Framework for National Coastal and Marine Policy Development

GEF/UNDP/IMO Regional Programme
on Partnerships in Environmental Management
for the Seas of East Asia

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GEF/UNDP/IMO Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia

FRAMEWORK FOR NATIONAL COASTAL AND MARINE POLICY DEVELOPMENT

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MISSION STATEMENT

The Global Environment Facility/United Nations Development Programme/International Maritime Organization Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) aims to promote a shared vision for the Seas of East Asia:

> "The resource systems of the Seas of East Asia are a natural heritage, safeguarding sustainable and healthy food supplies, livelihood, properties and investments, and social, cultural and ecological values for the people of the region, while contributing to economic prosperity and global markets through safe and efficient maritime trade, thereby promoting a peaceful and harmonious co-existence for present and future generations."

PEMSEA focuses on building intergovernmental, interagency and intersectoral partnerships to strengthen environmental management capabilities at the local, national and regional levels and develop the collective capacity to implement appropriate strategies and environmental action programs on a self-reliant basis. Specifically, PEMSEA will carry out the following:

- build national and regional capacity to implement integrated coastal management programs;
- promote multi-country initiatives in addressing priority transboundary environmental issues in sub-regional sea areas and pollution hotspots;
- reinforce and establish a range of functional networks to support environmental management;
- identify environmental investment and financing opportunities and promote mechanisms, such as public-private partnerships, environmental projects for financing and other forms of developmental assistance;
- advance scientific and technical inputs to support decision-making;
- develop integrated information management systems linking selected sites into a regional network for data sharing and technical support;
- establish the enabling environment to reinforce delivery capabilities and advance the concerns of nongovernmental and community-based organizations, environmental journalists, religious groups and other stakeholders;
- strengthen national capacities for developing integrated coastal and marine policies as part of state policies for sustainable socioeconomic development; and
- promote regional commitment for implementing international conventions, and strengthening regional and sub-regional cooperation and collaboration using a sustainable regional mechanism.

The twelve participating countries are: Brunei Darussalam, Cambodia, Democratic People's Republic of Korea, Indonesia, Japan, Malaysia, People's Republic of China, Philippines, Republic of Korea, Singapore, Thailand and Vietnam. The collective efforts of these countries in implementing the strategies and activities will result in effective policy and management interventions, and in cumulative global environmental benefits, thereby contributing towards the achievement of the ultimate goal of protecting and sustaining the life-support systems in the coastal and international waters over the long term.

Dr. Chua Thia-Eng
Regional Programme Director
PEMSEA

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ACC	–	Asian Conservation Company
AOP	–	Australian Oceans Policy
APCEL	–	Asia Pacific Center for Environmental Law
ASEAN	–	Association of Southeast Asian Nations
BBEMP	–	Batangas Bay Environmental Management Project
BCCF	–	Bataan Coastal Care Foundation
CBD	–	Convention on Biological Diversity
CITES	–	Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973
COD	–	Chemical Oxygen Demand
COP	–	Commission on Oceans Policy, Australia
CSR	–	Corporate Social Responsibility
DENR	–	Department of Environment and Natural Resources, Philippines
DPR Korea	–	Democratic People's Republic of Korea
EAS	–	East Asian Seas
EIA	–	Environmental Impact Assessment
EEZ	–	Exclusive Economic Zone
EGF	–	Environmental Guarantee Fund
EMF	–	Environmental Monitoring Fund
FAO	–	Food and Agriculture Organization
GDP	–	Gross Domestic Product
GEF	–	Global Environment Facility
GESAMP	–	IMO/FAO/UNESCO-IOC/WMO/WHO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Pollution
GIS	–	Geographic Information System
GPA on LBS	–	Global Programme of Action on Land-based Sources of Marine Pollution
HAB	–	Harmful Algal Blooms
HIPC	–	Heavily Indebted Poor Countries
IAEA	–	International Atomic Energy Agency
ICM	–	Integrated Coastal Management
ICZM	–	Integrated Coastal Zone Management
IEO	–	Integrated Environmental Objectives
IMO	–	International Maritime Organization

IOI	–	International Ocean Institute
ITOPF	–	International Tanker Owners Pollution Federation
LGU	–	Local Government Unit (provinces, cities and municipalities, districts, townships)
MAGOP	–	Ministerial Advisory Group on Ocean Policy, Australia
MARPOL 73/78	–	International Convention for the Prevention of Pollution from Ships, 1973; as modified by the Protocol of 1978
MDG	–	Millennium Development Goals
MIMA	–	Malaysia Institute of Maritime Affairs
MLIT	–	Ministry of Land Infrastructure and Transportation, Japan
MMAF	–	Ministry of Marine Affairs and Fisheries, Indonesia
MOMAF	–	Ministry of Maritime Affairs and Fisheries, RO Korea
MPA	–	Marine Protected Areas
MPP–EAS	–	GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas
NGO	–	Nongovernmental Organization
ODA	–	Official Development Assistance
OPRC	–	Oil Spill Pollution Prevention Response
PEMSEA	–	GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia
PPP	–	Public-Private Partnerships
RO Korea	–	Republic of Korea
SDS-SEA	–	Sustainable Development Strategy for the Seas of East Asia
SPREP	–	South Pacific Regional Environment Programme
SRI	–	Socially Responsible Investments
TSS	–	Total Suspended Solids
UN	–	United Nations
UNCED	–	United Nations Convention on Environment and Development
UNCLOS	–	United Nations Convention on the Law of the Sea
UNDP	–	United Nations Development Programme
UNEP	–	United Nations Environment Programme
UNESCAP	–	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	–	United Nations Educational, Scientific and Cultural Organization
UNFCC	–	United Nations Framework Convention on Climate Change, 1992
WHO	–	World Health Organization
WMO	–	World Meteorological Organization
WSSD	–	World Summit on Sustainable Development, South Africa
WWF	–	World Wide Fund for Nature

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Foreword

The Framework for National Coastal and Marine Policy Development was prepared by the GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) pursuant to the recommendation of the Programme Steering Committee (PSC) at its 8th meeting in Busan, Republic of Korea in March 2002. The 8th and the subsequent PSC Meetings noted that developing and improving national coastal and marine policy is important to address multiple-use conflicts, remove barriers to sustainable development, enhance the contribution of coastal and marine areas to socioeconomic development, and strengthen capacities in implementing international and regional obligations. PEMSEA member countries[1] are enjoined to consider developing their respective national policies as part of their strategies to achieve sustainable development.

Objective

This Framework aims to provide guidance in policy analysis and decisionmaking to countries in the East Asian Seas (EAS) region. It is useful in developing a rolling plan as required in the implementation of the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA). It presents national experiences and distills the lessons learned in the policy development process. Sub-national experiences and stakeholder interventions are also presented because of their contribution in shaping national policies.

Use of the Framework

For ease of reference, the Framework is divided into four parts:

Part I. Framework for National Coastal and Marine Policy describes the values of the coastal and marine areas in the East Asian seas region and identifies and clarifies some aspects necessary for understanding unique issues, threats and challenges to coastal management. It builds the rationale for developing a national coastal and marine policy and discusses relevant considerations in national policymaking.

Part II. Developing A National Coastal and Marine Policy presents important principles and a stepwise guide to national coastal and marine policy development. It commences from the establishment of a lead/coordinating team down to the methods that go into the development and adoption of the policy. This includes pointers for doing a comprehensive policy analysis and processes that build on stakeholder partnerships, cooperation and collaboration.

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[1] PEMSEA member countries are Brunei Darussalam, Cambodia, People's Republic of China, Democratic People's Republic of Korea, Indonesia, Japan, Malaysia, Philippines, Republic of Korea, Singapore, Thailand and Vietnam.

PART III. EFFECTIVE POLICY IMPLEMENTATION discusses the critical factors that will ensure effective policy implementation — institutional arrangements, sustainable financing and a system for monitoring and evaluation.

PART IV. CHALLENGES emphasizes that policymaking is an ongoing process because of constantly emerging issues and the need for continuing improvement in order to bring the vision a step closer to realization. The ultimate challenge is how to make the benefits trickle down to, and enjoyed by, the people in real terms.

Annexes are also attached as additional reference. These present useful matrices, relevant principles and international instruments and selected national experiences and good practices.

Scope and Limitations

As a caveat, this Framework does not purport to be the "model" policy development process that must be followed strictly, step-by-step. It merely outlines a general procedure and presents examples that may provide some direction in the development processes. It does not advocate the replication *per se* of the selected practices and principles. The policy practices need to be localized, that is, evaluated, analyzed and assessed against the country's existing legal, political and social institutions. Most of the information and data used are results of a desktop research. Information was sourced from existing books and reference materials in the PEMSEA library and webpages of government offices and international organizations via the Internet.

Since the Framework is intended to assist PEMSEA countries and because of the region's unique issues arising from its rich resources and biodiversity, the discussion will focus on the EAS region and relevant PEMSEA countries. Other countries are discussed where there is no regional experience available or accessible or if their experiences are worth noting.

Part I. Framework for National Coastal and Marine Policy

The Shared Seas

Profile of the Region

The East Asian seas (EAS) region is bordered by the PEMSEA member countries Brunei Darussalam, Cambodia, China, DPR Korea, Indonesia, Japan, Malaysia, Philippines, RO Korea, Singapore, Thailand and Vietnam, and encompasses five large marine ecosystems — the Yellow Sea, East China Sea, South China Sea, Sulu-Celebes Sea and the Indonesian Seas, and the coastal areas and their associated river basins that are linked by large-scale atmospheric, oceanic and biological processes. Major ocean currents that travel from the North and South Pacific to the eastern side help generate upwelling of zones which are important for resource productivity.

The EAS region is the world's center for marine biodiversity and home to a great abundance of resources. The Sulu-Celebes Sea, surrounded by the Philippines, Malaysia and Indonesia, is one of the world's most biologically diverse marine environments. The region has a sea area of 7 million km^2, with an expanded watershed, and a combined coastline of about 234,000 km, accounting for 15.8 percent of the world's total (PEMSEA, 2003b). Over 30 percent of the world's coral reefs are found in Southeast Asia alone, with the Philippines hosting over 400 local species of corals. The region accounts for 70 wetlands of international importance, with a combined area of 4,419,562 ha. About 30 percent of the world's mangroves are concentrated in the region. Mangroves and intertidal mudflats support coastal waterbirds and over 2,000 migratory shorebirds representing 40 percent of all migratory shorebirds in the East Asian — Australasian Flyway (Taej and Li Zuo Wei, 2003). The most diverse seagrass flora in the world can also be found in the region.

Values of the Coastal and Marine Resources

The Seas of East Asia is a shared natural heritage of the littoral countries. It is the life support-system of the region, providing significant direct benefits to man such as food, medicine and raw materials for various industries. The coastal areas have become the hub of human and economic activities, offering livelihood opportunities and attracting more than 60 percent of the region's population to settle within 100 km from the shoreline. It provides a natural setting conducive to recreation, industry and social activities. Presently, seven coastal megacities[2] are located in the region — Beijing, Jakarta, Osaka, Seoul, Shanghai, Tianjin and Tokyo. Bangkok and Manila are on the verge of becoming coastal megacities. Approximately 21 million people[3] are employed in the fishing and aquaculture industry and a significant number are engaged in other coastal industries including offshore oil and gas exploration.

Economic activities in coastal and marine areas, in general, account for at least 40 percent of the GDP of each country in the region. During the last three decades, the region's fish production contributed 40 percent of the world's fish catch and aquaculture accounted for 80 percent of the world's aquaculture production. Coastal tourism is also increasingly becoming an important income-generating activity in the region, which hosts over 90 million visitors each year. East Asia and the Pacific have captured more than 19 percent of the world tourism market in 2001, growing at a rate of 14.5 percent a year. The last two decades also saw the rapid development of marine communication and increased maritime traffic.

Environmental Threats and Stresses

The EAS region, however, is at risk because of increasing human activities. The demand for resources exert too much pressure on the environment's sustaining capacity. The United Nations estimates that human activities threaten more than half of the world's coasts with moderate to high risk of degradation, and in Asia specifically, the level rises up to more than 70 percent (UN Report, 2001). Table 1 shows the threats to the marine environment of the EAS region by order of significance.

Land-Based Sources of Pollution. The sea has been inevitably characterized as the ultimate sink of a host of human-generated pollutants (UN Atlas of the Oceans, 2005), which are emptied into the sea through runoff or direct dumping. The region's livestock and poultry industry, for example, usually have production sites near the coasts (LEAD Initiative, 2005). The nutrients and other

Table 1. Threats to the Marine Environment.

Rank	Threats
1	Land-based source of pollution
2	Overexploitation
3	Destructive fishing and aquaculture practices
4	Habitat destruction
5	Resource-use conflicts
6	Oil and chemical pollution (sea-based)
7	Erosion/siltation and sedimentation
8	Invasive species
9	Trade in endangered species
10	Natural hazards
11	Other threats

Modified from PEMSEA, 2001d.

[2] *Cities with a population of over 8 million.*

[3] *The basis of the figure is the 2000 data on fishing efforts in Earthtrends (http://earthtrends.wri.org).*

Box 1. Impact of Land-Based Pollution.

The most widespread threat to marine and coastal habitats is posed by a combination of municipal sewage, solid waste, fertilizers, urban runoff and other nitrogenous compounds, which may pose direct human health risks. Heavy metals concentrate in the tissues of many marine species, which become highly contaminated in the process. Persistent organic pollutants and hydrocarbons commonly found in land-based runoffs ultimately accumulate in harvested species. Human activities add at least as much fixed nitrogen to terrestrial ecosystems as do all natural sources combined and the oceans receive this nitrogenous pollution from both coastal runoff and atmospheric deposition. The nutrients cause an overproduction of algae in coastal regions. When the algae die, an overproduction of micro bacteria occurs, including some highly toxic species. As these bacteria decompose the algal remains, they consume much of the oxygen dissolved in the water, causing mass mortality of fish and invertebrates. In coastal and marine habitats, areas affected by anthropogenic eutrophication are particularly widespread, persistent and increasing.

Source: UN Atlas of the Oceans, 2005.

wastes from these sites flow into the sea in the same way that wastewater discharged by industries carry contaminants into the sea through rivers, streams and other conduits. These pollutants destroy natural habitats and degrade water quality resulting in the decline in biodiversity and resource depletion.

Overexploitation. Coastal poverty and the pursuit of huge profits drive people to exploit resources beyond the environment's sustaining capacity. Overharvesting of many target species contributes to the decline in biodiversity and species population, affects food security and deprives future generations of their right to benefit from these resources. Overexploitation is facilitated due to lack of regulation, weak enforcement and/or a policy of open and free access to resources and lack of incentives to promote compliance with measures to sustain productivity, resulting to what has been termed as the "tragedy of the commons" (Stobutzki and Garces, 2003).

In the Philippines, the sea urchin *Tripneustes gratilla*, which had thrived throughout the 24 – km^2 seagrass bed of a flat reef in Bolinao, Pangasinan in the 1980s became the target of traders from neighboring countries which led to its disappearance from the reef by 1995. The East China Sea and the Sea of Japan are overfished and valuable species have declined due to fishing activities by China, DPR Korea, Japan, RO Korea and the Russian Federation. The reduced diversity and volume of target species increases the pressure on the fishing industry as new fishing areas farther at sea are explored and more aggressive fishing methods are adopted.

Destructive Fishing and Aquaculture Practices. Fishery resources are being dissipated due to unsustainable patterns of resource use including unauthorized incursions by foreign fleets, ecosystem degradation, undervaluation

of catch, and use of gears damaging to the environment. Fish farming and aquaculture in coastal areas result in the destruction of mangrove swamps, wide–scale chemical pollution and displacement of traditional fisheries. Box 3 identifies certain unsustainable fishing practices employed in the region.

Box 2. Loss of Species: The Caribbean Experience.

In the Caribbean, decades of overfishing have, in many places, led to very low levels of grazing fish species. Because of this, herbivorous sea urchins have played an increasingly important role in keeping down algal growth. In the 1980s, huge numbers of these urchins succumbed to disease. Without grazing fish or urchin populations, and spurred on in many areas by organic pollution, algae quickly dominated the reefs, inhibiting coral settlement and sometimes overgrowing living corals. Thus, the ecosystem function was so transformed that the habitat no longer supports the same assemblage of species. In the long term, such cascading effects could greatly inhibit future human use of marine and coastal living resources.

Source: UN Atlas of the Oceans, 2005.

Habitat Destruction and Conversion. The spate of industrial and economic activities has required additional spaces for infrastructure. Related activities, such as infilling and dredging, physically alter natural coastlines and destroy important marine habitats that disrupt ecological functions. Infrastructure encroaches on beaches, which are nesting areas for marine species like sea turtles. Sand mining activities for tourism purposes as well as souvenir collecting and diving can also cause physical alteration. The conversion of mangroves to shrimp ponds

Box 3. Destructive Fishing Practices.

Dynamite Blasting. Fishers use dynamite and other explosives to blast reefs and stun fishes to force them out of their habitats. As fishes float to the surface, fishers collect them in large quantities. Heavily dynamited reefs produce only 2–5 MT of fish/km^2/year compared to 30 MT for healthy reefs. Beyond the shattering impact, algal growth quickly smothers corals because the shoals of grazing fish that would normally keep it under control have been decimated. In the Philippines, explosives have already damaged 1/6th of the reefs since 1945.

Cyanide and Other Forms of Poisoning. In the Philippines, around 80 percent of exotic fish destined for pet shops, aquariums and upscale restaurants throughout Europe and North America are caught using cyanide. Cyanide is squirted into the reef areas where fishes seek refuge. Fishers then rip the reefs apart with crowbars to capture disoriented and stunned fishes. Cyanide kills coral polyps and symbiotic algae and other small organisms necessary for healthy reefs.

Fine Mesh Net Fishing and Muro-Ami. Fine mesh nets capture more volumes of fish including juveniles and crustaceans. The Muro-Ami method, introduced by Okinawan fishers before WW II, uses drive-in nets with scare lines weighed down by stones or chain links. Divers use these weights to tap corals to drive the fishes away from the corals and into the net. In the process, schooling fishes are also driven into the net. The Muro-Ami practice destroys marine habitats and depletes fishery resources.

Sources: Tacio, 2002; Our Planet, 2005.

affects the ecological function of mangroves, which provide coastal protection against storm surges and seawater intrusion and act as spawning and feeding areas for marine organisms. Mariculture poses additional threats through the release of excess nutrients and antibiotics in mariculture wastes, accidental introduction of exotic species or genotypes, transmission of diseases to wild stocks, and displacement of local and indigenous species (UN Atlas of the Oceans, 2005).

Resource-Use Conflicts. Rijsberman (1999) observed that "dealing with conflicts has been called the greatest challenge facing integrated coastal management (ICM) because of the multi-use setting of coastal systems, which usually involve a mosaic of rights (property rights, fishing rights, use rights) as well as common property resources." The richness and diversity of resource in the region give rise to two major types of conflicts: 1) conflicts among users over the use or non-use of particular coastal and ocean areas, specifically those which impact on another use; and 2) jurisdictional conflicts among government agencies and between levels of government (Global Forum on Oceans, Coasts, and Islands, 2005). Box 4 identifies use conflicts.

