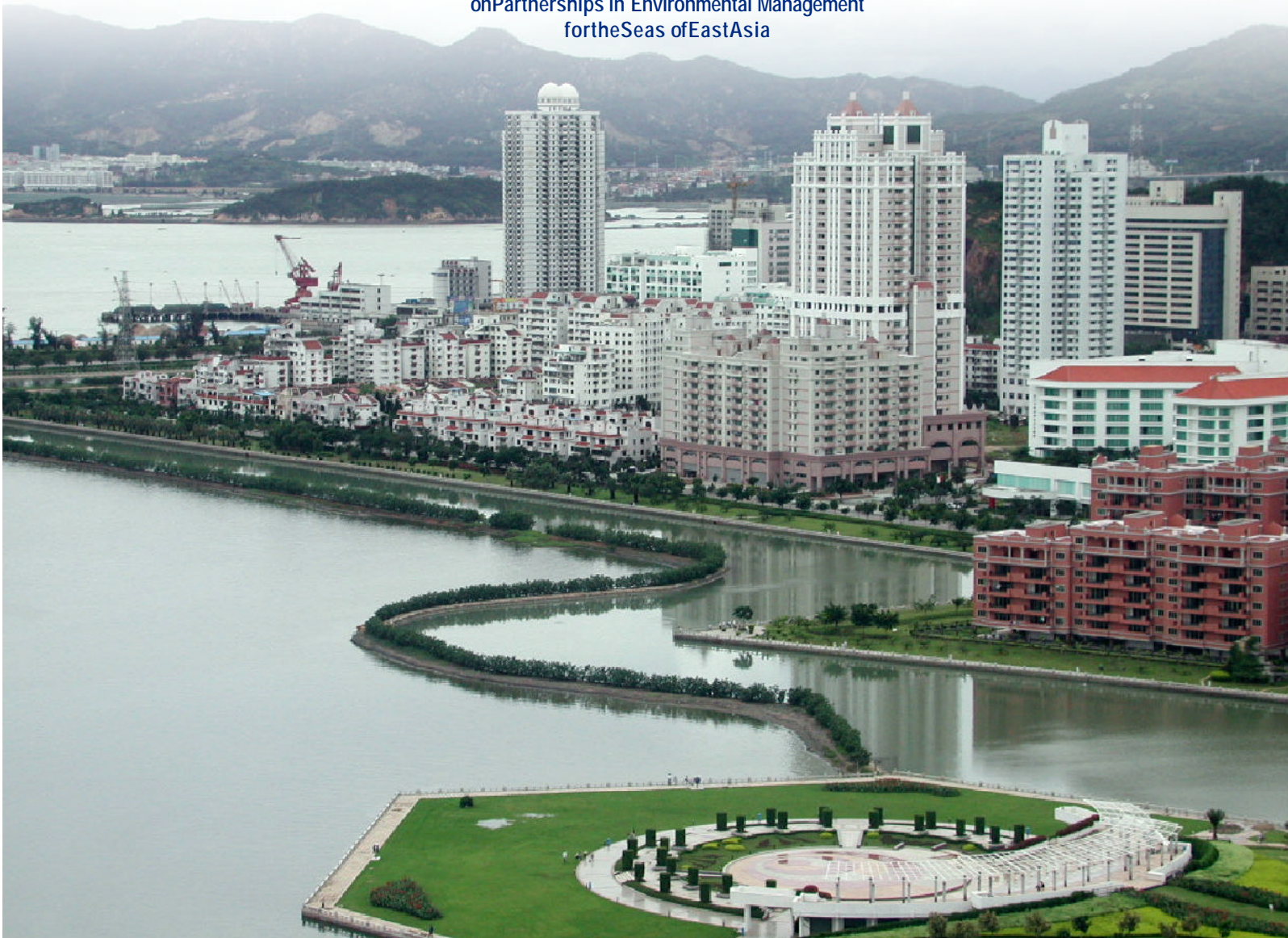


# The Development of National Coastal and Marine Policies in the People's Republic of China: A Case Study



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**

**THE DEVELOPMENT OF NATIONAL COASTAL AND MARINE POLICIES  
IN THE PEOPLE'S REPUBLIC OF CHINA: A CASE STUDY**

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 Acronyms**

BSEMP	Bohai Sea Environmental Management Project
CAS	Chinese Academy of Sciences
COBSEA	Coordinating Body on the Seas of East Asia
COMAR	Coastal and Marine Lands and Waters
EEZ	Exclusive Economic Zone
FA	Fishery Administration
GDP	Gross Domestic Product
GEF	Global Environment Facility
GOOS	Global Ocean Observation System
ICM	Integrated Coastal Management
IMO	International Maritime Organization
IOC	International Oceanographic Commission
IOC/WESTPAC	Sub-Commission for the Western Pacific of the Intergovernmental Oceanographic Commission
IOI	International Ocean Institute
ISA	International Seabed Authority
LOS	Law of the Sea
MARPOL	International Convention for the Prevention of Pollution from Ships
MEPL	Marine Environmental Protection Law
MTSL	Maritime Traffic Safety Law
MOA	Ministry of Agriculture
MOF	Ministry of Finance
MOLR	Ministry of Land and Resources
MOSR	Ministry of Scientific Research
MOT	Ministry of Transportation
MPP-EAS	GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas
MWW	Ministry of Water Works
NGO	Non-Government Organizations
NPC	National People's Congress
NOIC	National Oceanographic Information Center
NSQS	National Seawater Quality Standards of PR China
PEMSEA	GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia
PICES	North Pacific Marine Science Organization
PR China	People's Republic of China
RPV	Regulation on the Prevention of Pollution by the Discharge of Harmful Substances
RSCFV	Regulations Governing Supervision and Control of Foreign Vessels

RSSR	Regulations Concerning Seagoing Ship Register
SC	State Council
SCEPC	State Council Environmental Protection Committee
SCIO	State Council Information Office
SAUML	Sea Area Use Management Law
SEPA	State Environmental Protection Administration
SETC	State Economic and Trade Commission
SOA	State Oceanic Administration
SPC	State Planning Commission
STA	State Tourism Administration
