441 fish stocks for which status information was available at FAO, 4% appeared under-exploited, 21% moderately exploited, 47% fully exploited, 18% over fished, 9% depleted, and 1% recovering. The overall capacity of the world's fishing fleet is presently far in excess of the carrying capacity of the ecosystems which fisheries exploit. In addition, high levels of non-compliance by vessels reflagging to flags of convenience undermine regulations established for coastal and high seas fisheries thereby seriously undermining conservation potentials. In response to over-fishing there have been important changes in the species composition of world fisheries catches as fisheries expanded across the whole array of available species resulting in the proportion of low value species increasing substantially since the 1970s while the proportion of traditional target species and average sizes has decreased. This situation has been recently coined as "fishing down food webs" and may be aggravated by the demand for fishmeal for terrestrial animal production and aquaculture feed. Overall it is apparent that we have exceeded the limits of these natural systems to support the levels of exploitation to which they are being subjected.

The world population may be facing a food supply gap in the next decades, that aquaculture is expected to help fill. Global production of farmed fish, shrimp, clams, and oysters more than doubled in weight and value in the 1990s. However, increasing amounts of wild-caught fish to feed carnivorous species worsen the pressure on low economic value but potentially high ecological value forage species. There is a rapid

expansion in the farming of high-value species that require 2-5 kg of wild-caught fish processed into fish feed to produce 1 kg of these farmed species. Also intensive coastal aquaculture practices degrade the marine environment and diminish its ecological life support services. There is, moreover, a need to create national frameworks for marine aquaculture development consistent with national ocean and coastal management plans.

Despite escalating stresses on and degradation of coastal marine ecosystems, the small-scale fisheries that they support will remain critically important as coastal populations continue to increase. Over 99% of the fishers in the world are small-scale fishers, and 95% are from developing countries, producing 58% of the 98 million metric tons of annual marine fish catch.

The importance of small-scale fisheries in providing food, income and livelihood cannot be overemphasized, especially in developing countries. Yet, small-scale fisheries have been systematically ignored and marginalized over the past decade. The majority of small-scale fisheries have not been well managed. Existing fisheries management arrangements have failed to successfully coordinate and restrain fishing capacity and effort in small-scale fisheries or to manage conflict. Conventional fisheries science and management have not served well for fisheries that are small-scale and based on small stocks. Stock assessment-based fishery research and management has been too expensive, too incomplete, too uncertain and too impractical to address the needs of small-scale fisheries, and especially tropical fisheries exploiting multi-species stocks.

The above realities indicate the need for urgent shifts in the fishing and aquaculture regimes in order to sustain current production.

MAIN ACHIEVEMENTS SINCE 1992 IN THE IMPLEMENTATION OF AGENDA 21 AND OTHER OUTCOMES FROM UNCED

Progress has been made in the area of responsible fisheries development and management as a result of the coming into force of the United Nations Convention on the Law of the Sea (in 1994) and the adoption of a number of complementary international instruments and voluntary agreements, including:

- The UN Fish Stock Agreement, coming into force in December 2001, has strengthened management in the high seas;
- The FAO Code of Conduct for Responsible Fisheries, adopted in 1995, has influenced the modification of national fisheries laws;
- Through FAO, three International Plans of Action (IPOAs) were adopted in 1999 and are being implemented to improve shark management, reduce by-catch of seabirds in long-line fisheries, and control and reduce fishing

capacity. Another IPOA was adopted in early 2001 to prevent, deter and eliminate illegal, unregulated and unreported (IUU) fishing; and

- The 1993 Compliance Agreement has potential to further improve fisheries management but still require further accession by States to become effective.

A number of regional fishery management organizations (RFMOs) have undertaken a systematic review of their mandate and functioning with the view to improving their performance in management. In addition, new RFMOs and institutional arrangements have been established inter alia for: (a) conservation of southern blue fin tuna; (b) conservation and management of Pollock resources in the central Bering Sea; (c) Iceland-Norway-Russian Federation Agreement on cooperation in fisheries; (d) conservation of fisheries resources in the high seas of the Southeastern Pacific; (e) conservation and management of highly migratory fish stocks in the Western and central Pacific Ocean; (f) conservation and management of high seas fishery resources in the Southeast Atlantic Ocean; and the CARICOM Caribbean Regional Fisheries Mechanism.

Cooperation among governments, non-governmental organizations and industry has led to the elaboration of a series of Guidelines in support of the Code of Conduct in the areas of sustainable aquaculture, fisheries operations, fishery management, fish processing and trade, precautionary approach, and indicators of sustainable development in fisheries, including species introductions. Guidelines are also under preparation for ecosystem-based fisheries management. Significant progress toward such guidelines has been made at some national levels.

Overall, these international agreements and instruments reflect a move towards a global fisheries paradigm that increasingly recognizes the reality of overfishing and environmental degradation and the need for restricted rights of access. These international agreements embody the precautionary approach, notably the FAO Code of Conduct with its concepts of precautionary reference points that were implemented in a number of regional fishery bodies and countries. There is increasing adoption of participative approaches to fisheries management involving local communities. Marine protected areas are increasingly being implemented within broader ocean and coastal management programs that are integrated and participatory. However, the testing and implementation of these initiatives at a larger scale would require more scientific, financial and political support.

