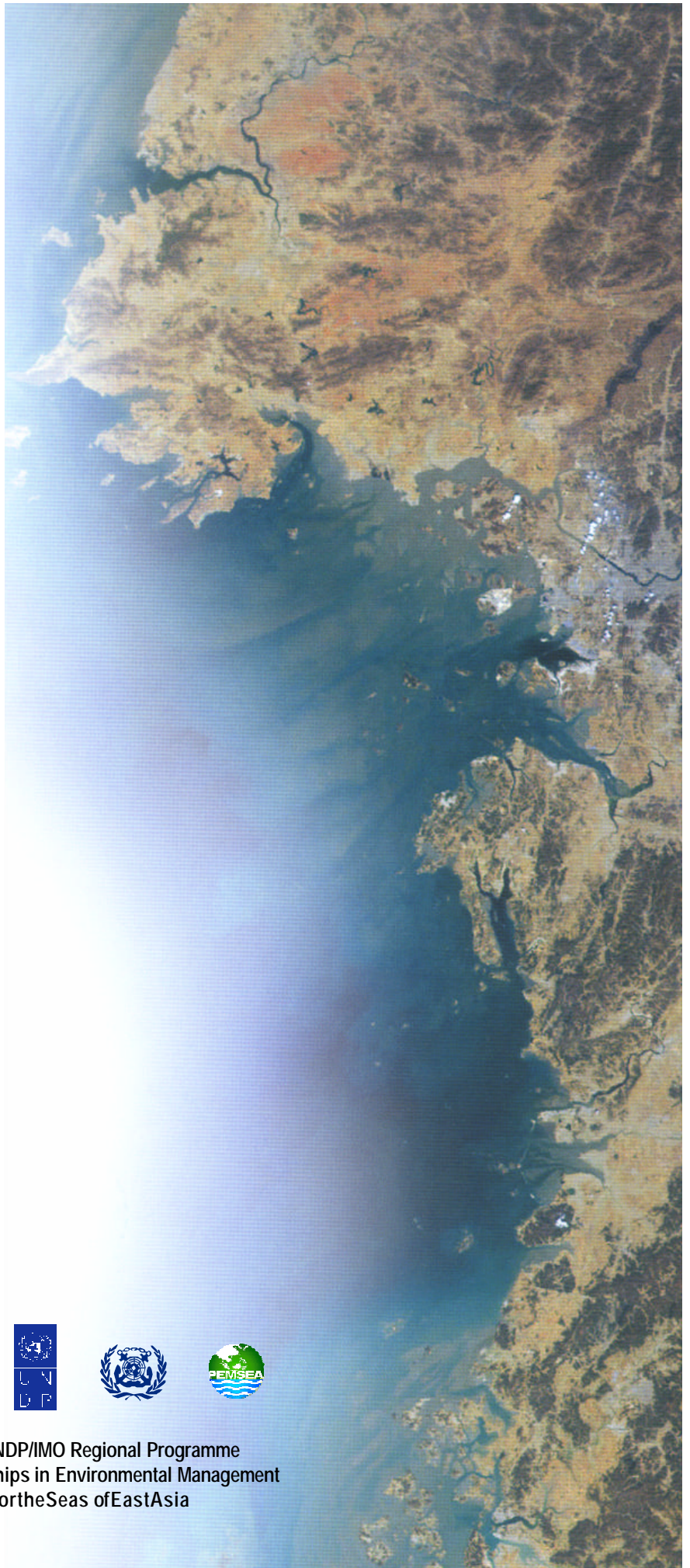


# Case Study on the Integrated Coastal Policy of the Republic of Korea



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



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2003



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

**CASE STUDY ON THE INTEGRATED COASTAL  
POLICY OF THE REPUBLIC OF KOREA**

August 2003

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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 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 environment 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 non-government 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 socio-economic 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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## List of Abbreviations and Acronyms

CEMA	Coastal Environment Management Area
COD	Chemical Oxygen Demand
EEZ	Exclusive Economic Zones
EIA	Environmental Impact Assessment
GEF	Global Environment Facility
ICM	Integrated Coastal Management
IMO	International Maritime Organization
KMI	Korea Maritime Institute
KORDI	Korea Ocean Research & Development Institute
KRIHS	Korea Research Institute of Human Settlements
MDBA	Marine Development Basic Act
MOAF	Ministry of Agriculture and Forestry
MOCT	Ministry of Construction and Transportation
MOE	Ministry of Environment
MOHA	Ministry of Home Affairs
MOMAF	Ministry of Maritime Affairs and Fisheries
MOND	Ministry of National Defense
MOST	Ministry of Science and Technology
MOTI	Ministry of Trade and Industry
MPA	Marine Protected Area
NOWPAP	North-West Pacific Action Plan
PEMSEA	Regional Programme on Partnerships in Environmental Management for the Seas of East Asia
ROK	Republic of Korea
SMA	Special Management Area
UNCED	United Nations Conference of Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WTO	World Trade Organization



## Acknowledgement

The GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) initiated and provided the technical guidance and financial support to this case study, as part of its efforts to produce cross-sector reviews of current national policies governing coastal and marine area management in the East Asian Seas Region and to facilitate the sharing of experiences among the countries of the region.

This case study was prepared by Mr. Tae-Jin Bang of the Division of Marine Environment, Ministry of Maritime Affairs and Fisheries (MOMAF), in fulfillment of a contract with PEMSEA.

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Any errors in the report are the sole responsibility of the author. The observations and recommendations in this study are results of the author's analysis and perspectives and do not represent the opinions of GEF/UNDP/IMO PEMSEA.



# Chapter 1

## INTRODUCTION

### A. BACKGROUND AND OBJECTIVES

The Republic of Korea (ROK) is a nation highly dependent on coastal development and shipping for its economic growth. Its leaders deemed it important to continuously work towards promoting and strengthening ocean and coastal governance. Their efforts culminated in the creation of the Ministry of Maritime Affairs and Fisheries (MOMAF) in August 1996.

Through the MOMAF, an integrated coastal and ocean governance system was established, covering fisheries; shipping and port development; deep seabed mining; and other marine-related sectors, as well as matters related to the marine environment, coastal zone management, and marine science and technology. This system was strengthened through follow-up legislative actions, such as the enactment of the Coastal Management Act (1999), the amendment of the Marine Pollution Prevention Act (1999), and the enactment of the Wetland Conservation Act (1999).

This case study attempts to document the process leading to the development of ROK's integrated coastal policy. It highlights the lessons learned from the country's experience and evaluates the initial implementation of the policy. Specifically, this study aims to:

1. Examine the challenges and rewards related to the adoption of a national integrated coastal management (ICM) policy; and
2. Identify the elements of a model national ICM policy and effective policy implementation.

### B. DEFINITION OF TERMS

For the purpose of this case study, the following terms are used:

*Integrated Coastal Policy.* The term refers to the national policy defined by the Coastal Management Act (1999) and the amended Marine Pollution Prevention Act (1999) which addresses the issues of environment and resources allocation at land and seawater interface within the national territorial sea, balances conservation and development, adopts multi-sectoral and multi-agency approaches, and is implemented under the integrated ocean governance of MOMAF.

*Coastal Zone.* The term is used to describe the national territorial sea up to 12 nautical miles seaward, as well as the administrative boundary of coastal cities and counties. When used with specific reference to the Coastal Management Act and the Marine Pollution Prevention Act, the definitions provided by each of these Acts must be followed.<sup>1</sup>

---

<sup>1</sup> According to the Coastal Management Act, the landward boundary of coastal zones is 500 meters (m) to 1 kilometer (km) inland from the shoreline, and the seaward boundary is the limit of the national territorial sea. The Marine Pollution Prevention Act does not use the term "coastal zone". It does, however, increase the coverage of coastal zone management by designating certain areas (called "Coastal Environment Management Areas") that extend up to the inland limit of the watershed where land activities can make direct or indirect impacts on adjacent coastal water bodies.

### C. SCOPE OF THE STUDY

This case study focuses on the following essential points:

1. The natural and socio - economic characteristics of the coastal zone in ROK (Chapter II);
2. Threats to the sustainable development of the coastal zone (Chapter II);
3. The policy background for coastal zone development and environmental management from the 1960s to the present (Chapter III);
4. Analysis of the relationship between the national economic policy, national land use policy, land use zoning scheme and environmental management policy (Chapter III);
5. The rationale for adopting the national ICM policy in relation to the threats to sustainable development of coastal zone (Chapter IV);
6. The process of formulating the integrated coastal policy focusing on the national efforts to respond to the UN Convention on the Law of the Sea and Agenda 21 of the United Nations Conference on the Environment and Development (Chapter IV);
7. The specific considerations in the formulation of the integrated coastal policy (Chapter IV);
8. The implementing legislation for the national ICM policy and the relevance of each legislation in relation to coastal policy (Chapter IV);

9. The organizational and administrative set-up in the implementation of the national integrated coastal policy (Chapter IV);
10. The impacts of the integrated coastal policy on existing coastal development and environmental management practices (Chapter V);
11. The constraints and challenges for effective implementation of integrated coastal policy (Chapter V); and
12. The lessons learned from the ROK experiences in relation to the model elements of integrated coastal policy (Chapter V).

### D. METHODS AND APPROACHES

The following tasks were undertaken:

1. The collection and review of relevant articles, reports, legislations, and policy documents on the following:
  - a. Coastal and ocean management in ROK;
  - b. Socio-economic and development policy, environmental management, coastal management, and other related fields<sup>2</sup>; and
  - c. Specific legislations, such as the:
    - Marine Development Basic Act;
    - National Land Use Management Act;
    - Coastal Management Act;
    - Natural Environment Conservation Act;
    - Marine Pollution Prevention Act; and
    - Wetland Conservation Act.

---

<sup>2</sup> Most of the documents related to these issues were produced by the Ministry of Maritime Affairs and Fisheries (MOMAF), the Ministry of Construction and Transportation (MOCT), the Ministry of Environment (MOE), the Ministry of Science and Technology (MOST), the Ministry of Agriculture and Forestry (MOAF), the Office of the Prime Minister, the Korea Maritime Institute (KMI), the Korea Ocean Research & Development Institute (KORDI), and the Korea Research Institute of Human Settlements (KRIHS).

2. The collection of monitoring data, maps and statistics, specifically on:
  - a. Coastal environmental monitoring data produced by the National Fisheries Research & Development Institute (NAFRDI); and
  - b. Statistics relevant to coastal zone utilization and environment from the annual statistics books produced by MOMAF, the Ministry of Construction and Transportation (MOCT), the Ministry of Environment (MOE), and the local governments.
3. Data gathering (through research, interviews, and informal consultations) and documentation of policy practices as well as lessons learned from the actual implementation of ICM policy related to:
  - a. The experiences of MOMAF based on the author's own observations as well as views and experiences of other relevant government officials and experts; and
  - b. The experiences of local governments were documented based on the views and experiences of relevant government officials and experts.
4. Analysis, synthesis, and evaluation of collected information regarding:
  - a. ICM policy in the ROK;
  - b. Priority coastal management issues and other socio-political factors that led to the formulation of ICM policy;
  - c. Policy, legislative, and organizational actions taken to formulate and implement the ICM policy;
  - d. Successes and failures in implementing national ICM policy; and
  - e. Lessons learned from ROK experiences and recommendations for model elements for integrated coastal policy.

## Chapter 2

# THE COASTAL ZONE OF THE REPUBLIC OF KOREA

### A. NATURAL CHARACTERISTICS OF ROK'S COASTAL ZONE

#### 1. Location

The Korean peninsula is about 1,000 km long and 250 km wide. It is situated in the northeastern part of the Asian continent and is bordered on the north by the People's Republic of China and on the northeast by Russia. The peninsula and all of its associated islands lie between 124°11' and 131°53'E and between 33°06' and 43°01'N.

To the east of the country lies The East Sea (also known as the Sea of Japan); to its west lies the Yellow Sea<sup>3</sup>; the East China Sea to its south, which extends up to the Korean Straits (Table 1).

#### 2. Characteristics

Tidal action characterizes the west coast while wave action is the determining factor for the geomorphology of the east coast. The maximum tidal range along the west coast is around 9.5 m, and the range gradually decreases from north to south in the west coast.

Long stretches of tidal mud flats are found along the west; sandy and rocky beaches are widely distributed in the east. The southern coastal waters are characterized by the presence of various semi-enclosed bays and islands. The uniqueness of the physical setting has allowed different kinds of coastal use activities such as aquaculture, fishing, and port and coastal industries at different levels of intensity to proliferate in the southern coast of Korea.

#### 3. Coastline and Extension

The Korean coastline extends to 11,542 km, including the coastline of more than 3,000 islands. Excluding the islands, however, the coastline of the Korean mainland peninsula is approximately 6,228 km long.

Due to the numerous islands and small bays, the west and south coasts cover most of the coastal extension (Table 2). The high proportion of artificial coast in the west (20.6%) and east (28.6%) reflects the coastline alteration caused by various reclamation projects, the construction of sea dikes, and the development of ports and harbours.

**Table 1. Korean Seas.**

Seas	Area (1000 sq. km)	Volume (1000 cubic km)	Average depth (m)	Maximum depth (1000 sq. km)
East Sea	1,007.6	1,698.30	1,684	4,049
Korean Strait (South Sea)	75.4	7.63	101	228
Yellow Sea	404.0	17.62	44	103

Source: Kim, 1992.

<sup>3</sup>The Yellow Sea, bordering China on the west, is a semi-enclosed sea with an average depth of 44 m. It has been recognized as one of the most vulnerable large marine ecosystems in the world due to the rapid industrial development along the Korean and Chinese coasts.

**Table 2. Oceanographic and Meteorological Characteristics of Korean Coasts.**

Characteristics	West Coast	South Coast	East Coast	Cheju Island
Coastline (km)	5,256.6	5,594.9	428.1	262.9
Artificial	1,086.1	408.8	122.4	14.8
Wetland (sq. km)	1,980.0	413.0	0	0
Islands	1,551.0	1,507.0	33.0	62.0
Air Temperature	12.0	13.6	12.7	16.1
Maximum	34.0	34.1	35.6	33.0
Minimum	-14.0	- 9.3	-11.6	-3.2
Precipitation (mm)	1,207.6	1,440.8	1,207.2	1,852.1
Humidity (%)	74.8	71.7	66.7	70.5
Wind speed(m)	2.4	2.1	2.4	3.0
Storm days	6.0	4.0	3.0	4.0
Fog days	30.0	24.0	9.0	19.0
Maximum tidal range (m)	6.0 - 8.0	1.0 - 3.0	0.2 - 0.5	
Average wave height (m)	1.2 - 2.5	1.2 - 2.3	5.4 - 7.0	

Source: MOMAF, 1998.

#### 4. Territorial Sea, EEZ, and the Continental Shelf

ROK claims a 12-nautical mile (nm) territorial sea (3 miles of which lies in the Korean Strait) according to the Law of Territorial Sea and Contiguous Zone (December 1977, Law No. 3037). As such, it has an estimated total area of 85,838 square kilometers (km<sup>2</sup>) of sea within its territory (Korean Maritime Institute, 1998).

The country also claims a 200 nm area of Exclusive Economic Zones (EEZ) on the basis of Law No. 5151 (EEZ Law, August 1996). It has about 286,543 km<sup>2</sup> of such zones (KMI, 1998).

The continental shelf along the west and south coasts covers about 355,013 km<sup>2</sup>. It is considered to be a potential source of various minerals, oil, and natural gases.

#### 5. Coastal Wetlands

ROK has a wealth of tidal mud flats on the west and south coasts (2,393 km<sup>2</sup>), which are home to important fish species and migratory birds, and function as purifiers of the incoming polluted

waters from rivers and streams. These national treasures have come under threat in recent years due to large-scale coastal development projects, such as coastal reclamation and infilling, port development, and tourism development. The loss of coastal wetland has caused the decline in fisheries resources and the carrying capacity of coastal waters.

### B. SOCIO-ECONOMIC CHARACTERISTICS OF THE COASTAL ZONE

#### 1. Demography

There are 90 cities, counties, and districts facing the sea. They occupy 31,797 km<sup>2</sup> of area or 32 percent of the total national land. About 33 percent of the total population lives in these areas. (Table 3). The population density in coastal cities (1,298 ind/km<sup>2</sup>) is higher than that of inland cities (871 ind/km<sup>2</sup>) (MOMAF, 1998). This reflects the heavy concentration of the population in a few coastal cities – particularly in Incheon, Busan, and Ulsan where 47 percent of the total coastal population is distributed.

## 2. Industrial Development

ROK's coastal zones are centers for industrial development because these areas are easily accessible by marine transportation, thus facilitating the export and import of goods. A

total of 84 out of the 184 mostly large-scale national and local industrial complexes, and 40 of the 81 power plants have been established along the coasts because these zones provide comparatively cheap land (i.e., land created by coastal reclamation and infilling projects). The gross

Category	Unit	National Total	Coastal Zone*
Land area	Km <sup>2</sup>	99,707.0	31,867.00
Population	thousands persons	46,430.0	15,484.00 Coastal City : 76.6% of total coastal population
Population density	persons/km <sup>2</sup>	466.0	486.00
Employment	thousands persons	20,416.0	6,156.00
Gross regional product (GRP)	Billion won	359,009.0	130,555.00
Cities, countries and districts		232.0	90.00
Industrial complexes	Km <sup>2</sup>	479.0	312.00
Power plants	number(km <sup>2</sup> )	81.0 (46.4)	40.00 (27.93)
National parks	Km <sup>2</sup>		4,043.00 (including 2,649 km <sup>2</sup> of sea area)
Tourism areas	Km <sup>2</sup>	180.2	61.30
Zoning under National Land Utilization Management Act (Seawater Area)	Km <sup>2</sup>		
Urban zones		13,975.2 (608.6)	5,450.00 (607.60)
Semi-urban zones		1,029.3 (14.4)	361.90 (1.50)
Rural zones		51,370.9	14,983.00
Semi-rural zones		26,319.2	8,767.20
Natural environment conservation zones		7,003.2 (4,804.9)	23,342.00 (4,804.90)
Ports and fishing harbors		Trade ports Coastal ports Fishing harbors	28.00 22.00 2,266.00
Sea dikes	number(km )		1,731.00 (1,410.00 )
Mariculture areas	Km <sup>2</sup>		1,092.00
Port management areas	Km <sup>2</sup>		1,387.00
Salt farms	Km <sup>2</sup>		131.00
Coastal reclamation and infilling areas (since 1962)	Km <sup>2</sup>		2,622.00

Source: MOMAF, 1998; MOMAF, 2000.