Box 4. Use Conflicts.

Development vs. Ecological Preservation. Coastal reclamation for infrastructure development and activities, such as mining and dredging, impact on the ecology and natural functions of the coastal and marine environment. These activities cause sedimentation, introduce pollutants and change water circulation and temperature patterns, hence affecting ecosystem productivity. They alter the natural coastlines and inshore current systems, resulting in the loss of a vast area of the region's wetlands and mangroves.

Mariculture vs. Fishing vs. Shipping. Mariculture rafts usually encroach on anchoring areas, which may cause economic loss due to increases in the number of berthing days of visiting ships, while the rapid development of major seaports lead to the growth of the shipping industry. In the course of these maritime activities, invasive aliens may be introduced consequently damaging corals and other important habitats. The fishing industry's concerns relate to decreasing fish catch due to destruction of habitats and spawning areas.

Industries vs. Ecological Preservation. Marine aquacultural activities in tropical areas often involve conversion of mangroves and wetlands to ponds, affecting their ecosystem functions as buffers for coastal storms and nursery habitats for juvenile fishes. Activities farther inland, such as logging, agriculture-related practices and animal husbandry practices (e.g., pollution of streams by animal waste), represent important sources of damage to estuarine and ocean areas through increased flow of sediment, pesticides, and other pollutants into riverine and estuarine systems.

Fishing vs. Offshore Oil Exploration. Fishing and offshore oil development often conflict with or adversely affect one another. Oil and mud discharges contribute to marine pollution, which in turn degrade fish habitats and affect the capacity of fishes to reproduce.

Sources: Global Forum on Oceans, Coasts and Islands, 2005; Cicin-Sain and Knecht, 1993; PEMSEA, 2003c.

Oil Spills and Chemical Pollution. Incidents of oil spillage and chemical discharges are expected alongside the rapid development of industries, particularly sea transport and oil exploration. A major spill in 1986 off the mouth of the Panama Canal resulted in significant losses in coral diversity and extent of cover in affected areas (UN Atlas

Box 5. Impact of Oil Spills.

Coastal Activities. Oil contamination of coastal areas leads to public disquiet and interference with recreational activities such as bathing, boating, angling and diving.

Marine Life. The residues of spilled oils and water-in-oil emulsions ("mousse") cause physical smothering. The animals and plants most at risk are those that could come in contact with contaminated sea surface—marine mammals and reptiles; birds that feed by diving or form flocks on the sea; marine life on shorelines; and animals and plants in mariculture facilities. The impact on marine life is compounded by toxicity and tainting effects resulting from the chemical composition of oil, as well as by the diversity and variability of biological systems and their sensitivity to oil pollution. Sub-lethal effects that impair the ability of individual marine organisms to reproduce, grow, feed or perform other functions can be caused by prolonged exposure to a concentration of oil or oil components. Sedentary animals in shallow waters such as oysters, mussels and clams that routinely filter large volumes of seawater to extract food are likely to accumulate oil components, which may not cause any immediate harm, but may render such animal unpalatable.

Marine Habitats. In coastal areas, some marine mammals and reptiles may be particularly vulnerable to adverse effects of oil contamination because of their need to surface to breathe or leave the water to breed. The impact of oil on shorelines may be particularly great where large areas of rocks, sand and mud are uncovered at low tide. Oiling of the lower portion of plants and their root systems can be lethal. In tropical regions, oil may block the openings of the air-breathing roots of mangroves or interfere with the trees' salt balance, causing leaves to drop and the trees to die. The effects of oil on corals and their associated fauna are largely determined by the proportion of toxic components, the duration of oil exposure as well as the degree of other stresses. Birds which congregate in large numbers on the sea or shorelines to breed, feed or molt are particularly vulnerable to oil pollution. Although oil ingested by birds during preening may be lethal, the most common cause of death is from drowning, starvation and loss of body heat following damage to the plumage by oil.

Fisheries and Mariculture. Oil spill can directly damage boats and gears. Floating equipment and fixed traps extending above the sea surface are more likely to become contaminated by floating oil. However, the possibility of long-term effects on wild fish stocks is remote because the normal overproduction of eggs provides a reservoir to compensate for any localized losses. Cultivated stocks are more at risk from an oil spill, and the oiling of cultivation equipment may provide a source for prolonged input of oil components and contamination of the organisms. Oil spill can cause loss of market confidence since the public may be unwilling to purchase marine products from the region irrespective of whether the seafood is actually tainted or not.

Source: ITOPF, 2005.

of the Oceans, 2005). Studies on the impact of oil discharges in the Arabian Gulf during the Iran-Iraq and Gulf Wars associated oil spills with short-term decline in the number of fish and other species. The impact of oil spills is discussed in Box 5.

Erosion/Siltation/Sedimentation. Erosion, siltation and sedimentation contribute to the changing alluvial landscapes and natural patterns of sedimentation that affect the nutrient and energy flows in coastal areas (FAO, 1998). Watershed areas that are cleared of forests and vegetation cover are more vulnerable to erosion.

Invasive Species. Invasive species may be introduced into foreign waters through aquarium trade, research, seafood distribution and primarily, international shipping. A ship's ballast water, which is essential for safe voyage, carries over 3,000 marine species daily around the world. The discharge of ballast water introduces invasive species that may disrupt biodiversity and ecological processes affecting populations of native species, particularly where the invader becomes the space-dominant species or an abundant predator. Box 6 demonstrates the impact of introduction of invasive species.

Trade in Endangered Species. The international commercial trade in marine resources has been a lucrative business. The huge profit from rare species bought as souvenirs or delicacies has boosted commercial harvesting, and caused the decline in the population, and endangered the existence of certain marine species. In an effort to curb the trade, 160 countries signed the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which came into force as part of international law in 1975. The trade, however, continues to flourish even as trade bans have been imposed. The high market demand for

Box 6. Invasion of the Great Lakes.

In June 1988, the zebra mussel, believed to be carried by Eurasian ballast water from transoceanic ships, was discovered in Lake St. Claire. Unlike native freshwater bivalves, the zebra mussels latch onto any hard surface. Zebra mussel larva attach on native mussels, covering them completely that they can no longer carry out life processes. By 1990, the zebra mussels quickly colonized regions in Great Lakes causing tremendous economic and environmental impacts. The filtering capacity of large mussel colonies consumed microscopic phytoplankton and reduced available food resources for higher organisms causing starvation to ripple through the native marine population. The zebra mussels clogged the water systems for cities, factories and power plants, fouled boat hulls and maritime structures, and sank navigational buoys. They accumulated on recreational beaches, fouled them with their sharp-edged shells and rotting flesh. Based on the survey made by Leroy Hushak in 1995, about $120 million was spent for zebra mussel monitoring and control between 1989 and 1994. By the turn of the century, Zebra mussel management has been estimated to cost $750 million to $1 billion. The zebra mussel incident led to the passage of the Non-Indigenous Aquatic Nuisance Prevention and Control Act of 1990, which became the National Invasive Species Act of 1996 of the United States. It requires ships to exchange foreign ballast with highly saline water before entering the Great Lakes to prevent colonization by strictly freshwater species.

Sources: Benson and Boydstun, 2005; Gulf of Marine Aquarium, 2005; Union of Concerned Scientists, 2005.

rare species for aquarium and upscale restaurants pushes traders to resort to scheming.

Natural Hazards. The marine environment is vulnerable to natural hazards such as cyclones, hurricanes, typhoons, earthquakes and tsunamis. Between 1997 and 1998, the increase in sea-surface temperature brought by El Niño and La Niña climate changes caused extensive coral bleaching and mortality in the region. Box 7 discusses the incident of coral bleaching. The recent tsunami that swept across the Indian Ocean in December 2004 devastated the coastal environment and claimed thousands of lives in Asia and Africa. What makes natural hazards difficult to address is the fact that the time of occurrence is uncertain and forecasting remains a challenge to many scientists.

Box 7. Coral Bleaching.

Coral reefs are particularly sensitive to climatic influences, exhibiting the phenomenon known as coral bleaching when stressed by higher sea temperatures and other factors. Coral bleaching, the exposure of the underlying white skeleton of reef-building corals, results when coral polyps eject the microscopic algae (zooxanthellae) living within their tissues. Reef-building corals are highly dependent on a symbiotic relationship with zooxanthellae and frequently die after ejecting these algae. Various types of stress, including temperature extremes, pollution and exposure to air, can cause bleaching; but recent increases in temperature-related stress due to climate change are suspected to give rise to regional bleaching events. Recent reports have shown that bleaching events related to extreme periodic climatic events remain the primary threat to coral reefs on the global scale. The critical feature of recent coral-bleaching events is that areas have been struck indiscriminately, irrespective of the existing health of the reef. Impacts have been felt both on pristine remote reefs, and on reefs already under significant human-induced stress. Although some changes caused by bleaching events are not necessarily permanent, additional stresses, such as those created by pollution and physical degradation, exacerbate the effects of these events and limit the capability to recover of coral reef ecosystems.

Source: UN Atlas of the Oceans, 2005.

Other Threats. An emerging area that should be of national and regional concern is the issue of the sunken WW II vessels and tankers, which carry potential environmental risks. The South Pacific Regional Environment Programme (SPREP) database shows that there are 3,800 vessels lost in the Pacific and 43 percent are known to be in the East Asian seas. Around 887 vessels are submerged in the waters of Japan and 513 vessels are lying in Philippine waters. A significant number of the highly dangerous oilers and tankers sank in the EAS region particularly near Indonesia (28) and Philippines (54). The USS Mississinewa incident in the Pacific, discussed in Box 8, demonstrates the imperative for a contingency plan.

Current Environmental State

Coastal and related ecosystems are severely damaged, resulting in a host of severe consequences directly affecting water quality, habitats and biodiversity. Land-based activities contribute around 70 percent of marine pollution while sea-based sources, particularly maritime transport and dumping-at-sea activities, contribute 10 percent each (Agenda 21, Chapter 17, Paragraph 17.18). 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 DPR Korea, Japan, RO Korea and the rest of China. In the last 30 years, 11 percent of coral reefs have collapsed, with 48 percent in critical condition. In recent findings, over 80 percent of all coral reefs now face risks.

Mangroves have lost 70 percent of their cover in the last 70 years while loss in seagrass beds ranged from 20-60 percent. Unless interventions are made, the current rate of loss will result in the removal of all mangroves by 2030, while reefs face total collapse within 20 years (PEMSEA, 2003b).

JUSTIFYING A NATIONAL COASTAL AND MARINE POLICY

Impediments to Sustainable Coastal and Marine Development

There are three major factors that serve as barriers to sustainable coastal and marine development: policy failures, information failures and market failures.

Policy Failure. A policy failure occurs when government policies fail to adequately address the actual or threatened issues or have not taken account of local views (FAO, 2005). In this case, policies exacerbate resource-use conflicts or aggravate the condition of the marine environment. The traditional sectoral or one-sector policy approach of most countries has already been proven inadequate to address multiple resource-use conflicts or issues that transcend jurisdictional boundaries. Other approaches fail to provide safety nets to counter the general impact of human activities.

Some common policy failures include:

- Failure to tackle cross-sectoral management issues;
- Lack of cross-sector consultation and stakeholder consensus in the development of strategies and policies;
- Failure to manage resource-use conflicts and to devote resources to uses that yield the optimum benefits;
- Failure to establish institutions and provide the resources necessary for effective enforcement; and
- Failure to demonstrate the contribution of coastal and marine areas to national socioeconomic development.

Information Failure. When there is insufficient data or information available (or accessible) to guide the conduct of stakeholders, or where such data fail to reflect real conditions, information failure occurs. Information failure is exemplified by low public environmental awareness resulting in poor appreciation of the values, and misuse/abuse of coastal and marine resources. Governments, on the other hand, may not consider the

Box 8. Lessons from the USS Mississinewa.

USS Mississinewa: In the early morning of 1944, as the navy oil tanker USS Mississinewa quietly sat anchored at the Ulithi Lagoon in the Caroline Islands, a new Japanese secret weapon, the Kaiten, exploded into its hull. The tanker slowly sank and settled at the bottom of the lagoon. For nearly six decades, the tanker lay quietly underneath the pristine waters of the Ulithi Lagoon. In 2001, a strong typhoon raged over the area and the residents woke up the next morning to foul smells and then found the lagoon reeking with oil. The oil spill continued for months with no sign of abatement until the United States finally agreed to send a Navy salvage team to address the problem.

Source: Monfils and Nawadra, 2003.

environment as one of their priorities, which in turn, may impact on budget allocation for environment-related activities. A change in the behavior of all stakeholders — the government, people, industry and other stakeholders — is the key to successfully address environmental challenges. Intensive information campaigns are needed to promote a more responsible environmental behavior and a deeper commitment from both social and political actors.

Box 9. Market Failure.

An example of incorrect market signals is the lack of internalization of the costs of mangrove forests conversion for agriculture or aquaculture purposes because the conversion costs do not internalize externalities. Mangroves may be taken over by landless rural people seeking to make a living. It is expected that in the future, productivity of the adjacent land will decline, there will be saline intrusion and/or storm damage will occur inland because of the absence of the protection mangroves provide. None of these negative factors will be reflected in the purchase price of the adjacent land. The cost of destroying mangroves may have to be borne, not by whoever destroys it, but by someone else, specifically, the purchaser of the adjacent land. In this case, market failure is even more pronounced. Widespread mangrove destruction can lead to siltation of estuaries and ports or the eutrophication of coastal waters; such impacts, which originate outside the places they affect are almost invariably negative and are referred to as negative 'externalities.

Source: FAO, 1998.

Market Failure. Most jurisdictions classify coastal and marine resources as *res nullius* — resources which are not, and cannot be owned by anybody. The prevailing free access and open policy toward these resources result in market failure. The values attached to coastal and marine resources and services often fail to reflect their true costs.

Impetus for a National Coastal and Marine Policy

Coastal and marine areas can play significant roles in national economic development, specifically in poverty alleviation by ensuring food security, providing employment and livelihood and promoting people's health and social well-being. However, the absence of a policy at the national level continues to undermine the values of these resources. Without an integrated national policy, there can be no sustainable coastal and marine development.

A national coastal and marine policy would serve as the country's framework of principles that will guide the development activities of all stakeholders for a coordinated response to the threats that are being faced by the coastal and marine resources. A well-coordinated response will strengthen the contribution of the coastal and marine resources to national socioeconomic development and help realize the goal of improving the lives of the people. The pressing reasons for developing a national policy are sustainable resource management, economic growth, ecosystems preservation, international cooperation and obligation, and promotion of social equity.

Sustainable Resource Management. The prevailing single-sector approach in many jurisdictions has set up vertical divides, where each sector implements policies serving its own interests. Coastal management has also been horizontally divided between the national and

local governments. With this set up, conflicts in jurisdiction and resource use are therefore inevitable. The tug of war over resources does not yield optimum benefits. Thus, without a comprehensive integrated policy at the national level, the sustainable development of coastal and marine resources will remain elusive.

Moreover, there are transboundary issues that are not confined within a single sectoral or local jurisdiction that should be addressed. A national policy transcends sectoral interests or jurisdictional bounds and should have a goal that promotes the best use of resources for the benefit of all. It is crucial in establishing a mechanism that will coordinate actions and ensure that resources are devoted to their best and optimum use. It will serve as a tool to address cross-sectoral linkages and gaps, balance and manage competing interests, and minimize conflicts and duplication of efforts. This will thereby strengthen the contribution of the coastal and marine areas to national development.

Economic Growth. While the region is the world's center for marine biodiversity, most of its littoral countries belong to the lower income economies. Such a paradox stems from the country's lack of capacity, financially and technologically, to exploit the potentials of its resources. The absence of a master plan to develop the country's coastal and marine resources is also a setback. Many countries in the region are still following antiquated policies that fail to capture new developments in the ocean regime and in science and technology.

For instance, the entry into force of the UNCLOS in 1994 has given countries new areas to exclusively manage and explore. These new areas, if properly managed, can contribute much to improve national economy. However, the full exercise of rights in these new areas is constrained by lack of financial resources, insufficient technical capacity and expertise, and weak political will. A national policy will open the doors for the development and exploitation of Exclusive Economic Zones (EEZs) as countries can allocate a portion of the national budget for research and development regarding the optimum use of these resources. Coastal states which do not

Box 10. Conflicting Interests.

The trade-oriented policy framework adopted by Thailand and the Philippines focused on increasing food production necessitating massive conversion of mangroves into shrimp ponds. This move failed to consider the ecological value of mangroves as habitats and feeding and spawning grounds for marine species. In the long run, both countries incurred huge economic and environmental costs. Estimates of losses in economic values amount to US$9,990/ha in Thailand and US$8–11,000/ha in the Philippines annually. In producing the US$4.2 billion in export earnings for the region from shrimp aquaculture, the region suffered a total loss of 692,450 ha of mangroves amounting to US$5.5–7.6 billion, representing a negative balance of more than one billion. The problems stemmed from lack of a coordinative or integrative mechanism to manage and balance sectoral interests. Critical in this endeavor is the balancing of tradeoffs, which requires the evaluation and assessment of negative and positive socioeconomic and environmental effects of coastal activities.

Sources: Mulekom, et al., 2003.

have the capacity to fully utilize their EEZs may consider entering into access agreements with high seas fishing states (UNGA Report of the Secretary General, 2003). Innovative measures may have to be undertaken to enhance cost recovery for undertaking conservation and exploration activities.

Ecosystem Protection and Preservation. The alarming rate of water quality deterioration, destruction of habitats and depletion of resources causes great concern among government officials. It seems that development is being undertaken without regard for the environment. There should be a blueprint for development where environmental protection forms an integral part of the sustainable development process (Rio Declaration on Environment and Development, Principle 4) and any development plan must consider the environmental needs of present and future generations (Rio Declaration on Environment and Development, Principle 3). Without such an overarching blueprint, development will be sporadic, uncontrolled and damaging to the environment. A national policy will seek to establish protective measures to shield the environment from the onslaught of economic development and other human activities.

International Cooperation and Obligation. Because of the interconnectivity of seas, environmental problems cross country borders and are of the magnitude that cannot be resolved or addressed by any country on its own. The collaboration of all countries is the key to effectively resolve/address transboundary environmental issues. International instruments have been drawn up to provide guidelines on how to address these issues. The UNCLOS, for instance, which established a new legal order in ocean governance, emphasizes that all states have the obligation to protect and preserve the marine environment (UNCLOS, Article 192, Section 1, Part XII). The Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (2001) calls for the adoption of comprehensive plans at the national level for implementation by coastal states in their EEZs (UNGA Report

Box 11. Exploring New Areas: EEZ and the Continental Shelf.

