
SUSTAINABLE DEVELOPMENT STRATEGY FOR THE SEAS OF EAST ASIA

Regional Implementation of the
World Summit on Sustainable Development
Requirements for the Coasts and Oceans

This document was initiated and prepared by PEMSEA in consultation with 12 participating Governments and other stakeholders of the Seas of East Asia.

Collaborators

Association of Southeast Asian Nations (ASEAN)
Global Environment Facility (GEF)
Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific, and Cultural Organization (IOC/UNESCO)
International Maritime Organization (IMO)
United Nations Development Programme (UNDP)
United Nations Environment Programme Global Programme of Action for the Protection of the Marine Environment from Land-based Activities Coordination Office (UNEP-GPA)
Food and Agriculture Organization (FAO) of the United Nations
The World Bank
Asia Pacific Federation of Environmental Journalists (APFEJ)
Conservation International (CI)
Ship and Ocean Foundation (SOF), Japan
Wetlands International, Asia Regional Office
World Conservation Union (IUCN) Asia
WorldFish Center
World Resources Institute (WRI)
World Wide Fund for Nature (WWF)

Citation:

PEMSEA (Partnerships in Environmental Management for the Seas of East Asia). 2003.
Sustainable Development Strategy for the Seas of East Asia: Regional Implementation of the World Summit on Sustainable Development Requirements for the Coasts and Oceans. PEMSEA, Quezon City, Philippines.

ISBN 971-92799-2-3

Any comments and suggestions should be addressed to:

Regional Programme Director

GEF/UNDP/IMO Regional Programme on Partnerships
in Environmental Management for the Seas of East Asia
P.O. Box 2502, Quezon City 1165
Philippines
Tel. (632) 920-2211
Fax (632) 926-9712
E-mail: info@pemsea.org
www.pemsea.org

Table of Contents

List of Tables and Figures 4

List of Acronyms 5

Glossary 7

Overview of the Strategy 9

FOREWORD 10

THE SEAS OF EAST ASIA 15

The Seas of East Asia **16**

The People of East Asia **19**

Economic Development in East Asia **20**

The Environment of the Seas of East Asia **22**

The Value of the Seas of East Asia **23**

The Importance of the Coastal Area **24**

Adverse Impacts of Current Trends **26**

Poverty and the Environment **27**

Transboundary Issues **30**

RESPONSE 33

A New Paradigm for the Seas of East Asia **34**

A Shared Vision **35**

Mission **36**

Framework for the Strategy **37**

Desired Changes **38**

THE STRATEGY 41

Foundation of the Strategy **42**

Executing the Strategy **43**

How to Implement the Strategy **45**

Strategic Action Statement **46**

General Principles **48**

A Strategic Approach to Achieving a Shared Vision **49**

Sustain **50**

Preserve **57**

Protect **62**

Develop **72**

Implement **82**

Communicate **88**

MONITORING THE STRATEGY 93

Bibliography 101

Annexes 104

List of Tables and Figures

Tables

- East Asian Seas' major river basins **18**
- Population and the coastal area **19**
- Socioeconomic indicators of East Asian countries **21**
- Natural roles of ecosystems **22**
- Values of the Seas of East Asia **23**
- East Asian ecosystems at risk **51**
- Regional comparison of marine biodiversity **52**
- Action programmes for integrated implementation of international instruments **108**
- Ratification of international conventions relating to marine pollution **110**
- Ratification of international conventions and agreements relating to the marine environment **111**

Figures

- The Seas of East Asia **17**
- Poverty and the environment **28**
- Estimated BOD from domestic sources in East Asia **31**
- Pattern of oil tanker routes and oil spills in East Asia **32**
- A strategic approach to achieving a shared vision **49**
- Global center of marine biodiversity **52**
- The coastal habitats of East Asia: status and threats **60**
- Environmental risk assessment/risk management framework **63**
- Harmful algal blooms **65**
- Pollution hotspots **68**
- Sea-use zoning scheme in Xiamen **73**
- ICM program development and implementation cycle **77**
- Subregional growth areas **79**
- Coastal megacities of East Asia **79**
- Marine Electronic Highway functional diagram **91**
- International conventions in an integrated implementation framework **107**

List of Acronyms

ADB	Asian Development Bank
APEC	Asia-Pacific Economic Cooperation
APFIC	Asia-Pacific Fisheries Commission
ASEAN	Association of Southeast Asian Nations
BOD	biochemical oxygen demand
CBD	Convention on Biological Diversity, 1992
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973
CLC	International Convention on Civil Liability for Oil Pollution Damage, 1969 and its 1992 Protocol
DPRK	Democratic People's Republic of Korea
EAS/RCU	East Asian Seas Regional Coordinating Unit
EEZ	exclusive economic zone
EIA	environmental impact assessment
ESCAP	Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organization of the United Nations
FUND	International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971 and its 1992 Protocol
GEF	Global Environment Facility
GESAMP	IMO/FAO/UNESCO/WMO/WHO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Pollution
GDP	gross domestic product
GMA	Global Marine Environment Monitoring and Assessment
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-based Activities
HABs	harmful algal blooms
HNS	International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, 1996
ICM	integrated coastal management
IEIA	integrated environmental impact assessment
IMF	International Monetary Fund
IMO	International Maritime Organization
IOC/ WESTPAC	International Oceanographic Commission Sub-commission for the Western Pacific
ISO	International Organization for Standardization
IT	information technology

IUCN	The World Conservation Union
LME	large marine ecosystems
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto
NGO	nongovernment organization
ODA	Official Development Assistance
OPRC	International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990
PEMSEA	GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia
PPP	public – private sector partnerships
RCF	Regional Cooperation Framework
ROK	Republic of Korea
SDR	Special Drawing Rights
SDS-SEA	Sustainable Development Strategy for the Seas of East Asia
SEAFDEC	Southeast Asian Fisheries Development Centre
SEMP	strategic environmental management plan
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea, 1982
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change, 1992
WRI	World Resources Institute
WSSD	World Summit on Sustainable Development
WWF	World Wide Fund for Nature

Glossary

Civil society – Collectively refers to groups of society, who, not motivated by profit, are organized nationally or locally for the advancement of particular purposes that relate, directly or indirectly, to the coastal and marine area. This includes NGOs, conservation and advocacy organizations, civic organizations, people's organizations, mass media, religious groups, and less organized groups such as subsistence resource users, landowners, and indigenous communities.

Coastal and marine area – The area and resources starting from the point on land where it interacts with the sea and the sea interacts with the land, up to the point at sea where human activities affect it.

Community – The people or entities in a particular area, not formally organized but with common interests particularly in relation to specific issues.

Corporate responsibility – The duty and accountability of corporations, or any group of people organized for the purpose of conducting business, to the community and all that they affect.

Economic instruments – Mechanisms in the form of market-based incentives that work through price signals, thereby affecting costs and benefits of alternative actions, hence influencing decisions and behaviors of individuals, firms and governments, so that environmentally superior options are chosen. They are designed to serve as alternative to, or to complement, legal or regulatory mechanisms.

Ecosystem management – Management of ecosystem values and uses recognizing the interactions with the environment and responding to signals from the ecosystem to control anthropogenic activities and uses.

Eco-efficiency – Efficient use of resources and energy in any operation.

Ecotourism – Tourism focusing on environmental and cultural resources and usually based on a conservation theme.

Environmental risk assessment – The process to estimate the likelihood of harm being done to human health and/or ecosystems through factors emanating from human activities that reach their target via the natural environment.

Environmental risk management – The application of identified management interventions to address environmental concerns identified through the environmental risk assessment process.

Integrated coastal management – A natural resource and environmental management framework which employs an integrative, holistic approach and an interactive planning process in addressing the complex management issues in the coastal area.

Land-based activities – Activities occurring primarily on land.

Large marine ecosystem – Regions of ocean space encompassing coastal areas from river basins and estuaries out to the seaward boundary of continental shelves and the seaward margins of coastal current systems. They include upwellings, semi-enclosed seas, shallow shelf ecosystems on western ocean boundaries, coral reefs, and ocean shelf-deltaic-riverine interactive systems.

Local government – The political institution exercising legislative and executive authority over persons and property within a certain geographical area that is part of a larger political entity, i.e., the country or state.

National government – The political institution exercising legislative, executive, and judicial authority over a country, whether unitary or federal.

Nongovernment organization – A nonprofit group or association organized outside of institutionalized political structures to realize particular social objectives or serve particular constituencies.

Other wetlands - Wetlands as defined by the Ramsar Convention (areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide do not exceed 6 m) which are in the coastal area and are not coral reefs, mangroves, or seagrass beds.

Pollution hotspots - Areas where the pollution load is high and poses serious impacts on marine and coastal ecosystems and threat to public health.

Pollution of the marine environment - The introduction by man, directly or indirectly, of substances or energy into the marine environment (including estuaries) which results in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality for use of sea water and reduction of amenities.

Private sector - Collectively, people or entities conducting business for profit.

Reception facilities - Facilities for the reception of wastes from ships at port for appropriate disposal.

Regional mechanism - A structured arrangement among countries within the region that may or may not be based on a legal instrument, entered into for the purpose of undertaking common, integrated, collaborative, and coordinated approaches to address the issues and problems relating to the coastal and marine environment.

Resource use - Any utilization of natural resources in the Seas of East Asia, including the sustainable use and conservation of coastal and marine living resources and conservation and management of nonliving resources.

Sea-based activities - Activities or phenomena occurring primarily at sea.

Semi-enclosed sea - A gulf, basin, or sea surrounded by two or more States and connected to another sea or the ocean by a narrow outlet or consisting entirely or primarily of the territorial seas and exclusive economic zones of two or more coastal States.

Special Drawing Rights - An artificial "basket" currency serving as the International Monetary Fund's unit of account and as a basis for the unit of account for a number of other international organizations.

Stakeholders - Persons or entities who, directly or indirectly, positively or negatively affect or are affected by the policies relating to, or activities or phenomena in, the coastal and marine area.

Strategic environmental assessment - Environmental assessment at national, regional, subregional, or sectoral level.

Subregional growth area - A region, usually contiguous, comprised of areas under two or more countries or jurisdictions, which is governed by agreements between such countries or jurisdiction on deregulated economic activity and investments.

Subregional sea - A relatively large area of the marine environment that geographically forms a single management area but is politically under two or more jurisdictions.

Sustainable development - Development that ensures the continuance of natural resource productivity and a high level of environmental quality, thereby providing for economic growth to meet the needs of the present without compromising the needs of future generations.

Sustainable financing - Mechanism of raising or allocating financial resources to provide sustained funding of a programme, project, activity, or sets of environmental management interventions.

Transboundary - Moving beyond the territorial jurisdiction of a country, state, or other political entity.

Overview of the Strategy

The Strategy is arranged in the following manner:

The FOREWORD provides background information on the preparation of the Strategy, its purpose, philosophy, and approach.

THE SEAS OF EAST ASIA section provides the basic information about the region's coastal and marine areas and the problems and issues associated with them, and shows why there is a need for the countries of the region to cooperate. Topical information is provided in text boxes throughout the document.

The RESPONSE section addresses how the countries of the region can pursue common issues individually and collectively. It expresses a shared vision and mission, as well as an integrated management approach and framework for action.

THE STRATEGY is the main body of the document. Specific strategies and action programmes are spelled out in this section, providing a holistic and integrated perspective on sustainable development and management of coastal and marine areas regionally, nationally, and locally.

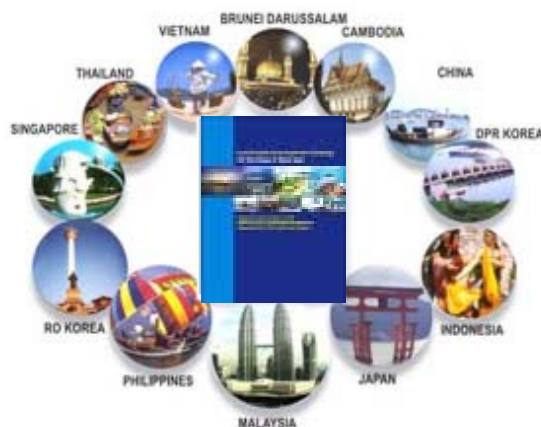
The final section, MONITORING THE STRATEGY, identifies a number of indicators for monitoring the status of the Strategy's implementation.

The Bibliography cites the sources of information contained in the Sustainable Development Strategy for the Seas of East Asia.

The Annexes list the relevant international and regional conventions, agreements, and programmes of action on which the SDS-SEA is based. The relevance of international agreements is also discussed.

Foreword

The decision to prepare a Sustainable Development Strategy for the Seas of East Asia arose from an intergovernmental meeting of 11 countries of East Asia held in Dalian in July 2000. The countries are Brunei Darussalam, Cambodia, China, Democratic People's Republic of Korea, Indonesia, Malaysia, Philippines, Republic of Korea, Singapore, Thailand, and Vietnam. The March 2002 Intergovernmental Meeting of PEMSEA, now joined by Japan, endorsed the Strategy in principle and agreed to pursue intersectoral consultations at national, regional, and international levels. The Strategy is a product of joint efforts by the concerned countries and other stakeholders through 3-year consultations and consensus-building at all levels.



What is the Sustainable Development Strategy?

The Sustainable Development Strategy is a package of applicable principles, relevant existing regional and international action programmes, agreements, and instruments, as well as implementation approaches, for achieving sustainable development of the Seas of East Asia. It offers a regional framework for the interested countries and other stakeholders to implement, in an integrated or holistic manner, the commitments they have already made, without assuming new legal obligations. It addresses linkages among social, cultural, economic and environmental issues. It embodies the shared vision of the countries and other stakeholders for the Seas of East Asia, and the ways by which they will achieve that shared vision. The Strategy does not reflect any individual country, international organization, or sectoral interest but presents a regional perspective, principles, and guidelines, and a platform for each to play and strengthen its respective role and to cooperate with one another in addressing common issues and concerns.

The Sustainable Development Strategy is based on a programmatic approach and the consensus reached among the countries and other stakeholders particularly with regard to needs, nature and purpose, basic role and functions, scope of application and essential elements.

Why Do We Need a Sustainable Development Strategy?

The Sustainable Development Strategy represents implementation approaches for the integrated management and sustainable use of the environment and resources therein, with a view to bringing about the following benefits:

- promoting regional partnership arrangements among government agencies, NGOs, private sector, and other stakeholders;
- enabling the concerned organizations and programmes, operating in the region at all levels, to promote synergistic and cumulative impacts of their efforts and expertise for the benefits of the countries and other stakeholders;
- providing the countries and other stakeholders with a set of guidelines, references, and examples for assisting in their development of strategies, policies, and implementation plans in order to address specific national, local, and sectoral needs;

-
- offering a set of operational approaches and measures for sustainable coastal and marine development that have been proven suitable and effective through a decade of demonstration and extension activities in the region;
 - facilitating the sharing and transfer of experiences, knowledge, technology and techniques, as well as mutual assistance among the countries currently at different stages of socioeconomic development; and
 - facilitating the flow of support and assistance from the interested financing institutions and donor agencies, and the creation of self-sustained financing mechanisms and investment opportunities for sustainable coastal and marine development.

What is Its Scope?

The Strategy is not intended to focus on development issues of individual sectors, e.g., agriculture, industries, and services, as these types of issues fall under sectoral policies and programmes. It does not limit itself to environmental protection and management. Rather, the Strategy represents a paradigm shift in our management approach that focuses on the interactions between environment and development; and addresses issues and impacts across sectoral, administrative, and legal boundaries that are constraints and bottlenecks for sustainable development in the East Asian Seas Region. Thus the Strategy deals with:

- the relationship among economic development, social development, and environmental protection as related to the Seas of East Asia;
- linkages among programmes concerning poverty alleviation, sustainable livelihood, reduction of vulnerability to natural hazards, long-term security, economic growth, and the health of human beings, ecosystems and the natural resource base; and
- intersectoral, interagency, intergovernmental and interproject partnerships for the sustainable development of the region.

Related issues such as deforestation and air pollution are not addressed directly, but the awareness, regional cooperation, and confidence-building brought about by the implementation of the Strategy will contribute to the solution of such problems within an integrated management framework for sustainable development.

The scope of the Sustainable Development Strategy is broader than any individual international instrument or regional programme. Its implementation will entail a new kind of partnership, involving national governments, civil society, and regional agencies such as ASEAN, ESCAP, UNEP EAS/RCU, FAO/APFIC, IOC-WESTPAC and UNDP/RCF. The Strategy also incorporates the experiences and lessons from past and existing national, regional, and international efforts, such as those of other UN agencies, international programmes and projects, ODA programmes and international and national NGOs such as WWF and IUCN.

The Strategy recognizes the socioeconomic and political conditions among the countries of the region. Its implementation will enable strategic partners to pool their resources and to work together with a common goal.

The Strategy adopts a strategic, programmatic and problem-oriented approach to ensure effective response from policy and management interventions. It takes a long-term view in programme implementation, which depends on national capacity and resources.

How will the Sustainable Development Strategy be Adopted?

The draft Strategy has been subjected to a long and comprehensive consultation and approval process. It has stimulated debates and built up general consensus and partnership among various stakeholders including policymakers, natural resource and environmental managers, the academe, private sector, civil society, international agencies, intergovernmental financial institutions and all those who care for the coastal and marine environment and believe in sustainable development. In addition, consultations have been undertaken with a view to harnessing the objectives of intergovernmental bodies and multilateral financial institutions, including those listed as Collaborators and other stakeholders. These are the same partners who will use the Strategy to act decisively and proactively to conserve the Seas of East Asia.

The draft Strategy was reviewed and refined through senior government official meetings and submitted for consideration by a ministerial forum. The ministers adopt the Strategy collectively as a region and individually as countries, and commit to the development and implementation of national strategies and action programmes at regional, subregional, national, and local levels, taking into account national development objectives, capacities, and specific conditions of the countries and stakeholders involved.

For years, we have been leaving environmental issues of national concern to the sovereign responsibility of the nation and the respective sectors, and those of transnational issues to international bodies such as the United Nations. With the advent of globalization and regional economic realignment, this two-tiered and sectoral approach is no longer effective. A multitiered, multisectoral integrated approach at the regional, national, and local levels is necessary in order to resolve the environmental problems that face the East Asian Seas region.

Regional Governance for the Sustainable Development of the Seas of East Asia

The Sustainable Development Strategy will strengthen governance of the region's marine and coastal resources through:

1. A functional framework for regional cooperation and collaboration addressing environmental and resource use relationships across national boundaries and the region, for the purposes of:
 - promoting intergovernmental collaboration on global environmental concerns;
 - strengthening synergies and linkages among: UN agencies such as the UNEP Regional Seas Programme, IOC/WESTPAC and FAO/APFIC; regional programmes of action such as those of ASEAN, ESCAP, SEAFDEC, and UNDP/RCF; regional and international NGOs such as WRI, WWF, and IUCN; and international funding institutions such as the World Bank and Asian Development Bank;
 - encouraging active participation from the private sector, NGOs, academe, communities, and other members of civil society; and
 - identifying and developing opportunities for environmental investments and facilitating sustainable financing mechanisms.
2. An integrated approach to implementing international instruments concerning environment and natural resource use at the regional level by:
 - enhancing the synergistic relationships among multilateral environmental agreements;
 - strengthening partnerships among governments and intergovernmental bodies and across sectors, and establishing multitiered arrangements for the cost-effective implementation of multilateral environmental agreements;
 - promoting effective use of human and financial resources, for example, through shared information systems, information exchange, networking, and capacity-building programmes; and
 - establishing working models of holistic, integrated environmental management programmes at regional, national, and local levels.
3. Documentation and assessment of changes arising from implementation of the Sustainable Development Strategy and further refinement of the Strategy through:
 - integrated environmental monitoring and reporting;
 - scientific research that advances knowledge of ecosystem management and provides input to sustainable economic development; and
 - South-South cooperation, applying knowledge, innovations, practices, and technologies at the national and local levels.

The Seas of East Asia



The Seas of East Asia

The Seas of East Asia are those bordered by China, Democratic People's Republic of Korea (DPRK), Republic of Korea (ROK), Japan, Philippines, Indonesia, Brunei Darussalam, Malaysia, Singapore, Thailand, Cambodia, and Vietnam.

The region encompasses a series of large marine ecosystems (LMEs), subregional seas, coastal areas, and their associated river basins that are linked by large-scale atmospheric, oceanic and biological processes/phenomena, e.g., typhoons, Kuroshio Current and highly migratory species.

The state of the world's seas and oceans is deteriorating. Most of the problems identified decades ago have not been resolved, and many more are worsening. The traditional uses of the seas and coasts – and the benefits that humanity gets from them – have been widely undermined.

GESAMP 2001, A Sea of Troubles

The East China Sea, the Yellow Sea, the South China Sea, the Sulu-Celebes Sea, and the Indonesian Seas are five LMEs of great ecological and economic importance to the region.

These five LMEs are semi-enclosed and interconnected. They are strategic, globally significant, and geologically unique international water systems.

- The East China Sea has shallow coastal waters that provide spawning and nursery grounds for many pelagic fish.
- The Yellow Sea, a resource shared by DPRK, China, and ROK, has a geographically unique floor and complex biotic communities due to the complicated oceanographic conditions of the area. It includes Bohai Sea to the north and is connected to the East China Sea in the south, forming a continuous circulation system.
- The South China Sea, which lies within the Indo-West Pacific marine biogeographic province has long been recognized as the global center of marine shallow-water, tropical biodiversity. It is bordered by China to the north, the Philippines to the east, Malaysia, Singapore, Indonesia, and Brunei Darussalam to the south, and Thailand, Cambodia, and Vietnam to the west.
- The Sulu-Celebes Sea area is one of the world's most biologically diverse marine environments. It is surrounded by Malaysia, the Philippines, and Indonesia.
- In between the islands of Indonesia (and therefore entirely within its jurisdiction) is a tropical LME, the Indonesian Seas. Their importance stems partially from the fact that they support an extremely high biological diversity, including both demersal and pelagic fisheries, sharing highly migratory fish resources (e.g., tuna, mackerel, round scad) with adjacent countries (Australia, Philippines and Malaysia).

Major ocean currents which originate from the North and South Pacific travel to the eastern side of the Asian continent. They help generate upwelling zones which contribute to high productivity. These currents also bring about long-distance dispersal of larval recruits of coastal and marine organisms. These major currents may have also effected the luxuriant growth of corals in the Seas of East Asia owing to the warm water coming from the equator.

The Seas of East Asia.



A simplified map that gives a general idea of the geographic and oceanographic features of the region.