The scientific sector, through various initiatives, has provided the basis for the transition from, inter alia: (1) using Maximum Sustainable Yield (MSY) as a target, to using it as a limit to be avoided; (2) output-oriented fisheries management based on Total Allowable Catches (TAC) to rights-based fisheries; (3) single-species management to multi-species and ecosystem-based management; (4) risk-prone to risk-averse, precautionary management; (5) top-down, control-and-command to bottom-up participatory management; (6) static quota strategies to dynamic forward looking (rebuilding) strategies, based on operational management procedures (OMPs) as well as harvest rules and con-

trol laws. The precautionary approach is not being used only as an exceptional measure to be applied in case of "risk of irreversible damage" but is increasingly being applied in the elaboration of scientific advice and is becoming an accepted part of "best practices". In addition, a process of collaboration between FAO and CITES has been established to improve the process of scientifically evaluating the risk of extinction of fishery species subject to trade-related risk. Attempts have been made to develop eco-labeling systems for fisheries and aquaculture. The process is on-going and meeting with a number of concerns from governments particularly in developing countries .

Biodiversity-related considerations have increased in fisheries and aquaculture management, e.g. in relation to genetic impacts of capture fisheries, by-catch and discards, habitat protection, introduction of alien species, etc. One of the solutions to these problems may be the increased use of polyculture and integrated aquaculture. These aquaculture techniques were adopted 4000 years ago in China and Hawaii and mix fed and extractive species with aquaculture in a more balanced ecosystem approach towards sustainable development.

A number of promising new and revised management approaches have emerged in recent years and are available for use by managers of small-scale fisheries, and by the fishers themselves. These include broader emphasis on fishery and ecosystem management objectives and participatory decision processes; new governance regimes such as community-based management and co-management; interdisciplinary and social science methodologies that use fishers' local ecological knowledge, and participatory rural appraisal. The management process itself has become more adaptive. A reconsidered approach to small-scale fisheries management will involve change on the part of all the stakeholders in the process of management to become responsible and precautionary – the fishers, their families, resource managers, elected officials, NGOs.

CONSTRAINTS

Due to the plethora of international environmental rules that are not necessarily coherent and integrated, and to their cost and capacity implications there have been difficulties on the part of nations to implement them. The proliferation of autonomous institutional arrangements established by environmental treaties constrains efforts at effectiveness, efficiency and coordination in implementation at the national level. Thus, there is a lack of focus and prioritization in the application of scarce resources (e.g., funds, skilled human resources, time) to the implementation of identified solutions which leads to a number of problems, including, among others:

- Incomplete global inventory of fisheries stocks, management systems and approaches by countries;
- inadequate policy development and enforcement and compliance with existing management measures at regional, national, and local levels;
- unplanned expansion of aquaculture fish production in some areas and lack of needed expansion in some others;

- insufficient development of viable alternative livelihood options for developing coastal fishing communities in over-fished areas (see the United Nations System-Wide Web Site on National Implementation of the Rio Commitments);
- insufficient assistance to developing countries to help them to implement the best practices being recommended and lack of adequate approaches for situations with scarce data and human and financial resources;
- there is generally an insufficient information on the structure and functioning of marine ecosystems, inadequate monitoring of resources and fisheries, lack of evaluation of management performance (including data collection, scientific analyses and enforcement), and poor documentation on best practices; and
- Marginalization of developing countries resulting from lack of resources required to participate in international policy processes.

Over-fishing and over-capacity – exacerbated by technological progress -- remain a problem worsened by illegal, unregulated and unreported (IUU) fishing, poor gear selectivity, and discarding both on the high seas and within EEZs. The problem is sometimes compounded by the low capacity of some developing countries to effectively control the fishing operations of long-range fleets operating under access agreements, and by the lack of measures to prevent the reflagging of vessels to avoid rules of RFMOs. In this regard the WTO should support efforts by the RFMOs to prevent deter and eliminate IUU fishing. These factors not only jeopardize the natural recovery of such fish stocks, but also threaten the cultural heritage and cause extreme social and economic hardships on small fishing families, coastal people, and indigenous peoples in particular.

A focus on new management directions is needed for small-scale fisheries and aquaculture. The management of such fisheries requires greater attention to the social and cultural context of science; a very different kind of economics which emphasizes the benefits and costs of not just individual fishing boats and fishing fleets and aquaculture facilities, but also fishing households and communities, an understanding of human behaviour and how people use and misuse marine resources, and a different kind of management regime, one that goes beyond command-and-control measures.

It is becoming increasingly clear that governments, with finite resources, cannot solve all the problems faced by small-scale fisheries. Communities will need to take more responsibility for solving local problems. In order to do this, however, they must be given the power and resources to make decisions locally and to take actions to meet local opportunities and problems. They will still need the assistance and support of national government and scientific institutions to achieve results.

The deterioration of marine ecosystems caused by marine and land-based activities has been alleviated in only a few areas where management initiatives have begun to put in place sustainable practices, but continue unabated elsewhere. The use of

fishing practices destructive to marine ecosystems (e.g. explosives, toxic substances, pelagic drift netting on the high seas which was banned by two unanimous resolutions of the United Nations General Assembly, or trawling on sea-mounts or other sensitive habitat) albeit prohibited may continue due to lack of enforcement or viable alternative livelihood options. The discovery of deep seabed marine life and the rich resources found in those areas such as those in hydrothermal vents, for instance, are raising new scientific and biodiversity management challenges.