Japan's Offshore Fishing. Even prior to the UNCLOS, Japan had already extended its fishery activities in its Exclusive Economic Zones (EEZs) and beyond. Japan had profited from these fishing grounds, which under the UNCLOS regime, have come under the jurisdiction of other countries. Rising from heavy losses resulting from the war, Japan intensified its offshore fishing activities as a vehicle for economic prosperity. Offshore fishing contributed a significant portion to its GDP. In 1976, Japan catapulted itself as one of the major fish producers with a record fish catch of 10 million T representing 15 percent of the total world catch. However, the new regime introduced by the UNCLOS affected Japan's fish production from a peak of 11.8 MT in 1984 to 5.9 MT in 1996 due partly to the gradual exclusion of Japanese distant-water fishing fleets from the EEZs of other coastal states and the setback in offshore and coastal fisheries.

Norway's Petroleum Exploration. In northern Europe, Norway began tapping its seabed for potential petroleum exploration way back in 1965. Oil and gas in commercial quantities were found years later in the Norwegian continental shelf and Norway has since become one of the world's biggest oil and gas exporters.

Sources: Andresen, 1994; Takabayashi, 1994.

of the Secretary General, 2003). The Agenda 21, a comprehensive plan of action, urges countries to adopt an integrated approach to policy and decisionmaking involving all sectors to promote compatibility and balance of resources (Agenda 21, Chapter 17, 17.5a). The need for a harmonizing national policy is also echoed in the Jakarta Mandate on Marine and Coastal Biological Diversity for the implementation of the Convention on Biological Diversity, which urges countries to adopt and implement national plans and policies to manage and protect the coastal and marine areas and the resources therein.

Complying with international obligations requires the enactment of national policies and legislations and, on the reverse, to amend or refrain from adopting inconsistent legislations or measures. The development of a national coastal and marine policy will ensure compliance with the country's obligations under these instruments. While there may be no sanctions for non-compliance, countries should endeavor to comply, according to their capacities, in order to preserve international peace, prevent international embarrassment and disputes, and foster international comity. Table 2 shows the accession/ratification of PEMSEA countries to selected international conventions.

Promotion of Social Equity. A national policy is essential to integrate national social and economic concerns and establish mechanisms where coastal and marine resources will be utilized to respond to the needs of the people. It is envisioned to address socioeconomic problems such as poverty and access to clean water and sanitary facilities to achieve the Millenium Development Goals. National coastal and marine policy will ensure that benefits from the environment will trickle down to the people in real terms — an improvement in their quality of life.

APPROACHES AND CONSIDERATIONS

The Framework

ICM has been defined as a continuous and dynamic process by which decisions are taken for the sustainable use, development and protection of coastal and marine resources. ICM is ecosystem-based in the sense that it requires the analysis of the implications of development, conflicting uses, and interrelationships between physical processes and human activities, while promoting linkages and harmony among sectoral coastal and ocean activities (Cicin-Sain and Knecht, 1998). It is a framework for the collaborative efforts of stakeholders integrating all concerns and interests through the application of participatory processes, the adoption of anticipatory and precautionary approaches and by operating on a holistic perspective to coastal management.

Participatory Process. Experience shows that top-down policies are rarely effective because they fail to consider and reflect (and sometimes run in conflict with) the concerns and interests of stakeholders. Policies, to be effective, should address the sentiments, desires and concerns of the stakeholders. This is possible only if stakeholders are given opportunities to participate in the development process.

ICM requires the meaningful involvement of stakeholders in the process of deciding how coastal resources are allocated and conflicts are mediated (GESAMP, 1996). The process offers an opportunity to explore peaceful settlement or mutually beneficial tradeoffs. Olsen and Kerr (2000) describe participation as both a process and an end in itself — it is a process by which people contribute to, influence and manage efforts, and an end as participation builds capacity and empowers

Table 2. Accession by PEMSEA Countries to International Conventions and Instruments (As of 31 August 2003).

	Basel 1989	UNFCC 1992	Biodiversity, 1992	RAMSAR 71	CITES 1973	Migratory Species 1979	1972 World Heritage	Whaling, 1946	GPA on LBS	UNCLOS, 1942	Montreal Declaration 2001	OPRC, 1990	MARPOL 73/78	London Convention 1972
Brunei	2002				1990					1996			1986	
Cambodia	2001	1995	1995	1999	1997		1991		Y		Y		1994	
China	1992	1993	1993	1992	1981		1985	1980	Y	1996	Y	1998	1983	1985
DPR Korea		1994	1994				1998						1985	
Indonesia	1993	1994	1994	1992	1978		1989		Y	1986			1986	
Japan	1993	1993	1993	1980	1980		1992	1951	Y	1996	Y	1995	1983	1980
Malaysia	1993	1994	1994	1995	1977		1988		Y	1996	Y	1997	1997	
Philippines	1993	1994	1994	1994	1981	1994	1985	1981	Y	1984	Y		2001	1973
RO Korea	1994	1993	1994	1997	1993		1988	1978	Y	1996	Y	1999	1984	1993
Singapore	1996	1997	1995		1986					1994		1999	1990	
Thailand	1997	1994		1998	1983		1987		Y		Y	2000		
Vietnam	1995	1994	1994	1989	1984		1987			1994			1991	

Notes: The numbers represent the year of ratification
Y – Participated in the Conference

people. Stakeholders should be duly represented at relevant stages of policy development to ensure that their interests and concerns are articulated. Stakeholder involvement will forge partnerships through the sharing of resources, experience, knowledge and expertise.

Principle 10 of the Rio Declaration on Environment and Development emphasizes that environmental issues are best handled with the participation of all concerned citizens at the relevant level. Participatory processes help achieve:

- transparency that will secure stakeholder trust and confidence;
- stakeholder ownership that promotes cooperation and responsible environmental behavior;
- stakeholder consensus to manage conflicts; and
- informed selection of policy options.

Anticipatory and Precautionary Approach. Policies should be anticipatory as well as precautionary in approach. While it is essential to address the most pressing environmental issues and take immediate measures to mitigate the existing risks, it is equally important to take extra precaution by anticipating issues that may arise from coastal activities and establishing safety nets to prevent long-term or irreversible impacts.

Holistic Perspective. The holistic perspective in coastal management seeks to address environmental issues as well as the gamut of other socioeconomic issues. It considers socioeconomic and environmental

concerns in decisionmaking. Measures adopted to achieve, for example, socioeconomic goals should also contribute to the achievement of environmental goals. The ICM framework provides the means by which sectoral and other concerns at local, regional and national levels are discussed and future directions are negotiated (GESAMP, 1996).

Dynamics of Policymaking

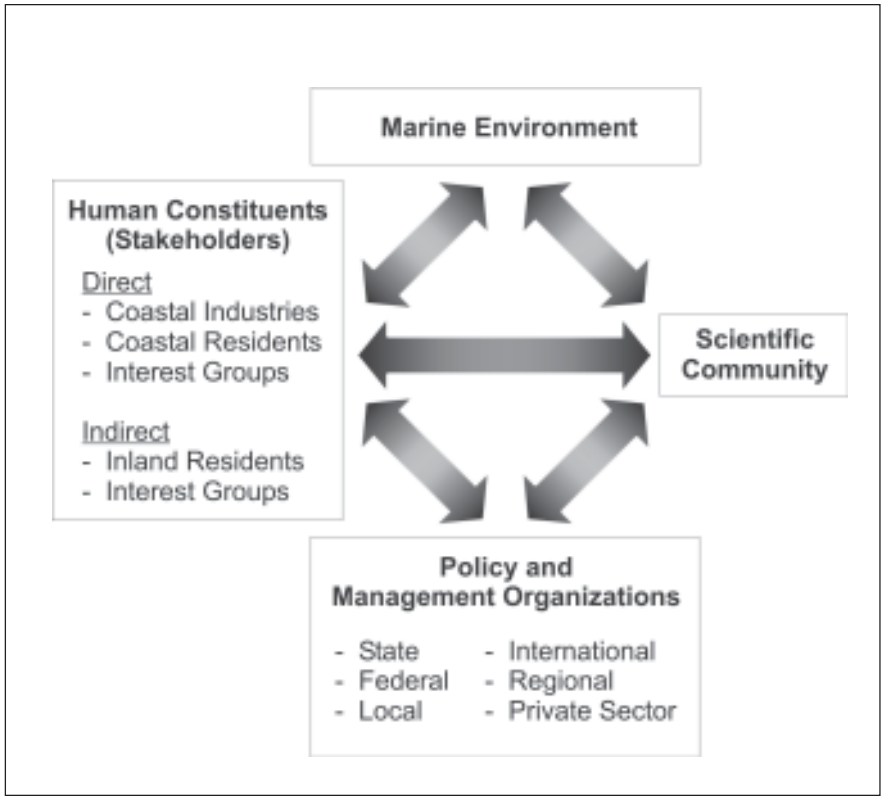
Policymaking is a cycle of issue analysis, generating policy alternatives, policy selection, implementation and evaluation. Ultimately, the goal of policymaking is change — to control, constrain, encourage or modify the behaviors of people whose welfare and livelihoods are dependent on the resources of the coastal and marine areas (Le Tissier and Hill, 2002). Policymaking is all about behavioral and attitudinal changes for all involved and requires a great deal of human management (PEMSEA, 2001d). The task is much more complicated because the coastal and marine ecosystem is a complex and dynamic web of interrelationships among human activities, societal demands, natural resources and external natural and human inputs (NOAA, 2005). With many parties involved in ocean-related activities, coastal policymaking has to contend with institutional power play for access and use rights.

The national coastal policy should support a management system involving relationships among 1) stakeholders; 2) policymakers and managers whose decisions affect the behavior of the people; 3) members of scientific community who study the coastal environment; and 4) social scientists who study human behavior in coastal zones. The web of relationships, viewed in the social context, is actually the interaction of varied cultures. Policymaking, therefore, aims to develop a norm of conduct relating to the use and management of resources. Orbach (1995) describes the dynamics as the "cultural ecology of coastal public policymaking," as illustrated in the figure below.

The Integration Feature

Integration is one of the most fundamental attributes of a national coastal policy and is also its most complicated aspect. It requires

Figure 1. Cultural Ecology of Coastal Public Policymaking (adapted from Orbach, 1995).



the consideration and balancing of interests of all stakeholders, and seeks to arrive at negotiable terms to settle conflict over the management and use of space and resources across sectors and generations. It will need leaders with skills in negotiation and consensus building. Understanding the scope, nature and causes of a conflict will require delving into stakeholder behaviors, motivations and interests. Mechanisms should be established to generate stakeholder trust and confidence and build credibility for the process. Some techniques used include dialogues, negotiations, tradeoffs and information dissemination. The use of mediators is also helpful. Mediators are perceived to be credible and respectable because of their expertise and objective perspective. Box 12 shows the dimensions of integration in coastal policymaking.

Cicin-Sain and Knecht (1998), however, raised some caveats in seeking integration:

- Not every interaction between sectors is problematic;
- Integrated management does not replace sectoral management but instead supplements it; and
- Cost of policy integration should be kept in mind.

Socioeconomic and Environmental Linkage. Environmental crises are inextricably linked to patterns of socioeconomic development. In developing countries, it is the combination of poverty and overpopulation which leads to a number of environmental stresses (Cicin-Sain and Knecht, 1998). In a study conducted in a Sri Lankan community, a nexus was established between coastal poverty environmental degradation. The study showed that while the poor coastal communities know that their practices contribute to environmental degradation, poverty and lack of investment capacity left them with no other choice. (Dayananda, 2003). Addressing environmental issues, therefore, necessitates addressing socioeconomic issues which drive actors to adopt certain behaviors.

Per World Bank estimates, 2/3 of the countries in the region belong to the middle and low income groups based on their GNP per capita figure for 2003. Considering the high number of the population living below the poverty line in the EAS region, sustainable coastal management goals should be linked with the paramount social goal of poverty alleviation and the economic goals of growth and investment. Table 3 enumerates the eight goals and eighteen targets for the millennium. If the national policy were to be an effective vehicle for sustainable development, it must enhance the contribution of the coastal and marine environment in the realization of these goals.

The Jurisdictional Divide. The setting up of geographical boundaries for administration purposes creates a problem in an ecosystem-based management. The jurisdictional conflicts often serve as barrier to sustainable coastal and marine development. In Malaysia, for instance, the Federal Constitution grants the states authority over land use and natural resource management which is like a tie that binds the hands of the Federal Government. While it is the Federal Government that accedes to international treaties, implementation remains with state governments over matters within their exclusive jurisdiction. Thus, if certain states have inadequate legislation on natural resource sectors, the federal government cannot legislate on behalf of the states.

Box 12. Dimensions of Integration.

Intersectoral Integration. Integration among different sectors involves both "horizontal" integration among different coastal and marine sectors (e.g., oil and gas development, fisheries, coastal tourism, marine mammal protection and port development) and integration between coastal and marine sectors and land-based sectors that affect the coastal and ocean environment, such as agriculture, forestry and mining. It also addresses conflicts among government sectoral agencies.

Intergovernmental Integration. There is a need for integration among different levels of government. National, provincial and local governments tend to play different roles, address different public needs and have different perspectives. These differences pose problems in achieving harmonized policy development and implementation at the national and sub-national levels.

Spatial Integration. Integration is also needed between the land and ocean sides of the coastal zone. There is a strong connection between land-based activities and what happens in the ocean involving water quality, fish productivity and the like. Similarly, all ocean activities are based or dependent on coastal land. Different systems of property ownership and administration predominate on the land and ocean sides of the coastal zone, often complicating the pursuit of consistent goals and policies.

Science-Management Integration, or integration among the different disciplines (the natural sciences, the social science, and engineering) is important in coastal and ocean management and the management entities. Although the sciences are essential in providing information for coastal and ocean managers, there is often a tendency to demean ongoing communication between scientists and managers. (Here the sciences are broadly construed to mean the natural sciences concerned with the oceans and coasts, such as oceanography, coastal processes and fishery science, the social sciences, concerned with coastal human settlements and use groups as well as management processes that govern ocean and coastal activities and coastal and ocean engineering, which focuses on all forms of coastal and ocean structures).

International Integration. Integration among nations is needed when nations border enclosed or semi-enclosed seas or there are international disputes over fishing activities, transboundary pollution, establishment of maritime boundaries, passage of ships, and other issues. Although in many instances, coastal and ocean management questions are within the purview of national and sub-national governments within national jurisdiction zones (EEZs extend 200 nautical miles or 370.4 km out from its coast), in many other cases, nations face ocean and coastal management problems vis-à-vis their neighbors and thus must seek internationally negotiated solutions. Typically, the national government plays the leading role in such negotiations.

Source: NOAA, 2005.

Table 3. Millennium Development Goals.

Goal 1. Eradicate extreme poverty and hunger

Target 1. Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day.

Target 2. Halve, between 1990 and 2015, the proportion of people who suffer from hunger.

Goal 2. Achieve universal primary education

Target 3. Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.

Goal 3. Promote gender equality and empower women

Target 4. Eliminate gender disparity in primary and secondary education, preferably by 2005, and to all levels of education no later than 2015.

Goal 4. Reduce child mortality

Target 5. Reduce by two thirds, between 1990 and 2015, the under-five mortality rate.

Goal 5. Improve maternal health

Target 6. Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio.

Goal 6. Combat HIV/AIDS, malaria and other diseases

Target 7. Have halted by 2015 and begun to reverse the spread of HIV/AIDS.

Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.

Goal 7. Ensure environmental sustainability

Target 9. Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources.

Target 10. Halve by 2015 the proportion of people without sustainable access to safe drinking water.

Target 11. By 2020 to have achieved a significant improvement in the lives of at least 100 million slum dwellers.

Goal 8. Develop a global partnership for development

Target 12. Develop further an open, rule-based, predictable, non-discriminatory trading and financial system. Includes a commitment to good governance, development, and poverty reduction — both nationally and internationally.

Target 13. Address the special needs of the least developed countries Includes: tariff and quota-free access for least-developed countries' exports; enhanced programme of debt relief for HIPCs and cancellation of official bilateral debt; and more generous ODA for countries committed to poverty reduction.

Target 14. Address the special needs of landlocked countries and small island developing states (through the Programme of Action for the Sustainable Development of Small Island Developing States and the outcome of the 22nd special session of the General Assembly).

Target 15. Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term.

Target 16. In cooperation with developing countries, develop and implement strategies for decent and productive work for youth.

Target 17. In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries.

Target 18. In cooperation with the private sector, make available the benefits of new technologies, especially information and communications.

The Complexity of Environmental Issues

The complexity of environmental issues makes coastal management a great challenge to policymakers. Addressing spatial and sometimes irreversible environmental impacts requires immediate intervention. The World Bank characterizes environmental issues in Box 13.

CRITICAL ELEMENTS FOR EFFECTIVE COASTAL AND MARINE MANAGEMENT

Through the evolution of ICM practices in the region, PEMSEA identified the following elements as necessary for effective coastal and marine management and should be given consideration in the development of the national policy.

- Establishment of high-level integrated decisionmaking mechanisms involving concerned sectors, e.g., the Ministry of Maritime Affairs and Fisheries in RO Korea and the Ministry of Marine Affairs and Fisheries in Indonesia.

- Adoption of a legal framework for addressing cross-sectoral use conflicts in coastal and marine areas, e.g., Coastal and Marine Management Act in RO Korea and Sea-Area Use Management Law in China.

- Integrated coastal and marine land and water-use planning and management as practiced in a number of countries to harmonize the zoning schemes of various resource-use sectors, e.g., fisheries, navigation, offshore oil and gas and protected areas, taking into account the interaction of the marine environment and the associated river basins, watersheds and catchment areas.

- Capacity building for the implementation of relevant international conventions at

Box 13. Characteristics of Environmental Issues.

Delayed Impacts. Many potential environmental changes have significantly delayed impacts. This argues for long lead times in implementing appropriate prevention or mitigation actions.

Spatial Impacts. Sources and environmental impacts are often separated in space (for example, upstream, downstream or hills/valleys) making it necessary to have a framework that can address diverse stakeholder interests.

Cumulative Impacts. Individual actions often have little effect on the environment but the cumulative effect of many such actions can be substantial.

Irreversible Damages. A significant number of environmental outcomes are fundamentally irreversible and the implications of such changes are hard to predict.

Need for Government Intervention. Environmental problems are often a consequence of market failures. Without government intervention to introduce regulations and create markets where they do not exist, the private sector alone cannot achieve optimal environmental outcomes.

Multi-Sectoral Links. Environmental problems reverberate across a range of sectors through many pathways calling for coordinated policies and concerted efforts.

Regional and Global Implications. Many environmental impacts have broad cross-boundary and global effects that require international frameworks and agreements to deal with them.

Source: The World Bank, 2002.

national and sub-national levels to facilitate resolution of transboundary environmental issues, e.g., subregional oil spill contingency response planning and collaborative arrangements in fisheries management.