Riverine systems within the region of the Seas of East Asia that are of considerable ecological significance are:

- The Mekong River, which has a globally unique lake-river system (the Mekong-Tonle Sap River-Great Lake System) and globally significant wetlands and flooded forests, supporting one of the most productive and diverse freshwater ecosystems in the world.
- The Yangtze River in China, Asia's longest river, which serves as a major trade and transportation route. It traverses densely populated and economically productive regions of China before emptying into the East China Sea.
- The Yellow River, China's second longest river, passes through the densely populated North China Plain before reaching the Bohai Sea. The plain, one of China's most important agricultural regions, suffers periodically from devastating flooding of the Yellow River.
- The Red River Basin, one of the largest watersheds in Southeast Asia, originates in Yunnan province, China, and flows through Vietnam to the South China Sea where it forms an extensive delta. The problems of frequent and severe flooding in both upper and lower areas of the river, and salinity intrusion during the dry season have an impact in the national economy since the Lower Red River Delta is the most densely populated area in Vietnam.

The river basins that are associated with the Seas of East Asia cover a total area of about 6.25 million km² and accommodate about 1.5 billion people. The Seas of East Asia are the catchment area of the associated upstream river basins. Therefore the health of the Seas of East Asia is significantly impacted by these river basins and related human activities.

East Asian Seas' major river basins.

Major seas of East Asia	Related river basins	
	Area (km ²)	Population
Bohai Sea	1,400,000	445,000,000
Yellow Sea	502,000	230,000,000
East China Sea	1,820,000	510,000,000
South China Sea	2,524,960	268,182,000
Total	6,246,960	1,453,182,000

The People of East Asia



The East Asian region has a total population of 1.9 billion, expected to reach 3 billion by 2015. About 77% (ranging from 24% in Cambodia and China to 100% in South Korea, Philippines, and Singapore) live within 100 km from the coast.

The region is highly urbanized, with rapid population growth. The populations of East Asia as a whole are fast transforming from rural to urban. In 1994, 34% of the populace was in urban areas; it is estimated that by 2025, this will have grown to 1.4 billion people or 54%, for an average growth per year of 2.5%. This will comprise a 29.43% share of the world increase in urban population.

Coastal settlements have developed into major cities now counted among the most populated in the world. It is estimated that within the next 50 years more cities in the region will join the 6 coastal megacities now found in East Asia.

Because of the region's geography, a large proportion of the East Asian people are dependent on marine food production. One-fourth of the world's marine fish production is contributed by East Asia.

There are 10 million fisherfolk, and 50 million people are dependent on fisheries for a major portion of their livelihood. Twenty-eight percent of the animal protein intake of the East Asian people comes from fish.

Being the region worst affected by natural disasters, combined with high population densities and the large number of people living on floodplains and low-lying coastal areas, the vulnerability of the people of East Asia is high.



Population and the coastal area.

Country	Coastline (km)	Population (millions)	Coastal population (% within 100 km of the coast)	Average annual population growth (%)
Brunei Darussalam	161	0.30	99.9	2.4
Cambodia	435	12.49	23.8	2.2
China	32,000	1,287.75	24.0	0.9
DPR Korea	4,009	23.15	92.9	0.9
Indonesia	81,290	206.26	95.9	1.4
Japan	29,020	127.00	96.3	0.2
Malaysia	9,323	24.31	98.0	2.0
Philippines	18,000	79.94	100.0	2.1
RO Korea	11,542	46.14	100.0	0.8
Singapore	268	4.16	100.0	1.4
Thailand	2,600	62.31	38.7	0.9
Vietnam	3,260	80.53	82.8	1.6

Economic Development in East Asia

The region as a whole has achieved unprecedented sustained growth and development in the past three decades despite the economic crisis of 1997-1999. Growth was accompanied by a dramatic decline in the incidence of absolute poverty, significant increases in per capita incomes, and notable improvements in key social indicators. GDP per capita has nearly tripled in several countries. However, aggregate success hides a great diversity of development experiences: the region includes economies at very different stages of development; among and within countries, not all have shared equally in the benefits of the region's growth.

All stages of national economic development are represented in East Asia. According to 1997 data of the 12 countries in the region, the World Bank has classified two countries as low-income economies, five countries as lower-middle-income economies, one country as an upper-middle income economy and four countries as high-income economies. Hong Kong and Taiwan are also classified as high-income areas.

The low and middle-income economies in the region are generally resource-dependent. The coastal and marine resources of this region account for not less than 40% of GDP, although the economies have begun to diversify.

A large portion of economic activities, with the exception of agriculture, are concentrated in the region's coastal cities.

The cities will be drivers of economic growth, with 80% of the incremental economic activity in the region taking place in large and small cities.

Thus, traditional resource-based activities such as coastal fisheries, aquaculture, forestry, and agriculture are found side-by-side with activities such as industry, shipping, and tourism. The potential for economic opportunities in coastal cities is a strong attractive force, fuelling immigration from often economically depressed rural areas. These future coastal residents will demand employment, housing, energy, food, water, and other goods and services, presenting a substantial development challenge for these areas.

A large majority of the people in the region suffer from poverty. In 1998, 65 million people in the countries of East Asia, excluding China, were earning less than US\$1 per day.



Socioeconomic indicators of East Asian countries.

Country	GDP per capita PPP (current inter- national \$ ^a) 2000	Average annual GDP growth rate (%), 1991-2000 (1995 US\$)	GDP by sector, 2000 (%)			Employment by sector, 1996-1998 (% of male/female labor force)			Unemployment, 1996-1998 (% of total labor force)	Population below international poverty line, 2000 (%)	Infant mortality rate, 1995-2000 (per 1,000 births)	Child malnutrition (% of children under 5)
			Agriculture	Industry	Services	Agriculture	Industry	Services				
Brunei Darussalam	7,252	1.4	1.6	53.3	45.1	n.a.	n.a.	n.a.	3.5	n.a.	7	n.a.
Cambodia	1,326	4.6	37	20	42	n.a.	n.a.	n.a.	n.a.	n.a.	103	47
China	3,936	10.1	16	51	33	n.a.	n.a.	n.a.	3.1	18.8	41	9
DPR Korea ^c	478 ^d	n.a.	21.2	42.5	36.3	30.9 ^e	38.3 ^e	30.8 ^e	n.a.	n.a.	21.4	n.a.
Indonesia	3,019	3.5	17	47	36	41/42	21/16	39/42	5.5	7.7	48	70
Japan	26,707	1.3	1	32	66	5/6	39/23	56/71	4.1	0.2 ^b	4	n.a.
Malaysia	9,497	6.6	11	45	44	21/15	34/28	46/57	2.5	4.3 ^b	11	20
Philippines	3,967	3.6	16	31	53	47/27	18/12	35/61	9.6	26.9 ^b	36	n.a.
RO Korea	17,579	5.5	5	43	53	11/14	34/19	55/67	6.8	2.0	10	n.a.
Singapore	23,356	7.7	0	34	66	0/0	34/23	66/77	3.2	n.a.	5	n.a.
Thailand	6,190	3.5	10	40	49	52/50	19/16	29/34	3.4	2.0	38	n.a.
Vietnam	2,006	7.9	24	37	39	70/71	12/9	18/20	11.4	n.a.	43	37

^a According to Earth Trends, "An international dollar has the same purchasing power in a given country as a United States dollar in the United States. In other words, it buys an equivalent amount of goods or services in that country."

^b 1997 data.

^c All data for DPR Korea is dated 2001 except for employment by sector, which is dated 1999.

^d GDP per capita in US dollars.

^e Not gender-disaggregated.

n.a. - not available

The Environment of the Seas of East Asia

The following characteristics define the environment of the Seas of East Asia:

- The seas have a total area of 7 million km², with expanded watersheds.
- With a total coastline length of 234,000 km, majority of the countries have long coastlines and large coastal areas.
- The extensive coastal areas of the region are conducive to settlement and livelihood. There are hundreds of natural harbors that have become among the most important ports of the world.
- Two of the largest archipelagic states in the world, and thousands of other islands, are located in the region, making the special needs of island ecosystems important to the region.
- Severe weather systems (monsoons, typhoons) from the ocean affect most parts of the region.
- Most of the region is geologically active - it is part of the Pacific "ring of fire" - and suffers earthquakes and volcanic eruptions.



The region encompasses many ecosystems which are globally significant for their biodiversity. The Seas of East Asia support 30% of the world's coral reefs and one-third of the world's mangroves. These contribute to 40 million t of fish/year and produce close to 80% of the world's aquaculture products. At least 20 of the 50 species of the world's seagrasses are found in the region. Aside from these ecosystems, the region has a wide range of environmentally and economically significant wetlands, estuaries, lagoons, bays, and gulfs.

Natural roles of ecosystems.

These ecosystems provide the following goods and services:

Coral reefs

- nursery ground and shelter for fish and other associated organisms;
- natural products (pharmaceuticals);
- physical barrier, i.e., provide shoreline defense by absorbing wave energy; and
- livelihood through attracting ecotourism and fishery-related activities.

Mangroves

- nursery and feeding grounds for commercially important species of fish, prawns, etc.;
- shelter and breeding grounds for inshore and migratory species;
- livelihood;
- shoreline defense against floods and beach erosion;
- pollutant "sink" by filtering certain types of waste that reach the sea; and
- carbon sink.

Seagrass beds

- nursery ground, shelter and food for fish, invertebrates and dugong, turtles and seahorses;
- coast stabilization;
- fertilizer and fodder; and
- pollutant sink.

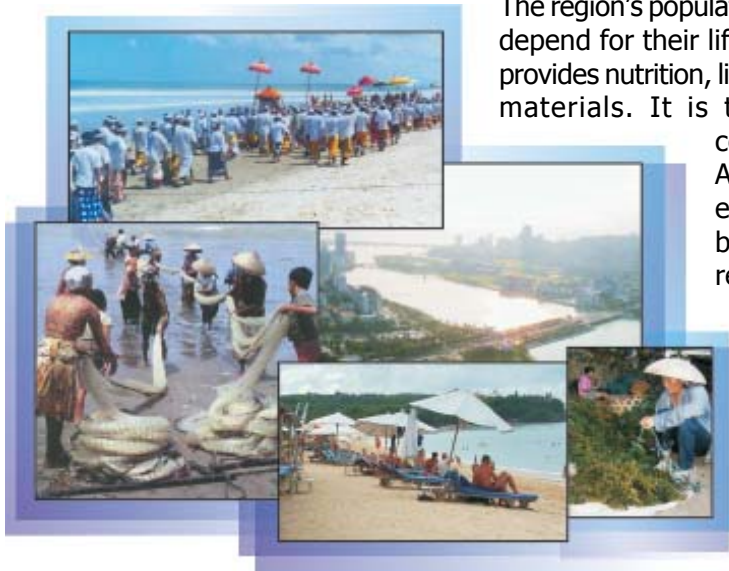
Other wetlands

- crucial shelter, food, and nutrition for a wide range of sedentary and migratory species, including a great number of rare, vulnerable, threatened, and endangered species.

Estuaries

- transition from land to sea, from salt to fresh water;
- dwelling and nursery grounds for birds, mammals, fish and other wildlife, and vegetation;
- natural buffer between land and ocean; and
- natural harbors and areas for ports and other infrastructure supporting transportation, industry, commerce, livelihood, and recreation.

The Value of the Seas of East Asia



The region's populations, or at least a significant part of them, depend for their life on the seas. The marine environment provides nutrition, livelihood, minerals, medicine, and building materials. It is the medium for transportation and communication. Thus, the Seas of East Asia facilitate trade and commerce, and economic growth. Development areas are built around the seas. They provide recreation through sports, tourism, and aquarium products. They also bind the region's peoples together through beliefs, practices, and traditions relating in common to the seas, and through historical and modern trade and migration routes through the seas. Finally, they have special natural features, biological and physical, some found only in the region.

The East Asian Seas are a common natural heritage because the values are shared by and important to all the littoral countries.

Ecological

- biodiversity
- habitats

Resources

- living resources
- minerals
- water
- other resources

Aesthetic values

Recreation

Historical, political, educational, and cultural values

- national unity and integration
- equity

Development and economic values

- trade
- shipping and ports
- tourism
- energy
- fisheries and aquaculture
- coastal construction
- oil and gas
- pharmaceuticals

The Importance of the Coastal Area

The coastal area is the interface between the land and the sea. Characterized by high biological productivity and biodiversity, coastal areas are home to at least 13 coastal systems and are governed by physical, chemical, and biological processes. The vast living and nonliving resources of the seas of East Asia provide needed primary resources for industrial development within and outside the region. They contribute to the development of maritime trade and livelihood to millions of coastal inhabitants.

The coastal areas of East Asia provide a continuous supply of goods — fish, oil, gas, minerals, salt, and construction materials — and services — shoreline protection, sustaining biodiversity, water quality maintenance, transportation, recreation, and tourism. If the estimated global value of goods and services sourced from different ecosystems averages \$33 trillion a year, then a substantial part of this figure must belong to East Asia, considering that one-third of all the coral reefs and mangroves in the world and a great part of the seagrasses are found in the region. Coral reefs in Southeast Asia alone generate an estimated value of \$112.5 billion a year. The value of the global center of marine biodiversity supported by the area is beyond valuation. If it is lost, it can never be replaced.

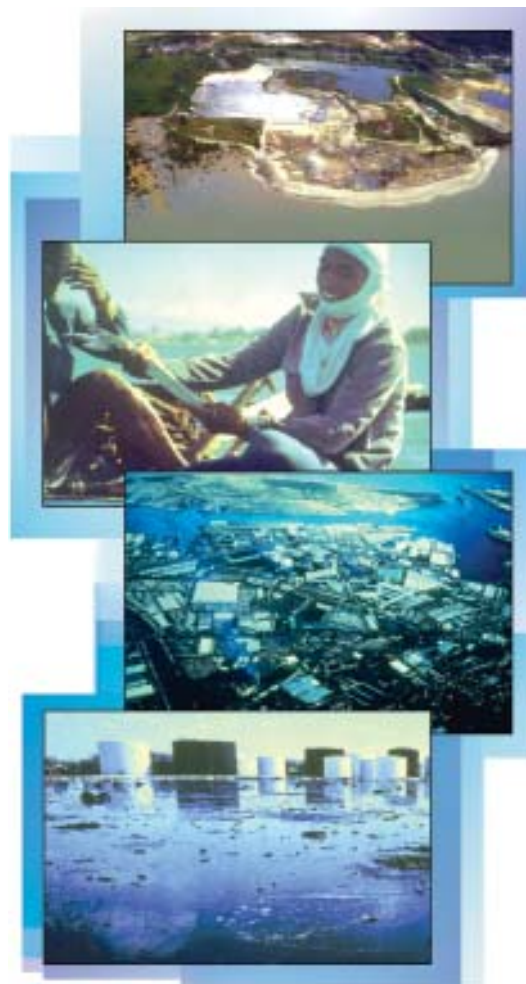
Coastal areas are also very accessible, making them centers of human activity, where people live, derive their recreation and their means of livelihood. People aggregate in a very narrow strip of land. The already dense population in that area is growing much faster than in inland areas. It is also the preferred site for urbanization.

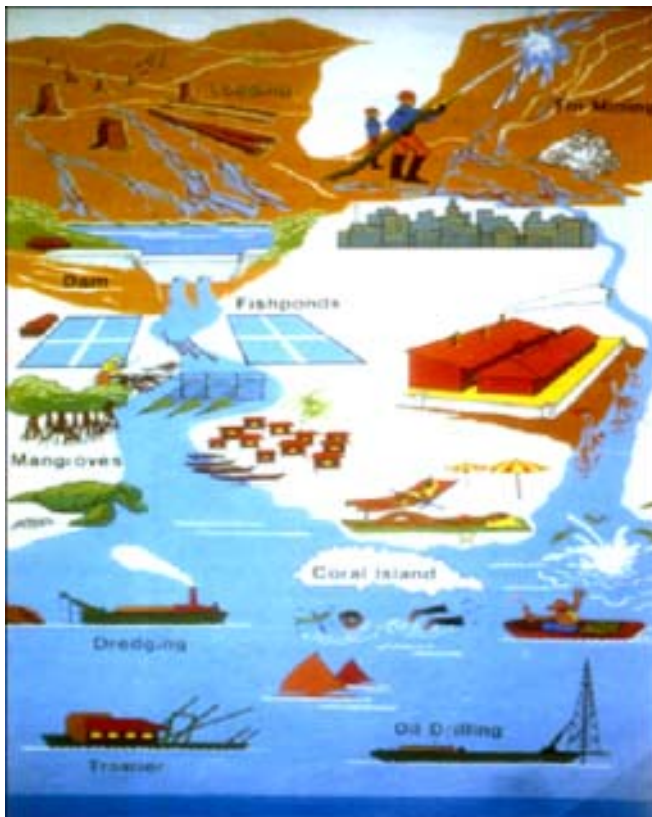
More than half the world's population lives within 60 km of the shoreline, and this could rise to three quarters by the year 2020. Many of the world's poor are crowded in coastal areas. Coastal resources are vital for many local communities and indigenous people.

Agenda 21

Degradation of the oceans continues on a global scale, despite progress made during the last three decades in some places and on some issues. This impedes development and diminishes human welfare. A fundamental solution to many of the sea's environmental problems lies in scientifically informed management that integrates the range of uses of the marine environment to ensure that their benefits are sustained. Such management regimes, when effectively implemented, have produced concrete benefits for society and the environment, but they have not been widely applied. This is largely due to a lack of informed constituencies, appropriate institutional structures, and political will.

GESAMP 2001, *A Sea of Troubles*





Providing the natural setting conducive to port, shipping, maritime trade, primary industries, and coastal tourism, the coasts of the region are major social and economic development zones, contributing some 40 to 60% of the GDP of the countries in the region. Much of the industrial developments in the region occur along the coast, especially refineries, petrochemical manufacturing, food processing, shipbuilding and repair, and other marine industries.

Because coastal areas are preferred sites for human settlements and urbanization, severe conflict results from multiple use and competition for the limited land and sea resources by various stakeholders. The existing property rights regimes operating in both sides of the coastal area complicate the conflicts: whereas the ocean side has a public character, a mixed public and private character operates in the land area.

Adverse Impacts of Current Trends

If current trends in environmental degradation are not changed, the social fabric of many nations could dramatically deteriorate over the next 50 years.

- Food security will be undermined as populations of fish and other edible marine products crash due to unsustainable take, destructive practices, and habitat degradation.
- Economic dislocation will result for those whose jobs are related to the coastal and marine environment when the environment is no longer able to generate sustainable livelihoods.
- Public health will be compromised by toxins and hazardous compounds in edible marine products and by increased dangerous waste levels in coastal waters used by the public.
- Some coastal areas will be made uninhabitable due to rising sea levels and intensified severe weather systems from climate change. This will increase the vulnerability of the people, especially the poor, to climatic events.
- There will be increased loss of life and more pollution incidents as greater shipping congestion and other marine activities lead to more maritime accidents.
- Infrastructure will deteriorate as pressures of urbanization undermine ability to provide adequate infrastructure levels for population.
- Aesthetic and recreational values will be lost.
- Conflicts on the use of the resources and inaccessibility will intensify and lead to social strife.
- Pressure on the state will increase to cope with and compensate for the loss of values of the marine environment, e.g., health and social services, food adequacy, and public works.
- Economic development will not be able to compensate for irreversible damage in the Seas of East Asia.

Trends in Environmental and Social Problems

- Southeast Asia's coastal ecosystems have been severely damaged. In the last 30 years, 11% of coral reefs collapsed while 48% are in critical condition. Recent findings show over 80% face risks. Mangroves, on the other hand, have lost 70% of their cover in the last 70 years while seagrass beds' loss ranged from 20-60%. Unless managed, the current rate of loss will result in the removal of all mangroves by 2030, while reefs face collapse within 20 years.
- Fish production in the region has fallen. Peak production was reached in 1988 in Northwest Pacific Ocean and in 1991 in West Central and Southwest Pacific Ocean. Data from these fishing regions show that change in catch from peak year to 1992 ranged from -2% to -10%. Problems in open access and overcapacity precipitated the decline. In 1995, East Asia contributed 78% to global capacity with its 980,000 decked fishery vessels.
- In 2000, 6 coastal megacities (with more than 10 million people) were located in East Asia; this is predicted to increase to 8 by 2015. With urbanization and the continued rural-to-urban migration, the populations of smaller coastal cities (3-8 million people) are also increasing.
- There are 35 pollution hotspots and 26 sensitive and high-risk areas identified in countries and subregions bordering South China Sea; a number are also found in the Koreas, Japan, and the rest of China.
- Trade in East Asia as a share of GDP increased from 15% in 1970 to over 50% in 1995, as exports grew 10% per year. Accompanying this increase is the proportionate growth in seaborne trade, especially containerized trade. In East Asia ports, total volume of containers increased by 270% from 1985 to 1995; with the ports estimated to handle around 47% of total world container throughput in 2000, which figure is expected to reach 50% by 2005.
- An "East Asian economic miracle" was sustained over three decades - changing the regions' patterns of production and consumption. Accompanying this economic growth was poverty reduction from 720 million to 350 million people. Recent economic projections, however, see a very volatile and unpredictable growth, posing a grave threat to the regions' millions of people still mired in poverty.

Poverty and the Environment

Causes of Environmental Problems

Rapid economic growth has been accompanied by deterioration in air and water quality, depletion of resources that are otherwise renewable, and loss of habitats and endemic species. High incidence of water-related, waterborne, and air-related diseases affect human productive capacity. Habitat and resource degradation and loss of biodiversity affect resource productive capacity and intrinsic resiliency, which in turn affect income, food adequacy and security, shoreline protection, natural defense against calamities, and future potential uses.

People contribute to environmental and resource damages, and consequently suffer from them. This shows that economic growth is short-lived if the environment and resources are not conserved due to the high costs of ecological and socioeconomic impacts. Moreover, certain sectors suffer disproportionately from the loss of the natural and economic values, particularly those relying on traditional resource-based activities, and those living in calamity-prone areas.

Underlying Cause: Institutional Failures

The degradation of the environmental resource base is attributed mainly to institutional failures:

- failure of the market system (e.g., pollution, overextraction of resources, influential vested interests, inadequate property rights system);
- inappropriate and/or inconsistent application of government policies (e.g., inappropriate economic growth policies, weak regulatory and enforcement systems, concentration of growth in few urban centers);
- information failure, including information for decisionmaking;
- inadequate budgetary commitments and funding; and
- failure to develop skilled human resources through capacity-building.