UN	United Nations
UNCED	United Nations Conference on Environment and Development, Rio de Janeiro, 1992
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational Scientific and Cultural Organization
WTO	World Trade Organization

## **Acknowledgment**

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

This case study was prepared by Dr. Huming Yu, and Mr. Chunlin Ruan, researchers of CIMA, from 2000 to 2001, in fulfillment of a contract with PEMSEA.

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

## **Executive Summary**

The essential elements of an integrated coastal and marine policy were identified in this paper to serve as the analytical framework for the present study. Efforts to develop an integrated national coastal and marine (COMAR) policy for the People's Republic of China during three major historical phases (*i.e.*, 1949-1978, 1978-1993, and 1993-present) were examined and the major environmental problems and management issues in COMAR areas were characterized. The classification of these three historical phases is based on the following criteria: major historical events, changes in the COMAR socioeconomic structure and their impacts on national development; and changes in the policies and legal framework related to the COMAR areas. Related development and management policies and programmes were also assessed, including the efforts implemented by concerned international conventions, as well as the successes and failures in the search for an integrated COMAR policy.

Due to the efforts by various COMAR stakeholders over the years, significant progress has been made in the clarification of property and use rights concerning the sea areas and the development of integrated sea area management mechanisms and legal regimes, thereby facilitating the resolution of multiple use conflicts. A user fee scheme has been developed and implemented according to the assessments of ecosystems and socioeconomic values of the sea areas, thus contributing to the sustainable use of the resources. A mix of administrative, legal, economic, research and development measures have been undertaken to encourage good practices in resource conservation and environmental protection in the COMAR area.