\* The term "coastal zone" covers the national territorial sea up to 12 nautical miles seaward, as well as the administrative boundary of coastal cities and counties.



regional product (GRP) of the industries located in coastal areas is 42 percent of the total national production (MOMAF, 2000).

### 3. Fishing and Aquaculture

Aside from large-scale industries, ROK's coastal zones are also heavily used for fishing and aquaculture. There are a total of 2,266 fishing harbors and small fishing harbors in these areas. A total of 1,092 km<sup>2</sup> of coastal water is utilized for aquaculture; 1,387 km<sup>2</sup> is designated as a port management area; 2,649 km<sup>2</sup> of coastal water is set aside for national parks; and 2,556 km<sup>2</sup> is designated as a "Fishery Resources Conservation Zone". Based on 1996 figures, coastal fisheries in ROK produced 1,623,000 M/T of fish<sup>4</sup> and 874,000 M/T of aquaculture.<sup>5</sup>

### 4. Shipping and Maritime Transport

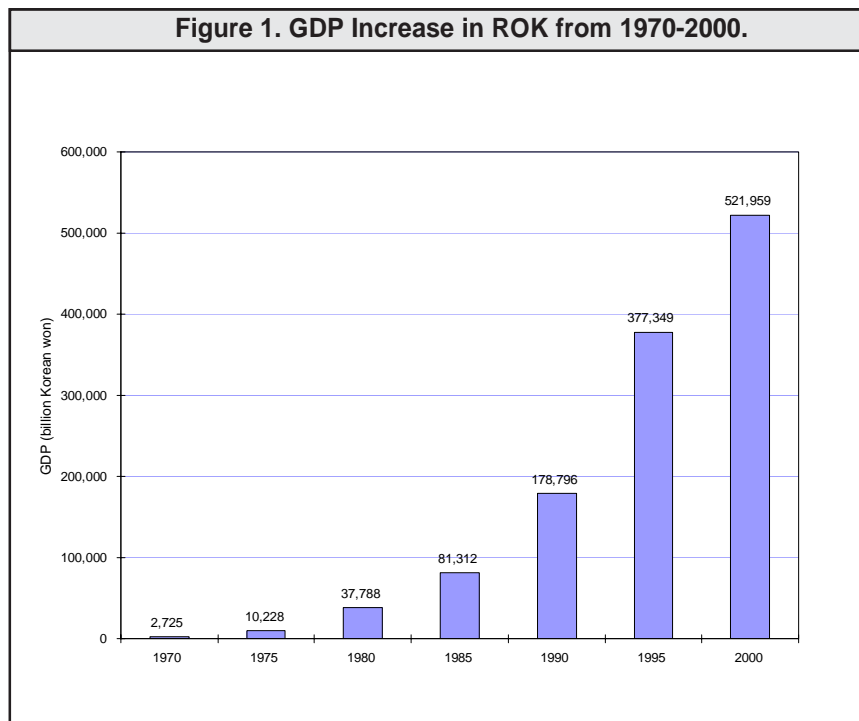
Maritime transportation plays a strategic role in the country's export-led trade, economy, and defense (Hong, 1991). In order to properly arrange and manage the country's ports, the government enacted the Ports Act, which segregated ports into "Local Ports" (those established by Provincial Governors or Mayors) and "Designated Ports" (those established by Presidential Decree). "Designated Ports" include "Coastal Ports" and "Trade Ports" – the latter being those that are developed and managed by MOMAF. There are 28 Trade Ports (including those in Busan and Incheon) and 22 Coastal Ports along the ROK coast

(MOMAF, 2000). The total length of the country's wharfs are estimated at 78 km, roughly 36.7 km (47%) which is comprised of the Busan, Incheon and Pohang ports.

## C. THREATS TO THE SUSTAINABLE DEVELOPMENT OF COASTAL ZONES

### 1. Multiple-Use Conflicts

Over the past three decades, ROK has achieved a remarkable economic growth at an average rate of 8.3 percent. Its gross domestic product (GDP) has increased 191 times. Such swift economic growth has led to rapid urbanization and industrialization on the coast, large-scale coastal reclamation, construction of ports, and increase in shipping activities. These activities have caused the significant discharge of untreated sewage and industrial waste into coastal water, loss of fishing ground and important coastal habitat (estuaries



Source: National Statistics Office Homepage ([www.nos.gov.kr](http://www.nos.gov.kr)).

<sup>4</sup> 78 percent of the said fishing activities took place in southern coastal waters, and 69 percent of the catch comprised of finfish (MOMAF, 1997).

<sup>5</sup> 62 percent of production was made up of macro algae (MOMAF, 1997).

and tidal mud flats), increased incidences of oil spills, and discharge of wastes from shipping activities.

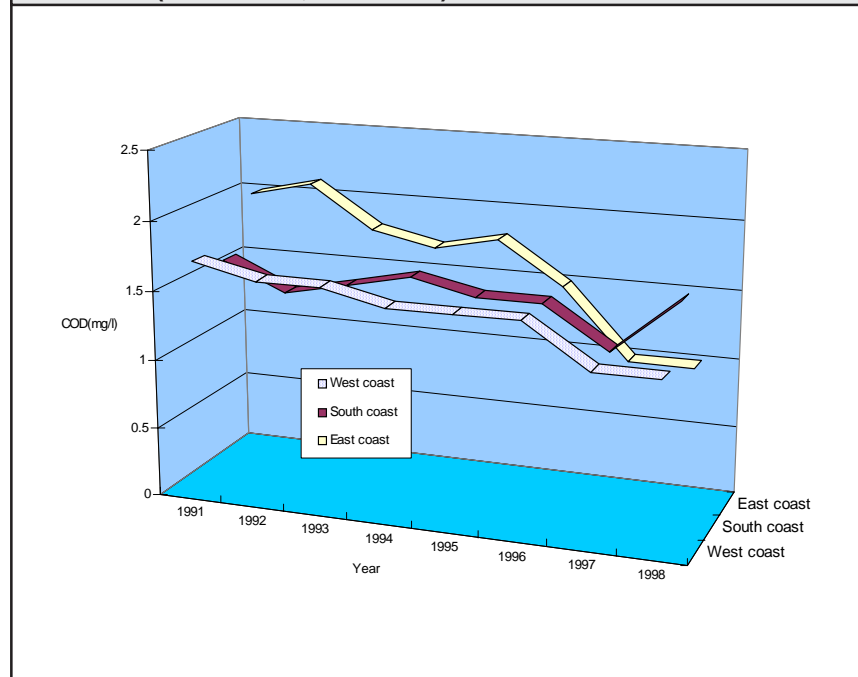
Various types of multiple -use conflicts have been observed between coastal reclamation projects and coastal fisheries, port development and coastal fishery, aquaculture and shipping, and tourism development and marine habitat/beach protection. The conflicts are manifested through adverse environmental impacts in different sectors and the competition for space and resources. Other forms of conflict are described in the following sections.

Multiple-use conflicts in the coastal and ocean areas have been aggravated by the fragmented and single-use oriented management system. The fact that more than 10 different government agencies and about 50 individual pieces of legislation manage various sectors (fishery, shipping and port development, marine environment, coastal construction and reclamation, and industrial development) has compounded the problem.

## 2. Threats Caused by Land-based and Sea-based Activities

**Land-based Marine Pollution.** The water quality monitoring results (Figure 2, Table 4) show that ROK coastal water quality continually improved since 1990.<sup>6</sup> There are, however, parts of the south and west seas (i.e. semi-enclosed bays and waters located near industrial and urban complexes) that exhibit certain levels of pollution

**Figure 2. Average Chemical Oxygen Demand Monitoring Results (ROK Coast, 1991-1998)**



Source: Office of the Prime Minister and MOMAF, 1999.

(Table 5)(Office of the Prime Minister and MOMAF, 1999).

The deterioration of coastal water quality has been caused by several factors, the increased pollution load from land-based activities, point source and non-point source pollutants, increased sea-based activities, oil-spills from shipping accidents, and pollution load from aquaculture. Another factor to be taken into consideration is the loss of coastal wetlands, which led to the reduction of natural purification capacity and expedited the deterioration of coastal water quality.

Since the 1970s, the concentration of human population<sup>7</sup> and industrial activities in a few coastal cities resulted in a rapid increase in land-based pollution (a major source of marine pollution along ROK coast). More specifically,

<sup>6</sup> In Figure 2, water quality improvement has been most remarkable in the east coast while the COD level in the south coast has fluctuated due to the increase of land-based pollution, intensified the aquaculture activities, and the occurrence of red tides.

<sup>7</sup> The population growth rate in coastal cities is three times higher than the national average.

Table 4. Status of Pollution in Major Coastal Areas.

Coast		Temp. (°C)	COD (mg/L)	DO (mg/L)	pH	SS (mg/L)	T-N (mg/L)	T-P (mg/L)
West Coast	Incheon	15.5	1.6	6.9	7.9	59.8	0.756	0.026
	Asan	15.8	1.3	7.5	8.1	27.8	0.353	0.038
	Taeon	16.0	1.0	8.4	8.1	33.7	0.178	0.045
	Kunsan	19.0	2.2	7.7	8.0	25.3	0.688	0.044
	Mokpo	16.4	1.7	9.5	8.0	14.6	0.310	0.008
South Coast	Yeosu	16.4	1.4	8.9	8.3	10.2	0.157	0.017
	Kwangyang Bay	17.0	1.8	8.5	8.3	10.5	0.194	0.023
	Chungmu	16.6	1.7	9.6	8.3	3.0	0.217	0.024
	Chinhae Bay	18.2	2.5	11.0	8.5	2.1	0.249	0.025
	Masan Bay	18.3	4.1	11.0	8.6	3.3	0.704	0.063
	Pusan	17.3	1.9	9.2	8.4	2.1	0.364	0.024
East Coast	Onsan	16.8	1.6	9.2	8.4	2.0	0.579	0.020
	Ulsan	16.5	1.5	8.7	8.4	2.2	0.858	0.036
	Youngil Bay	15.6	1.7	8.7	7.8	4.2	0.612	0.015
	Samchuk	12.6	1.4	8.8	8.0	4.5	0.103	0.009
	Chumunjin	12.8	1.9	8.2	7.9	4.4	0.324	0.057
	Sokcho	13.2	1.8	8.8	8.2	4.3	0.122	0.014
Cheju Island	Cheju	18.2	0.9	7.6	8.1	3.3	0.178	0.012
	Seoguipo	20.0	1.5	7.7	8.2	4.0	0.169	0.010
	Peosun	19.8	1.3	7.4	8.2	3.1	0.110	0.006

Source: MOMAF, 1997.

sewage<sup>8</sup> discharges into ROK coastal waters have increased from 12,323,000 m<sup>3</sup>/day in 1990 to 17,870,000 m<sup>3</sup>/day in 2001. The Biochemical Oxygen Demand (BOD) loading was estimated to increase to 7,184 tons/day in 2001 (from 6,030 tons/day in 1995).

Despite the continuous increase of land-based pollution load, wastewater treatment efforts along the coastal area remain inadequate and insufficient. In 1998, only 66 percent of the households in the country had sewage treatment facilities. The figure was only 39 percent in coastal areas. These facilities were composed mostly of those at the primary treatment level (Bang, 2001).

As a consequence, the BOD loading in ROK coastal waters has increased to 40 percent during the last decade and aggravated coastal eutrophication and contributed to the increasing occurrence of red tide.

*Sea-based Marine Pollution.* The incidence of oil-spill accidents has increased during the past three decades, due to the rising role of shipping in the ROK economy. The annual occurrence of oil-spill accidents in the 1970s was pegged at around 100 cases and increased to 600 cases in the late 1990s. From 1991-1996, a total of 1,970 oil spills - mostly from oil tankers, took place, discharging 35,500 kl of oil (Table 6) into ROK's waters. The carelessness of crewmembers was identified as a major cause of these accidents. Other possible causes include the lack of a port safety policy, poor management of small-sized vessels, decrease in quality of seamen, increase in vessel traffic, and increase in sub-standard vessels (Cho, 1998).

The coastal waters used for aquaculture have also been degraded due to intensive culture activities that do not give due consideration to carrying capacity. Presently, about 8,000 licenses have been issued for aquaculture activities covering 230,000 ha of coastal waters.

<sup>8</sup> "Sewage" means water, which is mixed with dirty liquid or solid substances, and usually discharged from flush toilets, bathrooms and kitchens. In its raw state, it is unusable for sustaining human life and in daily activities (Act on the Disposal of Sewage, Excreta and Livestock Wastewater, Article 2).

**Table 5. Seawater Quality Standards<sup>9</sup>.**

Category	pH	CDO (mg/L)	DO (saturation %)	SS (mg/L)	E.Coli (MPN 100ml)	Normal Hexane Extracts (mg/L)	TP (mg/L)	TN (mg/L)
I	7.8-8.3	<1	>95	<10	< 200	ND	<0.05	<0.007
II	6.5-8.5	<2	>85	<25	< 1000	ND	<0.01	<0.015
III	6.5-8.5	<4	>80	—	—	—	<0.2	<0.03
All Areas (Hazardous Substances)	Cd<0.01mg/l, As, Cr <sup>6+</sup> <0.05mg/l, Zn, Pb<0.1, Cu<0.02, CN, Hg, Organic phosphorous, PCB< Detection limit							

**Table 6. Type of Ships Involved in Oil-spill Accidents. (Unit: Number of Cases)**

Type	1992		1993		1994		1995		1996	
	Cases	Amount Spilled (kl)	Cases	Amount Spilled (kl)	Cases	Amount Spilled (kl)	Cases	Amount Spilled (kl)	Cases	Amount Spilled (kl)
Total	328	2,942	371	15,460	365	456	347	13,604	375	1,824
Tanker	44	1,793	47	14,239	32	34	45	11,464	43	996
Freighter	93	861	98	389	88	246	70	1,023	66	647
Fishing	119	247	145	815	167	84	151	842	161	53
Others	72	41	81	17	78	52	81	275	105	128

Source: MOMAF, 1997

**Table 7. Major Causes of Oil-spill Accidents. (Unit: Number of Cases)**

Year	1992	1993	1994	1995	1996
<b>Type</b>					
Carelessness	155	213	231	211	210
Intentional	95	68	55	49	62
Breakdown	19	10	16	20	22
Shipwreck	55	68	56	56	63
Others	4	12	7	11	18
<b>Total</b>	<b>328</b>	<b>371</b>	<b>365</b>	<b>347</b>	<b>375</b>

Source: MOMAF, 1997.

<sup>9</sup> Korean coastal waters are classified into three categories according to water quality criteria (pH, COD, DO, SS, fecal coliform, Total-N, Total-P, oil and heavy metals). The first class standard implies that coastal water is suitable for special fishing and aquaculture. The 2<sup>nd</sup> class standard is set for general fishing, swimming, and other recreational purposes, while the 3<sup>rd</sup> class standard is set for the use of industries and port activities.

*Marine Debris from Land-based and Sea-based Activities.* Marine debris (trash disposed from land and dumped from ships, plastics from aquaculture activities, fishing nets and equipment, and shell fragments) is increasingly becoming a threat to safe coastal activities as well as to the health of the coastal ecosystem. In 1997, total disposed marine debris was estimated at 380,000 tons, 50 percent of which was comprised of plastic wastes. This debris originated mostly from land-based sources and marine-related activities such as shipping, fishing, and aquaculture (Table 8).

Marine debris impacts on fishery and aquaculture activities, the safety of shipping, the well-being of marine birds and mammals, and the coastal amenity and aesthetic value of the area.

### 3. Threats Caused by Coastal Reclamation

ROK has a long history of coastal reclamation and infilling along the west and south coasts starting from the first century B.C. The coasts' oceanographic and geomorphologic characteristics – shallow water depth, low slope, high tidal range, small islands, and high indentation - have made these activities cost effective and technically feasible. Coastal reclamation for food production was first

conducted in 1248 in the estuary of the Choeng Chun River. During the Japanese colonial period (1917-1938), a total of 178 sites, covering 40,877 ha were reclaimed for rice production.

Reclamation projects were re-initiated in 1970 with the construction of the Asan (2564 m) and Namyang (2060 m) dikes on the west coast. In 1980, promoted by technological developments and the vast amount of accumulated capital through the economic growth of the previous two decades, many large-scale reclamation projects were implemented to establish industrial complexes in the west coastal region in areas such as Seosan, Kimpo, Shihwa, and Saemankeum.