Poverty is the state of inadequate consumption of food and deprivation of the essential assets and opportunities to which every human is entitled.

- There is a large variation in the incidence of poverty across countries, ranging from a high 34.5% in Cambodia to a virtual elimination of poverty at \$1 per day in the case of Hong Kong, Malaysia, Singapore, and South Korea.
- In year 2000, about 236 million persons in East Asia were deemed to live below the poverty line (\$1 per day).
- Nearly half the population, about 857 million people, live on less than \$2 per day. About 80% of the poor dwell in the countryside and mountains. Therefore, social vulnerability remains high.
- Studies have shown that more than 500,000 infants in the region die each year as a result of waterborne diseases linked to dirty water. About 60% of these deaths are a consequence of the deficit in rural water supplies while another 30% are due to lack of sanitation facilities in urban areas.

The Asian Miracle refers to the unprecedented economic growth achieved in the region as a whole these past three decades, accompanied by remarkable increases in per capita incomes, significant decline in the incidence of absolute poverty, and notable improvement in key social indicators. The 1997-1999 financial crisis has shown the unsustainability of such growth due to a number of factors, including the inherent structural and institutional problems, labor and capital productivity problems, and low priority given to environmental and resource management. The interrelationships of the ecosystems and the ongoing production of goods and services that are extracted from the natural environment and of residuals that are being dumped back into the natural system have become obvious these past three decades, but links between improved environmental management and economic development are still not well-understood by policymakers both in the public and private sectors.

Reverse Causality: Poverty

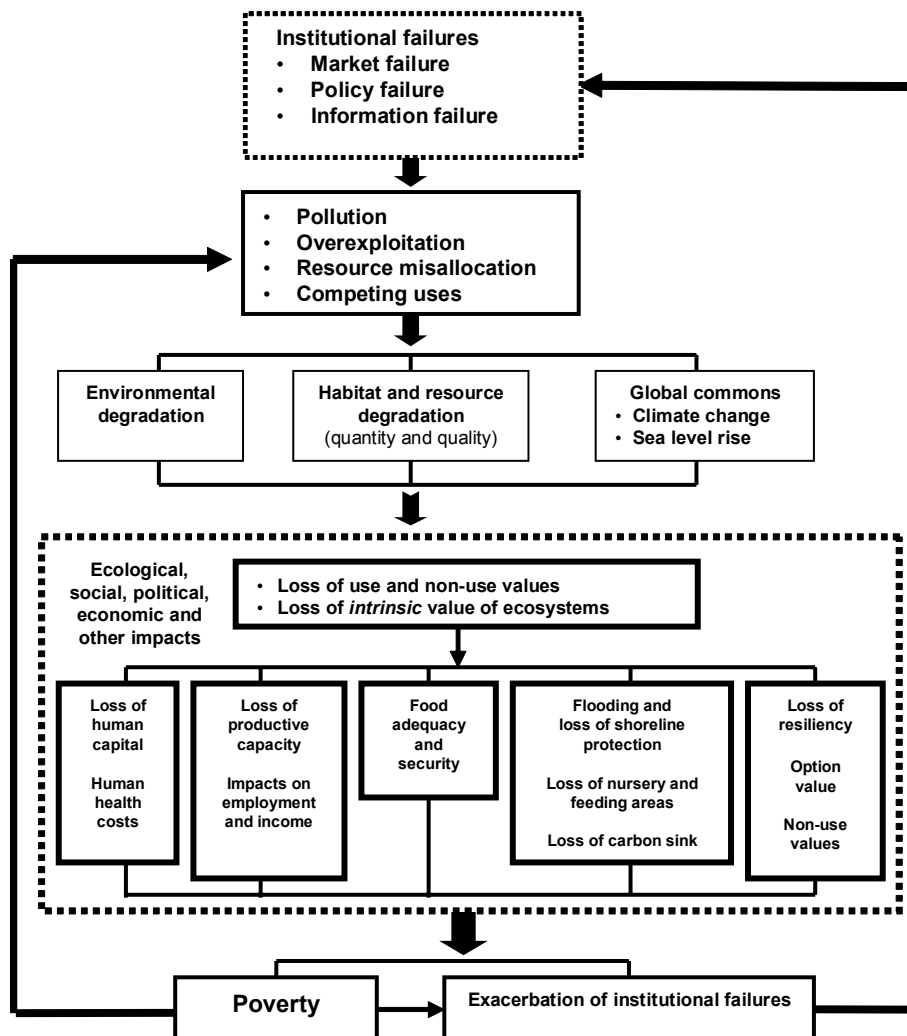
Although much of the damage has been caused by institutional failures, the pressures of poverty compound the threat. The poor turn to natural resources, which supplement income, especially in times of acute economic stress.

The rural poor are constrained in their access to land, credit, insurance and capital markets, and are often forced to live on fragile lands and waters.

Poverty contributes to increasing stresses to the ecological systems, which in turn exacerbate institutional failures and economic productivity. Examples:

- farming of hillsides and marginal areas by the landless, causing soil erosion and lower agricultural productivity; and
- use of illegal fishing methods to catch more fish, but causing damage to habitats, which further aggravates fish productivity.

Poverty and the environment.



Population

High population levels and growth rates exert pressures on the environment and resource base to provide adequate food supply, clean air and water, and a source of income. Rapid urbanization and unequal development in the rural areas fuel immigration, add stress to existing physical and social infrastructures, and compound the environmental problems.

Cumulative Causation

The three causes of resource and environmental problems – institutional failures, high fertility rates and poverty – pull in different directions, but feed upon one another, and together create conflict between concerns about impacts of environmental and resource problems that sweep across local areas, countries, and regions, and matters that are specific to the needs and concerns of poor people.

There exists cumulative causation, thus poverty reduction strategies need to be accompanied by policies and actions that enhance the quality and productivity of the environment and natural resources and human capital.

Transboundary Issues

Environmental issues are increasingly transboundary because: (1) resources occur in or move through many countries; (2) activities in the marine environment, such as shipping, fishing, and the movement of migratory and alien species, involve multiple countries, and (3) the ocean is a medium through which pollutants are relatively easily transmitted. The causes and/or impacts involve more than one country or jurisdiction and therefore the response needs to be multilateral or regional. As we move into the 21st century the impact of transboundary issues will become increasingly critical. Transboundary issues include, among others:

Pollution

- Projected growth in production will also generate increasing industrial and domestic wastes, the major sources of marine pollution in the region.
- The current level of sewage treatment in the region is low. For example, just over 10% of the organic component is removed by sewage treatment in countries bordering the South China Sea. Unless this is drastically improved, the sewage from increased populations in concentrated areas will accelerate eutrophication and threats to public health at transboundary levels.
- Nonpoint sources of pollution, or runoff from such diverse activities as agriculture, mining, timbering and land-clearing, and residential and commercial development are increasing in volume. Evidence indicates that land-based sources are polluting nearshore areas and bays and inlets and may also be affecting the main areas of LMEs.
- International trade is anticipated to triple in the next 20 years and between 80 and 90% of this is expected to move by shipping. About 300 oil spills with over 200 million gallons of oil were spilled in the region since the mid-1960s. Although these numbers were largely in decline during the decade, the projected increase of shipping traffic increases the likelihood of oil spills.

Introduction of alien species

- International shipping also transfers approximately 10 billion t of ballast water around the world annually. Although necessary for ship safety, ballast water can contain marine organisms that threaten ecosystems and public health. For example, in some countries red tide organisms have been introduced by ballast water and have contaminated shellfish. As ships get larger and faster, and as maritime trade increases, the problem will become more acute.

Overexploitation

- Most of the small pelagic species comprising the South China Sea capture fisheries, which could be shared or straddling stocks, are already fully exploited. There is also indication that the large pelagic stocks are in a state of full exploitation.
- The discard of by-catch, estimated at over one-fourth of total marine catch, contributes to inefficient and wasteful exploitation.

Destructive fishing practices

- Destructive fishing practices in one country can impact on the viability of migratory fish in another country. These practices include fishing with explosives, trawling with nets and chains, and using cyanide to stun fish so that they can be caught alive - a trade valued at \$1 billion per year - and other practices which degrade fish habitats such as reefs and mangroves.

Change in consumption and use patterns and international trade

- The rising global demand for shrimp was largely met by exports from the region despite major adverse environmental impacts through the deforestation of mangroves, the introduction of alien shrimp species (and associated pathogens) and the threat to public health from chemicals associated with shrimp culture.
- Degradation of coastal habitats contributing to loss of biodiversity has transboundary impacts because of the strong interdependence of seagrass beds and coral reef ecosystems on one another. Furthermore, they contribute significantly to fisheries shared by proximate coastal countries.

Land-based Sources of Marine Pollution



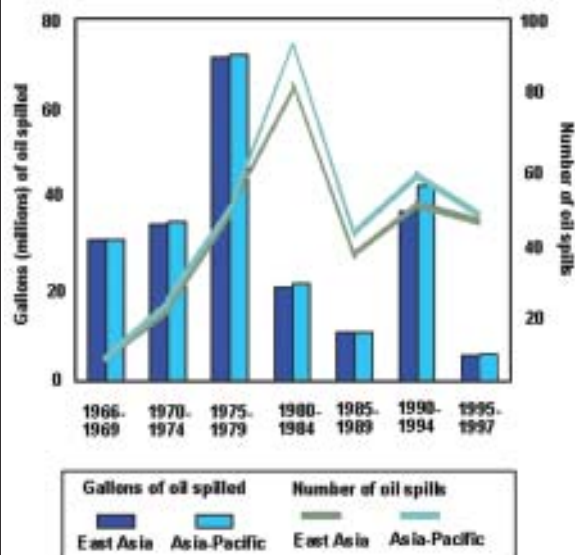
Estimated BOD from domestic sources in East Asia.

Land-based activities contribute to most of the pollution load in the Seas of East Asia including municipal, industrial and agricultural wastes, runoff and atmospheric deposition.

In 1999, Bohai Sea, Yellow Sea and East China Sea received 1.5 billion t of industrial wastewater discharges from 12 major coastal cities in China. About 25% of the Bohai Sea water body is considered seriously polluted. Most important pollutants offshore of China are inorganic nitrogen and phosphates. In 2001, some 77 red tide events covering a total of 15,000 km² were recorded where nutrient pollution was serious offshore of China.

In the South China Sea, land-based sources play a major role in both inland and coastal pollution. China, Indonesia, Malaysia, Philippines, Thailand, and Vietnam release a minimum of about 430,000 t of BOD per year into aquatic systems interacting with the South China Sea. Only 11% of BOD generated was removed by sewage treatment in 4 of these countries. About 10 million t of fertilizers are used annually in the coastal areas of Cambodia, China, Indonesia, Philippines, and Vietnam, contributing to nutrient loading in the South China Sea. In Indonesia, Thailand, Malaysia, and Philippines, land clearance takes place over a total of about 50,000 km² of forest for roundwood, contributing to soil erosion and increased suspended solids in the aquatic system. The coastal population of South China Sea in Cambodia, China, Indonesia, Malaysia, Philippines, Thailand, and Vietnam generates a total of over 66 million t of solid wastes per year. A significant portion of the solid wastes is composed of plastics, metals, and glass that are not readily biodegradable. Oil and other hydrocarbons from land-based sources also cause pollution in the South China Sea.

Pattern of Oil Tanker Routes and Oil Spills in East Asia



Over 220 million gallons of oil were spilled in the Asia-Pacific region since 1965; about 96% of this (212 million gallons) occurred in East Asia.

The East Asian spills came from a number of sources, though 80% involved vessels.

Increased likelihood of oil spill may result from:

- increased tanker traffic and trade routes thus increasing risk of vessel spills; and
- greater oil production and storage and pipeline transport thus increasing risk of pipeline and facility spills.

Response



A New Paradigm for the Seas of East Asia

The countries of the region shall:

1. Adopt a shared vision of the Seas of East Asia;
2. Pursue a common integrated strategy to achieve the vision of the Seas of East Asia which can be undertaken at all levels of government in the region with the participation of multisectoral stakeholders to ensure public support;
3. Take concrete steps to prevent and mitigate threats to the marine environment through their own national and local efforts; and
4. Share responsibility to address complex transboundary environmental threats which are beyond the capacity of any single government, agency, donor, or other group to deal with.

The countries of the region will develop innovative new partnerships to:

1. Bring local and central governments together to resolve coastal issues;
2. Promote the participation of civil society and all stakeholders;
3. Mobilize the strength of the private sector to provide efficient and sustainable environmental solutions;
4. Address environmental issues of the Seas of East Asia collectively by working intra-regionally, and with the donor community and other international organizations, to implement international conventions; and
5. Contribute to the global partnership for sustainable development based on the principle of common but differentiated responsibilities, participatory, democratic and transparent decision-making, and increased genuine participation of major stakeholders.





The sustainable resource systems of the Seas of East Asia are a natural heritage for the people of the region, a medium of access to regional and global markets, and a safeguard for a healthy food supply, livelihood, economic prosperity and harmonious co-existence for present and future generations.



Explanatory Note on the Vision

The shared vision represents common understanding, views, and wishes of the people of the region regarding the Seas of East Asia. It is how the stakeholders see the Seas in the long term – at the end of thirty to fifty years. Achieving the vision will take time, strategies, and resources to implement a set of action programmes. More importantly, it needs the collective political will and regional cooperation among the concerned governments and other stakeholders to implement them.

Mission

**To build interagency, intersectoral,
and intergovernmental partnerships for achieving
the sustainable development of the Seas of East Asia.**



Explanatory Note on the Mission

The mission is an expression of the immediate aim of the Strategy arising from the conviction or sense of calling that is the shared vision. It is a statement of how the Strategy will be implemented and the vision achieved. Simply, the mission refers to what the region undertakes through the Sustainable Development Strategy.

The mission statement of the Sustainable Development Strategy affirms the purpose and function of the stakeholders for one common goal. It is focused on the job at hand and oriented towards future goals.

The mission is simple. By working in partnership across boundaries, sectors, and organizations, the Strategy can be implemented to achieve the shared vision.

Framework for the Strategy

Chapter 17 of Agenda 21 and the WSSD Plan of Implementation concerning oceans, seas, islands, and coastal areas can only be implemented effectively through the integrated approach, and effective coordination and cooperation at all levels, for coastal and ocean management.



Explanatory Note on the Framework

The framework is the basic system within which the Strategy shall operate. The framework offers essential elements and approaches for application of all components of the Strategy. The Strategy is divided into six specific strategies; and each strategy is further delineated by a series of action programmes. The Strategy can be concretized in two dimensions: (1) cross-sectorally, by developing and implementing integrated management strategies and approaches across concerned sectors; and (2) sectorally, by incorporating sustainable development approaches into related sectoral policies. The two dimensions are interdependent and mutually reinforcing and will work in combination towards harmonization between the environment and development - that is, achieving the sustainable development goal.

Desired Changes

The ultimate goal of the shared vision and mission is to improve the quality of life of the people of East Asia.

Institutional

- national coastal and marine policy and supporting legislation adopted;
- local governments and communities given responsibility to manage their coastal and marine environment;
- area-specific institutional arrangements for environmental management and sustainable development of large gulfs, bays, inland seas, international straits, and LMEs in place;
- local interagency, multisectoral coordinating mechanisms to implement sustainable coastal development programs set up;
- environmental action programmes and safeguards built into regional, national, and local development plans;
- a functional regional mechanism to implement the Sustainable Development Strategy for the Seas of East Asia adopted;
- the major international environmental instruments ratified and implemented by each country; and
- environmental management incorporated into economic development plans at national and local levels.

Operational

- national coastal and marine strategy adopted and implemented;
- resource and environmental valuation, assessment and management systems in place as tools for sustainable development;
- integrated environmental and natural resource management programmes implemented by local governments in coastal and marine areas;
- cooperation between jurisdictions for addressing transboundary issues across boundaries at subregional seas, gulfs, bays, inland seas, international straits, and LMEs;
- joint research and sharing of information for the management of coastal and marine resources in place;
- integrated implementation of international environmental instruments at national and local levels undertaken; and
- a sustainable financing mechanism for the regional implementation of international conventions operational.

Outcomes

Social

- integrated, multidisciplinary, and multisectoral coastal and ocean management mechanisms and processes developed at the national and local levels;

-
- attitude change among policy and decisionmakers, private sector, and civil society in support of sustainable development;
 - an educated and environmentally conscious people collaborating to conserve the environment of East Asia;
 - civil society and private sector highly involved and participating in coastal and marine environmental and natural resource management programmes;
 - scientific advice available at national and local levels of government;
 - public health levels improved; and
 - natural and cultural heritage areas protected.

Economic

- private sector engaged in sustainable and socially responsible investments;
- sustainable livelihoods pursued and particularly those of the poor improved;
- coastal communities prepared and able to cope with natural disasters and climatic events; and
- sustainable marine industries established.

Environment and resources

- more coastal areas able to achieve economic growth while protecting the environment and natural resources;
- environmental management integrated into subregional growth area development;
- rivers and coastal waters safe for public recreation;
- pollution from point and nonpoint sources managed;
- systems of responsibility for pollution damages and restoration established;
- recovery of water quality of polluted areas;
- sewage treatment facilities installed and operational in major urban cities;
- systematic and safe management and disposal of toxic and hazardous wastes;
- ports and harbors equipped with shore reception facilities;
- ports and harbors implementing port safety and environmental audits;
- effective response systems for oil and chemical spills implemented;
- major degradation of habitats arrested and restoration undertaken;
- marine endangered species and biodiversity effectively protected;
- protected areas and their networks established and managed as needed and appropriate;
- depleted fish stocks restored to sustainable levels;
- fish stocks equitably and sustainably utilized;
- aquatic food production safe for human consumption; and
- ecotourism promoted.

The Strategy



Foundation of the Strategy

The strategy is built on the following pillars:

International conventions and international and regional programmes of action

The action programmes of the Strategy are based on the prescriptions of global and regional instruments relevant to sustainable development, such as the WSSD Plan of Implementation, the UN Millennium Declaration, and Agenda 21, including poverty alleviation and other priority targets. The regional programmes of action have been developed over the years through ASEAN, the UNEP Regional Seas Programme, ESCAP, APEC, and others.

Partnerships

The Strategy is meant to be implemented by all the different stakeholders—men and women, public and private, local and national, NGOs, governments, and international communities—working in concert with each other.

Self-reliance and sustainability

The Strategy is geared towards building capacity of the countries in order to promote regional self-reliance to manage the coastal and marine environment to achieve the shared vision.

Synergy

The implementation of the Strategy according to sectors, interests, and issues will have a synergistic, multiplier, and cumulative effect towards the achievement of the shared vision.



Executing the Strategy

Each person in the region is a stakeholder with a role and responsibility to implement the Sustainable Development Strategy for the Seas of East Asia. Central and local governments, private sector, civil society, academe, and the communities play key and active roles in Strategy implementation. UN and donor agencies play a facilitating role through technical assistance, information exchange, and capacity-building activities. Bilateral and multilateral lending institutions are essential in financing the implementation of the Strategy and action programmes. Action programmes are necessarily broad in scope to allow flexibility and adaptability of objectives based on perspectives and capacities of the stakeholders.

National and local governments can effectively execute the Strategy by formulating and adopting corresponding coastal and marine strategies. Alternatively, governments are not precluded from implementing the Strategy through existing mechanisms and programmes.

The roles of the various stakeholders are as follows:

National government

- formulating and implementing a national coastal and marine strategy or policy, utilizing the SDS-SEA as a guiding framework;
- identifying and prioritizing relevant strategies and action programmes that will be implemented at the national level;
- identifying the relevant stakeholders for national strategy implementation;
- designating a lead national agency to coordinate and prioritize the implementation of the national strategy involving various stakeholders and different levels of government; where possible, a neutral line agency is preferred;
- identifying the current level of implementation and incorporating existing action programmes as part of national strategy implementation;
- developing a course of action in the implementation of the national strategy for national government approval and adoption, including allocation of human and financial resources;
- coordinating the implementation of the national strategy;
- developing appropriate norms, standards, procedures, guidelines, criteria and manuals as may be needed by local governments and other stakeholders for the effective implementation of relevant objectives, strategies and action programmes; and
- monitoring and evaluating changes according to the identified indicators.

Local governments

The governments of states, provinces, municipalities, cities, and/or counties ensure ground level actions by:

- developing a local plan of action to implement the Strategy and action programmes;
- designating a competent local agency to coordinate the local implementation of the relevant Strategy, objectives, and action programmes;
- identifying current activities that are already undertaken by the local governments and incorporating these activities within the strategic framework and action programmes;
- securing adoption/approval of concerned local government authority and budget;
- developing cooperation and partnerships with other concerned local governments and/or stakeholders in the implementation of relevant objectives, strategies, and action programmes; and
- monitoring and assessing changes according to identified indicators.

Private sector

- exercising corporate responsibility to the environment;
- identifying areas where private sector's inputs could be most relevant and effective, such as areas for private sector's investment; and
- interacting with concerned government agencies in implementing some of the Strategy and action programmes.

Civil society

- informing, educating, and counseling the people, and mobilizing their support and proactive participation in implementing the action programmes;
- coordinating networks and associations to facilitate implementation of the Strategy through public awareness using their own networks and associations; and
- participating in relevant action programmes.

Academe and research and development institutions

- providing expertise, advice, and relevant information for implementation of the Strategy;
- providing expertise and information to support policy and decisionmaking;
- developing and undertaking research and development programmes to generate the needed information, methodologies, and advice;
- sharing scientific information through networks; and
- building capacity through training programmes and formal education.

Communities

- supporting and actively participating in the local implementation of the action programmes, e.g., those related to protected areas, habitat management and restoration, and waste management.

UN and international agencies

- harmonizing their policies at regional and national levels with regard to the implementation of the Strategy;
- strengthening the capacity at national and local levels to plan and implement the Strategy;
- catalyzing national and local efforts towards implementing the Strategy;
- developing working models and demonstration of approaches and methodologies;
- promoting regional cooperation and collaboration in implementing activities relevant to transboundary environmental issues;
- facilitating the establishment and implementation of the regional mechanisms for carrying out the Strategy; and
- working in a complementary manner and using their comparative advantages to support implementation of the Strategy.