There are still gaps in international and national fishing regimes, and aquaculture practices e.g. in relation to trade-related measures and environment, enforcement of management regulations in regional fishery bodies (e.g. to control IUU fishing), eco-labeling frameworks and minimum international standards, resources allocation in the high seas, rights-based fisheries, integration of fisheries in coastal zone management, genetic resources in the deep seabed beyond the limits of national jurisdiction, etc.

RECOMMENDATIONS

In all we do the vision that should sustain us is that of rich, beautiful, and productive marine ecosystems supporting livelihoods in coastal communities and producing a large variety of healthy fish and other sea food at an affordable price for all.

1. Considering the contribution of sustainable fisheries and aquaculture to economic and social well being and the protection and preservation of the marine environment we:
 - 1.1 urge countries, regional fisheries organizations and relevant aquaculture organizations to implement urgently and vigorously the agreed international instruments and plans of action with the view to, inter alia: generalizing the application of the precautionary approach; adjusting fishing and aquaculture capacity to ecosystems carrying capacity, restoring ecosystems; using more economic incentives for sound management; reducing harmful subsidies; minimizing environmental impacts, by-catch, discards, alien species and pathogen introductions; improving protection of endangered species; improving enforcement and compliance and deterring IUU.
2. Recognizing that strong and pro-active actions are necessary to ensure sustainable change in fisheries and aquaculture, we urge countries and regional fisheries organizations to:
 - 2.1 improve understanding of ecosystem structure and function, consider ecosystem impacts of and on fisheries and aquaculture in management; and develop technical guidelines for ecosystem-based fisheries and aquaculture management;
 - 2.2 focus on innovative approaches to small-scale fisheries and aquaculture, empowering the sector, establishing fishing rights including access to necessary infrastruc-

ture to support livelihoods and tenure systems, integrating them into fisheries in coastal management, and taking account of the interactions and compatibilities between aquaculture and harvest fisheries;

- 2.3 strengthen fisheries and aquaculture monitoring including the development of ecosystem-based indicator of site suitability and sustainability to measure implementation and management performance;
 - 2.4 take into account the important relationships between market, trade, management of resources and environment, intensify the use of appropriate social and economic instruments, and call on WTO to support the effort of FAO and regional management organizations to deter IUU; and
 - 2.5 develop polyculture techniques and integrated practices in support of sustainable aquaculture.
3. Recognizing that despite the substantial institutional progress achieved significant problems will occur in the future which society should be ready to foresee and tackle, we urge countries and regional fisheries organizations to:
 - 3.1 apply the precautionary approach particularly when introducing new technologies or spreading exploitation to poorly known areas, habitats or species (e.g. introduction of GMOs and developing fisheries on sea-mounts);
 - 3.2 recognize that sustainable aquaculture and responsible fisheries are parallel and essential elements of a strategy to ensure global seafood security and fill the supply gap forecast for the next decade;
 - 3.3 increase collaboration between international organizations (between fishery bodies, between them and environmental organizations, between development banks and UN agencies; and
 - 3.4 improve the diffusion of fisheries and aquaculture information to society at large and develop capacity for decentralized decision-making and strengthening the incorporation of local and traditional knowledge into information systems.

Working Group 6 Participants

Kees Zwanenburg	Bedford Institute of Oceanography (Chair)
Serge Garcia	Food and Agriculture Organization (Rapporteur)
Dean Swanson	U.S. National Oceanic and Atmospheric Administration (Facilitator)
Tim Adams	Secretariat of the Pacific Community
Rolf Akesson	Ministry for Agriculture and Fisheries, Sweden
Franco Andaloro	Central Institute for Marine Applied Research, Italy
Leah Bendell-Young	Simon Fraser University
Sally Cochran	U.S. Department Of State
Antonio Diaz-de-Léon-C	El Colegio de México
Betsy Dribben	Humane Society, USA
Semisi Fakahau	Commonwealth Secretariat, UK
Roderick Forbes	Department of Fisheries and Oceans, Canada
Patricia Gallagher	Simon Fraser University, Canada
Mathew Gianni	Greenpeace International
Jens Grabo	Lighthouse Foundation, Germany
Michael Hirshfield	OCEANA, USA
Indrani Lutchman	SCALES Inc., Barbados
Robin Mahon	Caribbean Conservation Association
Monde Mayekiso	Department of Environmental Affairs and Tourism, South Africa
Christina Mormorunni	Asia Pacific Environmental Exchange
Bob O'Boyle	Bedford Institute of Oceanography
Mac Rawson	University of Georgia
Chersdak Virapat	IOI-Thailand
Marguerita Zaitsev	Astrakhan Technical State University, Russian Federation

Working Group 7

SMALL ISLAND PERSPECTIVES

BACKGROUND

The political commitment and direction provided by Agenda 21 and the Barbados Programme of Action, and their subsequent reviews, have been used as the benchmark for measuring progress and the achievements of the last ten years. The summary recognizes the special case of small islands that are custodians for vast ocean resources. The trends are reviewed and it appears that the approach to date has not been working to the scale necessary to achieve sustainable development. Achievements have been fragmented and have not been multiplied/sustained or, perhaps, not focused in areas of greatest need. As Rio+10 is to focus, as far as possible, on actions and specific initiatives, this summary attempts to focus on "what next"- on the "new" initiatives.