- Development of sustainable financing mechanisms and options, particularly the involvement of industries and the private sector, e.g., the development of public and private sector partnership arrangements to address the financing needs of environmental management programs and improvement projects while engaging the involvement of the private sector in coastal and marine management.

- Development of programs with stakeholder participation for waste management, habitat conservation, biodiversity protection, marine pollution prevention and abatement, and living resources enhancement, among others.

- Development of multi-disciplinary environmental monitoring, information, research and development programs to provide scientific and technological inputs to address cross-sectoral management issues.

- Appropriate development and application of market-based instruments and user-fee systems such as fees for waste management and treatment, fees for the exclusive commercial use of marine areas, resource enhancement fund, and natural resource damage compensation fund.

Part II. Developing a National Coastal and Marine Policy

Guiding Principles

Establish stakeholder ownership.

The object of coastal policymaking is behavioral change since human behaviors threaten the environment. To be effective agents of change, policies should reflect the interests of stakeholders. This can be done by developing in stakeholders a sense of policy ownership to foster cooperation and encourage a more responsible stakeholder behavior towards the environment. Involving stakeholders in policymaking will help create ownership, achieve consensus and manage conflicts.

Policymaking should be transparent.

The transparency principle demands that decisions be made in an open manner with full public involvement (Cicin-Sain and Knecht, 1998). The stakeholders should be informed of all plans and decisions relating to the resources and how these plans and decisions were made and how they are to be implemented. This will gain the trust and confidence of stakeholders for the policymakers, the processes and the policies.

Build upon existing policies and efforts.

States should build upon and harmonize various sectoral, economic, social and environmental policies, plans and activities already existing and operating in the country. Based on the GESAMP report (1996), ICM should be a "process of learning and adaptation that should evolve through experience, rather than an inflexible plan that provides for a limited set of responses to immediate problems." Sustainable development should have no "end-state" since the equilibrium between development and environmental protection must constantly be readjusted (Cicin-Sain and Knecht, 1998). Policies need to be evaluated and improved from time to time to be more responsive to evolving challenges and issues. Starting completely new programs has proven to be inefficient in terms of costs and time.

Localize good practices and lessons learned.

The principle of localization calls for policy development within the national context. Environmental standards and management objectives should consider national priorities and capacities. Good policies, which may be effective in certain states, may be inappropriate given the country's unique situation. Application, therefore, may result in unwarranted economic and social costs, unless contextualized within the local environment.

Stepwise Guide to Policy Development

Policy development is a dynamic and progressive process that should evolve continuously until goals are achieved. The process is initiated by forming a lead team.

This task may be difficult since many sectors are involved or interested in the coastal and marine areas. The lead team may be from members of a sectoral agency or a functional agency or it may even be a special task force formed for the purpose. What is crucial is the team's capacity and commitment to participatory processes, which will be measured by level of policy acceptance by a broad base of stakeholders and the policy's effectiveness to promote the goals of sustainable coastal development.

The lead team should have:

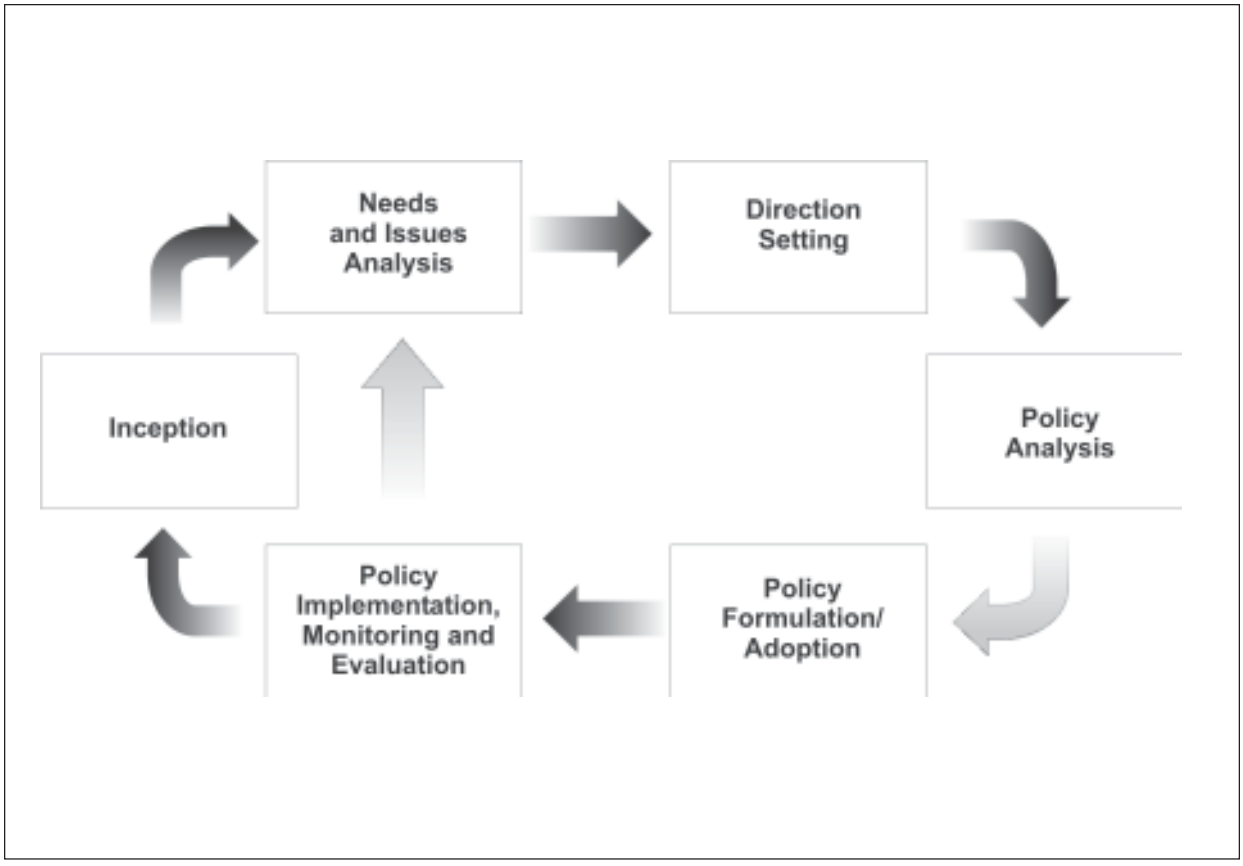
- capacity and skills to address coastal and marine issues;
- sufficient understanding of the issues, plans, policies and activities relating to coastal and marine environment;
- good inter- and intra-relationships and linkages, and capacity to form partnerships with other government agencies, civil society and the private sector;
- acceptability to a broad base of stakeholders; and
- sufficient mandate and due recognition by the national government.

INCEPTION PHASE

Design the work plan and budget.

Cooperation and coordination begin at the inception stage — designing the work plan and establishing working rules, particularly decisionmaking processes. A planning session for this purpose will be helpful in fostering cooperation among the members, particularly

Figure 2. Policy Development, Implementation, Monitoring and Evaluation Process.



if they belong to different sectors and stakeholder groups. The work plan should identify goals and objectives and determine the scope and limitation, budget, work schedule and time constraints. The roles, duties and responsibilities of the members should also be identified.

Identify tools and methodology for decisionmaking.

The report *"A Sea of Troubles"* (GESAMP and Advisory Committee on Protection of the Sea, 2000) identified the lack of science support in addressing environmental challenges. Many cases of severe social, environmental and economic consequences have resulted from activities in the coastal and marine areas, which were developed without sufficient scientific bases. A strong understanding and comprehension of science and technology should support decisionmaking processes. Scientific investigations will help planners understand how marine ecosystems function and how they respond to certain human activities and interventions. International instruments have recognized the value of scientific methodologies, particularly, the Environmental Impact Assessment (EIA), cost-benefit analysis and the Geographic Information Sytem (Bangkok Declaration on ASEAN Environment, 1984, Policy Guidelines) as important planning and decisionmaking tools. Box 14 describes some of these scientific tools.

The complexities and multiple dimensions of coastal ecosystems will require, as solid information base, technical inputs from experts in varied fields. There may be a need to call in experts to help policymakers understand issues from different perspectives, provide necessary information to fill data gaps, and assist in evaluation and assessment of data to enhance policy analysis. It may be useful to form teams of experts that can provide the necessary technical expertise.

Box 14. Scientific Tools.

Environmental Impact Assessment weighs the costs and benefits of certain policy options to prevent negative impacts on the environment and to provide basis for selecting the options that will optimize resource use. It is an effective screening tool for measuring adverse environmental changes caused by the cumulative synergistic impacts of economic activities and facilitates adoption of proactive or reactive responses within the limits of the environment's carrying/absorption capacity. It is also useful in preempting possible conflicts.

Geographical Information System**,** a management tool for land-use planning and evaluation, particularly for zoning, used to support resource evaluation, determine spatial status of resources and identify sites for new forms of development as well as for risk assessment associated with natural and man-made hazards.

Cost–Benefit Analysis, a social decisionmaking tool, which weighs and evaluates the benefits and impacts and estimates costs of adopting alternatives. This allows for the selection of the alternative which yields the highest net benefits, and therefore a more efficient allocation of scarce resources.

Sources: MPP-EAS, 1999a.

Decide on the levels of stakeholder participation.

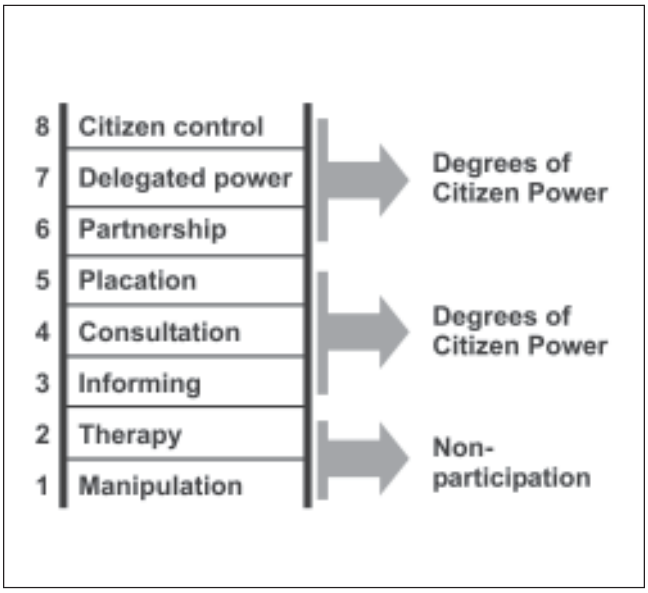
The level of stakeholder participation may range from merely receiving information, to being consulted, to actively participating in the decisionmaking process. Designing participation methodologies requires an understanding of the makeup of the stakeholders, their motivations, interests and desires as well as considerations of time and costs in getting the stakeholders together. The Eight Levels of Participation of Sherry Arnstein (Box 15), ranging from the lowest non-participatory to the highest citizen control, have been used to describe public participation as a multi-level process (Tulloch and Shapiro, 2003; Partnerships Online, 2005).

Define the coverage of the policy.

The national coastal and marine policy's coverage should be clearly defined, such as identifying its scope, geographical boundaries and subject matter. Because of the nature of the resources, jurisdictional and management boundaries may not usually correspond to a single ecosystem but most often transect another ecosystem.

Box 15. Ladder of Public Participation.

Levels 1 (Manipulation) and **2** (Therapy) are both non-participative. The aim is to cure or educate the participants. The proposed plan is perceived as the best project alternative and the aim of participation is to achieve public support by public relations. **Level 3** (Informing) is the most important first step to legitimate participation; too frequently, however, the emphasis is on a one-way flow of information, without channel for feedback. **Level 4** (Consultation) is another legitimate step which includes attitude surveys, neighborhood meetings and public enquiries. **Level 5** (Placation), such as co-option of hand-picked 'worthies' onto committees, allows citizens to advise or plan *ad infinitum* but retains for power holders the right to judge the legitimacy or feasibility of the advice. **Level 6** (Partnership) redistributes power through negotiation between citizens and power holders. Planning and decisionmaking responsibilities are shared, e.g., through joint committees. **Level 7** (Delegated Power) allows citizens to hold a clear majority of seats on committees with delegated powers to make decisions with consequent accountability of the programme. At the last end of the spectrum is **Level 8** (Citizen Control) where the public have-nots handle the entire job of planning, policymaking and managing a programme, e.g., neighborhood corporation with no intermediaries between it and the source of funds.



Source: Partnerships Online, 2005.

In many jurisdictions, development policies are focused on land, even if some states have more water areas than land. Little recognition is given to the sea and the marine resources, which, ironically, provide life support. Policy development should always be anchored on the interconnectivity between land and sea. This should be clearly enunciated in the definition of important terms particularly the coastal and marine areas.

PEMSEA's definition of "coastal areas" extends to the point in land and sea where human activities affect it. This definition does not give rigid boundaries by numbers but allows scientific process to determine the extent of interconnectivity between the land and the sea. The interplay among the biophysical, social and economic considerations should guide the landward delimitation. Seaward, the UNCLOS provides national territorial limitation at sea. It recognizes the right and jurisdiction of states over their continental shelf, and a breadth of water 200 nautical miles (370.4 km) from the baselines. Table 4 shows how some agencies define *coasts*.

Table 4. Delimitations of Coastal Areas.

GESAMP, 1996.	The geographic boundaries of an ICM initiative should encompass a stretch of coast and adjacent ecosystems that are linked by common natural features and/or by the occurrence of particular human activities, and would include those terrestrial systems that significantly affect the sea, or are affected by their proximity to the sea, and those marine systems affected by their proximity to the land. It implies those boundaries that a) include those areas and activities within watersheds that significantly affect the coast; and b) may, in certain cases, extend seaward to the edge of the continental shelf or the EEZ.
FAO, 1998.	Coastal areas are commonly defined as the interface or transition areas between land and sea, including large inland lakes. Coastal areas are diverse in function and form, dynamic and do not lend themselves well to definition by strict spatial boundaries. Unlike watersheds, there are no exact natural boundaries that unambiguously delineate coastal areas.
European Environment Agency	The part of the land affected by its proximity to the sea, and that part of the sea affected by its proximity to the land as the extent to which man's land-based activities have a measurable influence on water chemistry and marine ecology.

NEEDS AND ISSUES ANALYSIS

Prepare a profile of the coastal and marine environment and resources.

Identify the coastal and marine resources of the country, assess their values, conditions, and determine environmental threats, causes and impact. Data over time will be helpful in establishing trends and monitoring the effectiveness of interventions. A matrix[4] will be useful for this purpose. Table 5 provides an inventory of the coastal resources of PEMSEA countries.

Conduct socioeconomic analysis.

Many studies have successfully established the correlation between socioeconomic conditions and environmental degradation. Since policymaking is about behavioral changes, it is important to understand the nexus between socioeconomic issues and environmental degradation. Box 16 shows how poverty can contribute to environmental degradation. The analysis should look into the socioeconomic conditions and issues such as poverty, population, GNP, per capita income, access to safe water, health and nutrition and how these impact on the sustainable management of coastal and marine areas. The analysis can then provide policymakers with an idea on how an intervention can impact on the behavior of the country's society and economy. Table 6 shows the status of each PEMSEA country based on selected socioeconomic indicators.

Review existing institutions.

A country cannot exist without three basic institutions — the social (people, stakeholders), the political (government agencies and organizations) and the legal

Table 5. Inventory of Coastal Resources of PEMSEA Countries.

	Land Area km^2	Water Area km^2	Continental Shelf km^2	Territorial Sea km^2	Claimed EEZ	Coastline km	Biodiversity				
							Mangrove Forests km^2	Seagrass Species	No. of Coral genera	Wetlands of International Importance	Coastal Population
Brunei	5,270	500	7,074	3,157	5,614	161	197	4	4	X	100%
Cambodia	176,520	4,520	36,646	19,918	X	443	467	1	X	546	24%
China	9,326,410	270,550	810,387	348,090	X	14,500	0	5	36	5,884	24%
DPR Korea	120,410	130	26,251	12,654	72,755	2,495	0	X	X	X	93%
Indonesia	1,826,440	93,000	1,847,707	3,205,695	2,914,978	54,716	23,901	12	77	2,427	96%
Japan	374,744	3,091	304,246	373,381	3,648,393	28,751	0	8	75	837	96%
RO Korea	98,190	290	226,277	81,125	202,585	2,413	0	X	X	10	100%
Malaysia	328,550	1,200	335,914	152,367	198,173	4,675	1,659	9	72	383	98%
Philippines	298,170	1,830	244,493	679,774	293,808	36,289	23	19	74	684	100%
Singapore	682	10	714	744	X	268	X	11	66	X	100%
Thailand	511,770	2,230	185,351	75,876	176,540	7,066	5,092	14	68	5	39%
Vietnam	325,360	4,200	352,420	158,569	237,800	11,409	734	9	1	120	83%

Sources: Earth Trends, 2005; World Factbook, 2005, WorldFish Center and ICRAN, 2005.
NB: X represents no available data.

[4] *See Annex 1.*

institutions (set of laws or regulations that dictate or set norms or behavioral patterns). The review of institutions will evaluate these institutions and study the dynamics of their interaction.

Legal. Laws (including ordinances, statutes and other issuances) define the rights and responsibilities of members of the political and social institutions and influence, control or regulate their actions. Laws are powerful tools used to change patterns of behavior. The review should identify legal gaps, overlaps and inconsistencies and evaluate the effectiveness of existing laws. It will also include the legal processes, which dictate how laws and policies are developed, adopted, implemented and enforced.

Box 16. Poverty and Environmental Degradation in Sri Lanka.

Cross-country surveys have shown that there is a positive relationship between poverty and environmental degradation. The poor are both agents and victims of environmental damage. Growth and environment are two sides of the same coin. Therefore, it is imperative for a developing country like Sri Lanka with a low per capita income and a high unemployment rate, to achieve a high rate of economic growth to improve the living conditions of the poor to minimize environmental degradation stemming from poverty. The main constraints to achieving sustainable development are the inadequacy of finances and technology and a supportive system of global trade and international cooperation. Twenty percent of the export earnings of Sri Lanka are derived from agriculture exports. In the context of limited domestic resources, enhanced international cooperation is vital for achieving the goal of sustainable development. Since economic development is essential for the prevention of environmental degradation, trade and the transfer of funds and technology should not be subjected to environment conditionalities.

Source: Sri Lanka Country Profile, 2005.

Political. Political institutions refer to government agencies with formally defined structures. The analysis seeks to identify and understand existing jurisdictional and management conflicts by assessing a) the intra- and inter-agency functional relationship, including interaction, hierarchy and lines of command; b) their roles, responsibilities and accountabilities; c) organization capacities, rules and norms of conduct; and d) stakes in the coastal and marine area. It is crucial to identify areas for cooperation and partnerships, and existing conflicts, gaps, overlaps and inconsistencies in mandates and responsibilities.