Financial institutions

- incorporating issues related to coastal and marine management in macroeconomic policy dialogue and helping countries to establish appropriate incentive frameworks that promote sustainable coastal zone development;
- supporting reforms in coastal and ocean governance proactively;
- promoting policies that support the establishment of public-private partnerships;
- providing appropriate financial support and technical assistance upon request from countries in the region to implement the Strategy and action programmes;
- supporting the advancement of financial arrangements adapted to the regional, national, and local circumstances, e.g., microfinance, loan guarantees, local government/private sector access to international funds and cost recovery mechanisms;
- focusing interventions on improving local environmental quality and management that also provide regional and global benefits; and
- using incremental resources, e.g., GEF donor support, strategically to better blend with and catalyze other funding.

Donors

- supporting action programmes that are relevant to their interest and objectives at national, local, or regional level;
- facilitating capacity-building, the transfer of new information and appropriate technologies, and providing financial assistance and in-kind contributions in the execution of the Strategy; and
- promoting/supporting the venture of the private sector into environmental investment for implementing the Strategy.

How to Implement the Strategy

- Any initiative to implement the Strategy, whether individual, a coordinated effort between two parties, or multilateral, contributes to the eventual realization of the shared vision for the Seas of East Asia.
- National and local counterpart strategies focusing on priority issues and areas that are of social, economic, and/or environmental significance provide a platform for action.
- A well-coordinated implementation of the Strategy at national, local, and regional levels is desirable to achieve the objectives of the Strategy systematically and within a given timeframe.
- Concerned stakeholders and partners determine their respective roles and interest based on the relevant action programmes designed for specific objectives and specific strategies at national, local, and regional levels.
- Priority projects identified by governments and concerned stakeholders are included in action programmes, with agreed timeframe and budget.

Strategic Action Statement



The East Asian Countries shall:

Ensure SUSTAINable use of coastal and marine resources.

PRESERVE species and areas of the coastal and marine environment that are pristine or are of ecological, social or cultural significance.

PROTECT ecosystems, human health and society from risks occurring as a consequence of human activities.

DEVELOP economic activities in the coastal and marine environment that contribute to economic prosperity and social well-being while safeguarding ecological values.

IMPLEMENT international instruments relevant to the management of the coastal and marine environment.

COMMUNICATE with stakeholders to raise public awareness, strengthen multisectoral participation and obtain scientific support for the sustainable development of the coastal and marine environment.

Explanatory Note on the Strategic Action Statement

The specific strategies each cover the following:

SUSTAIN refers to the conservation and rational use of resources for the present and future generations.

PRESERVE refers to elements of coastal and marine areas that should be maintained because of their intrinsic value.

PROTECT refers to taking preventive steps to manage risks or threats to ecosystems and human well-being.

DEVELOP relates to the pursuit of economic development activities in a sustainable manner.

IMPLEMENT refers to capacities and institutional frameworks at local, national, and regional levels necessary for the implementation of relevant international conventions and agreements. The substantive provisions of these instruments are taken up in the other strategies.

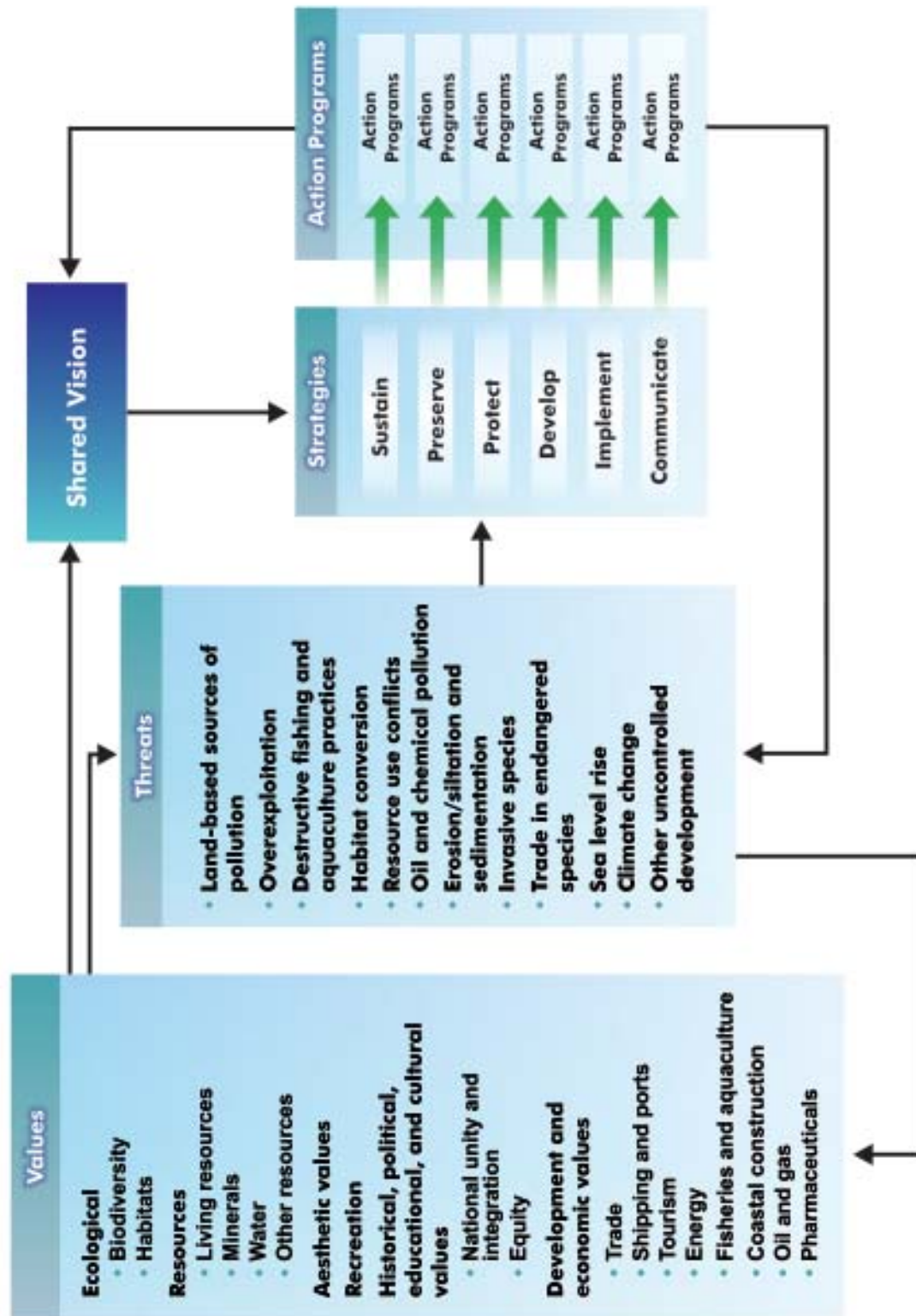
COMMUNICATE refers to the enhancement and exchange of ideas, information and knowledge among the stakeholders that is necessary for effective coastal and ocean management.



General Principles

1. The sustainable development of the Seas of East Asia shall be pursued through the application of the integrated management approach as the overarching framework, whereby strategic projects and programmes are implemented for the purpose of ensuring environmental protection and conservation of resources as well as the well-being and dignity of the people of the region.
2. The right to development must be fulfilled so as to equitably meet development and environmental needs of present and future generations.
3. Management of coastal and marine resources and the activities affecting them shall be science-based and respect natural processes and systems.
4. Beneficial uses of the resources shall be encouraged and adverse uses avoided or minimized.
5. Basic linkages between sustainable management of coastal and marine resources, poverty alleviation, and protection of the marine environment should be recognized.
6. Multisectoral partnerships involving NGOs, the private sector, communities, and mass media, as well as government, intergovernmental bodies, international agencies and bilateral and multilateral financial institutions, are recognized as essential mechanisms to meeting the goal of sustainable development.
7. States should recognize and duly support the identity, culture and interests of indigenous people and their communities and enable their effective participation in the achievement of sustainable development.
8. Environmental issues are best handled with the participation of all concerned citizens, at the relevant level.
9. The rights of all sectors of society shall be respected and protected.
10. The precautionary approach shall be widely applied. Where there are threats of serious irreversible damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation.
11. Activities within one State should not cause damage by pollution to other States and their environment.
12. The interrelationship between conservation and socioeconomic development implies both that conservation is necessary to ensure sustainability of development, and that socioeconomic development is necessary for the achievement of conservation on a lasting basis.
13. Ecosystem-based management approaches shall be applied to ensure sustainable development of coastal and marine areas.

A Strategic Approach to Achieving a Shared Vision



Sustain

The East Asian countries shall ensure sustainable use of coastal and marine resources.

Principles

The needs of the present generation must not be met at the expense of future generations.

To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.

Biological diversity and its components must be conserved for their intrinsic value as well as their ecological, genetic, social, scientific, educational, cultural, recreation, and aesthetic value.

Subregional, regional, and global cooperation is needed to conserve and manage living resources of the sea.

Managing the natural resources base in a sustainable and integrated manner is essential for sustainable development.

Why Sustain?

Sustainability means living on nature's income rather than its capital.

Murray Gell-Mann
1969 Nobel Prize in Physics

Objectives

1. Conservation and redress of biological diversity
2. Maintenance and enhancement of the quality of coastal waters
3. Equitable and sustainable fisheries and conservation of fish stocks



East Asian Ecosystems at Risk

Ecosystems suffer not only from the threats common to the marine environment, but from specific threats as well. This is of major concern because the ecosystems of the region are host to biologically diverse species of flora and fauna that are part of the common legacy of the region. An important root cause of the risk is the rapid economic development beyond what the ecosystem can sustain.



Threats to coral reefs

- destructive fishing practices
- sedimentation from land and sea-based sources
- pollution from land and sea-based sources
- climate change/sea temperature rise
- coral and sand mining
- aquarium trade
- overfishing
- predation/infestation (e.g., crown-of-thorns starfish)
- bleaching

Threats to mangroves

- excessive pollution
- conversion to aquaculture ponds
- conversion for coastal development
- deforestation for wood/timber and other products
- saltwater intrusion
- unsound silviculture practices
- sea level rise

Threats to seagrass beds

- conversion to aquaculture ponds
- land-filling for coastal development
- sedimentation from land and sea-based sources
- excessive pollution
- destructive fishing practices

Threats to other wetlands

- destructive fishing and hunting practices
- deposit of human-generated waste material
- chemical contamination
- other forms of pollution
- conversion to rice paddies
- dredging and land-filling for coastal development
- sedimentation
- erosion
- subsidence
- sea level rise
- droughts
- hurricanes and storms
- overgrazing by wildlife
- inappropriate drainage

Threats to estuaries

- dredging and land-filling for coastal development
- conversion
- deposit of human-generated waste material
- chemical contamination
- other forms of pollution
- deforestation
- sedimentation
- erosion
- subsidence
- sea level rise
- saltwater intrusion

Global Center of Marine Biodiversity

East Asia is considered the center of global marine biodiversity. A pattern of decreasing species diversity emerges as one moves away east or west of the region. The number of genera of hard corals (83) and species of seagrass (20), shrimp (125), damsel/angelfishes (268) and seasnakes (38) are significantly more numerous compared to other regions of the world. A high diversity of associated species of plants and animals are also being supported particularly by coral, seagrass and mangrove ecosystems. It is widely believed that the region is the source of larval recruits for other areas.

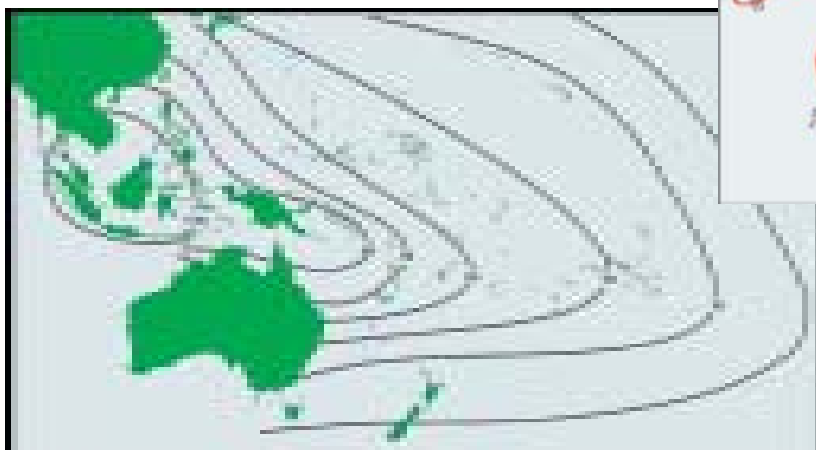
Coral garden, Tubbataha Reefs, Palawan.

R.S.V. Pullin

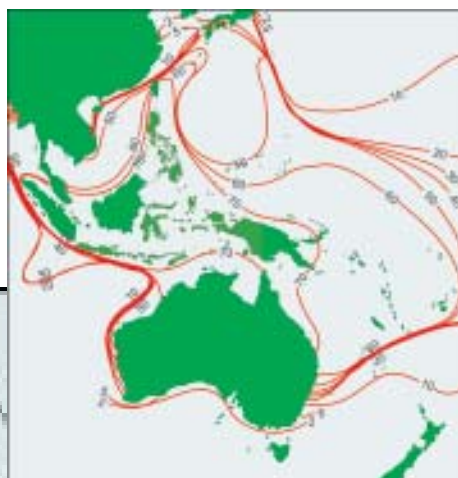
A comparison of biodiversity in the Southeast Asia region with the Great Barrier Reef and Caribbean regions shows the significant value of the area.

Region	Marine fish species diversity	Hard coral species diversity
Southeast Asia	2,500	400-500
Great Barrier Reef	1,500	395
Caribbean	500-600	100-200

The global center of hard coral diversity emanates from the region, particularly around eastern Indonesia and the Philippines, where 70 genera are recorded.



The pomacentrid fauna diminishes with increased distance from Indo-West Pacific region.



Sustain

Objective 1: Conservation and redress of biological diversity

Action programmes

1. Implement policy and a strategic framework for the conservation and management of biological diversity by:
 - a. Developing policy to integrate management of natural/biological resources and economic development, business ventures and investments in accordance with international agreements such as the Convention on Biological Diversity and the Jakarta Mandate;
 - b. Crafting an agreed approach to determining coastal and marine areas of significant biological diversity and natural value and identifying the allowable limits of their use;
 - c. Expanding regional cooperation to conserve and manage environmental resources, including overexploited and endangered migratory species and coastal areas of transboundary importance; and
 - d. Formulating cooperative agreements on biotechnology research, intellectual property rights (e.g., traditional medicines), and bioprospecting activities by third parties.
2. Restore coastlines, habitats, and resources which are of significant biodiversity and natural value by:
 - a. Identifying major threatening activities and processes to coastal and marine areas of significant environmental value;
 - b. Incorporating new planning schemes into national and municipal development plans which will restrict development of, misuse or conflicting use of significant sites, habitats, and resources;
 - c. Developing capacities at the local government level to plan, develop, and implement sustainable environmental management programmes, including rehabilitation of altered critical habitats;
 - d. Setting in place appropriate legal and economic instruments covering restoration and compensation for damage to habitats and biological diversity; and
 - e. Exploring innovative investment opportunities, such as "carbon credits" for greenhouse gas mitigation, and user fees for ecological services.

Sustain

Objective 2: Maintenance and enhancement of the quality of coastal waters

Action Programmes

1. Strengthen the compatibility and balance of fresh water and marine water uses by:
 - a. Modifying or formulating economic development policies which take into account:
 - the value of water as a catalyst for sustainable social progress and economic growth;
 - mechanisms to address intersectoral conflicts; and
 - ecological impacts of infrastructure projects;
 - b. Establishing national policies on water resource development and management, addressing consumptive and nonconsumptive use, food security, public health, and protection/conservation of natural resources.
2. Integrate subregional arrangements for environmental management of international water systems with coastal and marine ecosystems by:
 - a. Extending the implementation of integrated watershed development and management programmes to all major river basins and international water systems in the region;
 - b. Incorporating appropriate water quality elements into watershed, coastal and marine management programmes, with a view to both ecosystem integrity and public health protection;
 - c. Integrating water resource development into land and sea use plans; and
 - d. Preparing and implementing regulations, well-defined property rights, economic instruments and management programmes at the local, national, and subregional level which promote sustainable and rational use of coastal waters.

Objective 3: Equitable and sustainable fisheries and conservation of fish stocks

Action Programmes

1. Enhance transboundary cooperation in subregional sea areas for fisheries management by:
 - a. Engaging coastal States to adopt and implement the FAO Code of Conduct for Responsible Fisheries;
 - b. Increasing recognition of coastal and marine habitats that are vital to the fisheries resource of the subregional sea area;
 - c. Strengthening capacity to manage living resources in the EEZ; and
 - d. Putting in place subregional institutional measures to monitor the effectiveness of resource management measures.
2. Utilize living resources in a responsible manner by:
 - a. Reducing excessive fishing capacity through such measures as buy-back schemes and territorial use rights;
 - b. Maintaining or restoring fish stocks to levels that can sustainably support present and future generations;
 - c. Applying an ecosystem management approach, inclusive of fisheries management, to planning and development of coastal and marine areas;
 - d. Producing shared ownership of fisheries management through cooperative and partnership arrangements, including joint assessment of shared stocks;
 - e. Enforcing fisheries regulations at national and local levels; and
 - f. Developing and implementing national, and where appropriate, regional, arrangements to put into effect the FAO international plans of action, in particular, those measures to prevent, deter, and eliminate illegal, unreported, and unregulated fishing.
3. Integrate fisheries management into coastal management programmes at the local level by:
 - a. Taking appropriate measures to protect the rights and livelihoods of small-scale fishers and fish workers, including community-based management;
 - b. Implementing measures against destructive fishing methods and practices that result in excessive by-catch, waste of fish catch, and loss of habitat;
 - c. Building capacities in appropriate aquaculture technologies to bring about fish stock conservation and diversification of income and diet;
 - d. Increasing community benefits through diverse and innovative approaches to fisheries management, involving commercial, municipal, and recreational fishing, as well as cultural, conservation, trade, and tourism purposes;
 - e. Preserving appropriate indigenous/traditional knowledge and practices in fisheries management, including territorial use rights in fisheries; and
 - f. Developing sustainable alternative livelihoods for displaced fishers.

Alternative Livelihoods

Efforts towards resource management will not succeed without investigating and developing alternative employment or sources of income and livelihood for coastal dwellers. The challenge is to alleviate poverty by providing sustainable alternative options for livelihood that complement resource management. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.

PRESERVE

The East Asian countries shall preserve species and areas of the coastal and marine environment that are pristine or of ecological, social or cultural significance.

Principles

Pristine habitats and areas of ecological, social, or cultural significance are irreplaceable assets which benefits may not yet be fully understood and they must therefore be preserved.

Wild flora and fauna in their many beautiful and varied forms are an irreplaceable part of the natural systems of the earth which must be protected for this and the generations to come.

Wetlands perform fundamental ecological functions as regulators of water regimes and as habitats supporting characteristic flora and fauna, especially waterfowl.

States shall take all measures necessary to prevent, reduce, or control the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes thereto.

Why Preserve?

Our planet's essential goods and services depend on the variety and variability of genes, species, populations and ecosystems. Biological resources feed and clothe us and provide housing, medicines and spiritual nourishment. The natural ecosystems of forests, savannahs, pastures and rangelands, deserts, tundras, rivers, lakes and seas contain most of the Earth's biodiversity. Farmer's fields and gardens are also of great importance as repositories, while gene banks, botanical gardens, zoos and other germplasm repositories make a small but significant contribution. The current decline in biodiversity is largely the result of human activity and represents a serious threat to human development.

Agenda 21

Conservation and sustainable use of biodiversity and the fair and equitable sharing of benefits arising from use of genetic resources is essential to our planet, human well-being, and the livelihood and cultural integrity of people.

Objectives

1. A common management system for marine protected areas of transboundary importance
2. Safeguarding of rare, threatened and endangered species and genetic resources
3. Conservation of transborder areas of social, cultural, historical and geological significance



PRESERVE

Objective 1: A common management system for marine protected areas¹ of transboundary importance

Action Programmes

1. Select and prioritize coastal and marine protected areas of transboundary importance by:
 - a. Agreeing on selection criteria for identifying coastal and marine areas which:
 - contain rare, vulnerable, endangered or critically endangered species or threatened ecological communities within the region;
 - maintain populations of plant and/or animal species important to the biological diversity of the region;
 - support regionally important fish stocks; and
 - provide refuge, a source of food, nursery, and/or migration path for migratory species of regional and/or international importance;
 - b. Classifying protected areas on the basis of types and uses, taking into account guidelines, criteria and standards for protected areas and particularly sensitive sea areas under international instruments²; and
 - c. Prioritizing marine protected areas that are “regional hotspots” serving critical transboundary ecological and/or economic functions.
2. Establish appropriate management regimes for marine protected areas and particularly sensitive sea areas of transboundary significance by:
 - a. Adopting a management framework that encompasses the various classifications of protected areas, and provides an integrated approach to the planning, management, and use of the areas;
 - b. Building capacity and engaging local stakeholder groups/government units, and the private sector to manage marine protected areas;
 - c. Applying complementary land and sea-use planning and development schemes at the national and local levels;
 - d. Institutionalizing innovative administrative, legal, economic, and financial instruments that encourage partnership among local and national stakeholders; and
 - e. Conducting surveys, developing inventories of marine flora and fauna, and storing/sharing acquired information through national, regional, and international databases.

¹ The term “protected areas” is used in this document as a generic term to include all forms and purposes of protected areas (from no-take to regulated use).

² Such international instruments are the Convention on Biological Diversity, Convention on Migratory Species, World Heritage Convention, Ramsar Convention, MARPOL, UNCLOS, and the IMO Guidelines on Sensitive Sea Areas.

Trade in Endangered Species

Marine turtles. Six out of the seven species of marine turtles are found in the Seas of East Asia Region. They have been exploited for a long time in the region for food (meat and eggs), ornamental products (the carapace, commonly known as tortoise shell), and as part of cultural and religious rites. They are also exploited for their oil, skin and bones. This long-term consumption, together with incidental captures in fishing gear and loss of habitat have resulted in major declines in nesting populations in the Southeast Asia region. A leatherback turtle nesting site in Terengganu, Malaysia, has suffered what is considered a “population crash”. The decline of most marine turtle populations in the region is estimated to range between 50 and 80 percent.

Marine turtle conservation efforts have increased in recent years, including the adoption of several multi-country agreements, establishment of protected areas and conservation projects. Green, loggerhead, olive ridley and flatback turtles are listed as endangered under CITES, while the hawksbill and leatherback turtles are listed as critically endangered. All countries in the East Asian Seas region except DPR Korea are party to the Convention.