THE SPECIAL CASE FOR SMALL ISLAND DEVELOPING STATES

Both Agenda 21 and the Barbados Programme of Action highlight the fact that islands are faced with the greatest complexities and challenges of sustainable development. One of the most useful definitions of the challenge is found in Agenda 21 that recognized "Small Island Developing States, and islands supporting small communities are a special case both for environment and development. They are ecologically fragile and vulnerable. Their small size, limited resources, geographic dispersion and isolation from markets, place them at a disadvantage economically and prevent economies of scale. For Small Island Developing States the ocean and coastal environment is of strategic importance and constitutes a valuable development resource" (Chapter 17:para 17.124). The Global Conference on the Sustainable Development of Small Island Developing States (1994), agreed upon specific policies, actions and measures to be taken at the national, regional and international level across 15 priority areas. This was further refined at the Special Session of the United Nations General Assembly in New York in 1999 (Barbados + 5), when six problem areas were identified as priorities for the next five years:

- **climate change** – adapting to climate change and rising sea levels;
- **natural and environmental disasters and climate variability** – improving preparedness for and recovery from natural and environmental disasters;
- **freshwater** resources – preventing worsening shortages of freshwater as demand grows;
- **coastal and marine resources** – protecting coastal ecosystems and coral reefs from pollution and over-fishing;
- **energy** – developing solar and renewable energy to lessen dependence on expensive imported oil; and,
- **tourism** – managing tourism growth to protect the environment and cultural integrity.

SIDS continue to play an active role in developing global solutions to the challenges of sustainable development and seek the support of the international community to address their "special case".

TEN YEARS AFTER THE EARTH SUMMIT THE SITUATION IS WORSE

The political commitment demonstrated by island countries during the Earth Summit and Barbados Conference has been translated into specific activities at national, regional and international levels as each country works to define its path towards sustainable development. In the context of the Barbados Programme of Action, significant progress is being made in the areas of climate change (enabling activities under the United Nations Framework Convention on Climate Change, initial vulnerability assessments and public awareness), waste management (marine pollution protocols/programmes and POPs inventories), energy resources (where significant economic and environmental gains can be made), biodiversity conservation (endangered species conservation, conservation area development and protective measures against alien and invasive species), national institutions and administrative arrangements (strengthened environment units and examples of high level sustainable development councils), and regional cooperation (strengthened human capacity at the regional level, coordination mechanisms and strengthened legal frameworks). The international community is now looking at the problems of small island developing states. The different problems facing the many oceanic islands that are part of countries from which they are geographically far removed also need to be examined. In these cases, national policy is usually based on the environmental and socio-economic situation of the larger country. The international community needs to see that islands that are part of developing nations can fall between the cracks: helping remote islands cannot be a priority in poor or troubled countries, but neither are island dependencies eligible for international projects and aid programs that target island nations.

For trends and the state of SIDS environments, refer to the recent UNEP/EU publications (i.e., the GEO Outlook Reports) for the Caribbean, Indian and Pacific Oceans. In essence, the common environmental problems these SIDS face remain largely unchanged. These are:

- *loss of biological diversity* - continuing in both marine and terrestrial environments;
- *threats to freshwater resources* - further complicated by the potential of climate change and increasing pressure from growing populations and tourism development;
- *degradation of coastal environments* - in particular coral reefs and inshore fisheries from land clearance, sedimentation and destructive fishing practices, and climate change effects;

- *climate change and sea level rise* - expected to require adaptive responses even if the Kyoto Protocol targets are met;
- *land and sea-based pollution* - continuing from a wide range of sources; and
- *excessive human population density* - on small oceanic islands ultimately compromises environmental frailty.

From the review of current policy, it is clear that there have been some successful approaches to addressing these pressing environmental and sustainable development concerns of the region. They include: community-centered environmental initiatives; improved coordination at national and, in particular, regional levels; increased capacity in the public sector to deal with environmental issues; increased awareness within communities and increasing participation; and a strengthened regional legal framework to deal with common environmental concerns.

Participants have identified a number of important gaps in this effort. These include: coral reef monitoring; guidelines for bio-prospecting; strengthening stakeholder involvement, essential data collection and research, broader application of ICM, food security, education and training across the board (and specifically in marine issues). A number of emerging issues have also been identified such as economic reform and globalization, adaptation to climate change and the protection of intellectual property/traditional knowledge.

In relation to economic reform and globalisation, international trade and investment are becoming increasingly important drivers of growth in both developed and developing countries, promoting a shift from subsistence to cash-based economies and accompanying social dislocation. SIDS are finding it difficult to secure the necessary benefits of international trade due to their isolation, remoteness from metropolitan markets, lack of skilled labour, underdeveloped economic infrastructure and subsistence affluence. The newly emerging global trade and investment regime discourages protectionism in the interest of more competitive trade that will result in rapid economic growth and sustained economic development. Developing export industries and inviting direct foreign investment are generally considered the natural and possibly only options for most countries bent on increasing their economic growth. Despite considerable effort, we find globalisation is impacting negatively on Small Island States and their marine coastal areas in particular.