Despite the progress made however, marine fish resources continue to be depleted, highlighting the urgent need for innovative approaches to fisheries management. Since the effective implementation of integrated COMAR policies is constrained by the management capacity of relevant authorities, the role of the general public, nongovernment organizations (NGOs), enterprises, the private sector, as well as the scientific and local communities in COMAR policymaking and implementation should be strengthened. More efforts that take into account the interactions of river basins, catchment areas and the associated coastal and marine habitats are needed to cultivate the perception of COMAR area as a management unit. There is also a need to develop high-level COMAR policymaking and execution mechanisms, *e.g.* an Inter-Ministerial Policy Forum and a top-level implementation arm.

Considering the Chinese experience, it is a misconception that a highly-centralized planning economy facilitates the adoption of integrated management approaches. Experience shows that a system which can readily incorporate the views of stakeholders and the discoveries and assessments of scientific communities would be more favorable to the development of integrated management approaches. The participation of subnational governments and local communities is an essential factor to the process. As livelihoods are directly affected by the impacts on the environment, these are important driving forces for COMAR changes. Their initiatives push national policy towards the direction of integrated COMAR management. Another important element is the formation of a broad alliance of stakeholders to overcome powerful sectoral interests and to convince those resistant to change. To broaden the consensus and build such an alliance, efforts should focus on the most important, well-targeted, straightforward, and specific priority issues.

A national review of multiple use conflicts and their associated ecological and socioeconomic consequences could be the catalyst for national policy changes. In undertaking the assessment, it is not enough to show “environmental problems” and attribute them to “governance failure” in general terms. The assessment should address the two most important aspects, namely:

- The nature of the adverse consequences and how they are caused or aggravated by the failures of single sector-based management systems in handling the cross-sector issues; and
- The success stories of integrated coastal and marine management.

In the Chinese experience, the above assessment played a critical role in changing the perceptions of decision makers, making them more open to the adoption of an integrated COMAR policy.

Current and future efforts with regard to a COMAR policy should build on the progress of the past years. Developing and strengthening of the following should be undertaken:

- A National Coastal and Marine Policy as part of the state policy for sustainable development — through cross-sectoral and stakeholder consensus building at all levels;
- A national interagency coordination mechanism within the State Council to oversee the implementation of the National Coastal and Marine Policy;
- A cross-sectoral committee for coastal and marine issues within the framework of the National People’s Congress as an important stakeholder consultative forum;
- An interagency law enforcement network and teams at sea;
- A special legal, regulatory and management framework for coastal and marine areas across administrative boundaries — *e.g.*, internal waters, major estuaries and bays;
- An appropriate package of regulatory and market-based instruments to ensure environmental and resource sustainability;
- Participation and involvement of stakeholders in the formulation of coastal and marine policies and the management of development projects; and
- Cross-sectoral and multidisciplinary research, monitoring, assessment and information systems that effectively address the management of multiple use issues and impacts.





# Chapter 1

## INTRODUCTION

### 1.1 PEMSEA AND THE CASE STUDY

Countries in East Asia depend heavily on the seas they share for the improvement of their economies and standard of living. As such, the region's coastal and marine resources continue to be degraded at an alarming rate, despite efforts being made for their conservation.

One of the main thrusts of the work of PEMSEA is to assist the countries in the region in their search for innovative approaches to environmental management and improvement. PEMSEA continuously encourages the formulation and adoption of integrated approaches in managing coastal land and water uses as part of their respective state policies for national economic and social development. It also conducts cross-sector assessments of National Coastal and Marine Policy Development and encourages countries to share their experiences. This case study, sponsored by PEMSEA, is part of the above series of assessments.

The study aims to examine the challenges and rewards related to the development of a national coastal and marine (COMAR) policy in the People's Republic of China, and to identify the elements of a model national COMAR policy and the requirements for its implementation.