Social. Social or stakeholder analysis is essentially crafting the profile of stakeholders, made up of the non-governmental stakeholders, such as the business sector, families, communities, social networks and associations and the general public. Unlike socioeconomic analysis conducted on a macro level, stakeholder analysis delves into specific interests and motivations of each stakeholder group, identifies and compares sets of interests, examines inherent conflicts and/or compatibilities and describes and explores tradeoffs. This will pave the way for resolving conflicts. Matrices for politico-legal and social analyses will be useful in this activity.[5]

Prepare an issues brief.

Synthesize the studies made and identify all the socioeconomic, institutional and environmental issues especially those that are linked together in an intricate web. Each issue should be treated as a sustainable development issue, yet must not be treated in isolation. The synthesis will entail a cross-referencing of issues, causes, impact and national and international responses to determine the existing linkages. The issues

[5] *See Annex 1.*

Table 6. Socioeconomic Status of PEMSEA Countries. (Figures are based on 2004 estimates unless indicated otherwise.)

	Population (millions)	GDP per Capital PPP	% GDP – real Growth Rate	GDP billion $ (PPP)	Income Level	Inflation Rate	Labor Force (in millions)	Unemployment Rate	Population Below Poverty Line (percentage)	Fishing Effort (people employed in fishing)
Brunei	365,251.00	23,600	3.2	6.842 (2003)	High	0.3	158	3.2	NA	1,355
Cambodia	13.36	2,000	5.4	26.9	Low	3.1	7	2.5	40%	73,425
China	1,298.85	5,600	9.1	726.2	Lower Middle	4.1	760.8	20	10%	12,233,128
DPR Korea	22.69	1,400	1.0	30.88	NA	NA	9.6	NA	NA	129,000
Indonesia	238.85	3,500	4.9	827.4	Low	6.1	111.5	9.2	27% (1999)	5,118,571
Japan	127.33	29,400	2.9	374.5	High	-0.1	66.97	4.7	NA	260,200
RO Korea	48.59	19,200	4.6	925.1	High	3.6	22.9	3.1	4%	176,928
Malaysia	23.52	9,700	7.1	229.3	Upper Middle	1.3	10.49	3	8%	100,666
Philippines	86.24	5,000	5.9	430.6	Lower Middle	5.5	35.86	11.7	40% (2001)	990,872
Singapore	4.35	27,800	8.1	120.9	High	1.7	2.18	3.4	NA	364
Thailand	64.86	8,100	6.1	524.8	Lower middle	2.8	36.43	1.5	10%	354,495
Vietnam	82.69	2,700	7.7	227.2	Low	9.5	42.98	1.9	28.9%	1,000,000

Sources: Earth Trends, 2005; World Factbook, 2005; WorldFish Center and ICRAN, 2005.

brief will translate the environmental causes and threats into sustainable development issues, discussing the linkages and correlation between the environment and socioeconomic issues. It will give a holistic perspective and a more comprehensive understanding of an issue in order to come up with the appropriate response policies and strategies.

DIRECTION SETTING

Develop a shared vision and mission.

A vision represents the aspirations of the stakeholders for the coasts. A mission is the commitment of stakeholders to do something that will turn the vision into a reality. The mission and vision will direct the activities relating to the coastal and marine resources so that each intervention will contribute to the realization of the vision. In developing the shared vision, the participation of a broad spectrum of stakeholders in the visioning process is desirable in order to build a consensus and ensure stakeholder ownership, commitment and acceptance. In the visioning exercise, stakeholders may be asked to create a scenario of their ideal coastal and marine resources and picture themselves and their quality of life in that setting. To come up with

the mission, the stakeholders may be asked to state what they are committed to do to achieve the ideal setting.

Establish governing principles.

Principles are needed to give direction and guidance on initiatives and activities. These are prescriptions of practices that have been accepted to be true. The international community has already taken efforts in addressing global threats and issues commonly faced by coastal and marine areas through conventions, conferences and other multilateral forums, resulting in direction-setting policy instruments reached through political consensus and with strong underlying technical, developmental and scientific bases.

Good practices of other countries may teach valuable principles. PEMSEA has come up with the ICM principles which were identified through a workshop held in 1997 in Xiamen, China and attended by some 130 ICM practitioners from 19 countries and 11 international and regional organizations. The principles were derived from the lessons learned from the ICM good practices in the demonstration sites.

UN Convention on Environment and Development (1992) and Agenda 21. The UNCED, also known as the Earth Summit, was held on 3 – 14 June 1992 in Rio de Janeiro and involved over 100 Heads of State and Government, representatives from 178 countries, and some 17,000 participants. The relevant principal outputs of UNCED were the Rio Declaration on Environment and Development, Agenda 21 (a 40-chapter programme of action), the UN Framework Convention on Climate Change (UNFCCC), and the Convention on Biological Diversity (CBD). Chapter 17 of the Agenda 21 recommends programmes of action such as integrated management and sustainable development of coastal and marine areas including EEZ, marine environmental protection, sustainable use and conservation of living marine resources under national jurisdiction and the high seas, addressing critical uncertainties for the management of the environment and climate.

UN Convention on the Law of the Seas. The entry into force of the UNCLOS heralded a new era in ocean governance by providing the international basis upon which to pursue the protection and sustainable development of the coastal and marine environment. One of its important features is the recognition of rights of states over a breadth of 200 nautical miles (370.4 km) of additional sea area and their exclusive right to utilize and exploit the marine resources therein. This right carries an obligation to preserve and protect the marine environment from pollution.

World Summit on Sustainable Development (2002). The WSSD was held from 26 August – 4 September 2002, in Johannesburg, South Africa. The resulting document, the Johannesburg Declaration highlights present challenges and emphasizes the need for implementation. A Plan of Implementation was also developed as a framework for action to implement the commitments originally agreed at UNCED. It includes chapters on poverty eradication, consumption and production, the natural resource base, and health.

Cooperative Agreements. Countries may voluntarily enter into agreements with other countries, particularly concerning management and use of shared resources and are bound to comply with the stipulations contained therein. Such agreements have the force and effect of

law between and among the country signatories. Bilateral and multilateral arrangements have proved to be an effective way of managing shared seas. The Sustainable Development Strategy for the Seas of East Asia seals cooperation among the PEMSEA members to promote environmental protection and management of the seas of East Asia.

Some of these principles are listed in Annex 2. Relevant principles are also enshrined in other international instruments, a list of which is attached as Annex 3.

POLICY ANALYSIS

Understand the issues.

To understand the issues, it is essential to first understand the nature of the ecosystems and how they function in order to support decisionmaking processes. Science and sociology are essential to predict behavioral responses of the people and ecosystems to certain interventions. A policy option should not be considered where there is no or insufficient information on its potential environmental, social and economic impact.

Issues may be characterized in terms of:

Triggers – What is the key event that triggered the issue? How did the issue evolve and when did it become an issue?
Causes – What gave rise to the issue?
Severity and Magnitude – What is the extent of its impact on the country's environment and socioeconomic situation? Provide quantitative data, for example, the total amount in US dollars, which have been lost, or the number of lives sacrificed.
Significance – Try to explain if the issue is of local, national, regional or global significance and why, preferably using comparative analysis, e.g., comparing the level, extent and the tractability of related impacts with those of similar problems elsewhere.

Establish the criteria for evaluating policy options.

A set of criteria must be established to give the team a mechanism by which to compare the alternatives and select the best. For this purpose, the team must look into the different national priorities, principles and considerations such as environmental and ecological integrity, optimum net economic benefits, and cost-effectiveness of implementation, among others. While the net benefits will be a major factor in selecting the best alternative, institutional considerations are also important as this will determine whether the alternative will be adopted and implemented.

Review existing principles, approaches and other consideration.

This requires an evaluation of the current national efforts and initiatives in addressing a specific issue on the basis of its effectiveness, outcomes and impact. There is also a need to review existing principles, concepts, approaches (including a status quo approach) and practices adopted by other countries, preferably in the East Asian Seas region, in addressing similar issues. It is important to bear in mind the principle of localization. Policy options should be within the means and the resources of the country. Important elements and relevant principles that may contribute to the success, effectiveness, or failure of the policy should be distilled.

Generate policy options.

After distilling the important elements, principles and considerations, the team can already generate a number of policy

alternatives, including successful policy approaches or various configurations of the distilled elements from successful policy implementation. It is important to be as comprehensive as possible and consider all possible alternatives before zeroing on the viable ones.

This is essentially strategic planning where each policy alternative is translated into policy goals and packaged into strategies with objectives and rough implementation designs. Strategies generated from all levels— national, local, sectoral and even from stakeholders — must be based on facts, solid data, reliable scientific research and studies and available resources, and take into account the country's capacities and institutions. Local programs pertain to activities that take place at or near the coastal and marine areas, i.e., those that require deeper understanding and close monitoring within the local environment. Sectoral activities pertain to those that promote the interests of the sectors. Stakeholder activities, on the other hand, are geared towards alleviation of poverty, ensuring food security, and providing livelihood opportunities and, in general, a better quality of life for the people.

Evaluate and select the appropriate policy.

Evaluate each alternative vis-à-vis the criteria established previously. An assessment of the socioeconomic impact will be useful to determine the net benefits of each alternative. There may be a need to go back to the stakeholders to get a sense of acceptability for the alternative, especially when it involves tradeoffs. Matters that would need further research and modification of alternatives may crop up during the process. It is also important to analyze the socioeconomic and institutional framework — how the alternatives will fit in the socioeconomic, legal, political and social scenario — which will determine the acceptability of the alternative to the stakeholders and eventually, the success or failure of the implementation.

POLICY FORMULATION/ADOPTION

Develop the policy instrument.

Policies may be reflected in different government laws and programs so long as it communicates clearly to the stakeholders the country's agenda for its coastal and marine environment. It concretizes the country's political will, provides check-and-balance for government action and fosters transparency in governance. A formally adopted national policy limits volatility in decisionmaking resulting from changes in government leadership. It promotes continuity of action and implementation despite such government turnovers. In drafting the policy, ensure that terms used are clear and understandable. For technical terms, it may be essential to include definitions.

Work towards adoption of the policy.

Present the policy for stakeholder consultation to get their endorsements. The team should then recommend the adoption of the policy to the proper decisionmaking body. The national coastal and marine policy should be formally adopted by the government to confer it with legitimacy.

Program Design. Measures that will ensure the adoption of the policy may be built into the program design. For example, the task can involve the highest level of policymakers or at least, the key officers of the country. It is also important to provide a strong justification for the adoption. One way is to pilot test the policy

and use success stories as incentive to support the adoption of the national policy. Small-scale experiments do not threaten turf-conscious bureaucrats and can take place without changing existing policies, procedures or the allocation of authority (Olsen and Kerr, 2000).

Situational Triggers. Policymakers should be sensitive to situational triggers (i.e., toll on human health, sea disasters, red tide), which may be capitalized to hasten the adoption of the policy. Water-borne epidemics or sea-related accidents or disasters, such as the December 2004 tsunami that hit many states across the Indian Ocean, get public attention and generate public discussion and a clamor for intervention and response. Opportunities may also come in the form of national or political events, such as change of leadership, shift of priorities, or redirection of national policies. Policymakers and stakeholders, by their own initiative, can also create opportunities by making public calls and invite government attention to the need to endorse and adopt the national policy.

Box 17. Puget Sound's Window of Opportunity.

Large volumes of liquid wastes, both domestic and industrial, have been discharged into the Puget Sound estuary in Washington, USA. By the 1970s, it has been known that some areas have been contaminated by sediments which have been flushed by tides. In the early 1980s, several events occurred. First the sewage agency in Seattle proposed to locate a new sewage outfall off one of the city's wealthiest districts, which generated local opposition. In the midst of the issue, a number of whales swam into shallow waters of Sound and died. Their deaths were linked to industrial pollution. Then a controversy arose over the dumping of contaminated dredge spoils in the Sound. Public concern reached a pitch when the Environmental Protection Agency (EPA) released results linking polluted sediments in Puget Sound's bays to pre-cancerous lesions in fish. Soon, the EPA prohibited shellfish harvesting due to unsafe pollutant levels. The series of events and shift in public opinion from an environmentally safe to a seriously polluted Puget Sound set the stage for debate on the adoption of new policies.

Source: Modified from Olsen and Kerr, 2004.

Part III. Effective Policy Implementation

Institutional Arrangements

An important part in the policy development process is the establishment of effective institutional arrangements, which is said to be the bridge between good strategies and realized objectives. The adoption of appropriate institutional arrangements is therefore critical in ensuring that the plans will result in the desired outcomes. Sorensen (2002) defines institutional arrangements as a composite of laws, customs, budgets, staffing and governance structure that are established by a society to allocate scarce resources among the competing interests of stakeholders. A more specific definition limits the term to "such governance measures that define the roles and functional relationships among the three basic institutions [social, political and legal] expressed in some formal instrument in order to realize a goal or achieve an objective" (Lacerna, et al., 2003).

Institutional arrangements are not just about political institutions or government agencies, laws and decrees. It involves the functional dynamics of the social, political and social institutions.[6] Institutional arrangements are essentially formal governance arrangements, which basically identify what the government and the people will do to achieve an objective and how to enforce or execute their respective roles and responsibilities (Lacerna, et al., 2003). By formal, it means a law, ordinance or any other document with a legally binding or obligatory effect. While customary laws may be considered part of the law of the land, they evolve through time by practice and tradition. For urgent environmental issues where time is of the essence, addressing the aimed paradigm shift and a change in the mindset of the community through customary law may not be effective. Figure 3 shows the interplay of these institutions.

The essential elements of institutional arrangements are as follows:

Governance Measures. The most important element of institutional arrangements is Governance Measures, which identify the roles and responsibilities of the social and political institutions. The objective is to establish norms, accountabilities, mandates and authorities following the principle that all stakeholders are stewards of the coastal and marine resources and have the duty to ensure its sustainability. The arrangements should provide the framework for which the stakeholders can perform their roles as stewards. They should have involvement in all stages of the development process to build trust, strengthen their commitments, and guarantee their support and cooperation in the realization of the shared vision. The level of participation of the members of the social institutions — the community, media, fisherfolk, and other stakeholders — depends upon local needs. Relevant groups can be given responsibility to develop action programs and operationalize specific strategies.

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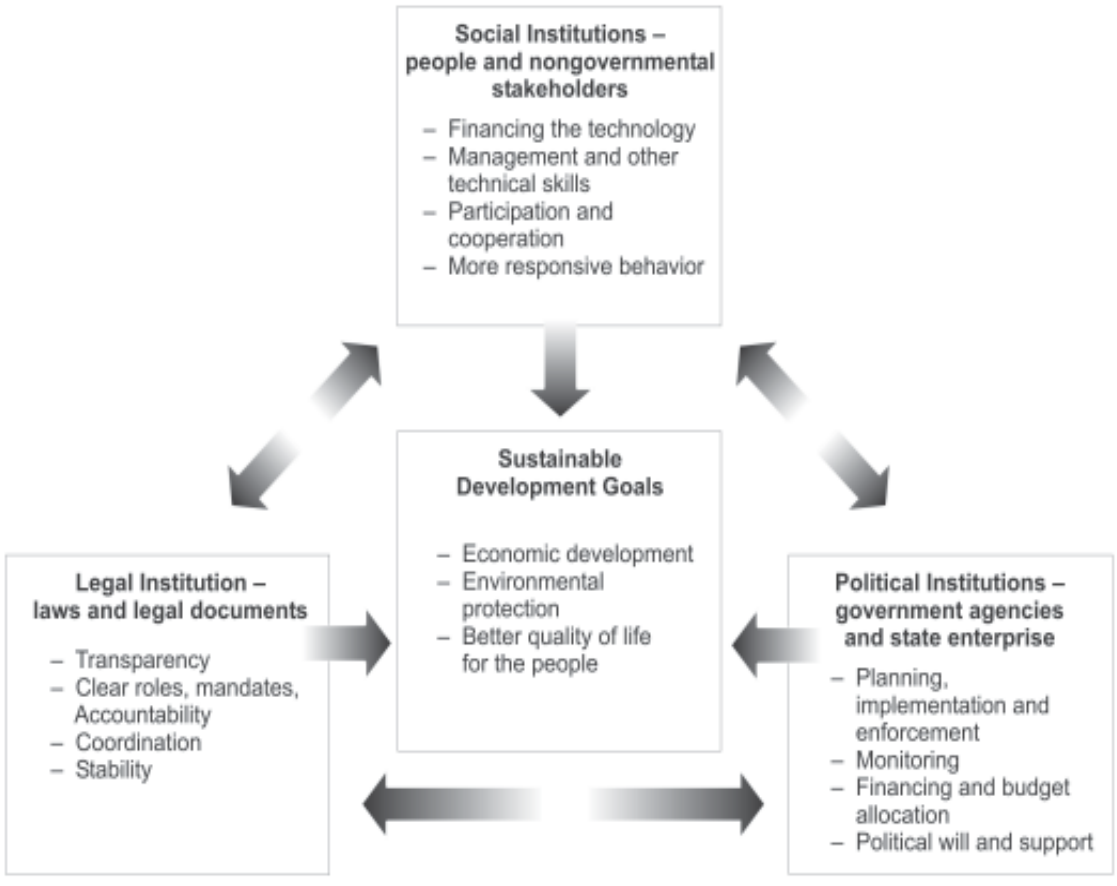
[6] *Political Institutions refer to the government's institutions and its agencies and instrumentalities, including government owned and controlled corporations. Social institutions are composed of the rest of the society outside the government: the people, the academe, media, the NGOs, science experts, business sector and other sectoral groups. The legal institutions are the laws and the norms of conduct that govern the behavior of the social and political institutions including customary laws.*

Figure 3. Benefits of Functional Institutional Arrangements.



Source: Lacerna, et al., 2003.

National Budget Allocation and Financing. A functional institutional arrangement would need funds to sustain its operations. Often, the government allocates a budget for this purpose and the allocation should be commensurate to the needs for operation and activities. Governments should also endeavor to establish alternative sources of financing.

Staffing and Capacity Building. To implement the policies, there must be an inventory and assessment of human resources and their capacity and needs. Programs to build capacities must be designed to ensure effective implementation.

SUSTAINABLE FINANCING MECHANISMS

The successful implementation of policies, plans and programs depends heavily on the budget and financial resources to support such an activity. Thus, at the onset, efforts should be taken to establish financing schemes and funding sources other than government budget allocation to sustain policy implementation. Recent observations show that where countries saddled with ballooning debts decide to tighten their belts, they usually forego environmental protection in favor of the more pressing social ills like poverty, health, sanitation, education and unemployment.

MONITORING AND EVALUATION SYSTEM

Mechanisms to monitor and evaluate policies are essential in order to determine the effectiveness of the mechanisms and improve decisionmaking. Coastal and marine nations are encouraged to establish national programs for assessing and monitoring coastal and marine ecosystems so as to enhance the ability of national and regional management organizations to develop and implement effective remedial programs for improving the quality of degraded ecosystems (Sherman and Ehler, 1999). Indicators are crucial to measure changes introduced by the policies, analyze environmental conditions, learn key lessons, support decisionmaking and redirect strategies where necessary in order to respond to new challenges.