Islands largely depend economically on tourism. If not well planned, the influx of additional workers and tourists can strain the local resource base and services to the point that the resources that initially attracted the tourist industry are destroyed along with pre-tourism social and cultural systems.

CONSTRAINTS

The preparations for the Conference have identified the following constraints or impediments to sustainable development:

- Lack of human and institutional capacity at the national and community levels;

- Lack of appropriate carrying capacities based on sound natural and social science to define population limits;
- Fragmented institutional arrangements with a lack of vertical and horizontal integration across marine sectors;
- Inconsistent short and long-term goals that do not safeguard the rights of future generations;
- Sustainable development strategies in the framework of climate change and globalization;
- Aid dependency;
- The smaller an island, the more limited the resource base and the less space there is for human settlements, agriculture, and public service infrastructure;
- Donor motivation – donor-driven relationship between official development assistance (ODA) which is declining and direct foreign investment which is growing, and the inequitable distribution of benefits; and
- Connection between poverty reduction and sustainable development – poverty reduction should not simply be a shift from subsistence to cash economies – increase in power to consume has no connection with sustainable development.

COURSE CORRECTIONS

To address these constraints and make progress to reverse the trends, participants have identified the need to:

- Replace the conventional concept of economic growth with that of human development;
- Accept that there are limits to the resident and visitor populations that are sustainable by oceanic islands, both environmentally and socio-economically. Tools like carrying capacities and limits of acceptable change are useful but often are not accepted by policy-makers and planners, who do not understand the implications of being far from large landmass;
- Establish an effective limit on the amount of human population deriving their livelihood or recreation from the island ecosystems. Technology and good resource management can help mitigate the effects of development, but no matter what steps are taken, excessive human population density ultimately compromises environmental quality. Consequently not only should existing planning tools be used, but new techniques to define population limits need to be developed based on sound natural and social science;
- Emphasize self sufficiency and domestic and inter-regional markets before international;
- Promote in-country value-adding to products and processes;
- Harness investment in coastal and marine areas to provide equitable opportunities to improved livelihoods;
- Review aid practices to ensure full involvement of stake-

holders in the conceptualization and design of both large and small projects;

- Increase the amount of, and access to, 'small project funds' as these represent "useful" amounts of money;
- Improve cross-sectoral integration at the regional level;
- Develop a code of ethics for donors; and
- Encourage inter-regional exchanges between civil society.

RECOMMENDATIONS

It is important also to acknowledge that almost all the themes concerning ocean and coastal management within this Conference are of direct relevance to islands and that of all groups, SIDS can be expected to champion ocean issues within the WSSD. The challenge for the Conference in relation to SIDS is to provide some direction that is environmentally responsible and clearly delivers on the social goals and economic targets that exist today. The Conference will scratch the surface of the range of issues that warrant attention in SIDS. The recommendations or new initiatives need to be placed in the context of the WSSD agenda and focus on what can be usefully advanced through global consensus. At the first Preparatory Committee for the WSSD, the Chairman of AOSIS outlined the following framework for SIDS:

- overcoming economic and environmental vulnerability;
- sustainable permanent and transient population levels must be calculated and incorporated into planning;
- institutional strengthening at the national, sub-regional and regional levels;
- capacity building;
- enhancing the role of the international financial institutions, in particular the GEF;
- strengthening inter-regional and intra-regional cooperation;
- follow-up to the SIDS Conference (Barbados+10); and
- within nations, small oceanic islands need distinct environmental policies and guidelines.

These broad headings are used below to cluster the ideas of Participants into specific initiatives for WSSD. There is a focus on change at the scale necessary to secure sustainable development. The last ten years have been characterised by discrete projects, sector-by-sector and issue-by-issue. Rapid change from a sectoral focus, particularly when political, administrative and academic systems are largely founded upon them, will be difficult but essential.

1. Overcoming vulnerability

SIDS are vulnerable to wide variety of environmental, economic and social factors. Environmental factors include: climate variability, climate change and sea-level rise; natural hazards such as

earthquakes, tsunamis and volcanic events, fragile ecosystems and geographic isolation. Economic factors include: high external dependence (aid, imports) and poor insulation to global economic fluctuations; limited opportunities for economic diversification; small internal markets; small resource base and high dependence on natural resources; low savings to investment ratio and high impact of political instability. Social factors include: high population growth; high urban migration and emigration; limited human resource capacity; increasing incidence of malnutrition, communicable and non-communicable diseases and food insecurity; impact of economic modernization and globalization on societies, cultures and traditional knowledge.

The challenge remains to understand what are the critical aspects of vulnerability and how that undermines efforts towards sustainable development. A number of indices exist (both environmental and economic) but to date none have been accepted as providing the appropriate mix of factors nor are they global enough in nature to be applied. Whether a single number is appropriate or not, there is significant information and opportunity to build capacity in the process of compiling an index and in relating the various environmental, economic and social aspects of vulnerability, that can assist countries understand and respond to the challenges of sustainable development.