Shark finning. Of the 100 species of sharks being exploited, about 20 are considered vulnerable, endangered or critically endangered. Sharks continue to be threatened by overfishing because they are in demand for their fins, cartilage, meat and liver. The most expensive of these body parts are the fins which command as much as US\$564 per kilo. Most of the fins are shipped to Asia and used as an ingredient for shark fin soup, a Chinese delicacy. Sharks killed for their fins increased 2,500% during 1991 to 1998.

The practice of shark finning involves cutting off the fins and throwing overboard the rest of the carcass.

Live reef fish food trade. The live reef fish trade was initially known to supply demand for tropical reef fish in US and European aquarium markets. Recently, however, a shift was noted for a live reef fish food trade (valued at US\$1.0 billion in 1995) supplying mainly the Hong Kong, mainland China and Taiwan markets. Buoyed up by a tremendous demand, around 54,000 t were traded in the region by 1997, with Hong Kong importing 32,000 t (around 60%), of which nearly 19,000 were grouper and humphead wrasse. The supply came principally from Indonesia, the Philippines, Thailand, and Malaysia. However, there are two most pressing ecological problems which are associated with the trade and impact marine biodiversity: (1) the use of cyanide, to stun and remove fish from hard-to-reach crevices and coral heads, also causes mortality to corals, reef invertebrates and non-target fish; and (2) overfishing of adult target species (like giant grouper and humphead wrasse which are already on IUCN's Red List), and overharvesting of both spawning aggregations and juveniles set for growout for grouper mariculture.

Hammerhead shark.



Cheilinus undulatus.



Plectropomus maculatus.



Stuffed hawksbill and green sea turtles.

PRESERVE

Objective 2: Safeguarding of rare, threatened and endangered species and genetic resources

Action Programmes

1. Establish a regional accord for the protection of species at risk by:
 - a. Outlining commitments for designating species at risk across the region, protecting their habitats and developing recovery plans;
 - b. Developing partnerships among national governments, industry (e.g., fishing/aquaculture, tourism, trade, transportation), the private sector, local governments, conservation groups, and the scientific community to effectively protect species at risk; and
 - c. Adopting complementary legislation, regulations, policies and programmes to identify and protect threatened and endangered species and their critical habitats.
2. Implement national recovery and management processes for species at risk across the region by:
 - a. Engaging stakeholders at the local level in the preparation of recovery strategies, bringing together the best available scientific, traditional, and community knowledge of the species;
 - b. Formulating and implementing local action plans under the umbrella of the recovery strategy; and
 - c. Levying economic incentives and disincentives and innovative programmes at the local level to help protect the species.
3. Create regionwide safety nets for species at risk and genetic resources by:
 - a. Preventing the introduction of controlling or eradicating alien species that threaten indigenous species, their ecosystems or specific habitats;
 - b. Prohibiting trade in endangered species in accordance with the provisions of CITES and networking with existing trade monitoring programmes;
 - c. Adopting measures regarding commercial exploitation of valuable species and addressing by-catch of endangered species;
 - d. Establishing protected areas, which function as in situ gene banks; and
 - e. Developing benefit-sharing arrangements for bioprospecting activities, based on mutually agreed terms and subject to prior informed consent from both the government and local communities.

The Coastal Habitats of East Asia: Status and Threats



Distribution of coastal habitats

● Coral reefs ● Mangrove

Distribution of coastal habitats

Around 30% of the world's coral reefs and one-third of the world's mangroves as well as many other important critical habitats are found in East Asia.

Of the Southeast Asian reefs, 84% fringe Indonesia and the Philippines.



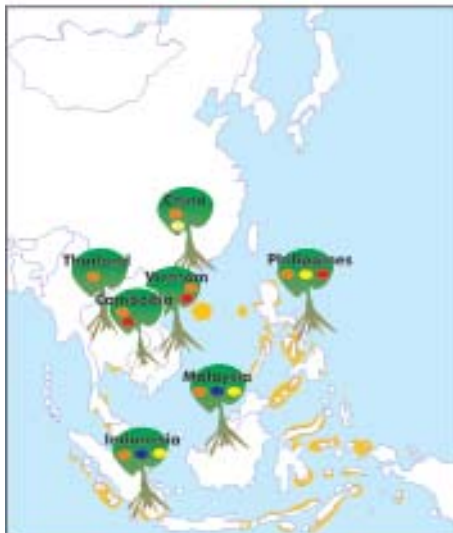
Estimated threat to coral reefs

↓ % of mangrove area lost ● Low ● Medium ● High

Status of coastal habitats

The coral reefs of Southeast Asia are the most threatened of any region in the world. Over 80% of the reefs are at risk (26% are classified as medium risk and 56% as high risk).

Almost all of Philippine reefs and 83% of Indonesia's are at risk. According to UNEP, in the last 70 years, nearly 70% of the original mangroves bordering the South China Sea have been destroyed. The decline is from 6,000 km² to about 2,000 km². Unless managed, the current rate of loss will result to removal of all mangroves by 2030.



● Reefs which are threatened by destructive fishing

Causes of mangrove destruction

● Shrimp culture ● Urban development housing
● Domestic use ● Woodchip and pulp

Threats to coastal habitats

Coral reefs in Southeast Asia are threatened by pollution, sedimentation, overfishing, and widespread destructive fishing. Areas classified under high threat from destructive fishing are "based upon a 20-kilometer radius zone from known occurrences of dynamite or cyanide fishing as found in ReefBase and were revised based upon expert opinion obtained at the two-day Reefs at Risk Workshop held in September 1997 in Manila."

Mangroves are lost due to conversion to aquaculture ponds, mangrove felling for woodchip and pulp production, urban development and human settlements, and harvesting for domestic use.

PRESERVE

Objective 3: Conservation of transborder areas of social, cultural, historical and geological significance

Action Programmes

1. Protect cultural and natural properties deemed to be of outstanding regional value by:
 - a. Agreeing on criteria for cultural and natural properties which represent the most outstanding values from a regional perspective;
 - b. Setting in place a nomination and review process for listing transborder areas as cultural heritage or natural heritage sites, including the participation of local communities, indigenous people, and other pertinent stakeholders in the identification and nomination process;
 - c. Ensuring that legal and/or traditional protection and management arrangements adequately preserve the valued properties; and
 - d. Implementing a monitoring and evaluation procedure to ascertain that listed transborder areas maintain characteristics of outstanding value, including a procedure for disqualification from the regional list for cause.
2. Manage transborder cultural heritage and natural heritage sites by:
 - a. Adopting the requirements for protected areas under international instruments³;
 - b. Implementing appropriate legislation and regulations at the national and local levels, including provisions to maintain/reinforce traditional protection and management mechanisms;
 - c. Setting in place suitable administrative arrangements to cover the management of the property, its conservation and its accessibility to the public; and
 - d. Integrating sites into land and sea use zonation planning and development schemes at the national and local levels, including the delineation of appropriate buffer zones around the properties.

³ Such as the Convention Concerning the Protection of the World Cultural and Natural Heritage.

Protect

The East Asian countries shall protect ecosystems, human health, and society from risks which occur as a consequence of human activity.

Principles

Protection of the coastal and marine environment has direct and indirect economic benefits.

States should use the best practicable means at their disposal and in accordance with their capabilities to prevent, reduce and control pollution of the marine environment.

In taking measures to prevent, reduce and control pollution of the marine environment, States shall act so as not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another.

States shall take all measures necessary to prevent, reduce and control pollution of the marine environment resulting from the use of technologies under their jurisdiction or control.

The polluter shall bear the cost of pollution through economic instruments and internalization of environmental costs.

Why Protect?

The bulk of the world's population lives in coastal areas, and there is a continuing trend towards its concentration in these regions. The health, well-being and, in some cases, the very survival of coastal populations depend upon the health and well-being of coastal systems, estuaries and wetlands - as well as their associated watersheds and drainage basins and near-shore coastal waters. Ultimately, sustainable patterns of human activity in coastal areas depend upon a healthy marine environment, and vice versa.

Global Programme of Action for the
Protection of the Marine Environment
from Land-based Activities

Objectives

1. Subregional mechanisms to combat transboundary environmental threats in regional seas, including LMEs and subregional sea areas
2. Coastal and marine degradation from land-based human activities arrested
3. Prevention of adverse impacts from sea-based human activities
4. Recovery of cleanup costs and compensation for damages



Environmental Risk Assessment/Risk Management and Risk Communication

Environmental risk assessment/risk management is one of the innovative approaches to the environmental management of sea areas faced not only with problems arising from local and national activities, but transboundary environmental issues as well.

Environmental risk assessment involves estimating the likelihood of harm being done to human health and/or ecosystems through factors emanating from human activities that reach their targets via the natural environment. Its elements include hazard identification, effects assessment, exposure assessment and risk characterization. The assessment is carried out to provide a basis for management decisions.

Environmental risk management, on the other hand, involves the identification, selection, and implementation of appropriate actions to control the identified risks. In the process, it weighs the benefits and costs accruing to society when a specific management intervention is applied; it also elicits stakeholder consensus on the appropriate management decisions.

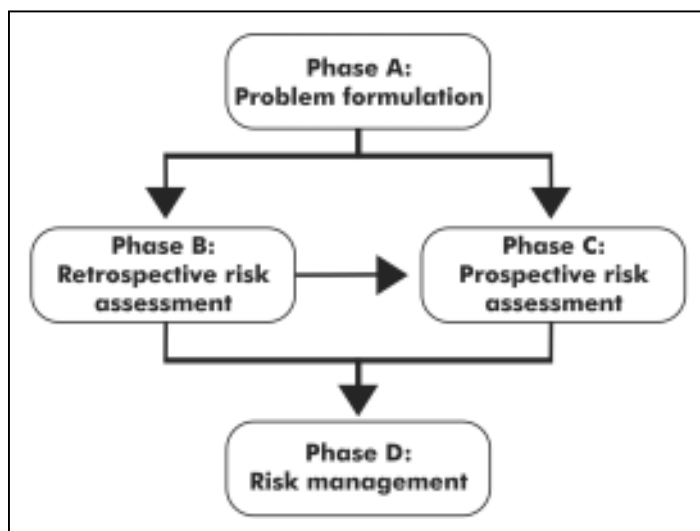
Risk communication is an essential component of risk management. Its purpose is to build awareness and trust between risk managers and stakeholders. Oftentimes, by bringing improved understanding to an issue, and by sharing individual perspectives on that issue, trust and confidence can be established across sectors both in formulating management interventions, and in relating those interventions to the protection of common good and well-being of society.

The risk communication process can be considered successful to the extent that: (1) it improves or increases the base of accurate information that decisionmakers use, be they government officials, private sector, or individual citizens; and (2) it satisfies those involved that they are adequately informed within the limits of available knowledge.

Risk communication does not guarantee that risk management decisions will maximize general welfare. It only ensures that decisionmakers will understand what is known about the implications of the available options on the environmental, social, and economic welfare of the stakeholders.

The GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) is currently applying the approach to subregional sea areas, and within multijurisdictional administrative settings, including Bohai Sea (China), Manila Bay (Philippines), and Gulf of Thailand. This effort is aimed at developing and implementing a collective strategy and environmental management programme founded on the common vision by States (or various levels of government) for their shared water body. It also embodies cooperation and participation among concerned groups and institutions towards an effective management programme.

Environmental risk assessment/risk management framework.



Protect

Objective 1: Subregional mechanisms to combat transboundary environmental threats in regional seas, including LMEs and subregional sea areas

Action Programmes

1. Strengthen and extend intergovernmental cooperation in environmental management of regional seas by:
 - a. Assessing and applying the lessons learned from ongoing “international waters” projects in the region;
 - b. Adopting a systematic and transparent process for identifying and prioritizing transboundary environmental risks;
 - c. Institutionalizing a complementary environmental management framework and strategy to enhance the effectiveness of national efforts to reduce transboundary environmental risks;
 - d. Organizing regional contingency plans, emergency response and cleanup cost recovery and compensation systems to combat catastrophic environmental events of natural or human origin, and to this end, undertaking measures to enhance the capabilities of the countries concerned;
 - e. Incorporating intergovernmental initiatives in environmental management of river basins, subregional sea areas and LMEs into a management framework for regional seas; and
 - f. Implementing integrated environmental monitoring programmes, utilizing appropriate environmental indicators to determine the effectiveness of management interventions.
2. Reinforce national and local governments’ roles, responsibilities and capabilities in environmental management of regional seas by:
 - a. Adopting national policies on environmental management of regional seas, including the implementation of relevant international conventions and instruments;
 - b. Establishing appropriate legal and economic instruments and programmes to extend national capacities in developing and/or managing:
 - human activities resulting in transboundary pollution;
 - subregional growth areas;
 - toxic chemicals and hazardous wastes and their transboundary movements;
 - transboundary effects of habitat degradation/destruction;
 - nearshore and offshore construction, reclamation, and exploitation projects having transboundary implications; and
 - technologies and processes to minimize transboundary threats;
 - c. Engaging local governments to plan, develop, and manage coastal and marine resources within their respective administrative boundaries utilizing the ICM framework and process; and
 - d. Forging partnerships among governments, international agencies, donors, the private sector, and other concerned stakeholders.

Harmful Algal Blooms

Harmful algal blooms (HABs), a generic term for microalgae proliferation in marine and brackish waters, have become widespread in recent years, posing threats to human health and fisheries resources. Causative organisms can carry toxins which can contaminate seafood or kill fish; they can also be nontoxic bloom-forming algae which deplete oxygen in the environment resulting in kills of both fish and invertebrates. Largely fueled by excessive amounts of land-based pollution, particularly agricultural runoff and human wastes rich in nitrogen and phosphorus, HABs have led to increasing public health and economic costs. For example, in the Philippines, the reported cases of over 2,000 paralytic shellfish poisonings since 1983 have led to 115 deaths and economic losses of about 10 million pesos for each event. In Hong Kong, a bloom in 1998 killed off 3,500 t of cultured fish or over 80% of stocks valued at US\$40 million. Other possible reasons why HABs increased include: increase in intensive aquaculture, unusual climatic conditions and transport of resting cysts in ships' ballast water. It is also thought that the increase in scientific studies has resulted in increased reports of incidents, not necessarily the number of cases.

Perna viridis.



Pyrodinium bahamense var.
compressum.



Red tide occurrences in East Asia.

Protect

Objective 2: Coastal and marine degradation from land-based human activities arrested

Action Programmes

1. Strengthen capabilities to protect the marine environment from the harmful effects of land-based human activities by:
 - a. Enhancing the awareness of policymakers on the social, economic, and environmental costs incurred as a consequence of degraded marine and coastal ecosystems and related watershed areas;
 - b. Incorporating the aims, objectives, and guidance provided by international conventions and agreements, such as UNCLOS, Agenda 21, and GPA, into new and existing strategies, policies, and programmes of action at the local, national, and regional levels;
 - c. Mainstreaming integrated coastal area and watershed management strategies and policies across levels of government, government agencies and institutions, and social and economic sectors;
 - d. Forging institutional cooperation among national and local governments, river basin authorities, port authorities and coastal area managers; and
 - e. Integrating coastal area management issues into relevant legislation and regulations pertaining to watershed management.
2. Implement management programmes, particularly focused at the local level, to combat the impacts of sewage, physical alteration and destruction of habitats, nutrients, sediment mobility, litter, persistent organic pollutants and radioactive substances on the coastal and marine environment by:
 - a. Strengthening the capacity of local governments to engage in integrated decisionmaking with stakeholder participation, to apply effective institutional and legal frameworks for sustainable coastal management, and to obtain and utilize sound scientific information in the implementation of ICM programmes;
 - b. Identifying priority risks arising from land-based activities, taking into account the social, economic, and environmental consequences of such activities and the tractability of the problems;
 - c. Preparing a sustainable vision for the coastal and marine area, based on the community's view of the identified problems and assessment of priorities for the future;
 - d. Developing an appropriate action programme to achieve the community's sustainable vision;
 - e. Introducing innovative policy, management, and institutional arrangements at the local government level, including economic instruments and incentive programmes, to encourage participation and partnerships among local government, the private sector, and civil society; and
 - f. Enhancing access by local governments to technical assistance, technology transfer, and financing programmes, to identify and assess needs and alternative solutions to local land-based sources of marine pollution, and to formulate and negotiate self-sustaining partnership arrangements with the private sector, investors, and financial institutions.

-
3. Adopt a holistic approach to managing the impacts of land-based activities by:
- a. Supporting an integrated management approach for coastal and ocean governance at the local, national, and regional levels, thereby accelerating the implementation of management programmes;
 - b. Incorporating actions to address impacts of land-based activities within the framework of integrated coastal and watershed management, including the protection of rivers and tributaries, and promotion of “good practices” in land and water uses;
 - c. Improving scientific assessment of anthropogenic impacts on the marine environment, such as impacts of coastal reclamation, construction of coastal structures, drainage, erosion and siltation, including socioeconomic effects;
 - d. Building an integrated environmental monitoring and information management and reporting system to better measure the status, progress, and impacts of management programmes, for use in decisionmaking, public awareness and participation, and performance evaluation;
 - e. Promoting south-south and north-south technical cooperation, technology transfer, and information-sharing networks;
 - f. Putting in place national reforms which reinforce legislation and policies regarding land-based activities that degrade the coastal and marine environment, ensure transparency and accountability of government, provide multi-year investment programmes and establish an enabling environment for investment by the private sector; and
 - g. Working with international financial institutions, regional development banks and other international financial mechanisms to facilitate and expeditiously finance environmental infrastructure and services.

Pollution Hotspots

Areas which receive severe pollution load, pollution hotspots in East Asia, are situated mainly in enclosed and/or semi-enclosed bodies of water like bays and river mouths. They are also associated with highly urbanized and densely populated cities, posing constant threat not only to public health but also to coastal resources and the integrity of coastal ecosystems. Pollution comes principally from land-based sources in the form of untreated sewage, agriculture and aquaculture runoffs, loadings from industries, and habitat modification. In effect, more and more areas in the region experience increased incidence of disease outbreaks due to contaminated seafood and bathing water. Harmful algal bloom incidents have also become more frequent. Bottom fauna have either disappeared or assimilated hazardous pollutants. Also, increased sediments in coastal waters threaten coral reefs and other habitats.

Pollutants in heavily polluted bays.



Pollution features in Yellow Sea LME

- 1,700 million t of wastewater flow into the Yellow Sea LME per year: 84% is industrial water; 16% is domestic sewage.
- Bohai Sea receives twice as much pollution as Yellow Sea; however, Yellow Sea receives twice as much phenoxides, chloride, and metals due to local industries.

BOD loading (t/year) from Gulf countries.



Pollution features in the Gulf of Thailand.

- The Gulf receives an organic load of over 200,000 t BOD per year.
- Some 70% of the pollution comes from land-based sources, mostly domestic waste.
- Nutrient enrichment is more pronounced in the Upper Gulf resulting to eutrophication and algal blooms.

BOD loading around Manila Bay.



Pollution features in Manila Bay

- Manila Bay receives an organic load of 250,000 t BOD per year.
- Oxygen deficiency in bottom water.
- Increasing frequency of plankton blooms (13%, 20%, 23% of measurements in 1996, 1997, and 1998, respectively).
- Near extinction of bottom fauna.

Protect

Objective 3: Prevention of adverse impacts from sea-based human activities

Action Programmes

1. Prevent operational and accidental pollution of marine waters from shipping activities by:
 - a. Implementing the requirements of MARPOL 73/78;
 - b. Instituting navigational safety and traffic management systems, especially in areas of congested traffic and/or in the vicinity of marine protected areas and particularly sensitive sea areas;
 - c. Developing and strengthening capacity for at-sea multisectoral law enforcement and maritime surveillance while ensuring maritime safety and facilitating marine environmental protection;
 - d. Requiring the use of environmentally friendly, anti-fouling compounds on ships' hulls and marine equipment;
 - e. Applying appropriate technologies, processes, and procedures to avoid the introduction of alien organisms through ballast water discharges;
 - f. Providing suitable shore reception facilities and services in ports to receive operational wastes from ships; and
 - g. Strengthening safety and environmental management systems in ports and integrating such systems with environmental programmes of local communities.
2. Control ocean-dumping in accordance with the 1972 London Convention and incineration of wastes at sea in accordance with relevant international agreements.
3. Counter accidental spills and discharges from sea-based human activities by:
 - a. Adopting contingency plans at the regional, national, and local levels for responding promptly to pollution incidents involving oily, hazardous, and noxious substances;
 - b. Ensuring appropriate response procedures, equipment, materials, and personnel are in place on vessels and in terminals, ports and offshore units;
 - c. Establishing agreements among government agencies, industry, the private sector and community groups for support personnel, equipment, and materials in the event of accidental spills, including joint oil spill response, mutual aid mechanisms and facilities;
 - d. Undertaking regular training exercises involving the response groups; and
 - e. Developing an oil pollution source tracing capability.
4. Attend to land-and sea-based economic development activities by:
 - a. Incorporating both land and sea-based activities into ICM programmes of local governments;
 - b. Adopting land and sea-use zonation plans at the national and local government levels; and
 - c. Assessing and managing the environmental risks of shipping, dredging, land reclamation, aquaculture, seabed mining, and other resource extractive industries within the context of ecosystem management and public benefit.

Protect

Objective 4: Recovery of cleanup costs and compensation for damages

Action Programmes

1. Expedite the recovery of oil spill cleanup costs and compensation for economic damage by:
 - a. Ratifying and implementing CLC and FUND conventions;
 - b. Ensuring that national laws, administrative and eligibility procedures, and damage assessment processes are consistent with CLC and FUND conventions;
 - c. Setting up contingency plans among countries bordering subregional sea areas regarding accidental spills and discharges which result in, or have the potential to result in, transboundary marine pollution incidents; and
 - d. Negotiating preparatory agreements on eligible fees and charges for response personnel, equipment, materials, and services under the international liability and compensation regimes.
2. Expand cost recovery and damage compensation schemes by:
 - a. Ratifying and implementing international conventions covering a wider scope of damage-causing incidents⁴ and geographic areas beyond national jurisdiction⁵;
 - b. Agreeing on a scheme for natural resource damage assessment, including a knowledge base on coastal and marine resources and a system for determining their values; and
 - c. Setting up rules, administrative procedures, assessment processes, and financial mechanisms, which broaden eligibility criteria and available funds for damage compensation under national law.
3. Apply innovative approaches to restoration of damages by:
 - a. Adopting incentive programmes to encourage restoration of degraded areas by third parties, such as the granting of exclusive development rights to those areas;
 - b. Setting up environmental restoration funds founded on user pay and polluter pay schemes; and
 - c. Adopting compensatory restoration schemes, where resources, services, and equal valued services can be used to offset losses due to damage.