From 1962 to 2003, a total of 2,662 km<sup>2</sup> (1,778 km<sup>2</sup> of which is coastal water) of ROK's coasts have been reclaimed or are undergoing reclamation (MOMAF, 2000). Due to the large-scale coastal reclamation and infilling projects, as well as the various construction activities conducted along the coast, 14 percent of the national coastline has been converted into artificial coast.<sup>10</sup> In addition, 10 percent of the country's coastal wetland (totaling about 700 km<sup>2</sup>) has been lost during the past decade. These habitat alterations and losses caused the loss of

**Table 8. Major Sources of Marine Debris Along the ROK Coasts**

Sources		Activities
Land-based		<ul style="list-style-type: none"> <li>• Transport of solid wastes disposed in land through rivers and streams especially during storms and the rainy season</li> <li>• Illegal dumping from coastal resorts, commercial, and residential areas</li> </ul>
Sea-based	Ships	<ul style="list-style-type: none"> <li>• Illegal dumping of food wastes, papers, and plastics from ships</li> </ul>
	Fishing	<ul style="list-style-type: none"> <li>• Illegal dumping of fishing nets, fishing equipment, rope, etc. during fishing activities</li> </ul>
	Aquaculture	<ul style="list-style-type: none"> <li>• Illegal dumping of fishing net or equipment from aquaculture activities</li> <li>• Disposal of waste shells from aquaculture ground</li> </ul>

Source: MOMAF, 2000.

<sup>10</sup> The proportion of habitat alteration would probably be higher if all the historical changes to the coastline could be traced.

productive fishing ground, the destruction of breeding and nursery habitats, and the decline in marine biodiversity. It has also affected the migration of waterfowls.

In the early 1990s, the negative economic externality of increased pollution caused by mega-scale reclamation projects was brought to light. The public became aware, and fought for their right to fish, the right to be compensated for the loss of fishing and aquaculture opportunities, and the right to decent or acceptable levels of environmental quality. This public awareness has grown, and as a result, the reclamation projects initiated by the private sector have been closely monitored and regulated to restrict the privatization of public assets, such as coastal water and wetland.

#### ***4. Threats Caused by Uncontrolled Coastal Development and Multiple-use Conflicts***

Various laws that do not consider the long-term impacts of development have driven coastal exploitation and development in ROK. Consequently, economic development in the country has operated on the “first come, first served” principle. This led to the competition between the national and local governments, and the private sector for limited coastal space and resources to be used for more than 1,000 development plans and projects (MOMAF, 2000). This lack of a comprehensive plan or integrated guiding framework for coastal development and conservation has resulted in conflicts among various stakeholders, which have led to extreme confrontation, as in the cases of the Shihwa Lake and Saemankeum reclamation projects.

Intense coastal development has caused the degradation of resources values, and limited public access. In ROK, public access to the sea is traditionally limited for military reasons. This

access has been further reduced as the coasts were converted to ports, industrial complexes, and tourism resorts; and roads were constructed along these areas (MOMAF, 2000). Without a systematic long-term planning, commercial buildings including hotels and restaurants will continue to encroach upon the coastal waterfront to meet the increasing demand for coastal tourism and recreation. Heavy concentration of buildings on the coastal waterfront often destroy the scenic view and impose high pressure on the adjacent coastal ecosystem because of the increased load of sewage and solid wastes.

#### ***5. Threats on Fishery Resources***

Korean coastal waters have traditionally been characterized as having bountiful fisheries resources and high biodiversity. Fishing grounds in the East Sea - formed by the exchange of warm current (such as a branch of the Kuroshio current) and cold current from the North - are home to various fish species. The tidal mud flats in the west are highly productive breeding and nursery grounds for benthic organisms and fisheries. The west coast is also the center of natural salt production.<sup>11</sup> The south coast, with its rugged coastline, bays and islands, is the best place for aquaculture activities.

The fishing industry grew rapidly during the first Five-Year Economic Development phase because of the development of the shipping industry. The distant-fishing industry made an important contribution to exports in the 1960s; and although its contribution to ROK's economy had diminished in the 1970s due to an intensive development of heavy industries, the fishing industry continued to expand. ROK subsequently became one of the world's top fish producing countries.

In the 1990s, the production of the distant - fishing industry declined rapidly because of the

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<sup>11</sup> Most of salt ponds are closed, however, as economic gain is higher for coastal reclamation and infilling projects.



increase in the number of coastal states declaring EEZs, as well as the increased global concern for the protection of fish species. Coastal fisheries also began to suffer from the problems of resource depletion, economic inefficiency and uncertainty, and the loss of fishing grounds caused by coastal reclamation and infilling projects.

To address such problems, the ROK government promoted the development of aquaculture, initially focusing on macro algal aquaculture. As a result, aquaculture technology developed rapidly, cultured species became diverse, and finfish and crustacean species increased.

Since the establishment of the World Trade Organization (WTO), however, ROK has turned from a fishery-export country to a fishery-import country. In 1995, ROK exported 1,170,000 M/T of fishery products and imported 948,000 M/T. This figure was reduced in 1999 to 1,232,000 M/T and 1,332,000 M/T of exports and imports. This decrease is attributed mainly to the depletion of resources in coastal waters caused by over fishing, the loss of fishing grounds caused by the declaration of EEZs by coastal states, the loss of

marine habitat, and marine pollution. The main problems or issues in fisheries management include the lack of due recognition of the fishing industry as an important economic sector, growth-oriented exploitation, and the lack of sustainable resources management efforts.

Thus, the arable land space of ROK is very limited, totalling only about 30 percent of the national land. Koreans have traditionally treasured the land and agriculture, and marginalized the sea or coastal area and fisheries. The important fishery habitats such as estuaries and wetlands have been destroyed - usually by the national promotion of coastal reclamation and infilling projects to expand the land area for agriculture, urbanization, or industrial activities.

Though various regulations on net size and number or size of fishing vessels exist, growth or expansion-oriented fishing practices have continued and led to the depletion of fishery resources. This situation is aggravated by illegal and unreported fishing activities which hamper the development of a scientific database on fishery resources and constrain policy formulation on sustainable fishery management.

<b>Year</b>	<b>Coastal Fishery</b>	<b>Aquaculture</b>	<b>Distant Water Fishery</b>	<b>Inland Water Fishery</b>	<b>Total</b>
1990	1,542	773	925	35	3,275
1995	1,425	997	897	29	3,348
1996	1,624	875	715	30	3,244
1997	1,367	1,015	830	32	3,244
1998	1,308	777	722	27	2,834
1999	1,336	765	791	18	2,910
2000	1,189	653	651	21	2,514
2001	1,252	656	739	18	2,665

Source: MOMAF, 2002.

Despite increasing production, due consideration has not been given to the carrying capacity of aquaculture grounds and sustainable production, and despite the major efforts made by the government, counter measures against toxic algal blooms or the occurrence of pathogenic species have not been effective. Limited efforts have been made for long-term technology development to produce high quality and highly valuable fish species.

Fisheries policy is traditionally treated as an extension of agricultural policy. Its potential as a high-income industry requiring high initial capital investment has not been given due consideration. Government subsidy has resulted

in the possible weakening of the economic competitiveness of the industry in long-term perspective.

Since the enactment of the Fisheries Act in 1953, local governments in ROK have managed fisheries following the Japanese model whereby management capacity of local governments and cooperatives have been strengthened through long-term experiences. However, this approach has caused various institutional and policy problems in fisheries administration, as well as the failure to implement a sustainable fisheries policy, which requires strong administrative measures in resources management and price control.



## Chapter 3

### POLICY BACKGROUND

#### A. ROK ECONOMIC POLICY

The Government of the Republic of Korea has usually controlled the allocation of human resources, the pace of capital development, the national ethos, and the pattern of coastal zone uses through centralized economic planning. This generally involves the setting of prescriptive goals for each economic sector. Economic planning and implementation in ROK has undergone the following phases: Import Substitution Phase; Labor-Intensive and Light Industry Export-led Phase; Heavy and Chemical Industry Export-led Phase; and Technology-Intensive Industrialization Phase.

During the Import Substitution Phase (1953-1961), the government's policy was on post-war reconstruction and the maintenance of political order. The Import Substitution Policy resulted in the development of light industries in large cities like Seoul and in the acceleration of migration.

During the Labor-Intensive and Light Industry Export-led Phase (1962-1971), the government replaced its policy of import substitution and increased the export of labor-intensive and light industry goods, thereby achieving rapid economic growth. At this time, a free export zone was established at Masan on the southern coast to promote exports by lowering tariff barriers and providing state guarantees for foreign investment exports (Hong, 1991).

During the Heavy and Chemical Industry Export-Led Phase (1972-1981), the ROK government focused on agricultural self-sufficiency, rural development, and new import

substitution in heavy and chemical industries. Capital-intensive national efforts to achieve self-sufficiency in food supply and the dispersed industrial activity, partly to relieve population pressures in larger cities and to equalize incomes among regions resulted in the creation of many large industrial complexes, and the initialization of numerous coastal area reclamation projects along the southern coastal area (Hong, 1991).

The nation's first industrial estate was established at Ulsan, the center of the ship building industry; and the Changwon Integrated Machinery Complex, ROK's largest industrial park built between Masan and Chinhae on the southern coast. Two main petrochemical complexes were established on the southeastern coast in Ulsan and Yosu and a third in Kwangyang.

To meet the drastic increase in demand for steel that was triggered by rapid industrialization, the Pohang Iron and Steel Company rapidly expanded its facilities in Pohang and Kwangyang. In addition, they built a non-ferrous metal complex in Onsan near Ulsan and some new shipyards in Okpo near Pusan (Hong, 1991).

The concentration of sewage and wastes from heavy industries on the southeastern part of the ROK coast resulted in heavy stress on adjacent marine ecosystems. As a consequence, most of the coastal waters in the Masan Bay, Kwangyang Bay, Busan and Ulsan, were designated as "Special Management Areas for Controlling Coastal Pollution" in 1982 under the Marine Pollution Prevention Act.<sup>12</sup>

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<sup>12</sup> In 1982, however, the landward component was not included. It was only specified in 2000 when the Marine Pollution Prevention Act was amended.

In the early 1980s, ROK was still dependent on imports for sophisticated technology and critical materials. Thus, the major goal of the Technology Intensive Phase in the 1980s and 1990s was to enhance investment for research and the development of high-technology industry, as well as to direct economic focus from heavy to knowledge-intensive industries. The government's aim was to disperse industrial concentration from the capital region and the southeast coast<sup>13</sup> to the west coast.

## **B. POLICY ON LAND DEVELOPMENT**

The industrialization and urbanization of the past decades have changed the face of ROK's national land. The national policy on land development was formulated to support the national economic development policy (Table 10). During the 1950s, the main focus was on the reconstruction of houses and roads destroyed during the Korean War.

In the 1960s, efforts were made to construct major expressways to connect Seoul with two port cities, Busan and Incheon. Multi-purpose dams were constructed and large-scale industrial parks were built on the west and southeast coasts. During this period, the legislative framework for national land development was established. The City Planning Act and the Construction Act were legislated in 1962. The Act on Comprehensive Plan for Construction in the National Territory was legislated in 1963.

In the 1970s, the First Comprehensive Plan for Construction in National Territory was formulated to systematically direct national land development. During this period, strategies for national development were centered on the maximization of economic growth anchored in the promotion of export-led heavy industrialization.

Despite its achievements of rapid economic growth, the country began to face problems, including unbalanced regional development, irrational land utilization, and the expansion of big cities. To effectively address such issues, the Second Comprehensive Plan on National Land Development was formulated in the 1980s. The plan focuses more on regional balance and equitable distribution. Investment in the construction of sewerage systems and sewage treatment plants was expanded during this period.

In the 1990s, the land development policy was formulated guided by the principles of globalization, decentralization, and democratization. The Third Comprehensive Plan on National Land Development focused on the development of small cities and rural areas, encouraged the establishment of new industrial complexes, and the linkage of the mid-west and southwest regions through the construction of an expressway.

In the early part of 2000, ROK was in the midst of the Asian economic crisis. The Fourth Comprehensive Plan on National Land Development was formulated with the main goals of integration and balanced development. The focus was on balancing environmental conservation and land development, increasing global competitiveness, promoting the cooperation between South and North Korea, and improving the quality of life of its citizens.

## **C. NATIONAL LAND-USE ZONING SCHEMES**

The use and development of ROKs national land is regulated by the Act on Comprehensive Plans for Construction in the National Territory, (Law No. 1415, Oct. 14, 1963). Five types of planning for national land construction are carried out at the national, provincial, city, and county

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<sup>13</sup> The southwest coast region, which was relatively underdeveloped, had advantages in hosting high-tech industries because they had cheap coastal land and relatively high potential in labor supply (Hong, 1991).

government levels. The planning process is extremely centralized, following the “top-down” decision-making model. National land-use planning provided the basis for provincial and special area planning, while provincial planning provided the basis for city and county planning.

The Council of Comprehensive Plans for Construction in National Territory, headed by the President, facilitates inter-ministerial coordination and is responsible for the review and harmonization of national construction plans, special area planning, and the approval of provincial plans. To effectively implement the Comprehensive Plan for Construction in the National Territory and control national land use, the Act on the Utilization and Management of the National Territory (Law No.2408, 30 December 1972) and the City Planning Act (Law No. 2291, 19 January 1971 as amended) were passed. These Acts effectively put in place the land-use zoning scheme.

According to the Act on the Utilization and Management of the National Territory, the Minister of MOCT is required to establish the Plan for National Territory Utilization (National Land Use Plan), which provides the zoning framework for national land. This plan divides the national

land into five zones specifically urban zones, semi-urban zones, rural zones, semi-rural zones, and natural environment conservation zones.

Under the City Planning Act, urban zones can be classified into residential areas, commercial areas, industrial areas, and open spaces. The present zoning scheme is land-oriented, and thus limited in coordinating various uses occurring in coastal zones. Currently, 5,414 km<sup>2</sup> of coastal water (about 7% of the territorial sea area) and 282 km of coastline (about 4% of ROK’s total coastline) are designated as natural environment protection areas; 608 km<sup>2</sup> and 1.5 km<sup>2</sup> of coastal waters are designated as urban and semi-urban zones, respectively (1995 Annual Report of the National Land Use Plan).

Zoning schemes<sup>14</sup> may also be found in individual pieces of legislation (Table 11), most notably the Fisheries Act (Law No. 4252, 1990), the Natural Parks Act (Law No. 3243, 1980), the Marine Pollution Prevention Act (Law No. 5915, wholly amended 1999), the Natural Environment Conservation Act (Law No. 4492, 1991), the Naval Base Act (Law No. 3564, 1982), and the Public Waters Reclamation Act (Law No. 986, 1962).

<b>Table 10. National Land Development Policy in ROK.</b>		
<b>Period</b>	<b>Policy</b>	<b>Main focus</b>
1950s	Poverty alleviation	Constructing infrastructures (roads,railways, ports)
1960s	Promoting economic growth	Constructing infrastructures and industrialization (roads,port, Ulsan Industrial Park)
1970s	Maximizing economic growth	Heavy industrialization
1980s	Equitable distribution	Growth management of Seoul
1990s	Globalization, decentralization, democratization	Regional balance between Seoul and local cities
2000s	Integration and balance	Balance between environment conservation and development

Source: MOCT, 2001.

<sup>14</sup> The Fixed Shore Net Fishing Protection Areas, The Fisheries Resources Protection Areas, and The Fisheries Resources Enhancement Waters, The Marine National Park Areas, The Coastal Environment Management Areas, The Marine Ecosystem Protection Areas (Natural Environment Protection Areas), The Naval Base Areas, and Public Waters Reclamation Areas are some of the zones designated in certain laws.

Certain activities are restricted or prohibited in specific zones as prescribed in individual legislations (Table 12). For example, according to the Natural Environment Conservation Act, the following activities are prohibited with the exception of certain cases determined by Presidential Orders:

- Construction, reconstruction and expansion of buildings and facilities;
- Unplanned deforestation;
- Cultivation, infilling, dredging and reclamation;
- Change of soil characteristics;
- Livestock husbandry and ranching;

- Capture and collection of wildlife (excluding fishery resources); and
- Mining of soil, sand, and gravel.

According to the Fisheries Act, and Fisheries Resources Protection Areas, filling or dredging projects can be carried out only through the permission of the MOMAF or the governors of provincial/city governments. In Coastal Environment Management Areas (CEMAs), the following activities should be carried out only through consultation with MOMAF:

<b>Table 11. Specific Zoning Schemes Relevant to Coastal Activities</b>			
<b>Specific Zoning</b>	<b>Legislation</b>	<b>Date and Law Number</b>	<b>Government Agency</b>
Naval Base Area	Naval Base Act	'82.11.29; 3564	Ministry of National Defense (MOND)
Fixed Shore Net Fishing Protection Area, Fisheries Resources Protection Water, Fisheries Resources Enhancement Water	Fisheries Act	'90.08.01; 4252	MOMAF City/ Province
Sea-bed Mining Area	Sea-bed Mineral Resources Development Act	'70.01.01; 2184	Ministry of Trade and Industry (MOTI)
Marine Ecosystems Protection Area	Natural Environment Protection Act		Ministry of Environment (MOE)
Marine National Park Area	Natural Park Act	'80.01.04; 3243	Ministry of Home Affairs (MOHA)
Tourism Area	Tourism Protection Act	'86.12.31; 3910	Ministry of Communication and Transportation (MOCT)
Manufacturing Industry Promotion Area	Distribution and Construction of Manufacturing Industry Act	'90.01.13; 4212	MOTI, MOCT
Industry Area	Industry Siting and Development Act	'90.01.13; 4216	MOCT
Public Waters Reclamation Area	Public Water Infilling Act	'62.01.20; 986	MOMAF
Coastal Environment Management Area	Marine Pollution Prevention Act	'99.02.08; wholly amended; 5915	MOMAF

Source: MOST, 1996 and MOMAF, 2000.