Good indicators (Pant, 2000) should have the following attributes:

a. ***Policy relevance.*** Environmental indicators need to provide a picture of the current state of the environment and society's purposes. They need to be simple, easy to interpret and show trends over time. They must also be responsive to change and have a threshold or reference value against which to make comparisons.

b. ***Analytical soundness.*** Indicators should be robust in technical and scientific terms. It would also be useful to be able to incorporate them into models and forecasting systems.

c. ***Measurability.*** The data required to support a particular set of indicators must readily be available at reasonable cost and be of known quality. They must also be updated at regular intervals by reliable procedure.

Other indicators of successful performance include those which relate to planning and implementing processes (process indicators), the ecological improvements that take place after interventions (status indicators), the socioeconomic impacts (sustainability indicators) and removal of risks (stress-removal indicators) (Chua, 1999).

- Process indicators measure the effectiveness of the processes and methods used in accomplishing the objectives set. This is useful in gauging the capacity of the implementers in performing and following the processes established.

- Sustainability indicators demonstrate the impact of the strategy implemented on the achievement of the goal of sustainable development. Sustainability indicators are useful for monitoring progress, understanding the linkages among sectors, focusing on areas of cooperation and motivating action (Sustainable Measures, 2000).

- Status indicators measure the effectiveness of the strategy through the positive changes introduced in the environment. Environmental monitoring systems measure the impact of policy implementation on the coastal and marine environment.

- Stress-removal indicators measure the removal of environmental threats or stresses

Admittedly, since policy implementation is a long process and sustainable development objectives are to be realized over time, the segregation of outcomes into four levels or orders is proving to be more useful.

The four-order outcomes (Olsen, 2002; Rio + 10, 2001) for sustainable coastal and marine development are:

- First Order Outcomes call for creating institutions and building institutional capacity to undertake integrated coastal planning and decisionmaking.

- Second Order Outcomes are evidence of successful implementation of policies. They include establishing collaborative decisionmaking procedures, actions taken on issues of management priority, and modified behaviors of coastal users to reduce or eliminate destructive impacts.

- Third Order Outcomes are improvements in environmental quality and resource condition and socioeconomic benefits that mark physical evidence of progress towards sustainable forms of coastal development; and

- Fourth Order Outcomes fully achieve desired end conditions of sustainable development.

Part IV. Challenges

Addressing Emerging Issues

National policy development is a dynamic process that should flow with the global tide. Policies should be periodically reviewed and assessed to make it truly responsive to the changing social, economic, and environmental needs. All stakeholders should get their acts together not only to implement the policy but to be vigilant in addressing new and emerging threats that will render the policy inutile.

Rapid urbanization of the coastal areas and the increasing coastal population became the trend in the last three decades and these are expected to continue in the next two. Population density and urbanization present new issues and problems as human activities heavily impact on the marine environment. The increasing volume of maritime transport may continue to bring about the introduction of non-native species with the almost 10,000 species estimated to be in transit around the world in ballast waters. The world has experienced global warming that affects the temperature of the water's surface and subsurface. The tourism industry will continue to boom as maritime and other transport means advance. New issues are starting to break through such as the expected decommissioning of around 7,000 offshore oil and gas installations in the near future. New explorations to the deep recesses of the seabed will be undertaken with the use of innovative technology. Peace and security are also at stake as terrorist groups use the sea as an easy means of mobility to facilitate their criminal activities.

Relishing the Benefits

The coastal and marine resources are valuable to a country's economic development. They support life and if nurtured, can bring about a marked improvement in the quality of life of the people. The ultimate test of the effectiveness of the national coastal and marine policy is whether the benefits will trickle down to the people in real terms and whether this will bring the vision a step closer to reality.

To policymakers and stakeholders, the challenge is to develop a coastal policy that is evolving to capture the changes, and be sensitive to the needs of the stakeholders. The greatest challenge, however, to all stakeholders is to truly "care, share and dare" to achieve a better future and a higher quality of life for all (Ramos, 2003). As the Asians are naturally caring and generous, it is the daring that will be the supreme test of civic responsibility — "daring to give more than take, to sacrifice for the common good, to take concerted action to make a big difference, and to do all these things" (Ramos, 2003).

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ANNEXES

ANNEX 1

USEFUL MATRICES

A. Evaluation of Coastal and Marine Resources

Resources	Values			Condition		Causes/Threats		Impact
	Ecological	Social/ Recreational	Economic	Baseline Year	Current	Human Activities	Natural Occurrences	
Seawater								
Freshwater								
Beaches								
Mangroves								
Corals								
Wetlands								
Seagrass								
Estuaries								
Fisheries								
Other Living Resources								
Energy (oil/gas/wind)								
Other Minerals								
Land/Seascapes								
Natural Ports/Harbors								
Others								

B. Political-Legal Analysis Matrix

	Causes/Threats		Laws/Policies and Other Intervention	Implementing Agency/ Government Unit	Impact	Success Rate	Success Factor/ Barrier
	Human Activities	Natural Occurrences					
Seawater							
Freshwater							
Beaches							
Mangroves							
Corals							
Wetlands							
Seagrass							
Estuaries							
Fisheries							
Other Living Resources							
Energy (Oil/Gas/Wind)							
Other Minerals							
Land/Seascapes							
Natural Ports/Harbors							
Others							

C. Social Analysis Matrix

Resources	Stakeholders	Stakes	Threatening Activities	Objective	Driver Issue
Seawater					
Freshwater					
Beaches					
Mangroves					
Corals					
Wetlands					
Seagrass					
Estuaries					
Fisheries					
Other Living Resources					
Energy (Oil/Gas/Wind)					
Other Minerals					
Land/Seascapes					
Natural Ports/Harbors					
Others					

ANNEX 2

RELEVANT PRINCIPLES

A. Environmental Principles (WCED, 1987)

- ***Sustainable Development.*** This principle, which became an international buzzword after the United Nations Conference on Environment and Development (UNCED) in 1992, refers to the development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Cicin-Sain and Knecht (1993) describes it as a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional changes are made consistent with future as well as present needs. The welfare of the people is at the core of this principle seeking to eradicate poverty and minimize disparities in the standards of living. The principle upholds equity in access to resources, and promotes the rights of the people to a healthy and productive life in harmony with nature.

- ***Principle of Cooperation.*** The principle emphasizes that environmental protection cannot be achieved simply by the state imposing obligations on industry and society. It requires an approach based on division of labor, cooperation and consensus for the purpose of gaining acceptance for environmental measures by those involved or affected. Examples of such cooperation are public law contracts or environmental commitments by sectors and industries (voluntary commitments). In approval procedures for environmentally hazardous projects, participation by the public and by bodies representing the public interest is an expression of the cooperation principle (Keil, 1999).

- ***Polluter Pays Principle.*** The principle requires polluters to shoulder the damages and costs incurred for environmental remediation, restoration and protection from further environmental damages. The object is to internalize the external costs of environmental protection (the costs the public must bear otherwise) by allocating them to the individual agents. The cost-allocating principle prevents a wide gap from opening between the private and social costs of economic activities. Regardless of whether the internalization of externalities is achieved by regulations, charges, liability regulations or other policy instruments, it can be effective in reducing the consumption of natural resources to a sustainable level.

- ***Rational Resource Use.*** This principle directs states to adopt measures that reduce and eliminate unsustainable patterns of production and consumption and promote demographic policies that remove environmental stresses brought about by human activities. The right of the states to exploit their own resources carries with it the responsibility to protect and preserve the environment and restore the health and integrity of the ecosystem.

- ***Precautionary Principle***. Enshrined as Principle 15 in the Rio Declaration, the

principle directs states to adopt preventive or anticipatory action in the face of scientific uncertainties to avert possible, and sometimes irreversible, damage to the environment. Corollary to this is the *Principle of Preventive Action,* which calls for measures to prevent or avert known or quantifiable threats or harm to the marine environment. The application of the Environmental Impact Assessment will anticipate potential adverse impacts of activities on the environment and enable the state to adopt measures to prevent or manage the adverse impact.

- ***Principle of Translocation and Ecological Compensation***. The principle requires that activities that are exceptionally harmful to biological and landscape diversity and cannot be avoided should be relocated to areas where they will cause less impact. Similarly, if harmful effects of physical changes in areas with high biological and landscape diversity value cannot be avoided, they should be balanced by compensatory conservation measures.

- ***Principle of Ecological Integrity.*** The principle seeks to maintain and protect ecological processes responsible for the survival of species and the habitats on which their survival depends. Where possible, biological and landscape diversity should be restored and recreated. This includes measures for the rehabilitation and reintroduction of threatened species.

- ***Principle of Shared Responsibility.*** The interconnectivity of the seas gives rise to the potential risk that the activities of one state may cause transboundary impacts. This principle recognizes the need for States to cooperate to discourage or prevent relocation and transfer to other states of activities or substances that cause severe environmental degradation or are harmful to human health. In case of activities that may have significant adverse transboundary environmental effects, states are duty bound to notify affected states of this development. Environmental measures addressing transboundary global environmental problems should be based on international consensus, as far as possible. States have the responsibility to ensure that activities within their jurisdiction do not cause damage to the environment of other states or of areas beyond the limits of their national jurisdiction.

B. Coastal and Ocean Governance Principles

- ***Common Heritage.*** The coasts and oceans are mankind's common heritage and cannot be exclusively owned by any individual or government. Thus, it becomes the duty of the state, under the public trust doctrine, to use the resources for the benefit of the people.

- ***Interconnectivity.*** Seas and lands are part of an interconnected whole. Land-based activities impact on the sea and vice-versa. Each state is interconnected by seas and this is evident by the impact of transboundary issues such as harmful algal blooms, movement of migratory species, climate change, oil spill, marine pollution and other issues.

- ***Stewardship.*** All stakeholders are stewards or caretakers of the coastal and marine environment and have the duty to protect it and ensure its sustainability.

- ***Priorities.*** In the selection of policy options, prioritization should be as follows: a) protection of living resources over the exploitation of nonliving resources; b) nonexclusive use over exclusive use; and c) irreversible exclusive over reversible exclusive (Cicin-Sain and Knecht, 1998).

C. Policymaking Principles (Costanza, et al. 1998)

- ***Responsibility.*** Right to use our natural resources come with a responsibility to use them efficiently, without depleting them, and in a socially fair way.

- ***Scale Matching.*** Ocean environments and resources should be managed at the spatial scales and time frames most conducive to their sustainability, crossing, if appropriate, political jurisdictions and human generations.

- ***Precaution.*** In the face of uncertainty, environmental management decisions should err on the side of caution.

- ***Adaptive Management***. Given that some level of uncertainty always exists. environmental decisionmakers should continuously adapt management plans as new, improved insight becomes available.

- ***Full Cost Allocation.*** All costs and benefits concerning the use of natural resources should be identified and allocated and economic markets should reflect these costs and benefits.

- ***Participation.*** Participation of all stakeholders is vital in the formulation and successful implementation of decisions concerning environmental resources

D. ICM Principles (MPP-EAS, 1999a)

1. Adopt a systematic, incremental approach in developing and implementing ICM projects and programs.

2. Involve the public in the ICM process.

3. Integrate environmental, economic and social information from the very beginning of the ICM process.

4. Establish mechanisms for integration and coordination.

5. Establish sustainable financing mechanisms.

6. Develop ICM capacity at all levels.

7. Monitor the effectiveness of ICM projects and programs.

ANNEX 3

RELEVANT INTERNATIONAL INSTRUMENTS AND PROGRAMS

Deep Seabed Mining

- Agreement relating to the Implementation of Part XI of the UNCLOS, 1994

Law of the Sea

- UN Convention on the Law of the Sea (UNCLOS), 1994
- International Seabed Authority, 1996
- International Tribunal on the Law of the Sea, 1997
- Commission on the Limits of the Continental Shelf, 1997

Marine Biodiversity

- Jakarta Mandate on the Conservation and Sustainable Use of Marine and Coastal Biological Diversity, 1995
- International Coral Reef Initiative, 1995
- Annex VI to OSPAR Convention, 1996
- Cartagena Protocol on Biosafety, 2000

Marine Environment

- Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships, 1993
- Global Programme of Action for the Protection of the Marine Environment form Land-Based Activities, 1995
- International Convention on Oil Pollution Preparedness and Response, 1995
- Protocol to the London Convention, 1996
- Annex VI to Marpol 73/78 on Regulations for the Prevention of Air Pollution from Ships, 1997
- International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001
- Stockholm Convention on Persistent Organic Pollutants (POPS), 2001

Marine Safety and Liability
• International Convention on Liability and Compensation for Damages in connection with the Carriage of Hazardous and Noxious Substances by Sea, 1996 • Liability Protocol to the Basel Convention, 1999 • International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001
River Basins
• ECE Convention on Transboundary Lakes and Rivers, 1992 • UN Convention on the Non-Navigational Uses of International Watercourses, 1997
Sustainable Development of Small Islands
• Barbados Programme of Action for the Sustainable Development of Small Island Developing States, 1994
Sustainable Use and Conservation of Marine Living Resources
• Agreement to Promote Compliance with International Conservation and Management Measures by Vessels Fishing in the High Seas, 1993 • Code of Conduct for Responsible Fishing and four related International Plans of Action, 1995 • Agreement for the Implementation of the Provisions of the UNCLOS Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 2001
Underwater Cultural Heritage
• Convention for the Protection of the Underwater Cultural Heritage (UNESCO), 2001

Source: Rio + 10, 2001.

ANNEX 4

SELECTED NATIONAL EXPERIENCES AND GOOD POLICY PRACTICES

A. Policy Development Process

1. Selecting a Lead Agency

Countries have varying types of lead agencies tasked for developing national coastal and marine policies. Among these are:

Super Agency. RO Korea created the Ministry of Maritime Affairs and Fisheries (MOMAF) streamlining the functions of ten ocean-related government agencies into a single body. MOMAF was instrumental in mobilizing the enactment of the Coastal Management Act of RO Korea in 1999.

New Agency. The United States of America established the Commission on Oceans Policy (COP) by virtue of the Oceans Act of 2000 for the purpose of initiating the development of a national oceans policy. The COP is mandated to make findings and recommendations to the President and Congress for a coordinated and comprehensive oceans policy that will address a broad range of issues, from the stewardship of marine resources and pollution prevention to enhancing and supporting marine science, commerce and transportation. The 16-member COP includes representatives from the national and local governments, and the scientific, academic and private sectors.

High-Level Government Office. In Malaysia, the responsibility for national coastal policy development has been given to a high-level government office, specifically the department of the Prime Minister.

Sectoral Coordinating Agency. In the Philippines, the task of national policy development was assumed by a sectoral agency, the Department of Environment and Natural Resources (DENR). The DENR has prepared a national coastal and marine policy as a component of its Environment and Natural Resources Policy Framework project. It drew together environmental, socioeconomic, legal and political experts to assist in the preparation of reports, which were submitted for review to an interagency group representing relevant sectors.

2. Generating Stakeholder Support

The policy can be effectively implemented if it is accepted and owned by stakeholders. Hence, it is essential to build constituencies and generate stakeholder support at the initial stage of policy development. Employing the help of people perceived as impartial and bringing the process on the ground to demonstrate benefits in real terms are also helpful in gaining stakeholder cooperation.

Stakeholder Involvement. The Philippines and Australia involved their stakeholders in policy development through information dissemination and stakeholder consultation.

Australia recognized the need to build understanding and appreciation of what might constitute Australian Oceans Policy (AOP). It tapped the Marine and Coastal Community Network and Environment Australia to use their resources and participants to inform the community of the AOP through distribution of newsletters, information sheets and conduct of interviews, seminars and workshops around the country. A nongovernmental consultative body, the Ministerial Advisory Group on Ocean Policy (MAGOP) was created to give advice in the preparation of the AOP. It included representatives from gas, mining, shipping and tourism industries, nongovernmental organizations (NGOs), universities, planning institutes, environmental groups and sectoral groups, particularly, recreational and commercial fishing groups, farmers, and indigenous groups.

The Philippines' Department of Environment and Natural Resources (DENR) conducted a series of regional and national consultation workshops around the country to present the proposed Sustainable Archipelagic Development Framework to validate the issues and the strategies identified.

Use of Impartial People. It helped that the Sustainable Archipelagic Development Framework for the Philippines was presented to the stakeholders, not by the government, but by scientists and technical consultants who facilitated objective discussions during the national and regional consultations. On such occasions, representatives of stakeholders were open and free to voice their concerns and validate and comment on the draft document. Australia's MAGOP helped generate the much needed stakeholder support and interest in the development of the AOP. MAGOP, composed of people from outside the bureaucracy, prepared an issue paper, which was presented to the stakeholders during consultation.

On-the-ground Approach. Canada's government recognized that its Oceans Act (King, 2001) was all about behavioral and cultural changes; and for its people with historically divergent mandates and opinion, there would be difficulties in accepting a common policy. Canada invested significantly in relationship building by bringing the process on the ground so it would be easily understood by stakeholders. Its Department of Fisheries and Oceans set up offices in each of the six regions of the country and developed skills in engaging with stakeholders — listening and participating, rather than directing in the search for common grounds. Canada beefed up its information campaign through the setting up of other key structures, which included a Minister's Advisory Council on Oceans, a federal provincial-territorial oceans working group, and an Ocean's Management Research Network to link with and engage the academic community, and integrate natural science and social science research.

Pilot Demonstration Projects. Demonstration sites aim to test the effectiveness of an approach. Canada invested $60 million to enhance implementation capacity. It launched pilot projects to test the application of the Oceans Act principles in real time and in

real life situations. Canada worked with a range of partners in 20 pilot projects and 13 identified marine protected areas. The pilot projects helped develop relationships and build trust and confidence not only on the policy approach but most especially on the government's capacity which proved vital to make integrated management acceptable.

B. Review of Approaches to National Policy Development

Countries had taken initiatives towards the development of national coastal and marine policy at varying stages. Discussed below are selected national experiences in the region and elsewhere.

1. Australia

With the entry into force of the UNCLOS in 1994, Australia assumed the responsibility over one of the world's largest marine areas. It immediately reviewed its policies vis-à-vis the new legal order and commissioned the preparation of studies including the State of the Environment Report and the National Strategy for Ecologically Sustainable Development.

The Department of Environment, Sports and Territories (DEST) was tasked to develop the Australian Oceans Policy. Stakeholder consultations were initiated but a poor response prompted DEST to form the MAGOP, with people from outside the government bureaucracy. The MAGOP drafted position papers which provided a comprehensive look at all marine-related issues. When the issue paper, sans institutional arrangements, was presented for consultation through an NGO, it mustered a broader interest evidenced by the volume of respondents.

In 1998, the AOP set in place the framework for integrated and ecosystem-based planning and management for all of Australia's marine jurisdictions.