Action required:

- Financial and political support for the completion of relevant indices by the international community;
- Population carrying capacities and limits of acceptable change are useful tools to estimate human population levels;
- Committee for Development Policy of the United Nations to fully consider vulnerability in its broader context including environmental vulnerability as part of its assessment of LDC status;
- Vulnerability (economic, environmental and social) factored into country statistics;
- Recognition of the *environmental vulnerability* by national governments and international agencies;
- Active use of the *environmental vulnerability* and other vulnerability indices in national environmental planning;
- Research and development of tools to address *vulnerability* and the impacts of hazards;
- Capacity building where necessary to enable data collection and creation of appropriate *environmental vulnerability* databases; and
- UNEP is needed to take a more active role in the refinement of an *Environmental Vulnerability Index*. UNEP Governing Council has repeatedly requested the Secretariat to assist initiatives by SIDS to develop an environmental vulnerability index (Decisions GC 18/34; 19/18; 20/19D).

2. Partner Institutions

It is clear that institutional arrangements at national and regional levels are critical to SIDS— the need for efficient arrangements that make the best use of limited human and financial resources is essential. At the international level, these institutions can support the stronger voice required by SIDS and facilitate the resources required for regional and national action. At the regional level they provide significant technical and policy backstopping and the essential coordination. At the national level they provide the fundamental governance arrangements and the infrastructure to promote and deliver sustainable development.

The number of institutions increases and so does the competition between them for mandate and resources. A significant challenge for SIDS is the consistent or mutually supportive governance of regional institutions as well as the coordination and resourcing of institutions at the national level. The focus of this initiative for SIDS is closely linked to the recommendations concerning regional-scale governance.

Action required:

- Deliberate and legal links, where necessary, between regional and international cooperation in environmental matters, especially those with trans-boundary or global implications, as well as for coordinated, integrated economic decision-making processes at the national and regional levels;
- Developed or strengthened domestic enabling environment including anti-corruption, sound macro-economic policies, political stability;
- Increased awareness of links between trade, globalisation, investment and environment at national and regional levels;
- Improved strategies to generate environmentally sensitive responses to global and domestic trade liberalisation and investment initiatives;
- Enhanced capacity to respond to global economic changes (e.g. WTO and APEC developments); and
- Development and use of sustainable development indicators and indicators for emerging problems.

3. Building Capacity at Scale

Capacity building has been a central element of all SIDS initiatives. To make the difference required – to deliver to an increasing number of individuals and organisations in many different countries and locations spread over large distances – it will be essential for future efforts to employ the best practices and tools, establish the right partners and utilise the best communications techniques and technology. The need for a programmatic approach to capacity building, one that builds progressively towards a strategic (e.g. 20 year vision) but that “meets people where they are” – allowing individuals to define their own needs and shape their learning process.

The effort put into non-formal education training programmes and activities has achieved some success, particularly where NGOs and concerned groups have worked with local communities. Despite this, the fact remains that both formal and non-formal education and training are seriously inadequate in most SIDS island countries. In building on effective education and training programmes, emphasis must be placed on traditional conservation techniques and encouragement provided for more culturally compatible and sensitive education material, projects and programmes. The techniques to build capacity must also be re-examined, as “workshops” often don’t “work”. The use of mentors and coaches, leadership development, peer learning networks and accessible experts should be encouraged.

Action required:

- strengthen existing regional initiatives in curricula design through the recognition and incorporation of local situations and the provision of public information;
- develop effective approaches to building national capacity through regional programmes;
- stimulate the development of non-formal education in island countries including support for the training of women in subsistence fisheries;
- support awareness-raising for decision-makers;
- support tertiary training for students as well as personnel in management positions in government and private sectors;
- promote institutional strengthening to enable delivery of appropriate training;
- support professional development of promising environmental managers and conservation bodies should be encouraged through scholarships and exchange schemes;
- assist schools and education departments to produce their own primary and secondary curriculum in curriculum education;
- assist with the training of teachers in developing strategies and resources for teaching environmental education in schools;
- encourage the raising of community environmental awareness through the arts, theatre, music and the media;
- encourage and promote culturally compatible and sensitive environmental education and information;
- promote community awareness through production of visual, print and electronic media including posters, displays, audio-visual kits, radio and video material;
- support inter-regional grassroots exchanges of skills and expertise; and
- expansion of the GEF Capacity Development Initiative to address these fundamental capacity building concerns for SIDS at regional and national levels.

4. Leveraging Financial Resources

The lack of human, technical and financial resources is a fundamental constraint to the integration of environment and development in decision making in most SIDS. In the past, with the benefit of aid inflows and remittances, the central banks in most island countries have performed credibly to maintain stability in domestic prices and balance of payments. In the last few years however the need for fiscal discipline has become evident. High inflation rates, mounting balance of payments, deficits, falling external reserves and public sector deficits pose serious threats to national development and disadvantage SIDS relative to their competitors. Island countries are also vulnerable to falling export prices, rising import prices and overseas interest rates which are beyond their control.

It has not been possible to determine the extent of access to or mobilization of financial resources necessary for the implementation of the Barbados Plan of Action. However, some progress has been made. At a national level, there are indications that a greater proportion of national budgets have been mobilized for environmental management and sustainable development. For example, staffing levels of environment units have been increased in most SIDS at a time when government indebtedness is high in some countries and when there is pressure to reduce employment in the public sector. However, most SIDS have small environment and conservation agencies, with generally have few staff, often with limited training and experience.