<b>Table 12. Restriction and Prohibition of Activities in Specific Zones Relevant to Coastal Zones.</b>	
<b>Specific Zoning</b>	<b>Restriction and Prohibition of Activities</b>
Naval Base Area	<p>Permission Needed</p> <ul style="list-style-type: none"> <li>• Entry into the area</li> <li>• Collection of floating or submerged materials</li> <li>• Disposal of hazardous materials</li> </ul> <p>Prohibited</p> <ul style="list-style-type: none"> <li>• Surveying and photographing the naval base</li> <li>• Interrupting the sea land of naval vessels</li> <li>• Moving and destroying buoys or submerged navy facilities</li> </ul> <p>Consultation Needed</p> <ul style="list-style-type: none"> <li>• Construction and reconstruction of port</li> <li>• Excavation in the coast</li> <li>• Filling and dredging of river or coastal water</li> <li>• Construction and reconstruction of underwater or floating facilities</li> <li>• Shipping activities</li> <li>• Mining</li> <li>• Construction of communication facilities</li> </ul>
Fisheries Resources Protection Water	<p>Permission Needed</p> <ul style="list-style-type: none"> <li>• Filling and dredging</li> </ul>
Marine Ecosystems Protection Area	<ul style="list-style-type: none"> <li>• Construction, reconstruction and expansion of buildings and facilities</li> <li>• Unplanned deforestation</li> <li>• Cultivation, filling, dredging and reclamation</li> <li>• Change of soil characteristics</li> <li>• Livestock ranching</li> <li>• Capture and collection of wildlife except fishery resources</li> <li>• Mining of soil, sand and gravel</li> </ul>
Marine National Park Area	<p>Permission Needed</p> <ul style="list-style-type: none"> <li>• Construction and reconstruction of buildings and facilities</li> <li>• Outside painting of buildings and facilities</li> <li>• Mining and deforestation</li> <li>• Change of soil types including the sea bottom</li> <li>• Filling and reclamation of coastal water</li> <li>• Hunting of wildlife</li> <li>• Livestock ranching</li> <li>• Storing of materials</li> </ul>
CEMAs	<ul style="list-style-type: none"> <li>• Designation of hazardous materials and waste disposal sites in the port area</li> <li>• Permission of public water area filling</li> <li>• Permission of occupation and use of public water</li> <li>• Permission of fishing</li> </ul>

Source: MOST, 1996 and MOMAF, 2000.

- Designation of hazardous materials and waste disposal sites in the port area;
- Public waters reclamation;
- Occupation and use of public water; and
- Fishing and mariculture activities.

Consultation, however, should be made before carrying out the Environmental Impact Assessment (EIA), in cases where it is necessary.

#### D. ENVIRONMENTAL MANAGEMENT POLICY

The development of ROK's Environmental Management Policy is divided into three phases, namely: the Initiation Phase (1945-1970s); the Establishment Phase (1980s); and the Development Phase (1990s).

There was no foundation for industrial activity during the 1950s. Virtually, there was no environmental policy in ROK. Environmental policy in the country was initiated with the enactment of the first environmental legislation during the period of the First Economic Development Five Plan (i.e., Prevention of Public Nuisance Act in 1963). This Act, however, was limited in its extent as legislation for sanitation rather than as an environmental legislation. There were neither implementation provisions such as arrangements among responsible agencies or budget allocations nor regulatory follow-up activities.

Due to the economic development and rapid industrialization during the 1960s and 70s, various environmental pollution problems began to surface. In response to these problems, the ROK government enacted the Environmental Preservation Act in 1977, which provided measures for establishing environmental standards, environmental monitoring, establishment discharge limits, construction of pollution prevention facilities, and EIAs. This law, however,

was passively enforced due to limited financial and organizational resources.

The 1980s saw the maturation of the country's environmental policy. The ROK society, recognizing that rapid economic growth would not automatically bring about the improvement of the quality of life, began to raise their concerns over the problems on environmental degradation and the inequitable distribution of resources. Due to this, the Environmental Administration was organized in 1980 as a sub cabinet agency of the Ministry of Public Health and Social Affairs to implement and coordinate national environmental policies.

The Constitution of the Fifth Republic (Article 35, amended in 1980) included a guarantee of the people's fundamental right to live in clean and healthy environments. The Constitution of the Sixth Republic (Article 35, amended 1987), on the other hand, declared not only the fundamental environmental rights of people but also the nation's responsibility for environmental preservation as part of public policy.

In the 1990s, environmental issues were started to be recognized as an important agenda. These issues were particularly related to limited water resources, degradation of air quality in cities, increase in hazardous materials and in waste production, decrease in urban green space, and global environmental changes.

To address these issues more effectively, the purview of the Environmental Administration was expanded in 1995, and it was converted into a full-fledged MOE. The legal framework for environmental management was also expanded to six different acts, through the division of the Environmental Preservation Act of 1977 into the Environmental Policy Basic Act, the Air Environment Preservation Act, the Water Environment Preservation Act, the Noise and



Vibration Regulation Act, the Hazardous Chemical Materials Management Act, and the Conflict Resolution on Environmental Pollution Damage Act (Table 13).

The decentralized system established in 1993 also made a great impact on environmental management. The high demand for local development resulted in environmental

degradation at the local level, putting forth the need for coordination between the local and national governments in environmental management. During this time, the participation of civil society in the process of environmental policymaking and implementation grew dramatically due to the expansion of democratization and enhanced public awareness.

<b>Table 13. Legislative Framework of Environmental Management in ROK.</b>	
<b>Constitution</b>	
<b>Framework Act</b>	<b>Environmental Policy Basic Act</b>
Natural environment management	<ul style="list-style-type: none"> <li>• Natural Environment Conservation Act</li> <li>• Environmental Impact Assessment Act</li> <li>• Island Ecosystem Conservation Act</li> <li>• Natural Park Act</li> <li>• Soil Environment Conservation Act</li> <li>• Wetland Conservation Act</li> <li>• Wildlife Protection and Hunting Act</li> </ul>
Air discharge control and management	<ul style="list-style-type: none"> <li>• Air Environment Conservation Act</li> <li>• Noise and Vibration Control Act</li> <li>• Quality Control of Underground Living Space Act</li> </ul>
Water discharge control and management	<ul style="list-style-type: none"> <li>• Water Environment Conservation Act</li> <li>• Sewage and Animal Wastewater Treatment Act</li> <li>• Sewerage Act</li> <li>• Water Quality Improvement in the Han River Watershed and Support of Local Community Act</li> </ul>
Waste discharge control and management	<ul style="list-style-type: none"> <li>• Waste Management Act</li> <li>• Legislation on Resource Reuse and Promotion of Recycling</li> <li>• Legislation on Waste Treatment Facilities and Support for Local Community</li> <li>• Legislation on Transboundary Movement and Treatment of Wastes</li> </ul>
Drinking water management	<ul style="list-style-type: none"> <li>• Drinking Water Supply Act</li> <li>• Drinking Water Management Act</li> </ul>
Others	<ul style="list-style-type: none"> <li>• Hazardous Chemical Materials Management Act</li> <li>• Legislation on Environmental Technology Development and Support</li> <li>• Special Act on Environmental Crime and Punishment</li> <li>• Environmental Conflicts Resolution Act</li> <li>• Environmental Improvement Special Accounting Act</li> <li>• Environmental Improvement Cost Allocation Act</li> <li>• Environmental Management Public Agency Act</li> <li>• Resource Reuse Public Agency Act</li> <li>• Legislation on Establishment and Operation of Capital Area Landfill Management Public Agency</li> </ul>

## Chapter 4

# THE FORMULATION OF A NATIONAL ICM POLICY

### A. RATIONALE AND KEY FACTORS

The coastal zone of ROK has been intensively utilized and developed for urbanization and industrialization because of the strong national directives for rapid economic development that started in the 1960s. In most cases, coastal construction and development were undertaken by various sectoral agencies on a “first-come and first-serve basis” without an integrated plan, development guide, or conservation framework. Consequently, political or economic factors have often overwhelmed environmental or equity concerns in decision-making processes, resulting in extreme confrontations among stakeholders.

Although there is a mechanism for comprehensive planning and zoning for land development, it has not been able to provide a systematic means for the control and prevention of the negative impacts associated with rapid urbanization and industrialization. This is partially due to the reason that the National Land Use Policy in ROK was introduced to support rapid economic growth as demonstrated in the case of the country’s coastal zones.

The ROK coastal zone was regarded only as an extension of land space available for industrialization or urbanization. As such, it did not receive any consideration for its unique physical and ecological processes. Coastal reclamation and infilling, and the development of the fisheries sector were conducted under the political campaign “expanding national land and ensuring food security”; and the requisite environmental costs related to marine pollution and the increase in harmful algal blooms, over fishing and intensive aquaculture, and the rapid decline in fisheries resources and other social concerns were not effectively addressed.

Recognizing these environmental and resources management problems, ROK government leaders began to seek an alternative management framework for the sustainable development of coastal zones. Their efforts were bolstered by the international prescription of ICM enshrined in the Agenda 21 of the UNCED in 1992, which enabled them to move forward against the inertia of existing sectoral management practices.

The process of formulating a National ICM Policy is substantially discussed in previous efforts by Hong (1994, 1995), Hong and Lee (1995), Hong and Chang (1997), and Lee (1998, 1999, 2000, and 2001). The main points in these works are the following:

- The ROK case regarding the development of a national mechanism for an ICM policy provides a good insight into how a coastal nation can improve its coastal governance system by responding to the paradigm shifts highlighted in Agenda 21 (Lee, 1999) and other global prescriptions such as the UN Law of the Sea Convention (Hong and Lee, 1995); and
- The critical factors that allowed the ICM paradigm to become part of the national agenda of ROK are (Lee, 1999):
  1. Government awareness of mounting problems of coastal environment and resources;
  2. Government initiatives for preparing for the Ocean Century and enhancing the global competitiveness of ocean management functions;



3. Government participation in international efforts to achieve the sustainable development of coastal resources;
4. Recognition of the usefulness of the ICM concept in Chapter 17, Agenda 21; and
5. Consistent and timely efforts of marine policy advocates in ROK in providing policy proposals.

and the promotion of public awareness on ocean-related culture. It proposed the establishment of a national mechanism for ICM, the enactment of the Coastal Management Act, and the preparation of mid- and long-term management plans for the development and conservation of coastal resources. It also emphasized the need for multi-agency collaboration especially among the MOTC, MOE, and the MOST (Hong and Lee, 1995). The formulation of the New Marine Policy Direction Towards the 21st Century reflected the ROK's recognition of the importance of ICM and the need for a new type of governmental intervention.

## B. THE PROCESS OF POLICY DEVELOPMENT

### 1. *Policy Development Towards Integrated Ocean and Coastal Governance*

To improve policy coordination on ocean and coastal zone matters, the ROK government enacted the Marine Development Basic Act (MDBA, 1997), which stresses that the government, taking into consideration the importance of sustainable development, shall adopt necessary measures and arrangements for the rational co-ordination between marine-environment conservation and marine development (Hong and Chang, 1997). Government authorities also created the Marine Development Committee under the Office of Prime Minister to work towards these ends.

The formulation of Agenda 21 and the entry into force of the UN Law of the Sea Convention (November 1994) triggered the creation of an integrated and comprehensive National Ocean Policy. The New Marine Policy Direction Towards the 21st Century was developed by the MOST in March 1995, under the leadership of the Prime Minister's office. It covered major ocean management issues, such as the implementation of the Law of the Sea, ICM, marine environment conservation, the development of ocean industries,

To effectively implement Agenda 21, the government prepared the ROK National Agenda 21, which proposed the following activities for ICM (Hong and Lee, 1995):

- Development of a national mechanism for implementing ICM, and the formulation of a long-term plan for coastal resources use and conservation;
- Development of an ICM program at the provincial or regional<sup>15</sup> level that takes into account the ecological and social characteristics of the specific coastal ecosystem;
- Initiation of research efforts related to the application of geographic information system in coastal management, ecological risk assessment, the analysis of carrying capacity of coastal ecosystems, and the economic valuation of coastal resources;
- Establishment of a long-term national plan for coastal monitoring and data management as a strategic component of integrated coastal management;
- Utilization of the United Nations Environmental Programme (UNEP)-led NOWPAP (North-West Pacific Action Plan) as the main mechanism for establishing regional cooperation for the integrated coastal management; and

<sup>15</sup>The term "regional" refers to the local level.

- Hosting of international conferences, workshops, and training programs on integrated coastal management, to transfer to ROK the expertise and technologies developed in other countries.

The government established MOMAF on 8 August 1996 to raise the global competitiveness of ROK ocean governance in changing international ocean regimes. MOMAF incorporates all the marine-related functions previously facilitated by other offices, such as port and shipping management by the Maritime and Shipping Administration under MOCT, fishery management of the Fisheries Administration under the Ministry of Agriculture, Forestry and Fishery (MOAFF), marine environment management (Division of Marine Environment Conservation under MOE); coastal zone management and public waters management with functions of MOCT; marine research and technology development under KORDI of MOST, and marine safety and oil-spill response of the Marine Police Administration under MOHA. The Hydrographic Affairs Office, as well as other marine-related agencies, are under the purview of MOMAF.

The creation of MOMAF strengthened institutional capacity for integrated ocean and coastal management with regard to the following aspects (Lee, 1998):

- Establishment of “ocean stewardship” as a binding mechanism for the various marine-related sectors;
- Paradigm shift from a land-oriented to ocean-oriented perspective in coastal management;
- Aggregation of the knowledge base from different sectors of ocean management such as fisheries, port and shipping, environment, science and technology, etc.;
- Increase in the planning and coordinating capabilities; and
- Concerted implementation power.

MOMAF took the lead in developing a policy for integrated coastal and ocean governance which resulted in the enactment of the Coastal Management Act in February 1999. The Act emphasizes the need for integrated and long-term perspectives and attempts to achieve a balance among ecological, cultural, and economic values of the coastal zone. It defines the landward boundary of the coastal zone as being 500 meters to 1 km inland from the shoreline, and the seaward boundary as reaching the outer limit of the territorial sea.

The National ICM Plan of ROK, formulated by MOMAF in 1998-1999 and approved in July 2000, provides a comprehensive set of guiding rules for coastal resources allocation. It takes into consideration the present uses and future development plans of the coastal zone presently under the authority of different levels of government, and re-evaluates them under the goals and principles of ICM. The National ICM Plan identifies the following strategies for implementing ROK’s national coastal policy (MOMAF, 2000):

- Designation of important coastal wet lands and marine habitats as marine protected areas and the prohibition of any significant coastal alterations;
- Management of pollution load, taking into consideration the ecological and economic characteristics of coastal environment;
- Evaluation of the feasibility of existing plans on coastal development, taking into consideration the carrying capacity of coastal environment;
- Systematic implementation of counter measures for natural hazard prevention;
- Creation of public-friendly coastal spaces and the improvement of public access to the beaches; and
- Facilitation of the formulation of local ICM plans and the development of local capacity for coastal management.

The preparation of the ICM Plan of ROK entailed the review of over 1,000 projects of different scale and type along the national coast covering all the ongoing coastal activities and future development plans (MOMAF, 2000). The following criteria were used to re-evaluate existing development project proposals (Lee, 2001):

- Conservation of important marine ecosystems and biodiversity;
- Carrying capacity of the marine environment with regard to coastal land development;
- Conflicts among coastal conservation, use, and development activities;
- Conflicts among agencies and plans;
- Public access and the amenity of the coasts; and
- Quality of life of coastal residents.

While the Coastal Management Act provides a mechanism for balancing development and conservation in the coastal zone, the Marine Pollution Prevention Act provides a mechanism for addressing environmental issues at the land and seawater interface more effectively by designating Coastal Environment Management Areas (CEMAs) up to the watershed boundary, and formulating integrated management plans for each of the designated areas.<sup>16</sup>

<sup>16</sup> CEMAs, as defined in Article 4, Paragraph 4 of the Marine Pollution Prevention Act, consists of MPAs or coastal waters in relatively pristine and good ecological conditions that need to continuously be preserved and protected; and SMAs or coastal waters that do not meet water quality standards, impose significant risks or potential risks to human health, ecosystem integrity and coastal uses, and thus need special management measures for restoration. Four bays, namely, Hampyong Bay, Wando-Doam Bay, Deuk-Ryang Bay, and Kamak Bay on the west and south coasts were designated as MPAs in February 2000. Five bays, namely, the Shihwa-Incheon Coastal Area, Kwang-Yang Bay, Masan Bay, the Pusan Coastal Area, and the Wool-San Coastal Area - on the west and south coast were designated as SMAs in February 2000 (Figure 3). The designation of MPAs and SMAs takes into consideration various environmental and socio-economic criteria, such as water quality standards, biological diversity and resources, coastal land utilization, pollutants loading, sea-use activities, etc.

In terms of physical and spatial boundaries, CEMAs include semi-enclosed bay waters and adjacent watershed areas where pollutants directly influence coastal environment. The scope of management actions covers environmental (water and sediment quality) management measures, resources (living resources, space utilization) management measures, and institutional measures (human resources, organizational and financial resources).

The Marine Pollution Prevention Act is the legal framework of the Strategic Plan for CEMAs. It also establishes the basic management framework for Marine Protected Areas (MPAs) and Special Management Areas (SMAs). The Strategic Plan was formulated in relation to the “Five-Year Marine Pollution Prevention Plan”.

To keep it open and adaptive to unforeseen changes and new scientific knowledge, the plan is revised every five years through consultations with the heads of national agencies and provincial and local governments. It is also intended to serve as the implementation plan of “Ocean Korea 21” (the national framework plan for the Sustainable Development of the Oceans Towards the 21st Century) and of the “Five-Year Marine Pollution Prevention Plan”.

The Strategic Plan, approved in 2000 by the Minister of MOMAF, envisions ROK’s coastal waters as serving as a sustainable resource base for ecologically responsible and economically viable marine and fisheries activities. It also sees these areas as high-quality amenity spaces and looks to the development of the coastal waterfront in an environmentally friendly and aesthetically sound manner. The Plan’s objectives are to formulate systematic and comprehensive management guidelines to improve the marine environment, and to protect the ecosystems of coastal areas designated for CEMAs including MPAs and SMAs.