The immediate adoption of the AOP was due to the following:

- ***High-Level Integrated Decisionmaking Mechanisms.*** The National Oceans Office is the lead Commonwealth agency with the responsibility of supporting the National Oceans Ministerial Board to implement and further develop the AOP.

- ***Public Involvement.*** Unlike other sectoral groups, the constituency was consulted throughout the development process. The public was involved in the process of policymaking and implementation. An NGO also played an important role in facilitating the consultation and information dissemination.

- ***Policy and Other Studies.*** Australia embarked on policy and other studies, which formed the bases of technical support for the development of the AOP.

2. Canada[1]

Canada is the first country in the world to adopt an Oceans Act. It deals with behavioral and cultural changes, which needed significant

[1] *Data is sourced from the speech of Mr. Matthew King, Assistant Deputy Minister, Department of Fisheries and Oceans, Canada given at the Paris Global Conference in December 2001.*

investment in relationship building due to Canada's various groups with historically divergent mandates and opinion.

Groundwork and communication played an important role in the development process. The government brought the process on the ground to make it easily understood by all stakeholders. It built internal capacity to engage with the stakeholders and constantly worked with participants listening and participating, and not directing, in search for common grounds. Canada supported a face-to-face approach by setting up oceans offices, through the Department of Fisheries and Oceans, in each of its six regions and placed key structures. Canada invested $60 million to build capacity and launch 20 integrated management pilot projects to test the application of the Oceans Act principles in real time and in real life situations. The pilot projects helped establish relationships needed to make integrated management work (King, 2001).

3. China

Conflicts among ocean-related activities had impeded the sustainable management of China's coastal and marine areas. Addressing the conflicts required institutional changes. With its ratification of the UNCLOS, PR China re-examined its policies and introduced legal reforms.

In only 10 years, China has adopted a number of major marine-related laws, rules and regulations, making an overhaul of its legal framework. The new laws include the Law on Territorial Sea and Contiguous Zone and Continental Shelf (1996), Marine Environment Protection Law (1999), Ocean Agenda 21 (1996) and some revisions on the Mineral Resources Law (1996), Fisheries Law (2000) and Sea-Area Use Management Law (2001). The Interim Management Rules for National Sea Area Uses established a system of licenses and permits to direct developmental efforts that will pave the way for a functional zone. China had acceded to important ocean-related conventions such as the MARPOL 73/78 and its annexes V and III (1983, 1988 and 1994 respectively) and the London Convention Protocol (1996). China has been elected successively as an A-level council member state from the 16th to 20th sessions of the International Maritime Organization (IMO). To promote ocean development, China has conducted marine scientific researches and devoted major efforts in the development and application of high technology. Since the mid-1990s, China has carried out a series of important marine scientific research projects and activities including researches on the dynamics of ecosystems and the sustainable use of resources in China's major seas.

4. Indonesia

Indonesia, the largest archipelago in the world, faces a political dilemma: whether to integrate in the wake of integration of policies in some federal states, on the one hand, or to decentralize following the global trend towards empowering local government units (LGUs) on the other. Integration is of paramount importance to a physically fragmented country as Indonesia. As early as 1957, Indonesia has adopted an archipelagic perspective to coastal development and management. Integration largely meant a comprehensive coverage of coastal issues, mainly securing sovereign rights. In 1982, the government passed the Environmental Management Act, which takes a holistic approach based on the interdependence of people and natural resources. Integration is also manifested in the streamlining of 14 ministries and 6 non-ministerial agencies into a single body, the Ministry of Marine Affairs

and Fisheries (MMAF), to which is entrusted the responsibility over coastal and marine activities.

Government reform took a shift towards decentralization and participatory governance after 50 years of strong central government. As a result, local governments and communities gained control over ocean and coastal resources. The sudden shift, however, had not prepared the local government for assuming new responsibilities. Indonesia embarked on adopting measures to build capacities. A legislation has been proposed to provide technical assistance to local communities and governments, including establishing of local pilot projects and developing linkages with the global community through active participation in projects. The MMAF supports a biannual conference of coastal management professionals to facilitate the sharing of expertise and ideas.

5. Japan

Japan, although highly industrialized, with its income generated from technology-based industries, is becoming aware of the significant role of coastal and marine areas. The efforts of the past have been characterized by institutional changes and legal reforms. Japan enacted laws to develop its new marine territories and revised the Law on Shoreline to include not only land protection but also shoreline administration and rational use. The Law on Port and Harbor was also revised, adopting multiple-use policy and de-regulation for non-port business and promotion of public access in industrial ports (Nakahara, 2003).

Reform of administrative agencies also ensued. The Ministry of Transport and the Ministry of Construction were merged into the Ministry of Land, Infrastructure and Transport, under which jurisdiction fell 70 percent of the Japanese coastline. The Land Agency had been responsible for the development of the coastal and marine zone as an independent category. One cabinet office and 22 ministries were streamlined into one cabinet and 12 ministries. In 2000, the Land Agency released the Guideline for Comprehensive Planning for Coastal and Marine Zone Areas, clarifying the definition of coastal and marine zones and recommending public involvement. Stakeholders are given the opportunity to participate in the coastal planning process.

6. Malaysia

The efforts of the federal government to develop an integrated oceans policy is being weighed down by the federal-state divide. Malaysia is divided into 13 state governments, each with its own constitution, council of state or cabinet with executive authority and a legislature that deals with matters not reserved for the federal state.

The Federal Constitution of Malaysia grants the states authority over land use and natural resource management which is like a tie that binds the hands of the federal government. The federal-state divide sows confusion over agency mandates and functions. For instance, while the Federal Government accedes to an international treaty, its implementation remains with state governments if these impinge on issues over which the states have jurisdiction. More so, if certain states have inadequate legislation on natural resource sectors, it would not be in the province of the federal government to legislate for the states. An offshoot of the confusion is the dispersed competence. A

study conducted by the Asia-Pacific Center for Environmental Law (APCEL) showed Malaysia's complex institutional framework for coastal and marine governance. Management is uncoordinated and highly fragmented, fraught with problems of duplication and overlaps in mandates. Responsibility over marine-related areas is thinly dispersed across 14 ministries and 27 federal departments.

Like other federal systems as Australia and the U.S.A, the effective way to bridge the federal-state gap is to institutionalize a form of arrangement. In a pilot coastal zone management (CZM) study for Southern Johore, a federal-state collaboration was instrumental in developing a Coastal Resource Management Plan, facilitated through the establishment of two committees, the National Steering Committee and the Johore Consultative Committee. The Ministry of Science, Technology and Environment, a federal agency, completed the Plan with collaboration from resource managers and experts. As Malaysia is undergoing a policy development process, effective state-federal collaboration more than justifies the need for integrated oceans policy.

7. The Netherlands

The Netherlands best exemplify how a coastal state, much smaller than most in the EAS region, has emerged as one of the highest developed countries in the world. It placed sixth in terms of worldwide investments and enjoys a high per capita GNP.

Coastal policy development in the Netherlands underwent a long, evolutionary process based on sensitivities that address constant environmental challenges. With almost 24 percent of its land lying below sea level, environment has always been in the priority agenda of the Dutch, with policies dealing with persistent threats of sea intrusion. Against this unique setting, mustering stakeholder support is not as difficult as the Dutch knew the onslaught of sea action on their lives. These sensitivities generate appropriate responses that are direction-setting in environmental management. In 1875, the Netherlands passed its first piece of environmental legislation, the "Nuisance Act,"which regulated coastal activities through licensing in order to manage environmental impact. In the wake of escalating environmental problems, the Netherlands responded with an environmental policy document, Priority Memorandum on the Environment in 1972, which though sectoral in approach, had expressed concern for the interests of future generations. Then in 1989, realizing the inadequacy of a sectoral approach, the Netherlands developed its 1st National Environmental Policy Plan (NEPP), which adopted an ICM approach and set the stage for stakeholder participation including the private sector. In its latest NEPP, the Netherlands transcended its borders by dealing with issues such as climate change and loss of biodiversity, framed as global scale challenges to achieving sustainable development. The Dutch recognizes the need for international and regional cooperation to effectively manage shared resources.

The following are the elements characterizing policy development in the Netherlands:

High-level coordinating and integrated decisionmaking body. The Minister of Housing, Spatial Planning and Environment is responsible for coordinating environmental policy at the national level but several other agencies exercise environmental functions.

Framework for addressing multiple-use conflicts. Realizing that sectoral approach is not the best way to deal with environmental issues, the Dutch came up with NEPP in 1989, the policy framework for integrated management.

Application of Market-based instruments and user fee systems. The Netherlands embarked on a policy of incentives and disincentives to reinforce development towards the right direction. Fuel, energy and environmental taxes were introduced; tax exemptions were given to industries facing competition against others located outside.

Private-Public Partnership and Development of Programs with Stakeholder Participation. Environment and Industry Target Groups Policy identified industries as Target Groups, which are required to take measures to achieve Integrated Environmental Objectives agreed upon. The Target Group approach was recognized as a powerful and effective model for cooperation between industry and government. It has influenced the European Union (EU) to gain wider perspective on the use of environmental agreement to implement European legislation.

International and Regional Cooperation. The Netherlands has transcended its boundaries in environmental protection by incorporating global and regional concerns in its domestic policy. It extended its efforts to protect shared resources such as the Wadden Sea and the North Sea by forging regional cooperation. It has played an active part in international negotiations as for instance during the Johannesburg WSSD.

8. Philippines

The Philippines focused on coastal resource management (CRM) over the past 20 years, building on the initiatives of the academe and NGOs. The DENR CRM Project and the Department of Agriculture–Bureau of Fisheries and Aquatic Resources (DA-BFAR) Fisheries Resource Management Project showcased the CRM efforts of the national government. With the recent devolution and decentralization of powers, the LGUs had taken a significant role in CRM but measures are still being undertaken to develop the capacities and skills of the LGUs. The participation of other stakeholders is encouraged through institutionalization of participatory processes in development planning. While the CRM had contributed to development, it only addressed the management of the fisheries sector. It failed to promote sustainable development of coastal and marine areas and lacked the mechanism to resolve multiple-use conflicts.

The Philippines then came up with a national marine policy (NMP), which was developed in anticipation of the Philippines' obligations under the UNCLOS upon its entry into force. While espousing development based on the archipelagic nature of the country, the NMP failed to include important elements necessary to implement the policy. Its provisions are too few and general in order to provide the needed policy guidance. There were also no coordinating mechanisms that could have integrated sectoral activities.

Through the initiative of the DENR, the Philippines has developed a national coastal and marine policy that takes into account lessons learned and important principles. The Philippine Archipelagic Sustainable Development Framework (yet to be formally adopted) offers a wider scope, is science-based,

and considers the impact of the multiple uses of coastal and marine areas. The DENR brought in expert analysts from the legal and institutional fields as well as ecosystems and economics experts. The process promoted public participation through the conduct of interagency and stakeholder consultation around the country.

9. RO Korea

As integral parts of RO Korea's economy and culture, oceans and coasts play a significant role in the country's sustainable development. The past efforts of RO Korea, however, were made under development-oriented marine policies, which have led to serious coastal problems. Coastal construction and development were very sectoral, undertaken on a first-come, first-served basis without an integrated plan. This resulted in extreme stakeholder confrontations as political and economic factors come into play in decisionmaking (PEMSEA, 2003c). The coastal zone was regarded as mere extension of land, hence, reclamation and infilling were undertaken with little or no regard for the unique physical and ecological characteristics of the coastal and marine areas.

Concern for the environment then began seeping into government agenda. Leaders got a boost with the Agenda 21 prescription for ICM. RO Korea embraced the ICM concept through a series of changes in the legislative and institutional framework. It adopted the New Marine Policy Direction Towards the 21st Century, which proposed the establishment of a national mechanism for ICM, the enactment of the Coastal Management Act and development of ICM plans at the provincial and national levels. In 1996, it created the Ministry of Maritime Affairs and Fisheries (MOMAF), which consolidated all ocean-related functions and coordinated development activities in the coastal areas. The enactment of an important legislation strengthened the mandate of MOMAF. The Coastal Management Act (CMA), which was passed in 1999, directed MOMAF to play a lead role in coordinating and harmonizing conflicting coastal activities and plans.

The CMA contains the national policies and basic principles of coastal management, coastal management boundaries, national and local plans on ICM and coastal improvement projects among others. Pursuant to the CMA, an ICM Plan was developed in 2000, which demonstrated the willingness of RO Korea's government to protect, preserve and improve coastal environment. A number of legislations were enacted under the ICM regime, which include the Marine Pollution Prevention Act (1999), Wetlands Conservation Act (1999), and Fishing Ground Management Act (2001). RO Korea has since been a leading proponent of the ICM in the EAS region.

10. Thailand

Thailand has several laws and institutions that deal with coastal and marine-related issues but most have been existing long before sustainable development emerged as a principle. A national policy framework is needed to incorporate scientific findings, lessons learned and the recent developments in the international community. It is needed to manage the use of resources and sectoral activities to avoid conflict and promote sustainable development. The Office of the Thai Marine Policy and Restoration Committee is now leading an interagency effort to develop a national comprehensive strategy. The International Ocean Institute (IOI) of Thailand, with the support of Thailand's

Ministry of Natural Resources and Environment and the IOI Offices of Malta, Australia and Finland, initiated an expert consultation meeting on the draft report on Thai policies and strategies in order to generate comments and inputs from as many stakeholders and experts. This effort would later pave the way for the development of a comprehensive and responsive national coastal and marine policy.

11. Vietnam

Vietnam foresees the need to develop a comprehensive policy on coastal and marine areas. In gearing up for this undertaking, Vietnam banks on capacity building. The Hanoi National University created a programme leading to a Master's Degree in Marine Law and Management. The degree has been the product of a long discussion and collaboration with the Institute of Ocean of Canada and Marine Affairs Program of Dalhousie University. It has collaborated as well with various international organizations receiving technical assistance and support, particularly in developing the Marine Affairs Programme and the Draft Law of Marine Areas of Vietnam. With the assistance of PEMSEA, it established an ICZM pilot site in Danang, which is deemed the springboard to launch the development of the country's national policy.

C. Good Practices in Selected Policy Areas

1. Boundary Problems/Shared Resources

Because of the nature of the seas, it is very difficult for countries to clearly delineate their territorial boundaries. The EEZs of some countries may transgress the boundaries set by another country. Territories are still contested over islands in South China Sea particularly the Spratlys. Marine issues such as pollution and red tide as well as crimes such as piracy and trafficking have become issues of transnational concern. Thus, national efforts may not be adequate to address the given scenario. Establishing partnerships and forging cooperative efforts is essential in the sustainable development of shared natural resources and ecosystems. These efforts will also facilitate exchange of information, technical know-how and lessons drawn from experiences.

Demarcation of Boundaries. Vietnam and China, which border the Tonkin Gulf, ratified the agreement on demarcation of territorial waters, EEZs and continental shelf. The agreement, which settles the long-disputed marine borders between China and Vietnam, became effective on 30 June 2004. It marked a new era of cooperation in the management, protection, exploitation and efficient use of the Tonkin Gulf as it sets out a framework for carrying out fishing activities in the gulf. Both countries are obliged to implement the provisions of the agreement through their respective national policies.

Multilateral-Bilateral Agreements. By entering into multilateral or bilateral agreements, the countries are formalizing their partnership in the way they manage and use their shared resources. The ASEAN countries and China, for example, entered into an agreement in 2002 on the Conduct of Parties in the South China Sea. The ASEAN member states and China agreed, among others, to explore and undertake cooperation for marine environmental protection and marine scientific research in South China Sea.

2. Role of the Community

The past decades saw the increasing environmental awareness of stakeholders and their growing interest in the protection of the environment. In many countries, stakeholders serve as watchdogs of the government, monitoring the implementation of various programs. Stakeholders can also provide information to fill data gaps and mobilize resources to support government campaigns.

Volunteerism. Mobilizing volunteers requires intensive interpersonal skills and work on public awareness. Volunteers make a difference through activities like coastal beach cleanups and mangrove reforestation. In 1992, the marine life in Puerto Princesa City in Palawan, Philippines was almost dying due to the rampant cyanide blasting and trawl fishing activities. The mayor of Palawan took a major step to arrest the degradation of the marine environment. He established the Marine Resources Protection Program (*Bantay Dagat* or Baywatch), at the same time deputizing and mobilizing volunteers. Bantay Dagat volunteers were instrumental in putting a stop to illegal activities.

Stewardships. Resource users are given a certain right over the resources to promote application of a more sustainable method of use. This is exemplified in the documented successes of certain community-based mangrove reforestation projects. In 1990, the Philippines contracted the *Kalibo Save the Mangrove Association*, composed of 28 families, to replant 50 ha with 2 species of mangroves (nipa palm and rhizopora). After four years, the families were able to earn from the nipa palms. At the same time, the project restored habitats for many species and created buffer zones against storms and erosion thereby boosting local economy. In 1994, the association was awarded a 25-year stewardship contract, formalizing its four-year stewardship role.

3. Private Sector Involvement

The business sector possesses managerial skills, the drive, motivation and discipline needed to achieve pre-defined goals and targets. Much can be learned from them in terms of establishing strategies and wise use of resources to realize a vision. The private sector has access to financial resources needed to finance development. The private sector can also form partnerships with the public sector in promoting sustainable development and financing.

Target-Group Approach. The Netherlands introduced the Environment and Industry Target Groups Policy, which identified industries as Target Groups required to take measures to implement the Integrated Environmental Objectives (IEO) set by the government. After a series of dialogues, the government and the industry set their agreed programs of action to achieve the IEO in the form of a covenant. The Target Group approach has been recognized as a powerful and effective model for cooperation between industry and government. It has influenced the EU to gain wider perspectives on the use of environmental agreement to implement European legislation.

Public-Private Partnership (PPP). Around 18 corporations and sociocivic organizations formed the Bataan Coastal Care Foundation, Inc. (BCCF), which paralleled the efforts of the provincial

government in implementing ICM. BCCF participates in consultation workshops and has a seat in the project coordinating committee. It has mobilized resources such as business management skills, data, equipment and facilities, and manpower to complement the resources of the government. It has also sponsored community-based rehabilitation projects, provided livelihood support to coastal communities and is active in advocacy campaigns. The joint efforts of the provincial government and the BCCF resulted in the mobilization of 68,780 volunteers for coastal cleanups, covering around 133.3 km of the 177-km Bataan coastline, planting 133,600 mangrove propagules in 12.5 ha in 5 coastal barangays, as well as implementing mussel culture and fish consignation livelihood projects.

Environmental or Green Funds (EFs). Environmental funds are established for the purpose of providing long-term financing for biodiversity conservation and other environmental activities (Smith, 2000). They are typically created and managed by private organizations, and are capitalized by grants from governments and donor agencies. Two conditions are essential for the success of an Environmental Fund (Smith, 2000). First, there must be active government support — not just acquiescence or agreement — for a mixed, public-private sector mechanism where the government actively participates but that operates beyond its direct control. Second, there must be a critical mass of people from diverse sectors of society — NGOs, government, the academe, the private sector and donor agencies — who can work together despite what may be different approaches to conservation and sustainable development. EFs may be created in three ways: by endowment fund where only income from capital is used; sinking, where capital and interest are both used up; and revolving, where new income is received to replenish or augment capital. An example of environmental fund is the Conservation Trust Fund for the Tubbataha Reef National Marine Park, Philippines where user fee is collected from foreign (US$50) and local (US$25) divers.