Agenda 21 called for approximately USD 130 million to be invested in the sustainable development of small islands, USD 50 million of which was expected from the international community. While these were very rough estimates it should be asked: was the target achieved? Was the target adequate? Was it channeled to the right areas? Did it leverage additional resources and the desired change?

Action required:

- secure greater and sustainable returns from ocean resources through (i) improved terms of trade in ocean resources; and, (ii) higher level of investment (domestic and foreign) in the sector;
- ensure resources are utilised and managed sustainably;
- developing countries – need more and better international cooperation – more ODA – better access to markets and debt relief;
- financial support – core budgets – for Regional Organizations;
- better Environmental Management Accounting – serve public as well as corporate functions – incentives for corporate EMA;
- changes (improvements) in domestic policies and legislation to facilitate trade and foreign investment in the context of the new global trade environment;
- encouraging local investment and participation in small-scale fisheries;

- recognize the special circumstances of the islands in relation to trade in ocean products, including the role trade preferences have played in compensating for our natural/inherent comparative disadvantage due to smallness, isolation and vulnerability;
- support the development in oceans infrastructure (ports and shipping) rioting the high cost per unit of providing such services in the region;
- recognize the importance of the region as a food source (fish exporter) and as having good investment potential in its ocean;
- encourage greater foreign investment in onshore processing to add value to ocean products before export; and
- support negotiations that ensure equitable returns from access arrangements.

5. International support for SIDS

International progress to understand and respond to the challenges of SIDS and their role as custodians of significant oceanic and coastal resources needs to be significantly strengthened.

Action required:

- Call for Barbados +10 to be convened as a full and comprehensive review to focus on achievements, constraints and new initiatives necessary to significantly advance sustainable development within SIDS.

Working Group 7 Participants

Gerald Miles	South Pacific Regional Environment Programme (Chair)
Nelson Andrade	UNEP Caribbean Environment Programme (Rapporteur)
Graham Robin South	International Ocean Institute-Pacific Islands (Facilitator)
Danielle Tesch	University of Delaware (Secretariat Contact)
Leo Brewster	Coastal Zone Management Unit, Barbados
Tegan Hoffman	University of California, Berkeley
June Marie Mow	Coralina, Colombia
Johnathan Phinney	American Society of Limnology and Oceanography
Mary Power	South Pacific Regional Environment Program
Ambassador Tuiloma Neroni Slade	Alliance for Small Island States
Tamari'i Tutangata	South Pacific Regional Environment Program

Working Group 8

HUMAN RESOURCE DEVELOPMENT AND CAPACITY BUILDING IN MARINE AND COASTAL MANAGEMENT

BACKGROUND

The centrality of capacity building to achieving the objectives of Agenda 21 was recognized in 1992 in Rio. Agenda 21 gave importance to promoting an ongoing participatory process to define a country's needs and priorities and hence strengthening the country's human resource and institutional capabilities. Technical cooperation was to be reoriented to support a country's own programs of action, while improving coordination among providers of assistance.

In its review of the capacity building chapter 17 of Agenda 21 in 1997-1998, the Commission on Sustainable Development (CSD) recommended intensification of capacity-building efforts, based on participatory approaches, with the aim of having *national sustainable development strategies* or their equivalent in place by 2002 for implementation. Towards that goal, CSD encouraged *sharing of experiences* and the increasing of *South-South and sub-regional cooperation* focused on common programmatic themes. In 2001, the CSD acting as the Preparatory Committee for the WSSD, emphasized the relevance of *transfer of environmentally sound technologies* in building cooperation and capacity. This position was in line with the findings of the two main reports of the World Bank and UNDP on development, poverty, and technology transfer.

Chapter 17 of Agenda 21's approach to capacity building focuses on the need to develop *education and training* in integrated coastal and marine management and sustainable development for all stakeholders, with a view to incorporate environmental protection concerns and local planning issues in educational curricula and public awareness campaigns.

PROGRESS

1. Advancement of Ocean and Coastal Management through Capacity Building

Enhanced capacity is essential to progress ocean and coastal management as the scope and complexity of programs that can be successfully implemented by a nation is directly proportional to its local capacity. At Rio, the need to manage oceans and coasts in an integrated manner was a new paradigm; it required a new way of thinking for both managers and scientists. To date capacity building programs for coastal and ocean management have largely focused on formal education and short-term professional training:

- There are a substantial number of degree programs (primarily at the post-graduate level) in marine and coastal policy. Most of these programs have been established in developed countries, although programs are now beginning to emerge in some developing countries. The

educational institutions in developing countries need to be adequately resourced to expand these new programs;

- There have been many short-term training programs targeted at professionals involved in marine science, and ocean and coastal management. Impact evaluations of the effectiveness of single programs and the overall effect of multiple programs in turning new knowledge into more capacity and action are lacking.

The numbers of professionals educated and trained is substantial but precise figures are not available.

CONSTRAINTS

Despite substantive efforts in education and training, insufficient local capacity remains a major barrier to meaningful implementation of ocean and coastal management programs. Possibly there has been too much emphasis since 1992 on formal education and training (university degrees, short courses etc.) and not enough emphasis on building a critical mass of practitioners and other key stakeholders and providing them with the enabling conditions and continued support they need to develop and implement programs.