The following strategies have been developed and executed for managing ROK coastal waters and ecosystems (MOMAF, 2000) and were adopted to aid implementation:

**A. Strengthening the knowledge-base for coastal environment management**

- Establish integrated monitoring systems for the effective management of marine environment and resources
- Establish integrated information management systems
- Establish continuous monitoring systems for high risk pollutants

**B. Establishment of a comprehensive system of managing marine pollution sources**

- Secure wastewater treatment facilities and environmental infrastructures that give due consideration to marine ecosystem processes
- Apply total management systems for pollutants loading
- Develop effective management systems for non-point pollution sources
- Develop effective measures for managing pollution driven by aquaculture activities

**C. Establishment of an optimal environment restoration model considering the specific characteristics of coastal ecosystems**

- Develop standard management models and approaches for coastal restoration
- Apply integrated management in environment restoration related projects, including both coastal water and watershed areas

**D. Protection of marine biodiversity**

- Establish the limit on allowable resources utilization for each coastal ecosystem
- Designate habitat protection areas (“no-take zones”)

**E. Establishment of partnerships among stakeholders at the local level**

- Promote public and private environmental investments with positive economic impacts on the local economy
- Establish cooperative decision-making systems involving government, academic, industry, and civil society groups
- Develop public awareness and participation programs

**F. Establishment of systematic planning and management system**

- Standardize the planning and management process in coastal environment management waters
- Apply effective evaluation systems at multiple levels
- Develop appropriate economic techniques and methodologies for the evaluation of environmental resources

**G. Selection of pilot management areas and the focusing of management efforts**

- Optimize management of resource use to raise cost effectiveness and transferability
- Select pilot management areas, considering the feasibility and applicability of management measures
- Secure implementation of management measures by developing strategic action plans and applying priority actions
- Develop regional cooperative management programs with relevant regional programs and international agencies.

## 2. Major Considerations in Formulating, Adopting, and Implementing ICM Policy

*The Coastal Land and Seawater Use Zoning Scheme.* There was an attempt to introduce a land and seawater use zoning scheme under the Coastal Management Act (MOMAF, 1998). The four types of zoning areas suggested were as follows:

- Conservation areas (areas where construction, coastal reclamation, infilling and dredging are restricted);
- Semi-conservation areas (areas where the building of facilities that affect coastal environment and amenities are restricted);
- Development areas (areas where construction and the heights of buildings are restricted); and
- Reserved areas (areas where present uses are to be maintained).

The MOCT opposed this draft proposal on coastal use zoning schemes, based on the following arguments (MOMAF, 1998):

- There were already 169 kinds of zoning areas under 29 different legislations.
- Imposing another layer of regulation by instituting a coastal use-zoning scheme would not result in a radical change in present coastal uses.
- The suggested regulation was similar to the existing land use zoning schemes.
- The application of a zoning scheme would involve administrative concerns.

Based on these, the application of coastal use zoning schemes became a major stumbling block in the ministerial consultation on the first draft of the Coastal Management Act. This was the reason why MOMAF decided to withdraw its initial proposal, and incorporate existing coastal use zoning schemes into the framework of coastal management planning. MOMAF adopted a “planning control mechanism” in the regulation of coastal zone conservation and development, thereby applying the principle of “no planning, no development”. As a result, coastal development activities can be conducted only through integrated planning consistent with the policy direction of the National Plan on ICM (MOMAF, 2000).



Source: MOMAF, 2000



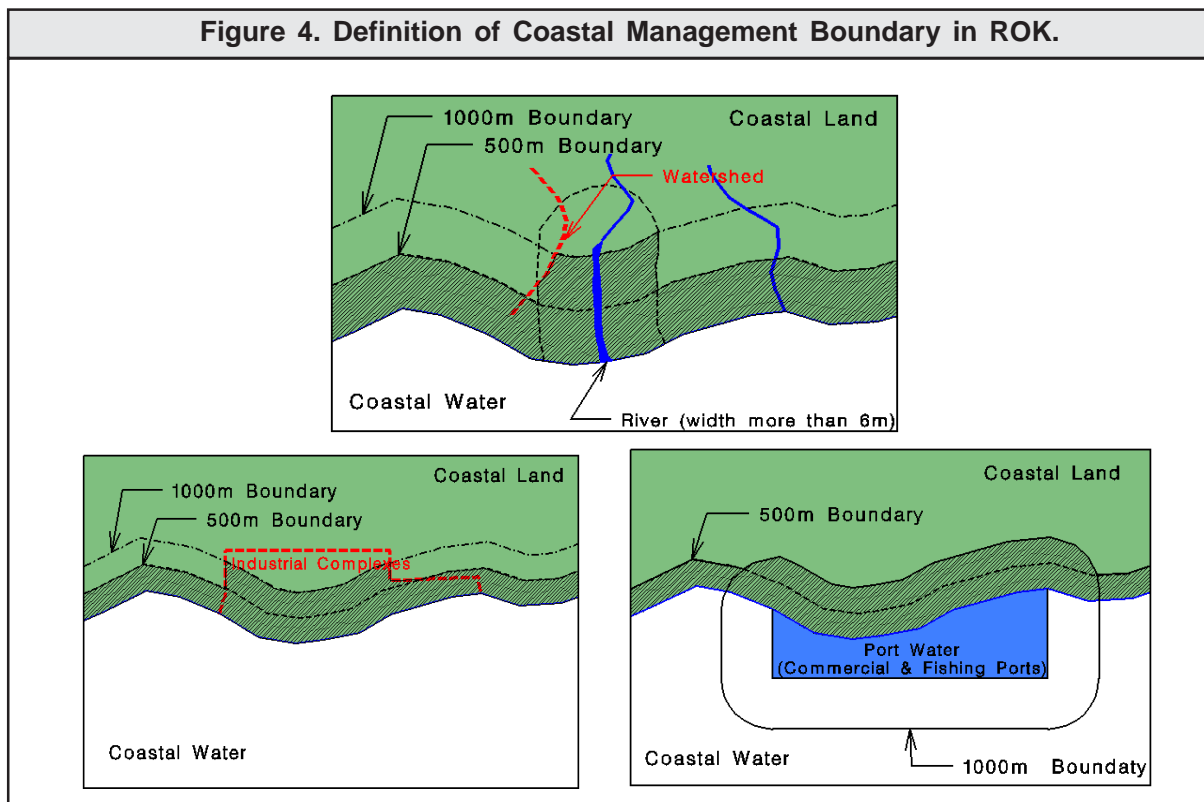
**The Coastal Zone Boundary.** The boundary of a coastal zone, as defined by the Coastal Management Act, involves “coastal land” and “coastal water”. Since the seaward portion of the coastal area at that time was under the authority of MOMAF, there was little debate. This was not the case with regard to the landward portion where central and local governments claimed jurisdiction through their respective authorities (Lee, 2000).

The MOE, responsible for overall coordination of environmental management in national territory, strongly opposed the idea of including the land component in the coastal zone boundary. However, as the need for the integration of land and seawater was recognized by most of the government agencies, the definition of the coastal zone under the Coastal Management Act included both the land and the seawater components. This was due to the efforts of the Water Quality Improvement Task Force under the Prime Minister Office.

As a consequence of this decision, the landward boundary of the coastal zone was defined to cover 500 meters or one km inland from the shoreline in the case of fishing harbours, ports, and industrial complexes, and the whole of uninhabited islands as shown in Figure 4 (Lee, 2000).

Since the coverage of landward component was still very limited under the Coastal Management Act (1999), MOMAF later initiated the amendment of the Marine Pollution Prevention Act to designate the CEMAs as the areas within watershed limits. This effort, which addressed the linkage between land and sea, reinforced the administrative and legal foundation for the effective implementation of the integrated coastal policy.

**Coordination among Governments and Sectoral Agencies.** The main thrust of the establishment of an ICM mechanism in ROK was the effective solution of the multiple-use conflict problems associated with coastal resources and the



Source: Lee, 2000.

promotion of orderly and environmentally responsible coastal development. Thus, the Coastal Management Act institutionalized integrated planning, as well as an inter-agency coordinating structure at both the national and local levels.

The ROK government attempted to enhance coordination and cooperation by establishing the ICM Plan at both national and local levels. According to Lee (2000), integration in the following areas was emphasized:

- Between conservation and development;
- Among different government agencies at the national level;
- Among the national, provincial, and local governments;
- Between land and water;
- Among different sectors of coastal users; and
- Between present and future generations.

At the national level, the Minister of MOMAF is required to formulate the national ICM plan through the deliberations of the Central Coastal Management Council chaired by the Vice-Minister of MOMAF and Environment Conservation Council chaired by the Prime Minister. Before the draft plan is submitted to the Central Coastal Management Council, it is subjected to extensive consultations with stakeholders, which includes various agencies in national governments, relevant local government units, NGOs, the private sector, and experts. (Lee, 2000).

According to the Coastal Management Act (1999), the national ICM plan must consider the following:

- Coastal land boundary;
- Planning areas;
- Basic policy statement for coastal management;
- Strategies for coastal conservation, sustainable use, and development;

- Restriction of coastal use activities;
- Support for the coastal community manifested through relevant legislative mechanisms;
- Coordination of individual policies developed by relevant governmental agencies on coastal conservation, use, and development; and
- A basic policy on coastal zone improvement projects.

The heads of provincial and local governments - including provincial governors, mayors, county governors, and district chairmen acknowledge the need for planning for effective conservation, use, and development. They have the authority to formulate local ICM plans for the coastal zone on which they have authority. The local ICM plan is subject to deliberations by the Local Coastal Management Council chaired by Vice-Governor or Vice-Mayor and approval of the Minister of MOMAF. Before the Minister approves these local plans, however, these must go through the deliberation of the Central Coastal Management Council.

In the formulation of national and local plans on ICM, the heads of responsible agencies may request the adjustment of other plans and zonings established by other laws, if it is necessary for the conservation and sustainable development of the coastal zone. It should be noted however that all activities relevant to coastal conservation, use, and development should be consistent with national and local plans on ICM (Lee, 2000).

Under the national planning system, the National ICM Plan is hierarchically at the same level as the National Land Use Management Plan. Still, its effectiveness and influence greatly depend on the implementation capability of MOMAF (Lee, 2000).

The Central Coastal Management Council was created at the national level as a multi-agency coordinating body for integrated coastal policy. Composed of 20 members, the Council is chaired by the Vice Minister of MOMAF and is composed of senior officials from the Ministries of Finance and Economy, National Defense, Government and Home Affairs, Culture and Tourism, Agriculture and Forestry, Industry and Resources, Environment, Construction and Transportation, and Maritime Affairs and Fisheries. The membership also includes academic experts and representatives of environmental NGOs appointed by the Minister of MOMAF.

At the local level, there is the Local Coastal Management Council, usually established by the

Provincial Governor or Mayor and chaired by the Vice Governor or Vice Mayor. It is composed of 15 representatives from relevant government agencies and offices, as well as representatives from the academe or NGOs.

*Coordination Between National and Local Governments.* The national government in ROK exercised absolute power over port construction, the creation of major industrial complexes, and the identification of coastal reclamation and energy facility sites. Local land use plans should be approved by the national government and be consistent with macro pro-growth policies (Kang, 1997).

**Table 14. National and Local Plans on Integrated Coastal Management in ROK.**

	<b>National Plan</b>	<b>Local Plan</b>
Type of Plan	<ul style="list-style-type: none"> <li>• Guiding rules, required</li> </ul>	<ul style="list-style-type: none"> <li>• Action plans, selective</li> </ul>
Planning Area	<ul style="list-style-type: none"> <li>• Whole area of coastal zone</li> </ul>	<ul style="list-style-type: none"> <li>• Local area of coastal zone</li> </ul>
Responsibility	<ul style="list-style-type: none"> <li>• Minister of MOMAF</li> </ul>	<ul style="list-style-type: none"> <li>• Heads of local governments</li> </ul>
Consultation	<ul style="list-style-type: none"> <li>• National governments</li> <li>• Provincial and city governments</li> <li>• Relevant experts</li> </ul>	<ul style="list-style-type: none"> <li>• Local Coastal Management Council</li> <li>• Central Coastal Management Council</li> </ul>
Deliberation for Approval	<ul style="list-style-type: none"> <li>• Central Coastal Management Council</li> <li>• Environment Conservation Council</li> </ul>	<ul style="list-style-type: none"> <li>• Local residents</li> <li>• Relevant agencies</li> </ul>
Public Notice	<ul style="list-style-type: none"> <li>• Minister of MOMAF</li> </ul>	<ul style="list-style-type: none"> <li>• Approved by the Minister of MOMAF</li> <li>• Publicly announced by head of local governments</li> </ul>
Main Components	<ul style="list-style-type: none"> <li>• Vision of National Coastal Management (conservation, use and development)</li> <li>• Coordination of coastal use activities</li> <li>• Restriction and support programs</li> <li>• Monitoring strategies</li> </ul>	<ul style="list-style-type: none"> <li>• Detailed management</li> <li>• Strategies for local coastal zone</li> <li>• Action plans of national ICM plan</li> <li>• Restriction and support programs</li> <li>• Monitoring and counter-measures</li> </ul>

Source: Lee, 1999.



The country's decentralization process started in 1995 with the direct election of local and provincial chief executives. The passing of the Local Autonomy Act of 1995 resulted in a high rate of transfer of powers for growth-related functions, such as development and transportation to subnational governments (Kang, 1997). As a consequence, pro-growth local policies were promoted, and the suppressed demand for local development erupted. These developments became part of the rationale for the enactment of the Coastal Management Act.

The Coastal Management Act attempted to address certain issues<sup>17</sup> related to the coordination between national and local governments. Its objectives were as follows:

- Discourage unsustainable and uncontrolled coastal developments initiated by local governments;
- Provide more authority to local governments in the environmental management of coastal zone; and
- Promote the involvement of local governments and local stakeholders in allocating coastal resources.

Specific responsibilities of different authorities with regard to coastal management are also presented (Table 15).

*Involvement of Coastal Grassroots NGOs.* Coastal issues were marginalized concerns even among environmental NGOs. Even though they recognized the significance of marine environmental problems, their actions were constrained by their limited capacity in dealing with marine or coastal issues.

The mobilization of efforts in Shihwa is reflective of the increased awareness and participation of local NGOs in environmental management and conservation. After the disaster caused by a reclamation project in the area, grassroots organizations became concerned about coastal issues. They encouraged the development of partnerships between local NGOs, experts and the government units (Box 1).

Due to the Coastal Management Act and the formulation of the National ICM Plan during 1998-2000, grassroots NGOs located in the coastal zone gained the reputation as coastal environmental NGOs. They later formed a national network called "Coastal Korea"<sup>18</sup>. From then on, experts from the KMI and the KORDI continuously nurtured grassroots NGOs. KMI has continued to facilitate interaction between government officials and local NGOs to enhance mutual understanding on coastal issues and proposed policies. Such interaction has taken place through site visits for assessing coastal issues, local consultation, workshops, and informal communication.<sup>19</sup>

### C. LEGISLATIVE FRAMEWORK

The legislative framework relevant to coastal zone utilization and protection prior to the enactment of the Coastal Management Act (1999) was made up of more than 40 individual laws implemented by nine ministries (Table 16). The Coastal Management Act was passed by the National Congress in December 1998, promulgated in February 1999, and implemented starting August 1999. It was enacted to establish a national mechanism for the integrated planning and management of the coastal zone with a special focus on the promotion of the orderly development of coastal spaces.

<sup>17</sup> These issues were identified through consultations with experts involved in drafting the Coastal Management Act.

<sup>18</sup> The leaders of coastal NGOs involved in Shihwa environmental protection became core members of Coastal Korea.

<sup>19</sup> Information on the involvement of coastal NGOs were identified through consultations with KMI experts.

While the Coastal Management Act provides the legal framework for ICM planning under the umbrella of the Marine Development Basic Act, the existing sectoral laws on marine and coastal environment provide the implementing mechanisms for ROK's ICM policy. These laws can be categorized into three.

The first category includes legislations oriented towards preventing pollution. An example is the Marine Pollution Prevention Act (wholly amended 1999), which is under the umbrella of the Environment Policy Act. Other relevant laws include the Water Quality Conservation Act, the Waste Management Act on Disposal and Treatment of Sewage and Animal Wastes, the Environment Impact Assessment Act, and the Act on Damage Compensation of Oil-Spills.

**Table 15. Responsibilities of Central and Local Governments in Coastal Management.**

<b>Functions</b>	<b>Central Government</b>	<b>Local Government</b>
Main Authority	MOMAF	Municipalities and Provinces
Scope of Planning	<ul style="list-style-type: none"> <li>• National Coast</li> <li>• National Plan on ICM</li> <li>• National Plan on Coastal Zone Improvement</li> </ul>	<ul style="list-style-type: none"> <li>• Coastal zone under the authority of municipality and province</li> <li>• Local plan on integrated coastal management</li> </ul>
Coastal Management Council	<ul style="list-style-type: none"> <li>• Central Council on Coastal Management</li> </ul>	<ul style="list-style-type: none"> <li>• Local Council on Coastal Management</li> </ul>
Approval	<ul style="list-style-type: none"> <li>• Local Plan on Integrated Coastal Management</li> <li>• Implementation Plan on Coastal Zone Improvement</li> </ul>	
Management of Coastal Waters	<ul style="list-style-type: none"> <li>• Special area, national industrial park area</li> <li>• Port area</li> </ul>	<ul style="list-style-type: none"> <li>• Other coastal waters which are not under the authority of central governments</li> </ul>
Permit	<ul style="list-style-type: none"> <li>• Occupation and utilization of coastal waters under the management authority</li> <li>• Activities in coastal zone improvement area</li> </ul>	<ul style="list-style-type: none"> <li>• Occupation and utilization of coastal waters under the management authority</li> <li>• Activities in coastal zone improvement area</li> </ul>
Management of Coastal Zone Improvement Area	<ul style="list-style-type: none"> <li>• Direction designation</li> <li>• Coastal zone improvement area with port area</li> </ul>	<ul style="list-style-type: none"> <li>• Other coastal zone improvement areas which are not under the authority of central governments</li> </ul>
Execution of Coastal Zone Improvement Project	<ul style="list-style-type: none"> <li>• Area under management authority</li> <li>• Coastal zone improvement projects beyond certain scale</li> </ul>	<ul style="list-style-type: none"> <li>• Area under management authority</li> </ul>
Monitoring and Improvement	<ul style="list-style-type: none"> <li>• Order of improvements based on monitoring and evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• Order of improvements based on monitoring and evaluation</li> </ul>
Supervision and Enforcement	<ul style="list-style-type: none"> <li>• Cancel permits, destruction of illegal facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Destruction of illegal facilities</li> </ul>

Source: MOMAF, 1998.