⁴ HNS and Basel Protocol

⁵ In accordance with the Intervention Convention

Liability and Compensation Systems

While oil pollution from ship accidents constitutes only a small percentage of all marine pollution, the incidents are high-profile and potentially devastating enough when they occur. Oil spills are the first type of pollution to be provided with a special system based on strict liability for damage compensation. CLC and FUND provide a two-tier system of liability and compensation for oil pollution damage caused by a ship. This system is limited to tankers. The first tier is composed of shipowners, who are required to have insurance just for such incidents. The second tier involves oil importers contributing to a fund, which pays compensation whenever shipowners' insurance is not available or sufficient to cover all damage claims. The two conventions provide for liability limits of up to 135M SDRs (US\$171.8M). Amendments adopted in 2000, to take effect in 2003, increase compensation limits to 203M SDRs (US\$258.3M).

In 1996, a similar system was set up by the HNS convention to cover pollution damage from chemicals carried by ships. In 2000, a convention to cover pollution damage from oil carried as fuel by ships other than tankers was adopted. The 1999 protocol under the Basel Convention also provides for liability and compensation for damage from incidents involving transboundary movements of toxic and hazardous wastes.

These conventions have widened the coverage of liability and compensation systems considerably. And yet, they are still not enough to cover the range of damage that is caused by pollution in the marine environment. Issue areas include the sufficiency of current compensation limits, coverage of the full range of possible pollutants, and compensation for environmental damages. Under the present conventions, ship pollution damage by cargo other than oil and chemicals is not covered outside of general laws on compensation, and any recovery relating to damage to the environment is limited to restoration costs. Recent incidents like the Erika and the Prestige, which both occurred off the coast of France, and the Natuna Sea, which occurred in the Malacca Strait, demonstrate the gaps in the current systems and spur the international community to address them.

All of this deals only with damage caused within the shipping sector, and does not begin to address activities outside of the shipping sector that cause pollution and environmental damage.

Develop

The East Asian countries shall develop areas and opportunities in the coastal and marine environment that contribute to economic prosperity and social well-being while safeguarding ecological values.

Principles

Economic development is of vital local, national, and regional importance.

Environmental protection and economic development are compatible.

In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

Market mechanisms which internalize environmental costs and benefits promote long-term economic growth.

To protect and preserve the marine environment, the use of the full range of available management tools and financing options in implementing national or regional programmes of action, including innovative managerial and financial techniques, should be promoted.

Why Develop?

...let's choose to unite the power of markets with the authority of universal ideals. Let us choose to reconcile the creative forces of private entrepreneurship with the needs of the disadvantaged and the requirements of future generations...

Kofi Annan
UN Secretary General

Objectives

1. Promotion of sustainable economic development in coastal and marine areas
2. ICM as an effective management framework to achieve the sustainable development of coastal and marine areas
3. Subregional growth areas incorporating transboundary environmental management programmes
4. Partnerships in sustainable financing and environmental investments



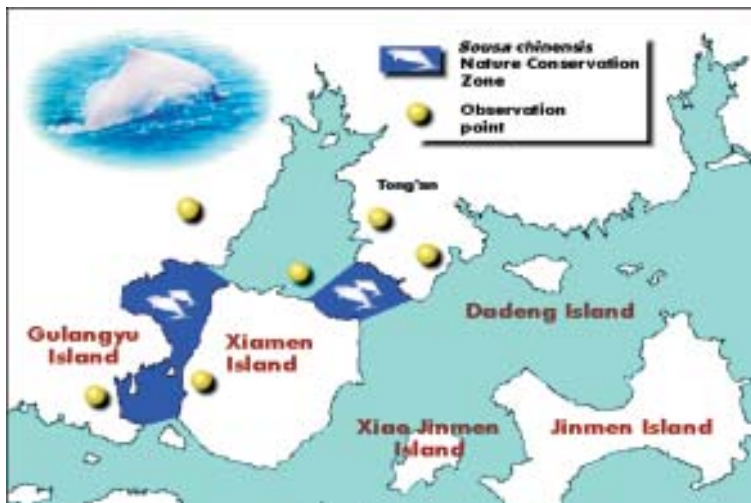
Sea-use Zoning Scheme in Xiamen

In 1997, the Xiamen municipal government adopted a functional zonation scheme to integrate consideration for the ecosystem and socioeconomic functions of coastal land and waters. The main purpose of the zonation is to reduce multi-use conflicts, maximize net social benefits in the coastal area, conserve biodiversity, and ensure long-term sustainable growth of Xiamen marine waters.

The marine waters were classified according to the priority of the uses, taking into account the dominant use of the area, possible compatible uses, and activities which should be restricted in the area. Xiamen marine waters were classified mainly into shipping/port zone, tourism zone, aquaculture zone, coastal industrial zone, ocean engineering zone, mining zone, nature reserve zone, special function zone, and rehabilitation zone. To ensure compliance with the zonation scheme, the implementing legislation required that all development of coastal and marine resources of Xiamen must be consistent with the functional zonation scheme.

One of the positive effects of the functional zonation scheme was the reduction of multiple-use conflicts by identifying, a priori, allowable compatible uses of a particular area.

Xiamen marine functional zonation scheme.



In the West Sea, the functional zonation scheme solved the conflict between the use of the waters for shipping and port development and for biodiversity conservation of the Chinese white dolphin (*Sousa chinensis*). The scheme designated a core protected area of 5,500 ha and established other special regulations to protect the Chinese white dolphin. Navigation is allowed outside the protected area because it became unnecessary to completely prohibit navigation in the West Sea.

Develop

Objective 1: Promotion of sustainable economic development in coastal and marine areas

Action Programmes

1. Promote appropriate national coastal and marine strategies and policies by:
 - a. Institutionalizing multisectoral stakeholder consultation and participation in decisionmaking; and
 - b. Taking into account diversified regional and local traditions, customs, values, comparative advantages, constraints, and other conditions in the formulation and implementation of national sustainable economic development programmes concerning coastal and marine areas.
2. Adopt mechanisms that promote public participation in planning and development processes by:
 - a. Developing land and sea-use plans, in consultation with stakeholders from the public and private sectors;
 - b. Having a clear process and criteria for achieving major developments in coastal and marine areas;
 - c. Conducting stakeholder consultations and consensus-building to identify, package, and develop environmental investment opportunities;
 - d. Identifying and prioritizing opportunities for development, which complement the shared vision of stakeholders for their coastal and marine areas;
 - e. Employing information and education programmes about the coastal and marine environment and related development opportunities; and
 - f. Strengthening and expanding environmental assessment systems and practices and phasing in use of strategic environmental assessment/IEIA as a tool for integrating environmental and social concerns, as appropriate, at earlier stages of decisionmaking.
3. Integrate economic development and environmental management by:
 - a. Formulating local coastal strategies;
 - b. Preparing strategic environmental and resource use management plans which fulfill the shared vision of local stakeholders;
 - c. Ensuring that national and local development plans complement land- and sea-use zonation plans;
 - d. Aligning developments in coastal and marine areas with social, cultural, and economic characteristics of, and benefits to, local communities;
 - e. Promoting partnerships in sustainable development and corporate responsibility among marine industries, such as shipping, capture fisheries, aquaculture and the exploration and exploitation of oil and gas and hard minerals, to ensure environmentally sound operations;
 - f. Utilizing the EIA process to address the long-term, communitywide and cross-sectoral implications of proposed developments;

-
- g. Improving public access to and benefit from sustainable use of coastal and marine resources through:
- ecotourism as a medium for promoting appreciation for the natural and cultural environment by local residents, visitors, and tourists;
 - appropriate restrictions on waterfront access by industry and commercial operations;
 - marine industries which return long-term economic and conservation benefits;
 - port development/expansion on coastal lands with deep water access; and
 - public ownership of coastal and marine properties of cultural and natural significance at local, national, and regional levels;
- h. Enhancing the capacities of the less-developed regions and localities, as well as local and indigenous communities, in addressing the challenges to sustainable development.

Develop

Objective 2: ICM as an effective management framework to achieve the sustainable development of coastal and marine areas

Action Programmes

1. Reduce conflicting and nonsustainable usage of coastal and marine resources by:
 - a. Implementing ICM programmes at the local level to address multiple-use conflicts;
 - b. Empowering and building the capacity of local governments to realize ICM programmes through demonstration projects, and networking among project sites to facilitate sharing of information, providing mutual assistance and promoting good practices;
 - c. Formulating and implementing ICM programmes at the local level, providing operational linkages among economic activities, natural resource management and social development including poverty alleviation, reduction of vulnerability to natural hazards, and sustainable livelihood; and
 - d. Creating partnerships among national agencies, local governments, and civil society that vest responsibility in concerned stakeholders for use planning, development, and management of coastal and marine resources.
2. Turn knowledge and concern about the coastal and marine environment into actions by:
 - a. Mobilizing local communities, environmental organizations, religious groups, and the private sector to craft a shared vision for their coastal area;
 - b. Enjoining indigenous peoples and marginalized groups in coastal areas as partners in the planning, development, and management of coastal resources;
 - c. Linking local scientific/technical institutions with other stakeholders in the community to provide scientific input into the planning and decisionmaking processes of local government; and
 - d. Implementing action plans that respond to the environmental values and threats that local stakeholders share regarding their coastal and marine environment, e.g., multiple-use zonation scheme, integrated waste management, and habitat conservation.
3. Build sustainable development and environmental conservation programmes at the local level by:
 - a. Institutionalizing legal, administrative, and economic instruments at the local government level in support of the ICM framework and process;
 - b. Creating investment opportunities for sustainable development projects, including environmental improvement projects, by local, national, and international agencies, programmes, investors, and companies;
 - c. Applying innovative financial mechanisms to ensure that users and beneficiaries of coastal and marine resources recognize the value for such resources, and compensate accordingly; and
 - d. Enhancing corporate responsibility for sustainable development of natural resources through application of appropriate policy, regulatory and economic incentive packages.
4. Manage the ecological and social impacts of expanding coastal urbanization, particularly large and megacities in the coastal zone, by:
 - a. Strengthening multisectoral stakeholder involvement in managing the urban affairs to address adverse impacts that may accompany rapid urbanization and population growth and ensure the implementation of sustainable urban development policies;
 - b. Undertaking risk assessment/risk management programmes with special attention to public health, population density, and the vulnerabilities of urban populations and environment; and
 - c. Increasing awareness and capacity-building programmes related to management of coastal urban areas.

Integrated Coastal Management (ICM)

ICM is an integrated management framework and process to address multiple-use conflicts in coastal lands and waters.

ICM addresses the land-ocean interactions linked by atmospheric, geological, physical, chemical, and biological complexes and are heavily affected by human activities and conditions.

ICM provides an operational path to sustainable development in coastal and marine areas by integrating various objectives such as poverty alleviation and sustainable livelihood.

ICM involves systematic processes following a continuous cycle covering preparation, initiation, development, implementation, refinement, and consolidation of a programme of action. A new cycle starts when new actions are formulated and implemented based on the foundation and experiences from the previous programme. It is thus necessary to integrate the ICM programme into the planning and development programme cycle of the local government.

ICM has become an internationally accepted approach in managing complex coastal and development issues. This is manifested in 345 ICM efforts initiated by 95 nations as of year 2000; doubling the efforts since 1993.

In more than three decades, the generic ICM framework has evolved in such a way that it can be adopted and applied in different coastal areas of the world with different coastal problems. Initiatives, in the form of demonstration sites, have not only operationalized the ICM concept but also have proven to be good working models. For example, the Xiamen and Batangas Bay demonstration sites of the GEF/UNDP/IMO East Asian Seas Project applied ICM in addressing marine pollution problems. ICM can also be used to address other concerns related to fisheries, aquaculture, tourism, biodiversity, and sea level rise. It is also effective for local implementation of international agreements, such as GPA, Biodiversity Convention, etc.

ICM programme development and implementation cycle.



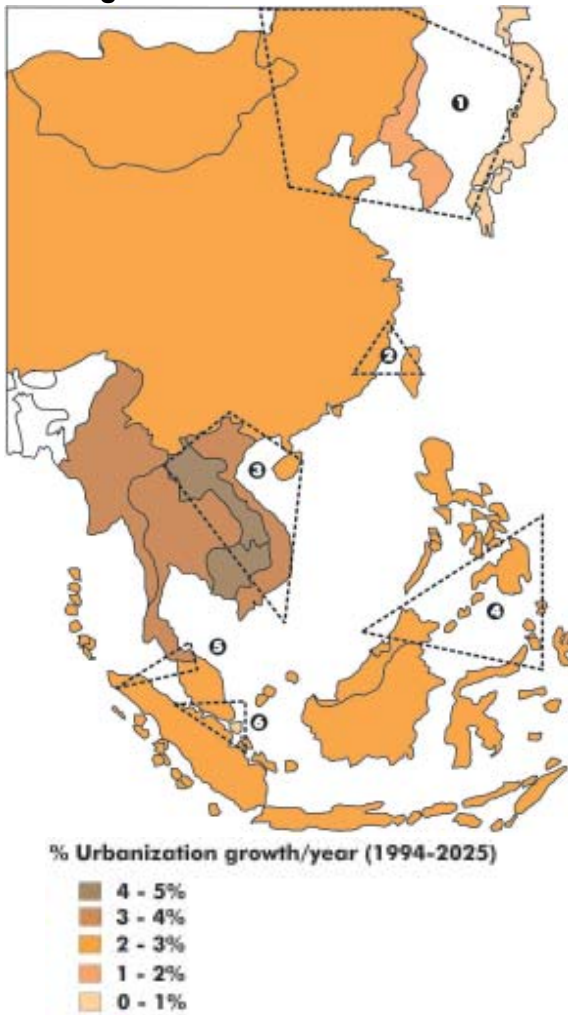
Develop

Objective 3: Subregional growth areas incorporating transboundary environmental management programmes

Action Programmes

1. Adopt a systematic process for evaluating policy, socioeconomic and environmental implications of growth areas on the coastal and marine resources by:
 - a. Incorporating transboundary environmental concerns into bilateral and multilateral agreements on the development and management of growth areas;
 - b. Adopting mechanisms to ensure the participation of local and national stakeholders in the planning, development, and management of subregional growth areas;
 - c. Establishing complementary action programmes to avoid transboundary environmental threats; and
 - d. Implementing an environmental management system within the growth area, including complementary economic instruments and regulatory mechanisms to promote cleaner production technologies and processes and investments in environmental facilities and services.
2. Implement appropriate policies and guidelines on approval of development opportunities by:
 - a. Establishing an environmental assessment procedure for all major developments;
 - b. Assuring that local stakeholders are able to participate in the approval process;
 - c. Requiring proposed infrastructure and administrative services, such as transportation and institutional arrangements, to be compatible with the social and economic goals of the subregion;
 - d. Ensuring that complementary environmental facilities and services are provided in the development, for public benefit and sustainable use of the resource; and
 - e. Stipulating strategies and socioeconomic evaluations for developing, financing, constructing, operating, and maintaining the required infrastructure and ancillary environmental services.

Subregional Growth Areas



The advent of globalization and urbanization has spawned the creation of subregional growth areas in East Asia. Alternatively known as international growth triangles, transborder regions, or transnational spaces, the growth areas espouse trade and economic interdependency given the advantages provided by East Asia's vast combined markets. These groupings thus enhance greater economic collaboration. They could also enhance partnerships in environmental management as environmental protection is an indispensable part of social and sustainable economic development. The transborder regions are as follows:

- 1 Northeast Asia Transborder Region: Tumen River Basin (Russia, China, DPR Korea, RO Korea, Japan)
- 2 Taiwan-Fujian Transborder Region
- 3 Mekong Transborder Region: Vietnam, Laos, Cambodia, Thailand
- 4 Eastern Growth Triangle: Mindanao, North Sulawesi, Brunei Darussalam, Sabah
- 5 Northern Growth Triangle: Sumatra (Medan), Malaysia (Penang), southern Thailand (Songkhla/Hatyai)
- 6 Sijori Growth Triangle: Singapore, Johor Baru, Riau

Coastal megacities of East Asia.



Develop

Objective 4: Partnerships in sustainable financing and environmental investments

Action Programmes

1. Adopt national policies, programmes, and practices to establish a stable investment climate and encourage partnerships by:
 - a. Undertaking necessary structural reforms to facilitate coordination and eliminate interjurisdictional bottlenecks and constraints;
 - b. Promoting local government responsibility, transparency, and accountability in the use of public funds and access to other forms of financing;
 - c. Raising public sector understanding of environmental issues and the partnership process for effective environmental management;
 - d. Implementing clear guidelines, criteria, and processes for developing partnerships with local, national, and international stakeholders, agencies, donors, investors, and operating companies;
 - e. Streamlining approval processes for environmental investment projects;
 - f. Having a national accounting of ocean and coastal resources that realistically reflect their intrinsic value as well as the value of the goods and services they provide;
 - g. Creating incentive programmes for investments in environmental infrastructure, cleaner production technologies and processes, eco-efficiency, and supporting technical and scientific services;
 - h. Implementing policies, laws, regulations, and programmes to maintain a well-defined and level playing field among existing and potential partners; and
 - i. Undertaking dynamic information dissemination programmes to attract investment capital in the international and domestic marketplaces.
2. Boost capital flows into environmental investments at the local level by:
 - a. Empowering local governments to provide affordable environmental facilities and services to the public, in concert with national regulations, criteria, and policies;
 - b. Authorizing local governments to enter into partnerships with local, national, and international parties to plan, finance, construct, and operate environmental facilities and support services;
 - c. Building the capacity of local governments as dynamic partners in packaging, promoting, and implementing opportunities for environmental investments;
 - d. Providing local governments with the authority to enter into partnerships with sectoral bodies, river basin authorities, regional development banks, and commercial financing sources; and
 - e. Instituting environmental management systems into local government operations which signal commitment and sustainability, including:
 - strategic environmental management plans;
 - review and approval processes for new developments;
 - enforcement of environmental laws, regulations, and standards;
 - environmental monitoring and evaluation programmes;

- fair and affordable systems of cost recovery for environmental services;
- ISO certification of local government units, industry, and commercial enterprises;
- incentive/reward systems for representative environmental citizens, such as certifications and public awards; and
- voluntary programmes with industry and commercial enterprises, including community services, environmental audits, and waste minimization initiatives.

3. Strengthen the role of the private sector by:

- Providing legal, administrative, and economic instruments in support of private sector investments, employing financing mechanisms such as public-private sector partnerships, joint ventures corporations and operating contracts;
- Allocating project risks realistically (e.g., political, technical, commercial, financial) in order to reach a fair balance of risks and benefits among parties;
- Establishing clear investment procedures;
- Adapting private sector investments to population needs and resources, in order to obtain a cost-recovery scheme, which is affordable and acceptable by the local community; and
- Strengthening and facilitating the participation of small business, informal business enterprises, and women in investments and the development of self-sustaining environmental enterprises.

Public-Private Partnerships (PPP) and the Bataan Waste Facility

Bataan, Philippines, serves as a case study for the development and promotion of investment opportunities in environmental improvement and management through partnerships between public and private sectors. The Bataan effort involved:

- establishing a suitable environment for investment at the local government level, by setting in place institutional arrangements (e.g., supporting policies and regulations, enforcement capabilities, strategic environmental management plans, delineation of roles and responsibilities of major players), formulating an integrated waste management plan for the area, and building consensus among stakeholders on the values and benefits of changing existing behavior;
- identifying priority environmental facilities and services to address the waste problems in the area, their affordability, and their compatibility with social, cultural, and economic characteristics of the site;
- packaging investment opportunities, taking into account existing operations, capacities, needs and shortfalls, including stakeholders' willingness-to-pay for desired changes;
- promoting investment opportunities to local, national, and international companies, investors, and other interested parties with the appropriate technology, expertise and financial capacity to partner with the local stakeholders; and
- bringing the two parties together into a partnership.

The result is the selection of a private sector partner, who will work with the 12 municipalities of Bataan to develop, finance, build, and operate an integrated waste management facility to serve the entire province.

Implement

The East Asian countries shall implement international instruments relevant to the management of the coastal and marine environment.

Principles

States fulfill the obligations under the conventions in good faith and in full cooperation and a spirit of partnership with one another.

Effective environmental legislation is necessary for the implementation of conventions.

Environmental standards, management objectives, and priorities should reflect the environmental and developmental context to which they apply.

States shall endeavor to harmonize their marine environmental policies at the appropriate regional level.

Why Implement?

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Rio Declaration, Principle 2

In the implementation of international instruments, regional rules, standards and recommended practices and procedures to manage the marine environment, characteristic regional features, the economic capacity of developing States and their need for economic development shall be taken into account.

Objectives

1. National government accession to and compliance with relevant international conventions and agreements
2. Regional cooperation in integrated implementation of international instruments
3. Execution of obligations under international conventions and agreements at the local government level



Implement

Objective 1: National government accession to and compliance with relevant international conventions and agreements

Action Programmes

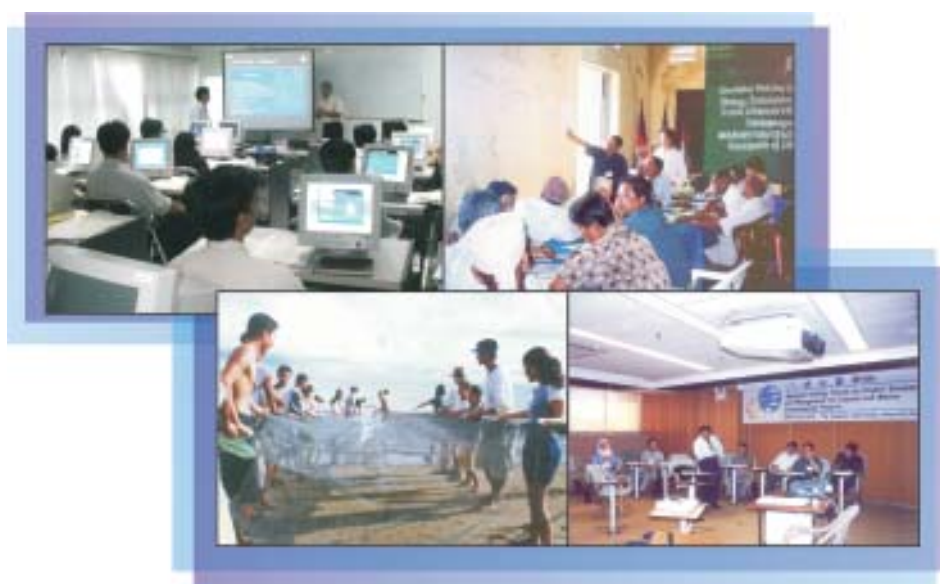
1. Translate the principles and objectives of international conventions and agreements into desired management outcomes by:
 - a. Evaluating the means and degree to which international instruments serve as a foundation and framework for, or are complementary to, national environmental policies and programmes;
 - b. Prioritizing the country's accession to relevant international conventions and agreements;
 - c. Identifying the gaps and constraints that exist regarding a country's ability to achieve full compliance with its international obligations under current national programmes;
 - d. Consolidating the administrative, operational, and reporting requirements of international conventions and agreements with the planning and management processes of functional agencies; and
 - e. Participating in formulation and revision of international instruments to contribute local considerations and needs and ensure their relevance to national, local, and regional situations.
2. Improve the efficiency and effectiveness with which international conventions are implemented by:
 - a. Identifying common actions among national agencies, industry, and the private sector that can be integrated;
 - b. Adopting strategies and policies leading to improved coordination of operations at the local and regional levels to meet international commitments;
 - c. Establishing national intersectoral, interagency, and interdisciplinary mechanisms to organize, coordinate, and manage the implementation of the identified common actions and adopted strategies and policies;
 - d. Forging partnerships with stakeholders who are directly affected by or benefit from international rules, standards, and certifications to ensure their full participation and contribution;
 - e. Calling on parties to international conventions and agreements for technical cooperation and assistance to build capacity at the regional, national, and local levels; and
 - f. Strengthening legislation and clarifying mandates among government agencies related to economic development of marine and coastal areas and environmental and resource management.