Capacity building programs also seem to have concentrated on technical and scientific material rather than a broader coverage taking in areas such as policy matters, decision making methods, institutional capacity building and in the formation of true partnerships between groups. In addition, capacity programs have not specifically targeted under represented groups such as women and youth.

The still high "failure" rate of sustaining coastal and marine projects after donor support ends, the apparent "added-on" nature of many training programs, the heavy reliance on outside expertise in coastal management projects in developing countries and the continued use of non local examples in training programs suggests that meaningful capacity-building remains today as an urgent and essential action item for achieving sustainable development in coastal regions.

VISION

Sustainable coastal and ocean management requires societal choices on how we use our resources. Those choices depend on our values and culture, what information and knowledge we can access, and the institutional and policy environment in which we work. Our vision for 2012 is that all coastal nations shall have sufficient capacity to develop and implement effective, sustainable coastal and ocean programs with competence and confidence; and that there is regional and global capacity to facilitate meaningful exchanges among nations.

RECOMMENDATIONS

1. Recognizing the importance of integrated Coastal and Ocean Management to the fate and future of the World's people, and that capacity building, which consists of a) human resource development through education and training, b) institutional and infrastructure development, and c) development of a favorable enabling policy environment is essential for achieving the goals of sustainable development (as also noted in other chapters), there is a need to:
 - 1.1 Base capacity building programs on needs assessments that identify clear objectives; then identify the knowledge, skills infrastructure and institutional capacity requirements that must be developed to achieve objectives;
 - 1.2 Go beyond the provision of education and training of professionals and address capacity building needs and strategies for a broad range of stakeholders and policy makers; programs also need to be periodically assessed so that continuous feedback, improvement and adaptation can occur;
 - 1.3 Empower country nationals from policy makers to professionals to the local community by building on existing local knowledge then incorporating additional scientific and more broadly based information which contributes to the overall objective of capacity building for sustainable development; and
 - 1.4 Give high priority to providing resources for capacity building and develop additional mechanisms to facilitate the matching of resources and providers with recognized coastal and ocean management capacity building needs world-wide.
2. Recognizing that the specific substance of capacity building efforts for coastal and ocean management must be based on actual needs as determined in each region and nation. There are, however, global attributes that could enhance most programs. Capacity building programs should:
 - 2.1 Extend beyond the traditional scientific disciplines to incorporate local knowledge and build conceptual and practical linkages with other development-oriented fields such as policy development, regulatory mechanisms, economics, trade, health, population and literacy;
 - 2.2 Incorporate techniques and mechanisms for mainstreaming scientific, interdisciplinary and inclusive tools into decision-making processes; and
 - 2.3 Ensure access to information technology to enhance knowledge sharing for integrated coastal and ocean management.
3. Recognizing that capacity building programs should be based at local institutions to maximize local ownership and effectiveness, such programs and their delivery also need to:
 - 3.1 Be sufficiently flexible so they can be responsive to local needs whilst still meeting the pre-set overall objectives, work within local cultural structures, use local languages, encourage closer collaboration between networks of practitioners and academics; and
- 3.2 Involve the private sector in direct initiation and continuing sponsorship of projects, and adapt standard training materials to local conditions and delivery by local experts.
4. Recognizing that sustaining capacity building programs is key to continued forward progress in ICM, such programs need to:
 - 4.1 Develop beneficial long-term partnerships at local, regional and global levels; maintain networks and communities of practice around specific topics; ensure continuing transfer of up-to-date technology and best practices within and among nations, and develop programs which link short-term training to degree programs;
 - 4.2 Ensure future leadership, raise awareness of, and broaden the constituency for coastal and ocean issues by targeting youth and adopting inclusive approaches which ensure that under-represented groups such as women and the disabled, are included in programs, projects and policies.

Working Group 8 Participants

Gayatri Acharya	World Bank (Chair)
Lynne Hale	University of Rhode Island, USA (Facilitator)
Geoffrey Wescott	Deakin University, Australia (Rapporteur)
Bernice McLean	University of Delaware, USA (Secretariat Contact)
Russell L. Chapman	Louisiana State University
Sally Cochran	U.S. Department Of State
Kaiser De Souza	International Seabed Authority
Piero de Bonis	National Agency for New Technologies, Energy and the Environment (ENEA) Italy
Peter Dexter	World Meteorological Organization
Guillermo García Montero	National Oceanographic Committee, Cuba
Enir G. Reis	Fundação Universidade do Rio Grande
Venugopalan Ittekkot	Zentrum Fuer Marine Tropenoekologie (ZMT-Bremen)
Mervyn Kamoetie	Ministry of Environmental Affairs and Tourism, South Africa
Kazuhiro Kitazawa	Ministry of Education, Culture, Sports, Science and Technology, Japan
Laure Ledoux	Centre for Social and Economic Research on the Global Environment, UK
Cuauhtemoc León	LEAD-Mexico
Rejice Mabudafhasi	Ministry of Environmental Affairs and Tourism, South Africa
Moira McConnell	World Maritime University, Sweden
Jonathan Phinney	American Society of Limnology and Oceanography