The second category is made up of legislations oriented to ecosystem protection. An example is the Wetland Conservation Act (1999), which is under the umbrella of the Nature Environment Conservation Act.

The third category is comprised of legislations oriented towards the regulation of the spatial uses of coastal land and waters. Examples are the Public Waters Management Act, the Public Waters Reclamation Act, and the Act on the Utilization and Management of the National Territory, all of which are under the umbrella of the Act on Comprehensive Plan for Construction in the National Territory.

### 1. *The Coastal Management Act (1999)*

The Coastal Management Act was enacted on 8 February 1999 (No. 5913). The main components of the Act include (Lee, 2000):

- National policies and basic principles of coastal management;
- A definition of the coastal zone management boundary;
- A national plan on ICM;
- A local plan on ICM;
- A coastal zone improvement project; and
- A coastal management council at the national and local levels.

#### **Box 1. Shihwa Lake in ROK.**

Shihwa Lake is an artificial lake located along the west coast of Korea. Formerly a long stretch of tidal mud flat fronting the Yellow Sea, the shallow bay became an artificial lake when a 12.7 km dike was built in 1991 to develop a 50 km<sup>2</sup> freshwater reservoir and convert adjacent lands into farmland.

The Government built the dike to disperse the population and to move factories away from Seoul. Their efforts resulted in the development of cities along Shihwa Lake and the subsequent relocation of 700,000 people and the establishment of more than 4,500 factories in the area.

The flow of pollution from industrial complexes and populated cities into the lake caused serious water quality degradation, which worsened due to the insufficient circulation of contaminated water, the destruction of traditional fishing activities, and the disintegration of coastal communities.

Residents living around the lake expressed their opposition to government policies on Shihwa Lake. They formed a Citizen's Coalition and formulated a "Citizen's Proposal to establish the Shihwa Eco-Park". Their efforts did not bare fruit and, in December 2000, the Korean government recognized the failure of their policy on Shihwa Lake and decided to open the dike to allow the needed circulation of water.

To effectively address environment and resource management problems, the government designated the Shihwa coastal area as a Special Management Area in April 2000 and formulated the Shihwa Coastal Area Management Action Plan in July 2001. The representatives of MOMAF, provincial and city governments, as well as national congressmen representing local stakeholders signed the "Shihwa Declaration on Sustainable Coastal Use and Environmental Protection" on 15 March 2001.

Shihwa Lake has been a PEMSEA ICM parallel site since the signing of the Memorandum of Agreement between the International Maritime Organization and the Korean Government in March 2001.

Source: Je, *Tropical Coasts*, 2001.

As a regulatory mechanism for reducing multiple-use conflicts and conserving coastal environment and resources, the Coastal Management Act (Table 17) provides a framework for formulating an ICM Plan both at the national and local levels. As a non-regulatory mechanism, it institutionalizes the Coastal Zone Improvement Project for the purpose of preventing coastal hazards, restoring degraded coastal habitats and ecosystems, and revitalizing coastal waterfronts. The Coastal Zone Improvement Plan, which is subject to the deliberation of the Central Coastal Management Council, should be revised by MOMAF every 10 years to ensure the effective implementation of coastal zone improvement projects considering the following:

- Basic policy for coastal zone improvement projects;
- Mid- and long-term plans for coastal zone improvement projects; and
- Annual action plans for coastal zone improvement projects.

## 2. The Marine Pollution Prevention Act

The Marine Pollution Prevention Act, as amended<sup>20</sup>, is the most important statute affecting the marine environment. The main purpose of the Act is to protect the health and property of the people by preserving the marine environment through the regulation of discharges such as oil, harmful liquid substances, and wastes (Art. 1). It provides

<b>Ministries and Number of Relevant Acts</b>	<b>Basic Policy Act</b>	<b>Space Utilization and Orderly Development</b>	<b>Resources and Infrastructure Development</b>	<b>Environment Protection and Hazard Prevention</b>
MOMAF (16)	<ul style="list-style-type: none"> <li>• MDBA</li> </ul>	<ul style="list-style-type: none"> <li>• Public Waters Infilling Act</li> <li>• Shipping Act</li> <li>• Port Order Act</li> <li>• Marine Transportation Safety Act</li> <li>• Waterways Affairs Act</li> <li>• Marine Accidents Inquiry Act</li> </ul>	<ul style="list-style-type: none"> <li>• Port Act</li> <li>• Fisheries Act</li> <li>• Fisheries Promotion Act</li> <li>• Fisheries Resources Protection Act</li> <li>• Fishing Resources Protection Act</li> <li>• Fishing Harbour Act</li> <li>• Seabed Mineral Resources Development Act</li> </ul>	<ul style="list-style-type: none"> <li>• Marine Pollution Prevention Act</li> <li>• Public Waters Management Act</li> </ul>
MOCT (6)	<ul style="list-style-type: none"> <li>• Act on the Comprehensive Plan for Construction in the National Territory</li> </ul>	<ul style="list-style-type: none"> <li>• National Territory Utilization Management Act</li> <li>• City Planning Act</li> <li>• Legislation on Industrial Site and Development</li> </ul>	<ul style="list-style-type: none"> <li>• River Act</li> <li>• Gravel Mining Act</li> </ul>	

<sup>20</sup> The Marine Pollution Prevention Act was wholly amended on 8 March 1991 (No. 4365), amended on 11 June 1993 (No. 4558, No. 4559), on 29 December 1995 (No. 5098), on 10 April 1997 (No. 5336), on 13 December 1997 (No. 5453), on 17 December 1997 (No. 5470), and on 8 February 1999 (No. 5915)

MOAFF (6)	<ul style="list-style-type: none"> <li>• Agriculture Basic Act</li> </ul>	<ul style="list-style-type: none"> <li>• Rural and Fishing Village Improvement Act</li> <li>• Forestry Act</li> </ul>		<ul style="list-style-type: none"> <li>• Erosion Control Act</li> <li>• Tidal Embankment Management Act</li> <li>• Agriculture and Fisheries Hazard Prevention Act</li> </ul>
MOE (5)	<ul style="list-style-type: none"> <li>• Environment Policy Basic Act</li> </ul>			<ul style="list-style-type: none"> <li>• Water Quality Environment Protection Act</li> <li>• Natural Environment Protection Act</li> <li>• Environmental Impact Assessment Act</li> <li>• Natural Park Act</li> </ul>
Ministry of Industry and Resources (MOIR) (6)		<ul style="list-style-type: none"> <li>• Legislation on Industry Siting and Establishment</li> </ul>	<ul style="list-style-type: none"> <li>• Salt Management Act</li> <li>• Special Act on Electricity Development</li> <li>• Mining Act</li> </ul>	
MOCT (3)	<ul style="list-style-type: none"> <li>• Tourism Basic Act</li> </ul>		<ul style="list-style-type: none"> <li>• Tourism Promotion Act</li> </ul>	<ul style="list-style-type: none"> <li>• Cultural Heritage Protection Act</li> </ul>
MOHA and Government			<ul style="list-style-type: none"> <li>• Island Development Promotion Act</li> </ul>	<ul style="list-style-type: none"> <li>• Natural Hazard Prevention Act</li> </ul>
MOND		<ul style="list-style-type: none"> <li>• Naval Base Act</li> <li>• Defense Sea Water Act</li> </ul>		
Ministry of Foreign Affairs and Trade (MOFAT)		<ul style="list-style-type: none"> <li>• National Territorial and Contiguous Waters Act</li> </ul>		

Source: MOMAF, 1998.

the principles and regulations relevant to the prevention of marine pollution from the following:

- Vessels (including those registered in ROK), offshore facilities, etc.;
- Ocean dumping in the waters contiguous to the territory of ROK;
- In sea-bed mining areas designated under the Submarine Mineral Resource Development Act; and
- MPAs and SMAs designated for coastal water pollution control (Art. 3).

Under the Act, the Minister of MOMAF has overall authority to investigate the status of marine pollution and to establish and announce the water quality standards in each marine area (Art. 4-2, 4-3). The minister may designate MPAs where pollutant discharge can be regulated and SMAs where certain restrictions can be made on the use of marine areas and the installation of facilities.

*Regulation of Marine Pollution from Ships.* The Marine Pollution Prevention Act states that the discharge of oil is permitted only under the conditions laid out by the Ordinances of the MOMAF (Art. 5), which follow the requirements of MARPOL 73/78.

The Act regulates the discharge of harmful liquid substances from ships (Art. 11). The discharge of wastes from ships is prohibited unless the following requirements are met (Art. 16):

- If it is necessary to secure the safety of the ship or to save human lives, or if the waste is discharged because the ship is damaged;
- If the discharged wastes conform with the

- requirements of a Ministerial Ordinance;
- If it is permitted by the Public Waters Reclamation Act; and
- If inland disposal is difficult, and the requirements of a Ministerial Ordinance are complied.

*Regulation of Ocean Dumping.* In the 1970s, “ocean dumping” was a phrase that was rarely heard in ROK. With rapid industrialization and the tremendous growth of chemical and heavy industries, however, the need for safe disposal of industrial wastes began to draw public attention. The Government responded by promulgating new regulations under the Marine Pollution Prevention Act.<sup>21</sup> ROK ratified the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters of 1972 (The Dumping Conventions in 1994).

*Regulation of Marine Pollution from Marine Installations.* Under the Marine Pollution Prevention Act, the discharge of oil, harmful liquid substances, or wastes from offshore facilities are prohibited unless they are disposed in accordance with the regulations of a Ministerial Ordinance (Art. 34). Such materials may be discharged according to the standards similar to those for discharged from ships. These regulations do not have a significant impact on efforts in environmental protection due to the limited amount of offshore activities compared to other maritime activities in the coastal seas of ROK.

### 3. The Wetlands Conservation Act

The Wetlands Conservation Act provides a framework for the conduct of national surveys on wetland ecosystems and socio-economic

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<sup>21</sup> The Prevention of Marine Pollution Act specifies that the dumping of industrial wastes into the sea can be done only if guidelines promulgated by a Ministerial Ordinance (Art. 16 (4)) are followed.



characteristics. It also establishes the mechanism for the designation of “Wetland Conservation Areas”, and the formulation and implementation of the “Management Plan of Wetland Conservation Areas”. Enacted on 8 February 1999 (No. 5866), the Act aims to conserve wetlands and their biological diversity by prescribing basic matters related to their efficient conservation and management (Art. 1). As such, its main objectives are to protect wetlands, to protect the livelihood of residents in wetland conservation area, and to enhance scientific understanding of wetlands.

The Minister of MOE (for the terrestrial wetland) or the Minister of MOMAF (for the coastal wetland) has the authority to designate wetland conservation areas and to designate their adjacent areas as wetland buffer management areas (Art 8(1)). These areas are those whose natural surroundings have indigenous characteristics, or which are abundant in biological diversity; where rare or endangered wild fauna and flora inhabit or migrate; and which have unique scenic views, geographical, or geological characteristics.

Under the Wetlands Conservation Act (provisions of Article 8(1)), the following activities are prohibited in the “Wetland Conservation Areas” (Art 13 (1)):

- Construction or expansion of buildings or other structures and alterations of form and materials of lands;
- Practices resulting in the decrease or increase in the water level or water volume of wetlands;
- Mining or excavation of soil, sand, or rocks;
- Mining of minerals; and
- Artificial introduction, cultivation, hunting, or capture of wildlife.

#### *4. The Public Waters Management Act*

The Public Waters Management Act was created to provide the necessary measures for the conservation, utilization, and management of public waters and to contribute to public welfare by protecting and efficiently using the resources of such waters (Art. 1). It was wholly amended on 8 February 1999 (No. 5914).

Any person who intends to do any of the following must obtain the relevant permits from the Management Office (Art. 5(2,3,6)):

- Excavate land below the water level immediately neighboring the public waters;
- Excavate or clean public waters;
- Take clay, gravel, silt, or sand from public waters; and
- Take and cultivate plants from the publicly owned waters.

The following actions are not permitted without justifiable reasons:

- Disposal into the public waters of any wastes and noxious substances;
- Opening or closing, or the infliction of damage on the water-gate or other facilities of the public waters;
- Throwing of trash or corpses of animals in public waters; and
- Leaving vessels without a captain.

A permit granted may be cancelled and/or temporarily suspended by the Management Office when deemed necessary to remove or minimize danger to the public. The Office may also order the remodeling of relevant constructions, among others (Art. 16. 2).

### 5. *The Status of ROK Participation in International Environmental Treaties*

ROK has implemented a total of 24 international legal instruments as part of its efforts to prevent, control, and reduce marine pollution. However, as indicated in Table 18, most of these instruments were introduced or adopted only during the past two decades.

ROK ratified the 1982 United Nations Convention on the Law of the Sea in 1996 and acceded to MARPOL 73/78 in 1984 and Annexes III and V in 1996. Most provisions of the treaty have been incorporated into the Marine Pollution Prevention Act.

Other significant international legal instruments which ROK either ratified or acceded to are the 1972 Dumping Convention (1994), the 1969 Civil Liability Convention (1979), and its 1992 Protocol (1997), the 1971 Fund Convention (1993) 1992 Protocol (1977)<sup>22</sup>, and the 1971 Convention on Wetlands of International Importance.<sup>23</sup>

In 1999, ROK acceded to the 1990 International Convention on Oil Pollution Preparedness, Response, and Cooperation.

#### **D. ADMINISTRATIVE AND ORGANIZATIONAL FRAMEWORK**

MOMAF has the main responsibility for the implementation and coordination of the integrated coastal policy (Fig. 5). Before its creation, MOCT was the agency involved in coastal development and utilization. However,

with the establishment of the Division of Coastal Planning under the Marine Policy Bureau of MOMAF in March 1997, the responsibility for coastal management was officially transferred to MOMAF (Lee, 1998).

Under the Marine Policy Bureau of MOMAF, three divisions are directly involved in the formulation, coordination, and implementation of the integrated coastal policy (Table 19). They are as follows:

- The Division of Marine Environment (responsible for the development and implementation of the policy on marine water quality protection);
- The Division of Marine Conservation (in-charge of the mandate for the development and implementation of the policy on the marine ecosystem and wetland conservation); and
- The Division of Coastal Planning (in-charge of the development and coordination of the ICM plan and the public waters reclamation plan).

At the local level, the integrated coastal policy is implemented through the Regional Administration of Maritime Affairs and Fisheries as well as through the provincial and local governments. Relevant divisions with specific functions on coastal environment management are described in Table 20. In addition, other various agencies are involved in coastal management, thereby reflecting the complex nature of the endeavor at both the national and local levels. The Coastal Management Council as explained in the previous section coordinates these agencies.

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<sup>22</sup> As a further sign of commitment to this treaty and the Civil Liability Convention, the Government enacted the 1992 Oil Pollution Damage Compensation Security Act.

<sup>23</sup> To further the implementation of this instrument, the Government enacted the Wetland Conservation Act in 1997.



<b>Table 17. The Articles of the Coastal Management Act.</b>	
<b>Major Elements</b>	<b>Description</b>
<b>Section 1. General Provisions</b>	
<b>Art. 1 Purpose</b>	To protect the coastal environment and pursue sustainable coastal development
<b>Art. 2 Definition</b>	<ol style="list-style-type: none"> <li>1. "Coastal zones" include coastal seawater and coastal land.</li> <li>2. Coastal seawater covers the area from the shoreline to the outer limit of national territorial sea.</li> <li>3. Coastal land includes uninhabited islands, 500 meters inland from the shoreline, or 1 km inland from the shoreline - in the case of fishing harbours, ports and industrial complexes.</li> <li>4. Coastal improvement projects include coastline protection projects against natural hazards, coastal seawater clean-ups and restoration projects, and the spatial creation of a public-friendly waterfront.</li> </ol>
<b>Art. 3 Principles of Coastal Management</b>	Balance of the ecological, cultural and economic values in managing the coastal zone with an integrated and long-term vision.
<b>Art. 4 Coastal Zone Survey</b>	The Minister of MOMAF is required to conduct a coastal zone survey every five years.
<b>Section 2. Integrated Management of the Coastal Zone</b>	
<b>Art. 5 Formulation of the ICM Plan</b>	The Minister of MOMAF is required to formulate the national ICM plan through the deliberations of central Coastal Management Council and Environment Conservation Council.
<b>Art. 6 Contents of the ICM Plan</b>	<p>The national ICM plan shall include the following:</p> <ul style="list-style-type: none"> <li>• Coastal land boundary</li> <li>• Planning area</li> <li>• Basic policy statement of coastal management</li> <li>• Strategies for coastal conservation, sustainable use and development</li> <li>• Restriction on coastal use activities and support for coastal community through relevant legislative mechanisms</li> <li>• Coordination of individual policies developed by relevant governmental agencies on coastal conservation, use and development</li> <li>• Basic policy on coastal zone improvement project</li> </ul>
<b>Art. 7 Notification of the Public of the ICM Plan</b>	The Minister of MOMAF must notify the public about the ICM Plan.
<b>Art. 8 Formulation of the Local ICM Plans</b>	The heads of provincial and local governments (i.e., provincial governors, mayors, county governors and district chairmen) can formulate the local ICM plans for coastal zones where there is a need for planning the areas' effective conservation, use and development. The local ICM plan is subject to the deliberation of the Local and Central Coastal Management Councils and approval by the Minister of MOMAF.
<b>Art. 9 Notification of the Public about the Local ICM Plan</b>	The heads of the Local Governments must notify the public about the Local ICM Plans in their respective areas.
<b>Art. 10 Amendment of ICM Plan</b>	Upon request by the heads of relevant government agencies and upon recognition of the need, the Minister of MOMAF or the head of local governments can amend the National or Local ICM Plans.
<b>Art. 11 Relationship with other Plans</b>	The formulation and amendment of National and Local ICM plans shall be consistent with other plans or zoning schemes. The Minister of MOMAF and the heads of local governments can request for the amendment of other plans or zoning schemes, when necessary, for the sustainable development and environmental protection of coastal zone.