Management Approaches

Lessons on Environmental and Resource Management Failures

Lessons can be learned from the failures observed in many efforts of managing the environment and resources within the region and in other regions. The environment, in general and the sea specifically, which is the most interconnected and complex ecosystem, cannot be effectively managed where:

1. the policy and legislative framework is inadequate;
2. a sectoral and fragmented approach is applied;
3. cooperation and participation by governments, international agencies, donors, industry, the business community, and civil society remain at the project level;
4. adequate scientific information for management decisions is not available or accessible;
5. management capability at the local level is weak;
6. political will and commitment are lacking; and
7. faulty perceptions and short-term economic gains prevail over a long-term vision of sustainable development.



Management Approaches

Lessons on Environmental and Resource Management Successes

Lessons learned from the successes observed in environmental and resource management, especially when tested in real situations and proven to be effective, can be a good basis for management innovation and improvement. The following approaches are drawn from experiences in the region:

1. Develop an integrated coastal and marine policy at the national level.
 - Set national objectives, priorities, direction, and institutional arrangements.
 - Develop an integrated land and sea-use zoning system.
2. Establish mechanisms to facilitate horizontal and vertical consultation and cooperation among government agencies, NGOs, and other stakeholders at different levels, to address area- or site-specific priority issues affecting sustainable development.
3. Adopt multisectoral approaches and build partnerships among relevant stakeholders.
4. Mobilize local governments to address environmental issues and implement management programmes at the local level.
 - Develop guidelines for local planning and management.
 - Build local capacity and create a critical mass of local managers.
 - Empower local governments to apply innovative approaches.
 - Instill a sense of ownership by local government to ensure project implementation and sustainability.
5. Create a sustainable financing mechanism by providing incentives for environmental investment as well as promoting public-private sector partnerships.
6. Strengthen policy and science interactions and promote the policy advisory role of science.
 - Effectively communicate scientific results to coastal managers to improve management of the environment and coastal resources.
7. Build and nurture a policy support constituency by communicating actively with civil society groups.
 - Inform stakeholders to facilitate implementation of integrated management policies and projects.
 - Enhance technical skills of NGOs and interest groups on integrated coastal and marine management.
 - Institutionalize participatory measures throughout the planning, development, and implementation stages of the project.

Implement

Objective 2: Regional cooperation in integrated implementation of international instruments

Action Programmes

1. Enhance synergies and linkages between international conventions and agreements at the regional level by:
 - a. Providing a factual basis for countries of the region to consider the benefits derived from multilateral environmental agreements, and establishing complementarities among international conventions, including transboundary issues;
 - b. Developing a guide on integrated implementation of conventions which covers complementarities at the substantive obligation level and at the working programme level;
 - c. Examining institutional, scientific, and management mechanisms that support integrated implementation of international conventions, holistic approaches to related issues, information-sharing and joint capacity-building initiatives; and
 - d. Reviewing the implications for enhanced funding, technical assistance, and technical cooperation from GEF, World Bank, international agencies, and donors.
2. Establish a functional framework for regional cooperation in integrated implementation of international conventions and agreements by:
 - a. Adopting a regionwide strategy for sustainable development of the regional seas, recognizing individual and common responsibilities to implement the strategy;
 - b. Developing a regional philosophy regarding holistic management approaches to achieving the objectives of environment-related international conventions, such as ICM, ecosystem management, and risk management;
 - c. Identifying common actions that contribute to the implementation of international conventions, such as conserving and restoring habitats, emergency response, protecting threatened species, pollution prevention and management, public awareness and environmental monitoring;
 - d. Establishing concerted action plans to coordinate the common efforts of countries to address transborder environmental issues, and to improve the efficiency and cost-effectiveness of environmental programmes;
 - e. Elaborating a key set of indicators that may be used at the local and national levels for monitoring and evaluation;
 - f. Formulating multilateral project proposals on subregional initiatives to attract extra-budgetary funds and environmental investments;
 - g. Building capacity through sharing of information, experience, and expertise among countries; and
 - h. Based on existing mechanisms, making more effective regional arrangements, taking into account advantages and constraints of various options, including regional conventions and agreements, to facilitate the implementation of the common strategy and action programmes.

Implement

Objective 3: Execution of obligations under international conventions and agreements at the local government level

Action Programmes

1. Enable local stakeholders to contribute to Agenda 21, the WSSD Plan of Implementation, the Millennium Development Goals, GPA and other international instruments for sustainable development by:
 - a. Transforming obligations under international conventions into an implementation strategy, delineating the respective roles of national agencies, local governments, communities, the private sector, and other stakeholders;
 - b. Empowering local governments to plan, develop, and manage the coastal and marine resources within their jurisdiction, including actions designated under international conventions and agreements;
 - c. Building local capacities for integrated management, including ICM, community-based management of coastal resources, integrated waste management and sustainable tourism; and
 - d. Providing seed funding and creating incentive programmes to help local stakeholders with the development and startup of appropriate facilities, services, and programmes.

Communicate

The East Asian countries shall communicate with stakeholders to raise public awareness, strengthen multisectoral participation and obtain scientific support for the sustainable development of the coastal and marine environment.

Principles

States shall facilitate and encourage public awareness and participation by making information widely available.

The creativity, ideal, and courage of the youth of the world should be mobilized to forge a global partnership in order to achieve sustainable development.

Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.

Understanding of the importance of, and the measures required for, the protection and preservation of the marine environment shall be propagated through media, included in educational programmes, and developed in educational and public awareness programmes.

Why Communicate?

... contribute to the development of public policy and to business, governmental and intergovernmental programmes and educational initiatives that will enhance environmental awareness and protection.

Principle 14 (Contributing to the Common Effort)
Business Charter for Sustainable Development
International Chamber of Commerce

Objectives

1. Raising public awareness and understanding of coastal and marine environmental and resource management issues and processes
2. Utilization of science and traditional knowledge in decision-making processes
3. Mobilization of governments, civil society and the private sector utilizing innovative communication methods



Communicate

Objective 1: Raising public awareness and understanding of coastal and marine environmental and resource management issues and processes

Action Programmes

1. Establish good information exchange between stakeholders by:
 - a. Determining the values that different sectors of society place on coastal and marine resources and the existing and potential threats to those values as perceived by the different stakeholders, including:
 - fishing, aquaculture, seaweed farming, tourism, etc.;
 - navigation;
 - tourism and recreation;
 - social, cultural, and aesthetic characteristics; and
 - protection from typhoons, coastal erosion, flooding, and other ocean-related disturbances.
 - b. Turning disparate views regarding the coastal and marine environment into a shared vision among stakeholders through information and education campaigns that:
 - alert stakeholders to the environmental issues and needed changes;
 - identify direction, purpose, a focus for action, and roles and responsibilities;
 - promote interest and commitment through public forums/events;
 - encourage openness to unique and creative solutions; and
 - develop loyalty through involvement and ownership (e.g., voluntary agreements).
2. Strengthen the use of available information on environmental issues, technologies, processes and lessons learned at the local, national and regional levels by:
 - a. Setting up/enhancing communication networks among stakeholder groups;
 - b. Adopting capacity-building and information dissemination initiatives aimed at assisting civil servants, government officials, NGOs, POs, religious groups, teachers, trainers, and the media to promote environmental management among civil society;
 - c. Improving methods of communicating with indigenous people and marginalized groups in coastal areas to encourage participation in and ownership of local environmental management programmes;
 - d. Strengthening scientific and technical education and training in sustainable environmental management of coastal and marine ecosystems; and
 - e. Translating and disseminating information on the dynamics of coastal and marine ecosystems and their sustainable development into local languages.

Communicate

Objective 2: Utilization of science and traditional knowledge in decision-making processes

Action Programmes

1. Establish information technology (IT) as a vital tool in sustainable development programmes at the local, national, and regional levels systems by:
 - a. Agreeing on frameworks and standards for environmental information management at the local, national, and regional levels;
 - b. Building local government capacities to help decisionmakers and to sensitize the local public on environmental matters;
 - c. Linking people via computer networks to exchange information, encourage collaboration, and develop new opportunities;
 - d. Cooperating with the private sector to spur investment in and use of IT;
 - e. Encouraging sharing of environmental information and lessons among countries and institutions as one way to build capacity and learn from one another's experiences; and
 - f. Applying innovative IT technologies to minimize costs, advance understanding of available information and serve as decision-support instruments for policymakers and other stakeholders.
2. Utilize science and traditional knowledge in environmental policy development and decisionmaking by:
 - a. Forging partnerships with scientists and scientific institutions to encourage information and knowledge sharing at the local and national levels;
 - b. Supporting scientific research which advances knowledge of ecosystem management and provides input to decisions on sustainable economic development, including:
 - new technology and practices that support the sustainable use of resources;
 - economic valuation of coastal and marine resources;
 - preservation of biodiversity and the natural and cultural heritage of the peoples and countries of the Seas of East Asia, including in situ and ex-situ research;
 - effective management of transboundary issues at the local, national, subregional, and regional level; and
 - the carrying capacity of the ecosystem to establish levels for sustainable resource use and economic development activities;
 - c. Applying the knowledge, innovations, practices and technologies of indigenous local communities in planning, development, and management processes;
 - d. Involving indigenous peoples and other stakeholders in gathering, analysis and use of information on habitats and biological diversity;
 - e. Coordinating local interest groups to undertake surveys/monitoring and other management efforts; and
 - f. Contributing to the regular process of the Global Marine Environment Monitoring and Assessment called for by the WSSD Plan of Implementation.

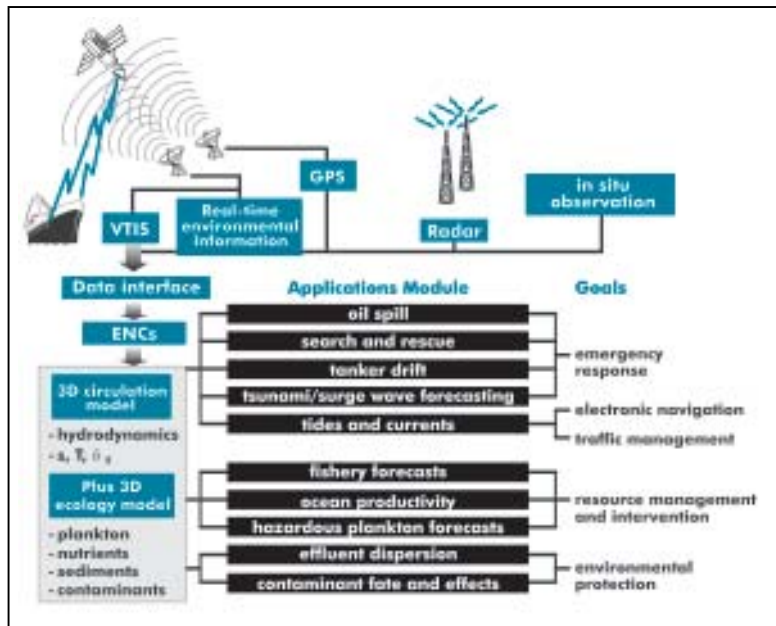
Communicate

Objective 3: Mobilization of governments, civil society and the private sector utilizing innovative communication methods

Action Programmes

1. Enhance dissemination of reliable and relevant data by:
 - a. Setting up local, national, and regional networks of organizations to collate, organize, and disseminate information on coastal and marine environmental and resource management (e.g., a marine electronic highway);
 - b. Creating virtual (online) media resource information centers to serve as clearinghouses/depositories of information on coastal and marine environmental and resource management;
 - c. Establishing a news monitoring and quick response system vis-à-vis issues relating to coastal and marine environmental and resource management; and
 - d. Linking with international agencies, programmes, and activities to enhance IT skills in the creation of websites and management of networks and Internet services.
2. Encourage information sharing by:
 - a. Rewarding those who share information through access to innovative applications and/or information networks;
 - b. Creating opportunities for profit-sharing/cost-recovery through e-commerce;
 - c. Identifying market needs and potential users of shared information and developing responsive packaging/analytical techniques;
 - d. Promoting wider application of traditional knowledge and practices with the approval and involvement of communities concerned; and
 - e. Ensuring integrity and ownership of knowledge and information and equitable sharing of benefits derived from their utilization.
3. Build a sense of ownership among stakeholders in the sustainable development of the coastal and marine areas by:
 - a. Providing for effective procedures for stakeholder participation and public consultation in policymaking and implementation; and
 - b. Developing mechanisms for resolving disputes concerning the use of coastal and marine resources.

Marine Electronic Highway functional diagram.



Monitoring the Strategy



Monitoring the Strategy

A series of indicators have been developed to assess progress across the region regarding implementation of the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA). The indicators provide a systematic approach for each country to track its movement toward management arrangements, systems, and processes identified in the Strategy.

The desired outcomes and changes to be achieved by the vision, strategies, and objectives of SDS-SEA can be classified into three broad categories, namely:

- **institutional activities**, including the individual and collective policy, legal, and administrative actions of countries, in accordance with the Strategy;
- **operational activities**, describing the measures taken by countries to halt, mitigate, adapt to, or prevent damage to the environment caused by natural processes and human activities, as defined in the Strategy; and
- **environmental state**, referring to the quality and quantity of natural resources, and the state of human and ecological health. Indicators in this category reflect the ultimate benefits derived as a consequence of the SDS-SEA, and are chosen by considering biological, chemical, and physical variables and ecological functions.

One of the early initiatives of Strategy implementation involves countries of the region confirming/agreeing on these indicators, the desired targets or reference values for each indicator and the protocols for assessing them. In the interim, the following institutional and operational indicators may be employed in monitoring the Strategy. These were chosen to ensure consistency and applicability to all. Changes and additions will occur to the indicators over time, as monitoring and reporting systems develop and as the capacity of the various stakeholders at the national, local, and regional levels increases.

Monitoring National Level Implementation of the Strategy

Institutional

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
a. Coastal/marine policy			
No. of countries:			
• Under development			
• In place			
b. Accession to key international environmental instruments*			
No. of countries:			
• Under development			
• In place			

*Note: The key international environmental instruments can be selected from those shown in Table 1, Annex 3 (p. 108).

Operational

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
a. National coastal and marine environmental strategy			
• Under development			
• In place			
b. National coastlines with land- and sea-use development plans			
Length of coastline (km):			
• Under development			
• In place			
c. Ship waste reception facilities in ports and harbors			
% of ports/harbors with licensed facilities and services:			
• Under development			
• In place			
d. National marine and coastal areas under environmental management programmes			
Total area (km ²):			
• Under development			
• In place			
e. River basins under ecosystem development and management programmes			
Total river basin area (km ²):			
• Under development			
• In place			

Monitoring Local Level Implementation of the Strategy

Institutional

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
a. Local governments empowered to manage marine and coastal resources			
No. of countries:			
• Under development			
• In place			

Operational

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
a. Local coastal strategies			
• Under development			
• In place			
b. Length of municipal coastlines under an integrated management program			
Length of coastline (km):			
• Under development			
• In place			
c. ISO 14000 certification of local governments			
No. of certifications:			
• Under development			
• In place			
d. Sewage treatment			
% of coastal urban population with treatment facilities:			
• Under development			
• In place			
e. Drinking water			
% of coastal urban population with treated water supply:			
• Under development			
• In place			
f. Waste management			
% of coastal urban population with garbage collection and licensed disposal facilities:			
• Under development			
• In place			

Monitoring Subregional Level Implementation of the Strategy

Institutional

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
a. Intergovernmental environmental management mechanisms for transborder areas and LMEs			
No. of mechanisms:			
• Under development			
• In place			

Operational

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
a. Transborder marine areas/LMEs under environmental management plans			
Total transborder/LME marine area (km ²):			
• Under development			
• In place			
b. Sea areas with regional contingency plans and compensation systems			
Sea area (km ²):			
• Under development			
• In place			

Monitoring Implementation of the Strategy by Other Stakeholders

Private Sector

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
a. Number of ISO 14000 certification of industries and private enterprises			
• Under development			
• In place			

Civil Society

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
a. Number of registered environmental NGOs			
• Under development			
• In place			

Academe/Scientific Community

Indicator Description	Current Status	Milestone Target 2005	Milestone Target 2015
a. Number of graduates from undergraduate or postgraduate programmes on environmental/coastal management			
• Under development			
• In place			
b. Number of graduates from short-term training programmes on environmental/coastal management			
• Under development			
• In place			
c. Level of funding of environmental research and development programs supported by national/international programmes (US\$)			
• Under development			
• In place			

Bibliography

Annexes

- 1. Major International Instruments Relating to the Coastal and Marine Environment**
- 2. Major International and Regional Programmes of Action on the Coastal and Marine Environment**
- 3. International Conventions**

Bibliography

- ADB (Asian Development Bank). 1999. Fighting poverty in Asia and the Pacific: The poverty reduction strategy. ADB, Mandaluyong City, Philippines.
- Bryant, D., L. Burke, J. McManus, and M. Spalding. 1998. Reefs at risk: A map-based indicator of threats to the world's coral reefs. World Resources Institute, International Center for Living Aquatic Resources Management, World Conservation Monitoring Centre, and United Nations Environment Programme, Washington, DC, USA. 55 p.
- Burke, L., E. Selig, and M. Spalding. 2002. Reefs at risk in Southeast Asia. World Resources Institute, Washington, DC, USA. 72 p.
- Burke, L., Y. Kura, K. Kassem, C. Revenga, M. Spalding, and D. McAllister. 2001. Pilot analysis of global ecosystems (PAGE). Coastal ecosystem. World Resources Institute, Washington, DC, USA. 77 p.
- Cesar, H.S.J., K.A. Warren, Y. Sadovy, P. Lau, S. Meijer, and E. van Ierland. 2000. Marine market transformation of the live reef fish food trade in Southeast Asia, p. 137-157. *In* H.S.J. Cesar (ed.) Collected essays on the economics of coral reefs. CORDIO, Department of Biology and Environmental Sciences, Kalmar University, Sweden.
- Chan, E.-H. and C. Shepherd. 2002. Marine turtles: The scenario in Southeast Asia. *Trop. Coasts*: 9(2): 38-43.
- Chia, L.S. and H. Kirkman. 2000. Overview of land-based sources and activities affecting the marine environment in the East Asian Seas. UNEP/GPA Coordination Office and EAS/RCU. Reg. Seas Rep. Stud. Ser. No. 173, 74 p.
- Chongprasith, P. and V. Srinetr. 1998. Marine water quality and pollution of the Gulf of Thailand, p. 137-204. *In* D.M. Johnston (ed.) SEAPOL integrated studies of the Gulf of Thailand. Vol. 1. Southeast Asian Programme in Ocean Law, Bangkok, Thailand.
- Chou, L.M. 1997. Southeast Asia as the global center of marine biodiversity. *Trop. Coasts* 4(1): 4-8.
- Chou, L.M. 1998. Status of Southeast Asian coral reefs, p. 79-87. *In* C. Wilkinson (ed.) Status of coral reefs of the world: 1998. Global Coral Reef Monitoring Network and Australian Institute of Marine Science, Queensland, Australia. 184 p.
- Chua, T.-E. 1998. Lessons learned from practicing integrated coastal management in Southeast Asia. *Ambio* 27(8): 599-610.
- Cicin-Sain, B. and R.W. Knecht. 1998. Integrated coastal and ocean management: Concepts and practices. Island Press, Washington, DC, USA. 517 p.
- Clark, J.R. 1996. Coastal zone management handbook. CRC Press, Inc., Boca Raton, Florida, USA. 694 p.
- COP (China Ocean Press). 2000. China marine statistical yearbook 2000. COP, Beijing, China.
- Costanza, R., R. d'Arge, R. de Groot, S. Farber, M. Grasso, B. Hannon, K. Limburg, S. Naeem, R.V. O'Neill, J. Paruelo, R.G. Raskin, P. Sutton and M. van den Belt. 1997. The value of the world's ecosystem services and natural capital. *Nature* 387(6230): 253-260.
- CZC (Coastal Zone Canada). 2000. Baseline 2000 document created for CZC 2000 Conference. CZC Association (http://www.dal.ca/aczisc/czca-azcc/contact_e.htm).
- Douglass, M. 1998. East Asian urbanization: Patterns, problems and prospects. Paper presented at the 1998 Walter H. Shorenstein Distinguished Lecture Series: Cities and the Regional Dynamics of East Asia, 23 April 1998, Asia/Pacific Research Center, Stanford University, USA.
- Encarta. 2001a. <http://encarta.msn.com/find/concise.asp?ti=055DB000>
- Encarta. 2001b. <http://encarta.msn.com/find/concise.asp?2=1&pg=2&ti=761577214>
- Etkin, D.S. 1997. Oil spill in East Asia: Over 220 million gallons spilled since 1965. Oil Spill Intelligence Report.
- FAO (Food and Agriculture Organization). 1999a. FAO yearbook: Fishery statistics capture production 1997. Vol. 84. FAO, Rome, Italy.