Direct Environmental Investments. The private sector is encouraged to engage in businesses that directly provide facilities to protect or rehabilitate the environment, such as setting up of sewage treatment or garbage recycling facilities.This can be done through either foreign investors (foreign direct investments), local investors (direct investments), or investors in partnership with the public sector (such as PPPs). Direct investments are more conducive to a stable economy.

The public and private sector can jointly undertake such an activity through PPPs. The process "takes account of two basic but related issues: a) the development of an investment project that is technically sound, financially viable, environmentally acceptable and affordable to users; and b) the formation of a partnership arrangement between the different sectors that is equitable and sustainable and is aimed at delivering the project," (Ross and Ebarvia, 2003). The partnership concept "combines social responsibility, environmental awareness and public accountability of the public sector, with the finance, technology, managerial efficiency and entrepreneurial

spirit of the private sector and the informed voice, energy and drive of the community,"(Nishimura, 2003).

Socially Responsible Investments (SRIs). SRIs are emerging forms of investment opportunities. SRIs facilitate stakeholder involvement in environmental concerns by investing in fund companies that make investments in environmentally responsible undertakings relating to coastal and marine management. The recent developments in SRIs prompted UNEP and major institutional investors to come up with a set of globally recognized principles for responsible investment by 2005. This aims to protect the environment and shareholder value by integrating environmental, social and governance concerns into investor and capital market considerations.

The Asian Conservation Company, a private equity holding company that invests in environmentally sensitive companies, presents an SRI model, which adopts the Triple Bottomline approach. It aims to provide acceptable financial returns to shareholders, promote environmental conservation by investing in environmentally responsible companies and channeling some returns to actively finance conservation programs, and undertake corporate social responsibility (CSR) through employment and education. Its first venture was the purchase of majority shares in the Ten Knots Group, owner of El Nido resorts in the El Nido–Taytay Managed Resource Protected Areas. Its second investment was in Stellar Fisheries, Inc., which is the second largest Philippine producer of pasteurized blue crabmeat with operations around the Visayan Sea (Talmage-Perez, 2003).

Corporate Social Responsibility (CSR). CSR refers to the involvement or participation of the private sector in addressing certain issues that affect the country. One such corporation that takes its CSR seriously is Mirant, a leading power producer in the Philippines (Morente, 2003). Mirant aims to contribute to the upliftment of rural underdevelopment and improvement of the educational system in its community. One of its biggest projects relating to environmental stewardship is the Carbon Sink Initiative which aims to sequester carbon dioxide from plant emissions and other sources in Pagbilao. Mirant is currently undertaking a study that will quantify allowable carbon dioxide absorption which has not been determined in the Philippine Clean Air Act (1999). Such an activity will be a vital support to the Philippine's climate change initiatives and commitments to the Kyoto Protocol.

4. The Role of the Local Governments

Coastal and marine policy decisions are often made away from the resources by people who lack understanding of how the interventions will fare on ground level implementation, hence, resulting in policy failures. Here is where the LGUs can play a vital role. With the advantage of proximity to the resource, and facility in touchbasing with, and mobilizing the community, the LGUs will be in the best position to assess, understand and respond to local needs, monitor environmental condition, and implement policies within their areas of jurisdiction. Countries have started to recognize the important role of the LGUs and have taken steps to empower them.

Decentralization. Devolution or decentralization subscribes to the concept of stewardship of natural resources, where management of resources is given to the people

who most understand the environment and the community. It facilitates fast delivery of basic services and enhances government-community relationships. The Philippines has devolved some of its national environmental functions to the LGUs. It adopted a decentralization policy granting to its territorial and political subdivisions genuine and meaningful local autonomy to enable them to fully develop as self-reliant communities and more effective partners to attain national goals (Philippine Local Government Code, 1987, Section 2).

Capacity-Building. Decentralization carries with it an additional task of capacitating the local governments to perform its duties and responsibilities. Indonesia's 50-year strong central government shifted towards a regime of decentralization and participatory governance, giving local governments and communities control over ocean and coastal resources. The sudden shift had not prepared the communities and governments to handle the responsibility, which had traditionally looked up to the central government for resource protection and enforcement of rules. In this scenario, Indonesia embarked on adopting measures to build capacities. A legislation has been proposed to provide technical assistance to local communities and policies were developed to guide capacity-building activities of the government. Local-based pilot projects have also been undertaken to enhance capacities.

Institutionalized Consultation. For functions that have not been devolved, countries have set up a system of consultation with the LGU. Under its Local Government Code, the Philippines mandated the national government to consult with the local government before implementing any activity in the relevant area.

5. Institutional Arrangements

The following are the types of institutional arrangements undertaking coastal management:

Batangas Bay Environmental Management Project (BBEMP). The management arrangements for the BBEMP has been institutionalized through provincial ordinances (local laws) and served as the framework for the multi-stakeholder coordination. It is an ideal functional arrangement where political and social institutions share responsibility over a common resource, sustaining ICM efforts and facilitating the replication of ICM in four other bays in the region.

Purely Political Arrangements. Purely political arrangements for coastal management functions failed to institutionalize the involvement of the members of the social institution in decision and policymaking processes. The Netherlands has a high-level coordinating and decisionmaking body through its Ministry of Housing, Spatial Planning and Environment, which is responsible for coordinating environmental policy at the national level. Several other agencies exercise environmental functions. Indonesia merged various agencies into a single body, the Ministry of Marine Affairs and Fisheries (MMAF), to which is entrusted responsibility over coastal and marine activities. In Korea, MOMAF subsumed the activities of coastal and marine-related activities. In such cases, participation of stakeholders is limited to access to information and consultations.

Co-Management. A co-management approach is applied in the management of the Bohol Island Marine Triangle (BMT),

Philippines developed by the Foundation for the Philippine Environment and financed by the United Nations Development Programme (UNDP) through the GLobal Environment Facility (GEF) as well as by national line agencies, NGOs and the private sector. The BMT project applied both top-down and bottom-up approaches, known as the "cooking rice cake"approach with heat applied from the top and from below, aiming to strike a balance in the middle (Tercero, 2003). The fire from the top is the national landmark legislation framework, such as the Local Government Code (1991), and the Fisheries Code (1998) which mandate the local government to allocate and manage resources. The fire from below is the right-based advocacy and community empowerment. The formation of the BMT management board facilitated inter-sectoral and inter-municipality coordination. Co-managers of the resource are the key stakeholders, such as the local civil society organizations (the main implementers), the government units (national down to village level), the private sector and the fisherfolk. An advocacy arm was also established to critically screen interventions in terms of their environmental impact on the resource.

6. Sustainable Financing

Development financing usually comes from government budget allocation. Some alternative forms of sustainable financing are discussed below.

Financial Assistance. Projects financed through grants and loans from international development and financing institutions such as the GEF, UNDP, IMO and others are rarely sustained. Loans and grants, however, promote and mobilize action and provide the necessary capital to jumpstart government initiatives. They are important to test and demonstrate innovative approaches and the benefits derived from adopting such an approach. Donor-driven projects are usually given a time frame and should correspond to the objectives of the donor. Some projects like those of PEMSEA provide not only financial assistance but technical assistance as well to build local and national capacities. The PEMSEA site in Batangas Bay (Philippines) has demonstrated successes in reversing environmental trends and has encouraged the replication of its ICM framework in four other bays, provincewide.

Debt Swaps. The World Wide Fund for Nature (WWF) introduced debt swaps decades ago, where a portion of a country's foreign debt is bought by a party at a discount and converted by the country into local currency and used to finance local conservation and development activities, and coastal and marine-related business undertakings. Its derivatives include debt-for-nature swap, debt-for-development swap, and debt-for-equity swaps.

In 1988, WWF purchased an initial US$390,000 of Philippine debt at a discounted cost of US$200,000 (Resor, 2005), which was redeemed by the government. Instead of paying foreign currency to commercial banks, the Central Bank pays the peso equivalent of the full face value by supporting designated conservation projects. This enabled the Central Bank to keep money in the country to stimulate investment while reducing pressure on the Bank's stock of foreign currency. Haribon Foundation, an environmental organization in the Philippines, used the funds from the debt swap for a variety of conservation actions, ranging from enhanced management support for national parks to training programs for national conservation professionals.

Environmental Guarantee Fund (EGF). The EGF, sometimes referred to as Assurance Fund, is managed by the government to ensure compliance with environmental laws by private industries with environmental-risky operations, usually involving highly toxic waste discharges. The private industries are required to post cash bonds to secure any rehabilitation, repair or compensation for damages attributable to the operation of the industry, following the polluter pays principle. Essentially, these are bonds/funds put up by project proponents to ensure that funds are available for environmental cleanup/ rehabilitation/compensation to adversely affected stakeholders in the event of environmental accidents and/or abandonment by the project proponents.

The Philippines' Environmental Guarantee Fund (EGF) was created as part of the implementation of the Environmental Impact Statement System and was aimed at targetting industries that have highly toxic waste streams and have the potential to cause catastrophic damage to the environment. The EGF is defined as "a negotiated amount, on a per project basis, that covers expenses for information and communication activities by multisectoral teams, any repair or rehabilitation works, and compensation for damages attributable to the operation of the project." Unlike the ordinary EFs, EGFs are spent only in case of damages caused to the environment or violation of environmental conditions. For the EGF to be effective, the amount posted should be commensurate to the foreseeable damage in case of forfeiture of the cash bond. Lessons can be drawn from the experience of the Philippines in March 1996, where a mining accident poisoned Boac River in Marinduque Island and caused severe damages far exceeding the sum posted by the Marcopper Mining Corp. for compensation (ESCAP, 2005).

Environmental Monitoring Fund (EMF). EMF is a fund established by project implementers required to obtain an operating permit/environmental compliance certificate issued by a government authority and is used to support activities related to monitoring compliance.

7. Multiple-Use Conflicts

Sea-area management in China used to be sectoral in approach, where agencies issue use permits within their respective mandates. However, the tendency of these agencies to pursue their own interests rendered the permit system inadequate to address conflicts of interest. In 2001, China adopted the Sea-Area Use Management Law, which regulates the right to use sea areas. The law introduced four major legal regimes pertaining to sea-area uses:

Sea-Area Use Rights Management System requires sea-area users to obtain use right from the Ocean Administrations above country level for sea-area use permits or through bidding and auction.

Marine Functional Zonation Scheme identifies the uses of a given sea area in the order of priority, based on their ecosystem functions, socioeconomic values and other special features.

Sea-Area Use Fee Schemes – Fees are charged for the right to use the sea areas except such uses for military activities, terminals and facilities for public transportation and other non-commercial public activities.

Management Mechanism – The national government is allowed to devolve some management responsibilities to provincial and municipal governments depending on the type and size of the sea-area use projects.

8. Capacity Building

The implementation of policies and plans, particularly those venturing into greenfields, will need professional coastal managers, who should possess the skills to effectively mobilize human and financial resources and direct management activities. Capacity building is, therefore, a necessary subcomponent of policy development and implementation. Training should focus on viewing an issue broadly, with a multi-disciplinary perspective. This can be achieved through establishment of professional institutions and sustained training particularly on evolving environmental challenges and issues.

Degree Program, Vietnam. The Hanoi National University created a program leading to a Master's Degree in Marine Law and Management, which has been the product of a long discussion and collaboration with the Institute of Ocean of Canada and Marine Affairs Program of Dalhousie University. It has collaborated as well with various international organizations receiving technical assistance and support, particularly in developing the Marine Affairs Program and the Draft Law of Marine Areas of Vietnam.

Education System, China. China has developed an oceanographic education system consisting of an academic degree, vocational and popular education. Oceanography is offered in some 37 institutions of higher learning and 29 secondary specialized schools; some oceanography subjects are offered in vocational schools and other training programs. ICM has been included recently in the agenda of curriculum development. An ICM training center has been developed in Xiamen to provide specialized ICM training.

Demonstration Sites, PEMSEA Countries. In partnership with PEMSEA, ICM and hotspots sites were identified and made operational to provide on-the-job ICM training. PEMSEA established several sites in Vietnam, Thailand, Indonesia, Malaysia, China and the Philippines. Experiences gained from managing the sites are useful in developing other similar sites using the ICM framework.

9. Resource Use

Marine Reserves, Philippines. The establishment of "no-take marine reserves" is a management mechanism that absolutely and permanently bans all forms of extraction of resources by humans to address loss of marine biodiversity and alteration of trophic structure of marine ecosystems. Marine reserves will allow build up of spawning stock and sustain fisheries outside the areas through net export of adults and propagules. The experiences of the Philippines in its no-take marine reserves in Sumilon, Cebu and Apo Islands showed that fish density and biomass inside these areas have improved severalfold and fish catches from adjacent areas have stabilized or have been enhanced (Alcala, 2003).

While MPAs or reserved areas could have manifold benefits, there is immediate cost borne by the community with the loss of access to fishery resources. In the Hon Mun MPA, Vietnam, the issue is being addressed by developing alternative income generation activities to increase the sources of income and improve the life of the community (Vinh, et al., 2003).

Alternative Methods of Resource Use. Adopting more sustainable fishing practices is not easy to implement. It will need government support for the resource users to encourage them to take up alternative methods. For example, interest-free loans,

such as those extended by WWF, enabled the Tanzania fisherfolk to switch to sustainable methods such as line-fishing, use of large mesh nets and buy outboard engines to be able to fish further out where the stocks are less exploited (Denton, 2004).

Command and Control. Under the traditional command and control system, the government regulators set standards, as for instance, standards for emission of pollutants for industries and impose penalties for failing to comply. While legislation may be passed easily, there is difficulty in implementation and monitoring and may thus, render the law ineffective. Because of difficulty in enforcement, the impact on pollution reduction may be very minimal.

10. Market-Based Instruments

Market-Based Instruments (MBIs) are emerging tools in coastal management. Unlike the traditional command and control, MBIs use trading mechanisms, auctions, price signals or other economic variables or provide incentives or disincentives to modifying behaviors. MBIs include charges, subsidies, marketable (or tradable) permits, deposit/refund systems, eco-labeling, licenses, and property rights. Charges may either be on use, emission or effluent or on product by way of mark-ups.

Effluent Charge System. The effluent charge system of the Republic of Korea was introduced in 1983 as a penalty for violations of the regulatory standard. The charge rate was low. Unlike command and control with penalties such as closure, relocation of firms or imprisonment, payment of the penalty was not a threat to industries. Ineffective monitoring induced polluters to attempt to avoid penalties through bribery or cheating. Computation of charges based on toxicity rather than on total volume discharged, led some polluters to dilute the wastewater to acceptable levels (UNESCAP, 2005).

Subsidies. A subsidy is defined as a government financial support to direct activities towards a certain goal, in this case, to be environment-friendly. Subsidies may be in the form of grants, low-interest loans, and tax incentives or concessions. They could be offered in proportion to the per unit reduction in pollution, or for the purchase of pollution abatement equipment or technology.

Deposit-Refund Scheme. Under this scheme, a charge is imposed at the point of sale on a product, which usually comes in a reusable or recyclable package that fills up space and would be too costly to incinerate. The charge takes the form of a deposit, which would be refunded upon return of the product or packaging. This is widely used in softdrink bottles and may be used for other products to minimize solid wastes.

Eco-labeling. Eco-marks encourage industries to comply with certain environmental standards to gain an immediate advantage in the market place. Such marks communicate to the consumers the sense of social responsibility of the industries and add value to the product. An example is the certification and eco-labeling by the Marine Stewardship Council (MSC). The MSC logo on fishery products means the producers comply with the FAO Code of Practice for Responsible Fishing and its Principles and Criteria. The logo encourages consumers to purchase such products over those without eco-labels (Leadbitter and McGilvray, 2003).

Marketable (or Tradeable) Permits. Under this system, the government issues a fixed number of permits or "rights to pollute" equal to the permissible total emissions and distributes them among polluting firms in a

given area. A market for permits is established and permits are traded among firms. Firms that maintain their emission levels below their allotted level can sell or lease their surplus allotments to other firms or use them to offset emissions in other parts of their own facilities.

The concept of marketable permits may also be used to manage natural resources through a system of quotas referred to as Individual Transferable Quotas (ITQs). Under this system, property rights to a specified quantity of fish harvest are distributed among firms or auctioned off to the highest bidders. The holders of ITQs may use, sell or lease them to other firms. Over time, the ITQ systems lead to an efficient use of effort and harvest (UNESCAP, 2005).

The Australian government introduced an ITQ for fishery in 1984. Each individual holding a quota was entitled to a proportion of the total allowable catch (TAC) set by the government each year. The TACs have been reduced each year since 1984, owing to concern about the biological viability of the tuna stocks. With the introduction of the ITQ, the number of vessels operating in the Australian fleet declined by over 50 percent by 1991. Current levels could even be lower. At the same time, harvests have remained roughly constant at 10,000 MT. The ITQ would seem to have achieved the objective of reducing fishery effort without affecting harvests.

Environmental Fees or Green Levies. Pollution charges tax polluters for each unit of emission, or such products that endanger the marine environment thereby putting pressure on finding ways to reduce emissions to optimal levels. This may also be imposed to discourage non-biodegradable packaging unless industries adopt a deposit-refund scheme.

User Fees. User-fee system can both be regulatory and revenue-generating to support conservation activities. It enhances people's awareness of the need to conserve and use resources wisely. Malaysia established such user fees for the conservation of their marine parks in 1999. Conservation charges for visitors to MPAs are pegged at US$1.50 for adults and US$0.75 for children. The Philippines also charges conservation fees for MPAs. For instance, a structured fee system was established in 2000 in Tubbataha Reef National Marine Park at US$50 for foreign divers and US$25 for local divers.

11. Mixed Instruments

One of the strategies aimed at minimizing solid wastes is a mixed waste disposal deposit-refund system. Germany's Green Dot (West Coast Environmental Law, 2005) requires all packaging to be made of reusable or recyclable materials and that packaging be recycled or reused. Manufacturers, distributors and retailers are required to accept returned packaging. Retailers can get an exemption from this requirement if they participate in a privately funded collection system that guarantees recycling rates; otherwise, deposits are imposed on sales packaging. Retail and industrial sectors have formed a company which funds a collection and sorting program. Companies pay a licensing fee and guarantee to accept and recycle their packaging to avoid deposits and to enable the use of the green dot mark.

A similar scheme, however, failed in RO Korea because the penalty imposed was inadequate to motivate manufacturers to collect and treat waste. The deposit was only 10–20 percent of the cost for collection and treatment of wastes. The market-based economic incentive may not be effective given the low rate of penalty to violators.