<b>Art. 12</b> Compliance with ICM Plan	Activities related to coastal conservation, utilization and development shall be consistent with the National and Local ICM Plans.
<b>Section 3. Coastal Zone Improvement Project</b>	
<b>Art. 13</b> Formulation of the Coastal Zone Improvement Plan	The Minister of MOMAF shall formulate a Coastal Zone Improvement Plan every ten years.
<b>Art. 14</b> Contents of the Coastal Zone Improvement Plan	The Coastal Zone Improvement Plan shall include: <ul style="list-style-type: none"> <li>• Basic policy for coastal zone improvement projects</li> <li>• Mid-term and long-term plans for coastal zone improvement project</li> <li>• Annual implementation plan</li> </ul>
<b>Art. 15</b> Amendments of the Coastal Zone Improvement Plan	The Minister of MOMAF can amend the Coastal Zone Improvement Plan.
<b>Art. 16</b> Executor of the Coastal Zone Improvement Plan	The Minister of MOMAF shall execute coastal zone improvement projects within the boundary of port areas designated by the Port Act. The heads of local governments shall execute coastal zone improvement projects outside the boundary of the port area.
<b>Art. 17</b> Formulation of the Improvement Plan of Coastal Zone Improvement Projects	The executor of each coastal zone improvement projects shall prepare an implementation plan prior to the execution of the project.
<b>Art. 18</b> Relationship with Other Laws	The coastal zone improvement plan shall be formulated in consultation with other relevant government agencies.
<b>Art. 19</b> Expropriation and Use of Land	The executor of coastal zone improvement projects can expropriate or use the land if it is necessary for the execution of the projects according to the Land Expropriation Act.
<b>Art. 20</b> Bearing of Expenses	The executor shall bear the expenses for coastal zone improvement projects.
<b>Art. 21</b> Bearing of Expenses by Person Causing the Need for Coastal Zone Improvement Project	When the need for coastal zone improvement projects is caused by construction or other activities, the person causing the need shall bear all or part of the expenses.
<b>Section 4. Coastal Management Council</b>	
<b>Art. 22</b> Central Coastal Management Council	The Central Coastal Management Council is chaired by the Vice Minister of MOMAF and composed of 20 members including Senior Officials from the Ministry of Finance and Economy, Ministry of National Security, Ministry of Government Administration, Ministry of Culture and Tourism, MOAF, MOIR, MOE, MOCT, and MOMAF. The Council will review and approve the following: <ul style="list-style-type: none"> <li>• Formulation and amendment of National and Local ICM plans</li> <li>• Formulation and amendment of Coastal Zone Improvement Plan</li> </ul>
<b>Art. 23</b> Local Coastal Management Council	The Local Coastal Management Council shall be organized under the head of local governments according to local ordinances.

<b>Section 5. Supplemental Provisions</b>	
<b>Art. 24</b> Honorary Coastal Managers	The Minister of MOMAF and the heads of local governments can designate honorary coastal managers.
<b>Art. 25</b> Periodic Assessment of the Coastal Zone	The Minister of MOMAF and the heads of local governments shall undertake the periodic monitoring of implementation of National and Local ICM Plans.
<b>Art. 26</b> Entry to Land	Entry to land shall be allowed if it is necessary for the periodic monitoring of the coastal zone.
<b>Art. 27</b> Compensation of Loss	Any loss due to the entry to land during periodic monitoring shall be compensated.
<b>Art. 28</b> Delegation of Authority	The authority of the Minister of MOMAF defined in this Act can be delegated to relevant agencies or the heads of local governments by Presidential Orders.
<b>Art. 27</b> Negligence Fine	Anybody who blocks or refuses the entry to land without appropriate reason or justification shall be fined up to 3 million won .

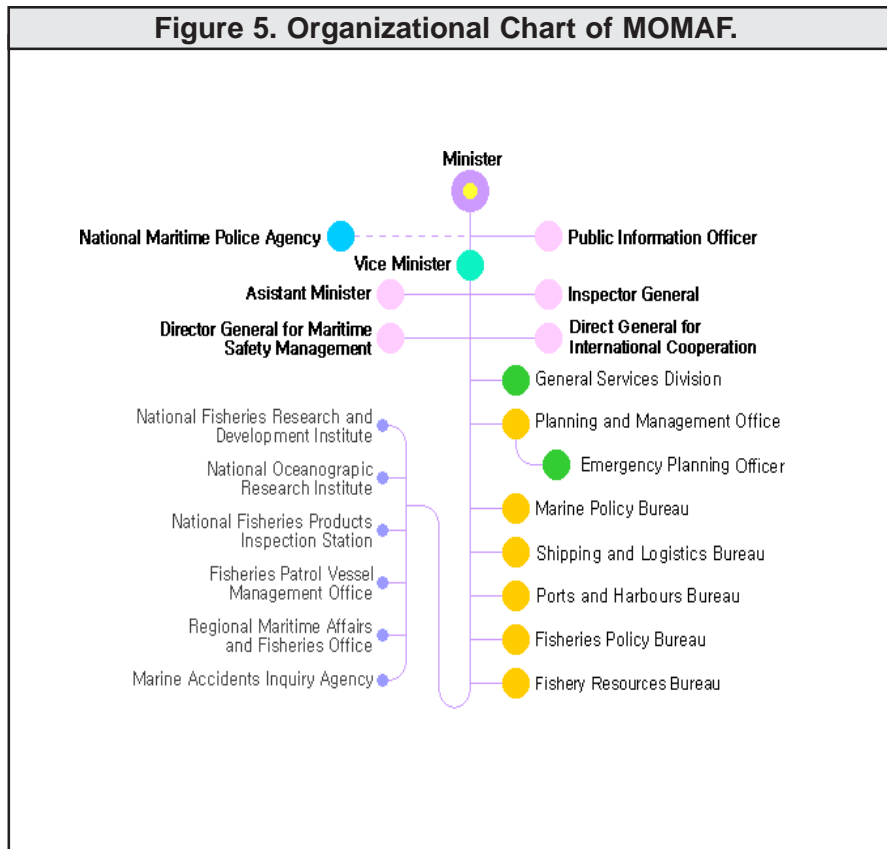
Source: MOMAF, 1999.

<b>Table 18. ROK and Global Environmental Treaties.</b>			
<b>Title</b>	<b>Date of Signature</b>	<b>Date of Ratification/ Accession (a)</b>	<b>Date of Entry into Force for ROK</b>
International Convention for the Prevention of Pollution of the Sea by Oil, 1954 (as amended in 1962 and in 1969)	—	31/07/78(a)	31/10/78
International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978	—	23/07/84(a)	23/10/84
International Regulations for Preventing Collisions at Sea, 1960	—	—	—
1972 Amendments to the 1960 International Regulations for Preventing Collisions at Sea	—	29/07/77(a)	29/07/77
International Convention for the Safety of Life at Sea, London, 1974	—	31/12/80(a)	31/03/81
Convention on the High Seas, 1958, Geneva	—	—	—
Convention on the Continental Shelf, 1958, Geneva	—	—	—
International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969, Brussels	—	—	—
Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances other than Oil, 1973, London	—	—	—
International Convention on Civil Liability for Oil Pollution Damage, 1969, Brussels	—	18/12/78(a)	18/03/79

International Convention on the Establishment of an International Fund for Compensation of Oil Pollution Damage, 1971, Brussels	—	08/12/92(a)	08/03/93
International Convention on the Liability of Operators of Nuclear Ships, 1962, Brussels	—	—	—
Convention Relating to the Civil Liability in the Field of Maritime Carriage of Nuclear Materials, 1971, Brussels	—	—	—
International Convention Relating to the Limitation of the Liability of Owners of Sea-going Ships, 1959, Brussels	—	—	—
Protocols Amending the International Convention Relating to the Limitation of the Liability of Owners of Sea-going Ships, 1979, Brussels	—	—	—
Convention on Limitation of Liability for Maritime Claims, 1976, London	—	—	—
Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matters, 1972, London	—	21/12/93(a)	20/01/94
Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water, 1963, Moscow, London, Washington	—	24/07/64(a)	24/07/64
Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Seabed and Ocean Floor and in the Subsoil Thereof, 1971, London, Washington, Moscow	—	25/06/87(a)	25/06/87
Convention on the Prohibition of Military or any Other Hostile Use of Environmental Modification Techniques, 1977, Geneva	—	02/12/86(a)	02/12/86
Convention on the Conservation of Migratory Species of Wild Animals, 1979, Bonn	—	—	—
Convention on International Trade in Endangered Species of Wild Flora and Fauna, 1973, Washington	—	07/09/93(a)	07/10/93
United Nations Convention on the Law of the Sea, 1982, Montego Bay	14/03/83	29/01/96	28/02/96
International Convention for the Regulation of Whaling, 1946, Washington	—	29/12/78(a)	29/12/78
International Convention for the High Seas Fisheries of the North Pacific Ocean, 1952, Tokyo	—	—	—
Interim Convention on Conservation of North Pacific Fur Seals, 1957, Washington	—	—	—
Convention on Wetlands of International Importance Especially as Waterfowl Habitat, 1971(as amended in 1982 and in 1987)	—	28/03/97(a)	28/07/97
Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972, Paris	—	14/09/88(a)	14/12/88

Vienna Convention for the Protection of the Ozone Layer, 1985, Vienna	—	27/02/92(a)	14/12/88
Montreal Protocol on Substances that Deplete the Ozone Layer, 1987	—	27/02/92(a)	27/05/92
London Amendment to Montreal Protocol on Substances that Deplete the Ozone Layer, 1990	—	10/12/92(a)	18/03/79
Copenhagen Amendment to Montreal Protocol on Substances that Deplete the Ozone Layer, 1992	—	02/12/92(a)	02/03/95
Agreement on the Network of Aquaculture Centres in Asia and the Pacific, 1988, Bangkok	—	—	—
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1989, Basel	—	28/02/94(a)	28/05/94
International Convention on Maritime Search and Rescue, 1979, Hamburg	—	04/09/95(a)	04/10/95
United Nations Framework Convention on Climate Change, 1992, New York	13/06/92	14/12/93(a)	21/03/94
Convention on Biological Diversity, 1992, Rio de Janeiro	—	03/10/94(a)	01/01/95
International Plant Protection Convention, 1951, Rome	—	08/12/53(a)	08/12/53
The Convention on Civil Liability for Oil Pollution Damage Resulting from Exploration of Seabed Mineral Resources, 1977, London	—	—	—

Source: Lee et al, 1997.



Source : MOMAF Homepage. <http://www.momaf.go.kr>

<b>Table 19. Description of MOMAF Divisions.</b>	
<b>Office and Bureau</b>	<b>Main Responsibilities</b>
Director General for Maritime Safety Management	<ul style="list-style-type: none"> <li>• Develop and coordinate the master plan on marine safety</li> <li>• Coordinate programs on marine disaster prevention</li> <li>• Research and operate the vessel registration system</li> <li>• Supervise and coordinate inspection of dangerous cargo</li> <li>• Develop and manage the vessel inspection system</li> <li>• Supervise laws and policies concerning marine traffic and safety</li> <li>• Coordinate policies concerning vessel safety management</li> <li>• Coordinate programs on countermeasures to marine disasters</li> <li>• Develop and coordinate the master plan on navigational aid</li> </ul>
Director General for International Cooperation	<ul style="list-style-type: none"> <li>• Oversee and coordinate UNCLOS related matters</li> <li>• Conclude and operate bilateral or multilateral fisheries agreements</li> <li>• Promote cooperation with international fisheries organizations</li> <li>• Establish policies on exports and imports of fishery products</li> <li>• Improve trade conditions with foreign countries</li> <li>• Manage export and import system on fishery products</li> <li>• Implement fisheries agreements regarding the WTO</li> <li>• Promote fisheries cooperation between South and North Korea</li> <li>• Establish policies on distant water fisheries</li> <li>• Issue and manage fishing licenses for distant water fishing vessels</li> <li>• Develop distant water fishing grounds and overseas joint venture in fisheries</li> </ul>
Planning and Management Bureau	<ul style="list-style-type: none"> <li>• Coordinate major policies and National Assembly-related affairs</li> <li>• Manage organization and staff</li> <li>• Oversee legislative and litigation related matters</li> <li>• Develop and evaluate major investment projects</li> <li>• Oversee computerization and collection of marine and fisheries related data</li> </ul>
Marine Policy Bureau	<ul style="list-style-type: none"> <li>• Develop and coordinate comprehensive mid-to long-term plans regarding marine and fisheries</li> <li>• Develop and coordinate investment plans on marine research and development</li> <li>• Develop and coordinate plans to conserve marine environment and ecosystem</li> <li>• Develop, coordinate, and revise the master plan on coastal sea management and reclamation</li> </ul>
Ports and Harbours Bureau	<ul style="list-style-type: none"> <li>• Develop, coordinate and supervise basic plan on port policies and port construction</li> <li>• Estimate port traffic and port facilities demand</li> <li>• Oversee and supervise port construction projects</li> <li>• Coordinate policies on private capital inducement on port facilities</li> <li>• Oversee research and development of port construction technology</li> </ul>

Shipping and Logistics Bureau	<ul style="list-style-type: none"> <li>• Develop and coordinate shipping promotion related policies</li> <li>• Oversee cargo transportation by national vessels</li> <li>• Oversee the international vessel registration system</li> <li>• Develop and coordinate coastal shipping policies</li> <li>• Develop and coordinate plans to foster officers and seafarers</li> <li>• Establish policies on working conditions for seafarers</li> <li>• Supervise and coordinate policies on shipping</li> <li>• Develop international liner routes</li> <li>• Establish policies on coastal cargo and passenger transport</li> <li>• Supervise policies on seafarers</li> <li>• Oversee policies on improving the port logistics system</li> <li>• Supervise operation of port facilities</li> <li>• Coordinate vessel entry and departure and oversee order in open ports</li> </ul>
Fisheries Bureau Policy	<ul style="list-style-type: none"> <li>• Collect and coordinate fisheries related policies</li> <li>• Develop comprehensive plans regarding supply, demand and distribution of fishery products</li> <li>• Develop and coordinate comprehensive plans regarding fisheries processing</li> <li>• Develop, implement, and support the comprehensive plan on develop fishing community development</li> <li>• Develop and coordinate a plan to install basic facilities at Types 1 and 3 fishing ports</li> </ul>
Fishery Resources Bureau	<ul style="list-style-type: none"> <li>• Develop comprehensive plans on fisheries production</li> <li>• Coordinate policies on promoting coastal and near-sea fisheries</li> <li>• Coordinate policies on the effective use and development of coastal and near-sea fishing resources</li> <li>• Coordinate fishery policies with neighboring coastal states</li> <li>• Supervise policies on safe operations of coastal and near-sea fishing vessels</li> <li>• Develop comprehensive plan on mariculture</li> </ul>

Source: MOMAF Homepage.<http://www.momaf.go.kr>



<b>Table 20. Organizations Responsible for Marine Environment and Coastal Management.</b>	
<b>Organizations</b>	<b>Responsibilities</b>
<b>Ministry of Maritime Affairs and Fisheries</b>	
<b>1. Marine Policy Bureau</b>	
Marine Environment Division	<ul style="list-style-type: none"> <li>• Establish and coordinate marine environment basic plan</li> <li>• Implement marine environment related legislation and regulation</li> <li>• Define marine water quality for each water bodies and consult on marine utilization</li> <li>• Support environmental NGOs</li> <li>• International and regional cooperation in marine environment</li> </ul>
Marine Conservation Division	<ul style="list-style-type: none"> <li>• Establish marine debris management plan</li> <li>• Manage ocean dumping of wastes</li> <li>• Formulate conservation plan for marine wetland and ecosystems</li> <li>• Marine diversity conservation and genetic bank establishment</li> <li>• Manage dredging of contaminated coastal sediments</li> <li>• Public education on marine environment</li> <li>• Survey and protection of endangered species</li> </ul>
Coastal Planning Division	<ul style="list-style-type: none"> <li>• Formulate and coordinate national plan on integrated coastal management</li> <li>• National assessment of coastal zone and consultation with other ministries or agencies</li> <li>• Coordinate public waters management</li> <li>• Formulate and coordinate public waters reclamation plan</li> <li>• Coordinate marine tourism development</li> <li>• Plan and implement coastal improvement projects</li> <li>• Establish coastal management information system</li> <li>• Coastal waterfronts development and promote marine recreation</li> </ul>
<b>2. Fisheries Resources Bureau</b>	
Aquaculture Development Division	<ul style="list-style-type: none"> <li>• Formulate comprehensive plan on mariculture development</li> <li>• Develop countermeasures against fishery hazards</li> <li>• Capacity building for mariculture activities</li> <li>• Define environmental and sanitary criteria for mariculture ground</li> </ul>
Resources Management Division	<ul style="list-style-type: none"> <li>• Establish foundation for community-based fisheries management</li> <li>• Implement “Total Allowable Catch” management system</li> <li>• Formulate fishery resources management basic plan and action plans</li> <li>• Establish information system of fishery resources management</li> <li>• Manage protected area for fishery resources</li> <li>• Ocean ranching and artificial reef projects</li> <li>• Fishery larvae production and distribution</li> </ul>
<b>3. Director General for Maritime Safety Management</b>	
Marine Disaster Prevention Division	<ul style="list-style-type: none"> <li>• Coordinate marine disaster prevention</li> <li>• Marine pollution response</li> <li>• Formulate plan on ship-based marine pollution prevention</li> <li>• Implement legislation on damage compensation caused by oil pollution</li> <li>• Research and development on ship structure and facilities for preventing marine pollution</li> </ul>