-
- FAO (Food and Agriculture Organization). 1999b. Aquaculture production statistics, 1988-1997. FAO Fish. Circ. No. 815, Rev. 11. FAO, Rome, Italy.
- Fell, B. 1975. Introduction to marine biology. Harper and Row, New York, USA.
- Fishbase 2001. Fishbase glossary. [http://www.fishbase.org/Glo../Glossary.cfm?TermEnglish+ Non-Governmental%20Organizatio](http://www.fishbase.org/Glo../Glossary.cfm?TermEnglish+Non-Governmental%20Organizatio), 8/3/01
- Fortes, M.D. 1994. Status of seagrass beds in ASEAN, p. 106-109. *In* C.R. Wilkinson (ed.) ASEAN-Australia Symposium on Living Coastal Resources, 3 October 1994, Bangkok, Thailand. Consultative Forum. Living coastal resources of Southeast Asia: Status and management report.
- GEF (Global Environment Facility). 1998. Preparation of strategic action programme and TDA for the Tumen River area. GEF, Washington DC, USA.
- GEF (Global Environment Facility). 1999a. Reversing degradation trends in the South China Sea. GEF, Washington DC, USA.
- GEF (Global Environment Facility). 1999b. Formulation of a TDA and preliminary framework of strategic action programme for the Sulu-Sulawesi LME. GEF, Washington DC, USA.
- GEF (Global Environment Facility). 2000. Reducing environmental stress in the Yellow Sea LME (Project Brief No.1). GEF, Washington DC, USA.
- GESAMP (IMO/FAO/UNESCO-IOC/WMO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection). 2001. A sea of troubles. GESAMP Rep. Stud. No. 70, 35 p.
- GESAMP (IMO/FAO/UNESCO-IOC/WMO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection). 1986. Environmental capacity: An approach to marine pollution prevention. Rep. Stud. GESAMP (30), 49 p.
- IMO (International Maritime Organization). 1997. Resolution A.868(20). Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens. IMO, London, UK.
- IOC/SCOR (Intergovernmental Oceanographic Commission-Scientific Committee on Oceanic Research). 1998. The global ecology and oceanography of harmful algae blooms. A plan for coordinated scientific research and cooperation to develop international capabilities for assessment, prediction and mitigation, Joint SCOR-IOC Workshop, 13-17 October 1998, Havreholm, Denmark. 43 p.
- Konovalov, S.M. 1999. Ecological carrying capacity of semi-enclosed large marine ecosystems, p. 380-402. *In* K. Sherman and Q. Tang (eds.) Large marine ecosystems of the Pacific Rim: Assessment, sustainability and management. Blackwell Science, Massachusetts, USA.
- Meyrick, S. 2000. Developments in Asian maritime trade. IGCC Policy Pap. 33. (http://www-igcc.ucsd.edu/publications/policy_papers/pp3302.html)
- Morgan, J. 1989. Large marine ecosystems in the Pacific Ocean, p. 383-385. *In* K. Sherman and L.M. Alexander (eds.) Biomass yields and geography of large marine ecosystems. Westview Press, Colorado, USA.
- MPP-EAS (GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas). 1998. Marine pollution management in the Malacca/Singapore Straits: Lessons learned. MPP-EAS/Info99/195, 168 p. MPP-EAS, Quezon City, Philippines.
- MRC (Mekong River Commission). 1999. Water Utilization Project. MRC, Phnom Penh, Cambodia.
- NOAA (National Oceanic and Atmospheric Administration). 2000. Prescriptions on integrated coastal management in major international agreements. <http://icm.noaa.gov/prescriptions/prescript.html> (29 September 2000)
- PRRP/DENR/DANIDA (Pasig River Rehabilitation Program, Department of Environment and Natural Resources, and Danish International Development Assistance and Ministry of Foreign Affairs). 1999. Manila Bay monitoring status for 1996-1998 and recommendation for continued monitoring. PRRP/DENR, Quezon City, Philippines/DANIDA, Sweden.

-
- RRB (Red River Basin Water Resources Management Project). 2002. <http://www.adbta2871.vnn.vn/links-reference/en/rrb-overview.htm> (5 April 2002)
- Ruitenbeek, H.J. 1999. Blue pricing of undersea treasures – needs and opportunities for environmental economics research on coral reef management in Southeast Asia. Paper presented to the 12th Biannual Workshop of the Environmental Economics Program for Southeast Asia, 11-14 May, Singapore. International Development Research Centre, Singapore.
- Safina, C. 1998. The world's imperiled fish. *Scientific American presents: the oceans*. Sci. Am. 9(3): 58-63.
- Sainsbury *et al.* 1997. (After Harden Jones, 1994, quoted by Issues Pap. 7, Australia's oceans policy (<http://www.oceans.gov.au/aop/develop/series/issue7/index.html#contents>))
- She, J. 1999. Pollution in the Yellow Sea large marine ecosystem: Monitoring, research and ecological effects, p. 419-426. *In* K. Sherman and Q. Tang (eds.) Large marine ecosystems of the Pacific Rim: Assessment, sustainability and management. Blackwell Science, Massachusetts, USA.
- Sherman, K. 1995. Assessment, sustainability and monitoring of coastal ecosystems: An ecological perspective, p. 126-143. *In* E. Okemwa, M.J. Ntiba and K. Sherman (eds.) Status and future of large marine ecosystems of the Indian Ocean. IUCN, Gland, Switzerland.
- SOA (State Oceanic Administration). 2002. China marine environmental quality report 2001. SOA, the People's Republic of China.
- Talaue-McManus, L. 2000. Transboundary diagnostic analysis for the South China Sea. EAS/RCU Tech. Rep. Ser. No. 14. UNEP, Bangkok, Thailand.
- Teng, S.K. 2001. GIWA assessment of the Yellow Sea, PRC-ROK Workshop, 25-27 September 2001, Qingdao, People's Republic of China.
- UN (United Nations). 1999. World urbanization prospects: The 1999 revision. Population Division, UN.
- UNEP (United Nations Environment Programme). 1998. Report of the Thirteenth Meeting of the Coordinating Body on the Seas of East Asia (COBSEA) on the East Asian Seas Action Plan. UNEP (WATER)/EAS IG.9/3. UNEP, Bangkok, Thailand.
- UNU (United Nations University). 2001. Inter-linkages: Synergies and coordination between multilateral environmental agreements. UNU, Tokyo, Japan.
- Veron, J.E.N. A biogeographic database of hermatypic corals. AIMS Monogr. No. 10.
- Vu, T.C. Salinity intrusion in the Red River Delta. Seminar on Environment and Development in Vietnam, December 1996. http://coombs.anu.edu.au/~vern/env_dev/papers/PAP08.MCW (5 April 2002)
- World Bank. 1998. East Asia: The road to recovery. World Bank, Washington, DC, USA.
- World Bank. 2000. East Asia: Recovery and beyond. World Bank, Washington, DC, USA.
- World Bank. 2002a. Data by topic. <http://www.worldbank.org/data/databytopic/databytopic.html> (18 April 2002)
- World Bank. 2002b. Country at a glance. <http://www.worldbank.org/data/countrydata.html> (15 April 2002)
- WRI (World Resources Institute). 2001. Data tables 2000-2001. Table CMI.2. Trade in fish and fishery products, fish consumption, fishers and fleet information. WRI, Washington, DC, USA.
- WRI (World Resources Institute). 2003. EarthTrends. <http://earthtrends.wri.org/> (18 July 2003)
- Yu, H., R. Juliano and S. Teng. 2001. Technical Report: Scaling and Scoping for Global International Waters Assessment (GIWA) Subregions 34 (Yellow Sea), 35 (Bohai Sea) and 36 (East China Sea). GIWA Scaling and Scoping Reports, draft versions in www.giwa.net.
-

Annexes

Annex 1. Major International Instruments Relating to the Coastal and Marine Environment

1. Rio Declaration
2. United Nations Convention on the Law of the Sea, 1982 (UNCLOS)
3. United Nations Framework Convention on Climate Change, 1992 (UNFCCC)
4. Convention on Biological Diversity, 1992 (CBD)
5. Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973 (CITES)
6. International Convention for the Regulation of Whaling, 1946
7. Ramsar Convention on Wetlands, 1971 (Ramsar Convention)
8. Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972 (World Heritage Convention)
9. Convention on the Conservation of Migratory Species of Wild Animals, 1979 (Convention on Migratory Species)
10. Code of Conduct for Responsible Fisheries
11. International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 Relating Thereto (MARPOL 73/78)
12. Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 and Its 1996 Protocol (London Convention)
13. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1989 (Basel Convention)
14. International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC)
15. International Convention on Civil Liability for Oil Pollution Damage, 1969 and Its 1992 Protocol (CLC)
16. International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971 and Its 1992 Protocol (FUND)
17. International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, 1996 (HNS)
18. Basel Convention Protocol on Liability and Compensation, 2000
19. International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001 (Bunker Oil Convention)
20. International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969 and Protocol Relating to Intervention on the High Seas in Cases of Pollution by Substances Other Than Oil, 1973 (Intervention)
21. International Convention on Salvage, 1989 (Salvage)

Annex 2. Major International and Regional Programmes of Action on the Coastal and Marine Environment

1. Agenda 21, Chapter 17
2. World Summit on Sustainable Development Declaration and Plan of Implementation
3. United Nations Millennium Declaration and Development Goals
4. Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA)
5. Jakarta Mandate on Marine and Coastal Biological Diversity, 1995
6. Association of Southeast Asian Nations (ASEAN) Hanoi Plan of Action, 2000-2004
7. ASEAN Cooperation Plan on Transboundary Pollution, Kuala Lumpur, June 1995
8. ASEAN Agreement on the Conservation of Nature and Natural Resources, 1985
9. Regional Action Programme for Environmentally Sound and Sustainable Development, 2001-2005, Economic and Social Commission for Asia and the Pacific
10. Transboundary Diagnostic Analysis, and Strategic Action Programme, for the South China Sea, 2000, United Nations Environment Programme (UNEP) East Asian Seas Action Plan
11. Overview on Land-based Sources and Activities Affecting the Marine Environment in the East Asian Seas, 2000, UNEP East Asian Seas Action Plan
12. Vision and Plan: A Systematic Approach, 2000, UNEP East Asian Seas Long-term Plan
13. Northwest Pacific Action Plan (NOWPAP)
14. Asia-Pacific Economic Cooperation Action Plan for the Sustainability of the Marine Environment, 1997
15. Tokyo Memorandum of Understanding on Port State Control for the Asia Pacific
16. Awareness and Preparedness for Emergencies at Local Level (APELL)
17. Yellow Sea Large Marine Ecosystem Programme

See also: A Sea of Troubles, GESAMP Report and Recommendations, 2001

Annex 3. International Conventions

International conventions have a crucial role in the management of the marine environment.

International conventions on the environment contain global standards by which the marine environment may be protected and managed. They provide both theoretical basis and practical means for addressing problems. In addition, they include a number of related international agreements to protect the environment, such as the Rio Declaration, Agenda 21, and the Global Programme of Action (GPA), which are not legally binding but have gained moral force through widespread international acceptance. The past few years have added to this number with the United Nations declaring the ten-point Millennium Development Goals, and the World Summit on Sustainable Development (WSSD) adopting a Declaration and Plan of Action as a follow-on to Agenda 21.

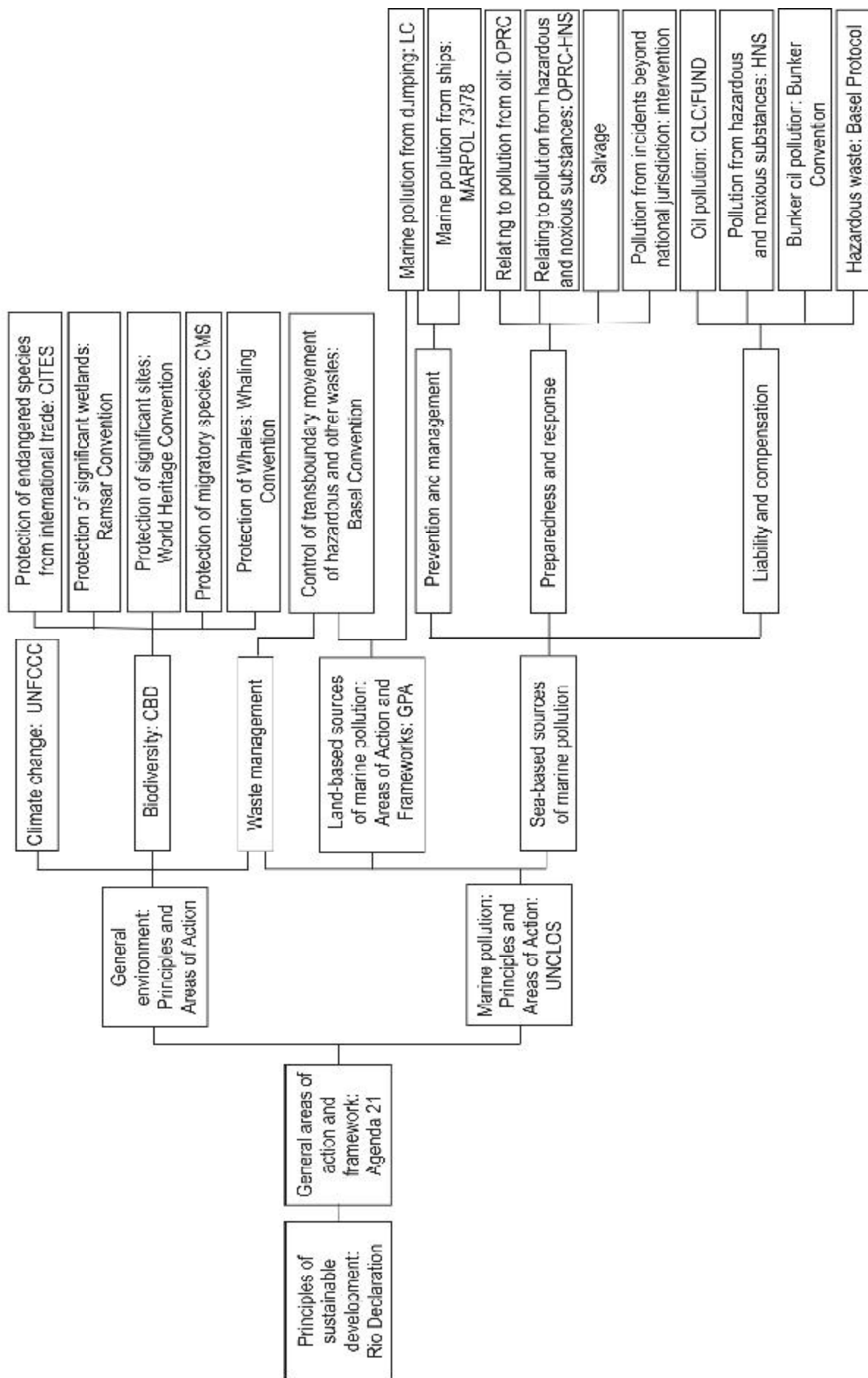
International conventions provide principles and frameworks upon which management of the marine environment rests. For example, the application of the precautionary and polluter pays principles are required by many conventions (the London Convention, the UNFCCC, the OPRC/HNS, etc.) and integrated coastal management is the “framework of choice” of Agenda 21, UNFCCC, CBD, and GPA.

International conventions on the environment are a relatively recent phenomenon in the realm of international law. At the time that they were drafted, it was already understood that environmental problems do not recognize boundaries. This is especially true for the marine environment because of the nature of the medium that binds this environment — water. Thus the conventions deal especially with transboundary environmental problems, particularly the marine environment, and take special recognition of the need for regional cooperation. This represents a departure from traditional international law. With regard to navigation, for example, ships have for centuries been regarded as an extension of the flag state's territory, and is therefore subject only to that state's jurisdiction. In the past three decades, International Maritime Organization conventions have evolved a system of port state control (without abandoning the flag state system) through which a state may impose environmental requirements over ships calling at its ports.

International Conventions in an Integrated Implementation Framework

Taken all together, international conventions provide an overall and integrated framework for the protection of the marine environment (see Figure 1). However, it is not yet a complete framework. There are many areas which may be the subject of future conventions, or which national legislation alone may cover. A key advantage of international conventions is that they represent global acceptance of environmental threats and solutions in addition to providing a framework for addressing transboundary problems on international and regional basis, as well as on a national basis.

Figure 1. International conventions in an integrated implementation network.



Implementation of International Conventions

International conventions and other instruments are not adopted according to a grand design. They are negotiated and concluded as the need arises, and may be as detailed and specific or general as is acceptable at the time. Thus conventions do not have the same level of “implementability” – some of them have provisions that are detailed enough to immediately enforce, while others need more development under national legislation and processes.

Acceptability to the majority of the states negotiating a convention also governs its provisions. For this reason, a convention may not reflect the best possible solutions or the application of the most advanced technology to particular problems. Thus, in implementing a convention, countries may, in a national context and/or multilaterally, go beyond the provisions of the convention.

The implementation requirements of international conventions intersect and combine to form a web of actions and approaches that protect the marine environment.

A legal, administrative, and facilities infrastructure can therefore be designed to promote the implementation of many conventions simultaneously.

For example, certain basic sets of actions such as monitoring, port state control, protected areas, and integrated waste management are included in a number of conventions. Table 1 shows how common implementation elements may bind different conventions together. By undertaking certain action programmes, obligations under many conventions are complied with.

Table 1. Action programmes for integrated implementation of international instruments.

Convention Action	Rio Declaration	Agenda 21	UNCLOS	UNFCCC	GPA	CBD	Ramsar	CITES	Basel Convention	London Convention	MARPOL	OPRC	CLC/FUND/HNS
ICM	?	?	?	?	?	?	?	?	?	?	?	?	?
Integrated waste management	?	?	?		?				?	?	?	?	
Protected areas	?	?	?		?	?	?			?	?		
EIA	?	?		?	?	?			?	?			
Risk assessment		?		?	?	?				?		?	?
Monitoring		?	?	?	?	?	?	?	?	?	?	?	
Port state control			?								?	?	?

A further advantage is provided by the ICM framework: local implementation of international conventions can be effectively achieved through this framework.

Implementing governments will discover the many synergies and linkages through the geographical scope of convention application and in the overlap between the functions and authority of national and local agencies. Harnessing these synergies and linkages through the ICM framework leads to effective local implementation of Agenda 21, GPA, the Biodiversity Convention, Climate Change Convention, Marine Pollution Conventions, indeed practically all international instruments.

Convention Implementation in the Region

To implement a number of conventions necessarily means to cooperate with neighboring states, either through general provisions for “regional cooperation” (i.e., UNCLOS, GPA, Agenda 21, etc.) or through specific actions that must be cooperatively implemented (OPRC, etc.).

Reviewing the international conventions and what they seek to address – protection of biodiversity, sustainable use of resources, pollution management, etc. – it is apparent that progress in the resolution of related problems has been imperceptible, despite the number of ratifications of the conventions as shown in Tables 2 and 3. This may be attributed to the fact that very little has been done to operationalize the conventions. While they may have been accepted, their provisions are still in the concept of what-ought-to-be, and not what-is-being-done.

This is not true of all countries in the region - it will be noticed that the high-income economies have progressed further than the others - but it is true in the majority. The reasons for the disparate implementation levels among the countries may be traced to the differences in available resources, in priorities of policymakers, and in bureaucracy and political systems, or failures in management.

The implementation of international conventions contributes to the broader aims of poverty alleviation, public health, food security, recreation, and good governance. It is clear that without the solutions proposed by the conventions, environmental degradation will continue, and will have devastating effect on the quality of life of each and every person. Implementation of conventions not only directly addresses public health concerns, but provides an effective and equitable framework of sustainable development and creates a stable regulatory environment that leads to a stable business climate, thus encouraging trade and investment.

The approach of this Strategy is to make the provisions of the conventions implementable by all the countries of the region, and to facilitate regional approaches for their implementation in order to address local and national level issues as well as transboundary issues. The Strategy aims to put countries in the region on equal footing with each other with regard to sustainable development, at the same time it recognizes the difference between countries.

Table 2. Ratification of international conventions relating to marine pollution (as of 31 August 2003).

Country	Conventions																			
	UN/CLOS 1982	MARPOL				London Convention		Intervention		CLC	FUND		Salvage 1989	OPRC 1990	OPRC-HNS 2000	HNS 1996	Bunker Oil 2001	Basel Convention 1989	Basel Protocol 1999	GPA on LBS 1995
		73/78 Annex I/II	III	IV	V	VI	Convention 1972	Protocol 1996	Convention 1969		Protocol 1973	Convention 1969								
Brunei Darussalam	1996	1986								D	2002	D	2002					2002		
Cambodia		1994	1994	1994						1994	2001		2001					2001		Y
China	1996	1983	1994		1988		1985	1990	1990	D	1999		1999*	1998				1992		Y
DPR Korea		1985	1985	1985																
Indonesia	1986	1986								D	1999	D						1993		Y
Japan	1996	1983	1983	1983		1980		1971		D	1994	D	1994	1995				1993		Y
Malaysia	1996	1997			1997					1995		1995		1997				1993		Y
Philippines	1984	2001	2001	2001		1973					1997		1997					1993		Y
RO Korea	1996	1984	1996		1996	1993				D	1997	D	1997	1999				1994		Y
Singapore	1994	1990	1994		1999					D	1997		1997	1999				1996		
Thailand														2000				1997		Y
Vietnam	1994	1991									2003							1995		

D - denounced.

Y - participated in the conference.

* - with application to Hongkong Special Administrative Region (SAR) only.

Table 3. Ratification of international conventions and agreements relating to the marine environment (as of 31 October 2002).

Country	Convention								
	UNFCCC 1992	Biodiversity 1992	Jakarta Mandate 1995	Ramsar 1971	CITES 1973	Migratory Species 1979	World Heritage 1972	Whaling 1946	Montreal Declaration 2001
Brunei Darussalam					1990				
Cambodia	1995	1995	Y	1999	1997		1991		Y
China	1993	1993	Y	1992	1981		1985	1980	Y
DPR Korea	1994	1994	Y				1998		
Indonesia	1994	1994	Y	1992	1978		1989		
Japan	1993	1993	Y	1980	1980		1992	1951	Y
Malaysia	1994	1994	Y	1995	1977		1988		Y
Philippines	1994	1993	Y	1994	1981	1994	1985	1981	Y
RO Korea	1993	1994	Y	1997	1993		1988	1978	Y
Singapore	1997	1995			1986				
Thailand	1994			1998	1983		1987		Y
Vietnam	1994	1994	Y	1989	1994		1987		

Notes: The numbers in the table represent the year of ratification/accession.
Y - participated in the conference.