	<ul style="list-style-type: none"> <li>Regulate maritime transport and storage of hazardous materials</li> <li>Regulate loading of special cargos and safe transport</li> </ul>
<b>Regional Administration of Maritime Affairs and Fisheries (11 regions)</b>	
Marine Environment Division	<ul style="list-style-type: none"> <li>Consult on marine water use and manage special management areas</li> <li>Clean-up of marine environment, and collect and treat marine debris</li> <li>Clean-up of abandoned and sunken ships</li> <li>Regulate public water management and reclamation inside trade port area</li> <li>Implementation of national ICM plan or coastal improvement projects</li> <li>Implementation of wetland conservation</li> </ul>
<b>National Maritime Police Agency</b>	
<b>1. Marine Pollution Control Bureau</b>	
Pollution Surveillance Division	<ul style="list-style-type: none"> <li>Monitoring and surveillance for marine pollution prevention</li> <li>Examination of ships and offshore facilities</li> <li>Employ and manage marine environment rangers</li> <li>Register oil cleaning-up firms</li> <li>Designate waste dumping ocean areas</li> <li>Collect fines under Marine Pollution Prevention Act</li> </ul>
Pollution Response Division	<ul style="list-style-type: none"> <li>Marine pollution response</li> <li>Report oil spills and apply response cost</li> <li>Training and education on marine pollution response</li> <li>International cooperation for marine pollution response</li> <li>Contingency planning for large-scale marine pollution accidents</li> <li>Research and development for marine pollution response</li> </ul>
Pollution Analysis Division	<ul style="list-style-type: none"> <li>Experiment and analysis on marine pollution</li> <li>Test of marine pollution response materials and chemicals</li> <li>Survey of marine pollution</li> </ul>
<b>2. Maritime Police Station (12 cities)</b>	
Marine Pollution Control Division	<ul style="list-style-type: none"> <li>Marine pollution monitoring and response</li> </ul>
<b>Provincial Government (8 coastal provinces)</b>	
<b>1. Environment Bureau</b>	
Environment Policy Division	<ul style="list-style-type: none"> <li>Establish environment management policy including natural environment, air, wastes, water quality, etc.</li> <li>Global environment issues or international environmental conventions</li> <li>Cooperation among local governments on environment management</li> <li>Institutional improvement or technology transfer on environment management</li> <li>Environment impact assessment and ecosystem survey</li> <li>Soil conservation, national park, wildlife protection</li> </ul>

Environment Conservation Division	<ul style="list-style-type: none"> <li>• Establish environment conservation plan</li> <li>• Implement air quality protection, management of polluting industries, sewage discharge, and hazardous chemicals</li> <li>• Environment improvement fee</li> <li>• Designate and manage natural environment protection area</li> </ul>
Environment and Resources Division	<ul style="list-style-type: none"> <li>• Establish waste management plan</li> <li>• Waste reduction and recycling</li> <li>• Waste sanitary land-fill and incineration facilities</li> </ul>
Drinking Water and Sewage Division	<ul style="list-style-type: none"> <li>• Establish management plan on drinking water and sewage</li> <li>• Projects on drinking water and sewage, ground water</li> <li>• Protect drinking water sources</li> <li>• Manage wastewater treatment facilities</li> <li>• Water quality management of lakes and rivers</li> </ul>
<b>2. Agriculture and Fisheries Policy Bureau*</b>	
Maritime Affairs and Fisheries Division	<ul style="list-style-type: none"> <li>• Establish fisheries development plan</li> <li>• Protect fisheries resources and manage fishing activities</li> <li>• Prevent coastal pollution and marine environment conservation</li> <li>• Public waters management and reclamation</li> <li>• Register fishing vessels, shipping safety and fishery disasters</li> <li>• Recreational fishing boat management</li> <li>• Development of fishing villages</li> </ul>
<b>3. Korea Marine Pollution Response Corporation</b>	
<ul style="list-style-type: none"> <li>• Contingency plan on oil spill response</li> <li>• Research and development on oil spill response</li> <li>• Training and education</li> <li>• International cooperation</li> <li>• Cleaning up of abandoned ships</li> </ul>	

\* Example of Kyonggi Province

## Chapter 5

# THE IMPACTS OF THE REPUBLIC OF KOREA ICM POLICY AND LESSONS LEARNED

### A. IMPACTS ON EXISTING COASTAL USE AND MANAGEMENT

#### 1. *The Paradigm Shift for Balancing Economic Development and Environmental Protection*

Before the 1990s, economic growth was the dominant focus of ROK's policies. As a result, there was the uncontrolled utilization of natural resources, especially in the coastal zone. It was only when the detrimental effects of this exploitation began to be manifested that both the general public and government leaders became aware of the negative economic impacts associated with pollution and the high compensation cost for coastal reclamation.

Starting the 90s, the emergence of a regulation-oriented environment policy created conflicts with the traditional concerns regarding economic efficiency, consequently polarizing stakeholders and government agencies in the environmental and economic sectors. After the paradigm shift, the partnerships between relevant actors and stakeholders increased toward sustainable development as highlighted during UNCED in 1992. Policymakers gradually began to see the linkages and inter-relatedness of the environment and economic development, as well as the long-term economic benefits of sustainable development.

The ICM Policy that subsequently emerged provided ROK with a new paradigm for balancing economic growth and environmental conservation. Integrated coastal planning and management became the foundation for reconciling values, sectors, and agencies. It also provided the impetus for these different actors to work towards common goals

and for promoting the participation of local governments and stakeholders.

#### 2. *Coordination among Various Sectors*

Before the creation of MOMAF, ocean and coastal resources were managed on a single-use or single-sector basis - i.e., fisheries resources were managed by the Fisheries Administration under the MOAFF; shipping and port by the Shipping and Port Administration under the MOCT; marine science by the MOST; marine environment by the MOE; deep sea-bed resources by the MOIR; oil spill response and ship-based pollution by the Maritime Police under the MOHA.

The creation of MOMAF provided an institutional framework to apply area-based, multiple-use based and integrated approaches to managing ocean and coastal resources, which encompass various uses in the coastal zone and national territorial seas as well as in the EEZ. For instance, the Marine Development Basic Plan or Ocean Korea 21, as a national policy framework for ocean and coastal resources development and management, identified goals, objectives, priorities, and action programs covering various ocean sectors and uses.

MOMAF promotes the value of the ocean and coast as a whole through various public awareness activities. It mobilizes the public to be stewards of the ocean - a fundamental<sup>24</sup> yet previously impossible task under the fragmented ocean governance framework.

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<sup>24</sup> Ocean stewardship is fundamental to the long-term implementation of sustainable ocean and coastal development.

The creation of an intersectoral, interagency coordinating mechanism such as the Coastal Management Council of MOMAF strengthened national capacity to understand the diverse nature of ocean uses, rationalize priorities among uses, resolve conflicts and make authoritative decisions.

### *3. Promoting Local Participation*

Before the Coastal Management Act, the direct involvement of the local government and local stakeholders in coastal development and management policy was very limited. This changed in the mid-1990s with the implementation of the decentralization policy and the expansion of the responsibilities of local governments in environmental management and area development.

Around this time, the voice of environmental NGOs became stronger which sometimes led to serious confrontation with the government. But these clashes were lessened with the advent of ICM planning, which to some extent facilitated the channeling of local demands into the official consultation process.

In principle, the successful involvement of local stakeholders can only be tested through the process of local ICM planning.<sup>25</sup>

According to MOMAF's guidelines for formulating local ICM plans (MOMAF, 2000), local governments are required to conduct consultations with relevant sectoral agencies and stakeholders and to submit the draft plan to the local ICM council for review before the draft plan is submitted to MOMAF for approval. The draft plan is also reviewed by the Central Coastal Council before it is approved by the Minister of MOMAF.

### *4. The Turning Point for National Land Use Planning*

The ICM policy proved to be a turning point for national land use planning. This fact was made clearer

with the development of the Comprehensive Plan of Development in National Territory and the Public Waters Reclamation Plan. The former, in particular the Fourth Comprehensive Plan of Development in National Territory, incorporated ICM as a guiding principle for the management of coastal and marine resources and the environment; while the nature of the latter changed from a reclamation promoting plan to reclamation restricting plan - i.e., by strengthening countermeasures such as environmental impact assessment, continuous monitoring after the completion of reclamation project, and mitigating wetland loss.

The ICM mechanism also provided the foundation for the incorporation of the watershed area in the designation of the SMAs and MPAs under the Marine Pollution Prevention Act. As a consequence of this, the problems of coastal water pollution and habitat degradation can be more effectively addressed.

### *5. A New Direction for the Environmental Management Policy*

In general, environmental policy in ROK in the last three decades has been developed to respond to emerging problems associated with economic development projects, rather than to prepare for long-term sustainable development. Most of these policies have ex post facto alternatives based on the "command and control" approach, which do not consider economic effectiveness or the voluntary participation, resulting from economic incentives. This gap between policy and reality has resulted in high implementation costs, the lack of capacity building and buffering mechanisms, and the consequent limited implementation of environmental policy.

The adoption of the integrated management approach, which linked environment concerns with economic needs and encouraged the involvement of local stakeholders, facilitated the implementation of an environmental policy. It also introduced a new

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<sup>25</sup> As of 2002, 19 local governments have prepared local ICM plans.

concept - i.e., sustainable development, whereby environmental conservation complement economic growth.

For example, although the SMAs under the Marine Pollution Prevention Act was institutionalized in 1982, the designation of the landward component and the preparation of the management plan took place only after the adoption of the ICM policy in 2000 through local stakeholder consensus.

## **B. CONSTRAINTS AND LIMITATIONS REGARDING IMPLEMENTATION**

### ***1. Conflicts with Existing National Land Use Zoning Policies***

Under the present land use policy, most national territory including the landward component of the coastal zone is regulated through national zoning schemes. Although existing zoning schemes do not effectively consider the unique features of coastal environment and resources, much of the seaward portion of the coastal zone is still regulated under the national land use planning policy as "Fishery Resources Conservation Areas" and "Marine Parks".

It is still uncertain how national or local ICM plans can complement existing national land use zoning schemes without creating major conflicts. Although the Article 11 of Coastal Management Act provides a mechanism for allowing the change of existing zoning schemes for the purpose of sustainable coastal development, administrative tools or capacity are yet to be developed by MOMAF to apply this article. For example, the guidelines for formulating a local ICM plan developed and distributed by MOMAF in 2000 provide clauses for coastal space zoning but

these guidelines have not yet been backed up by legislation and the MOTC has not given its consent to the endeavor.

Continuous adjustments or amendments must be made to existing national land use zoning schemes through ICM planning. If efforts are not expended, the National ICM plan will not result in substantial changes to existing coastal development patterns.

### ***2. Conflicts with the Land-Oriented Environmental Policy***

Institutional arrangements for environmental management in ROK have been strengthened drastically during the past three decades (1970s-2000s) in response to the adverse environmental impacts of rapid industrialization and urbanization. The number of environmental laws has increased from one to 30 in this short span of time.

It must be noted, however, that the institutional strengthening efforts did not automatically lead to the improvement of environmental management practices due to the following factors:

- Various laws were enacted following the models of developed countries without effectively taking into account the unique socio-economic situation of ROK.
- The weakness of local implementation capacity was not fully considered.
- Regulation-oriented measures were adopted.
- Public awareness was still very low at that time.

In coastal areas, the unique environmental system added another level of complication. In some instances, the construction of large-scale sewage treatment plants discharged more nutrients after the primary treatments, thereby, contributing to an increase in eutrophication and algal blooms in the affected areas.



In the case of river basin management, the focus of environmental management has only been on the protection of drinking water sources. Little attention has been paid to the important roles of estuaries, which have critical impacts on the health of coastal ecosystems. As a consequence, most of the estuaries in ROK have been destroyed by dam construction and coastal reclamation, resulting in the deterioration of many important coastal habitats, and nursery and breeding grounds for important fish species.

Although there is a law on waste management, no institutional measures have been provided for treating solid wastes disposed in coastal waters from land-based activities. In this regard, the implementation of an integrated coastal policy will have to confront certain constraints stemming from the land-oriented environmental policy which is coordinated and executed by MOE.

### *3. Weak Coordination with Existing Maritime Affairs and Fisheries Policies*

The basic functions of MOMAF are related to fisheries, shipping, and ports and marine policy<sup>26</sup>. While “fisheries”, and “shipping ports” have been handled by the Korean government as traditional maritime policy arena, marine policy is regarded as a new field that focuses on integration and coordination on ocean and coastal management. In principle, therefore, all maritime and fisheries policies should be integrated under the functional heading of “marine policy”.

In reality, coordination on port construction, fisheries management, and the formulation of the national ICM plan has been limited thus far; and multi-sectoral issues related to port construction, shipping, or fishing activities have not yet been addressed in a comprehensive manner. The national ICM plan has to find its own niche - i.e.,

one that is not under the umbrella of traditional maritime and fisheries policies.

Even with the creation of MOMAF, there is still a tendency towards sector-based management - mainly due to the agency's limited experience in integrated and coordinated approaches to ocean governance. Efforts are yet to be made in the area of capacity building, the development of administrative tools and mechanisms, and the creation of public awareness. Stakeholders and policymakers should understand that without a stronger coordinating mechanism for the maritime and fisheries sectors within MOMAF, the implementation of the integrated coastal policy will be significantly constrained.

### *4. Weak Capacity of Local Governments for ICM Policy Implementation*

After the creation of the MOMAF, institutional changes were made in coastal local governments to strengthen their administrative capacity in dealing with maritime and fisheries issues. In many cases, the divisions or bureaus handling fisheries matters were reorganized and tasked to deal with maritime and fisheries policy and ICM.

Due to the time lag between structural changes and the actual strengthening of capacity, most of the local organizations dealing with maritime and fisheries matters continued with very weak capacities to coordinate the implementation of the integrated coastal policy by various sectoral agencies. The situation was further complicated by the fact that, as the newly created organizations in local governments did not have any previous experience in environment management or area planning<sup>27</sup>, the existing ICM plan of ROK focused on re-evaluating and reallocating coastal development plans.

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<sup>26</sup> The Marine Policy Bureau has the following functions: policy coordination, the marine environment, coastal management, marine science and technology, and marine tourism.

<sup>27</sup> Although a regular training program is conducted for local government officials by MOMAF, existing efforts have yet to be strengthened and diversified to meet the need for local capacity building in integrated coastal management.



## C. LESSONS LEARNED

### 1. *The Initiation of the Integrated Coastal Policy*

The experience of ROK in the initiation of an integrated coastal policy is summarized below:

- The evolution of the integrated coastal policy was initiated with a paradigm shift by the ROK society from short-term growth-oriented development toward long-term sustainable development.
- Government efforts toward an integrated coastal policy were effectively initiated under the umbrella of an integrated ocean governance system, through the MOMAF.
- Environmental degradation and multiple use conflicts associated with uncontrolled and competing coastal development provided a rationale for adopting integrated management approaches.

### 2. *The Formulation of the Integrated Coastal Policy*

The following is a characterization of ROK's policy formulation process:

- Major consideration was taken during the formulation of the integrated coastal policy of coastal land and seawater zoning schemes, coastal zone boundaries, the coordination among governments and sectoral agencies, the coordination between national and local governments, and the involvement of coastal stakeholders, especially grassroots NGOs.
- The formulation of the integrated coastal policy was followed by appropriate legislative and organizational changes and strengthening.
- The direct involvement of the private sector was limited during policy formulation, but the interests of relevant sectors were represented and defended by each Ministry.

### 3. *The Implementation of the Integrated Coastal Policy*

Several insights may be gained from ROK's experience with regard to the implementation of an integrated coastal policy. These are as follows:

- An integrated coastal policy is a mechanism for balancing economic development and environmental protection.
- An integrated coastal policy promotes the participation of local governments and various stakeholders in coastal environmental management and area planning.
- An integrated coastal policy has the capacity to change the direction of national land use policies, as well as environmental management policies in coastal zones.
- The implementation of an integrated coastal policy is constrained by existing national land use zoning schemes, land-oriented environmental management practices, the strong sectoral management of port construction and fisheries, and the weak capacity of local governments in ICM.

### 4. *The Elements of the Integrated Coastal Policy*

In ROK's experience, the following elements were necessary for ICM policy formulation and implementation:

- The paradigm shift from short-term economic growth to long-term sustainable development;
- The integration of the ocean governance system;
- The recognition of cross-sectoral problems associated with coastal utilization and development;

- The provision of appropriate measures for:
  - Coastal land and sea water zoning scheme;
  - Coastal zone boundary incorporating land and seawater components;
  - Coordination mechanism among governments and sectoral agencies;
  - Coordination mechanism between national and local governments; and
  - Involvement of coastal grassroots NGOs and other stakeholders; and
- The requirements for an effective implementation of integrated coastal policy, such as:
  - Appropriate changes in existing land use policies or zoning schemes;
  - Appropriate changes in environmental management policies or practices to effectively address the land and seawater interface issues;
  - Strengthening of policy tools and mechanisms to effectively coordinate existing sectoral management authorities; and
  - Strengthening of local government capacity for ICM.

The ROK experience in the development of a national coastal policy has been a long, and continuing process. Despite this, many useful lessons have been learned which may contribute to the global learning process in ICM.

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