Specifically, the paper aims to:

- a. Discuss the efforts made in developing an integrated coastal and marine management framework in PR China;
- b. Identify the rationale behind these efforts and the actions taken in policy formulation, and the adoption and implementation of a framework;
- c. Describe the implementing legislation for

coastal and marine management, by discussing the relevance of each legislation and its adequacy in relation to developing the integrated coastal and marine management framework, other implementing legislations, and the national socioeconomic development priorities and programmes of PR China;

- d. Explain the administrative and organizational set-up related to the development of an integrated coastal and marine management framework, and to identify, where applicable, any institutional difficulties;
- e. Give a preliminary evaluation of the benefits and costs of adopting a national integrated coastal and marine management framework; and
- f. Point out policy practices derived from the Chinese experience by citing particular events or instances that show such practices.

### 1.2 RELEVANCE AND LIMITATIONS OF THE CASE STUDY

While the essential elements of integrated COMAR policies should be uniform in any place and circumstance, their *modus operandi* and levels of implementation may differ, based on their specific national and local conditions.

Although significant strides have been made in this direction, PR China is still in the process of developing an integrated COMAR policy. Its experiences, therefore, must be considered in the proper context.

The development of an integrated COMAR policy in the country has taken place under certain circumstances. The following characterize the milieu in which the above process is proceeding:

- The national economy is undergoing structural changes, essentially moving from centralized planning to market mechanisms.
  - The coastal and marine economy is playing a lead role in overall national economic development.
  - The coastal zone is bearing the brunt of fast population growth, labor-intensive economies, and open-entry resource uses.
  - Rapid coastal economic development is accompanied by increased multiple use conflicts and the deterioration of environmental quality.
  - There is an increasing awareness of the need for, as well as the costs and benefits of, the improvement of coastal and marine management for sustainable development at both the national and local levels.
  - Efforts to conserve coastal habitats and protect marine environment.
- a. The development of high-level consultation and policymaking mechanisms for COMAR issues;
  - b. Cross-sector and inter-agency reviews and permit processes for coastal development projects, based on stakeholder consultations and public participation;
  - c. A legal framework for, and the effective enforcement of, an appropriate mix of government and market-based interventions against multiple use conflicts and adverse environmental impacts, including implementing mechanisms of legal requirements at national and local levels;
  - d. The country's active participation in concerned international agreements and programmes to address issues of transboundary significance;
  - e. The treatment of COMAR issues and areas as management units and the incorporation of related concerns into national economic and social development programmes;
  - f. The implementation of multi-sector monitoring programmes for tracking environmental changes in the COMAR area;
  - g. Cross-sector sharing and assessments of COMAR-related data and information;
  - h. The implementation of programmes for the rational use, conservation and management of the COMAR environment and its resources;
  - i. Defined property and use rights in the COMAR areas that balance the interests of various stakeholders and the general public;
  - j. Sustainable financing options and mechanisms for the operation of COMAR management programmes and their implementing mechanisms;
  - k. The enhancement of public awareness of COMAR issues and the involvement of NGOs, industries, the private sector and the scientific and local communities in policy development and implementation; and
  - l. The regular monitoring and evaluation of

The Chinese experience demonstrates that the development of an integrated COMAR policy, and concomitant management system, contributes to sustainable development, and creates favorable conditions for the:

- Mitigation of adverse transboundary environmental impacts;
- Implementation of international conventions to which PR China subscribes; and
- Participation in international collaborative efforts related to marine affairs.

### **1.3 ANALYTICAL FRAMEWORK, APPROACHES, AND DEFINITIONS**

#### ***Analytical Framework***

For this case study, the following are the essential elements of an integrated COMAR policy:

COMAR policy implementation to provide feedback for management improvement.

The combination of these elements comprise the analytical framework for the case study, and the criteria for the assessment of COMAR policy-related events and developments.

### **Approaches**

The study is organized into eight chapters briefly described as follows.

Chapter 1 serves as the introduction to the issues at hand and the approaches taken by the authors in developing the paper.

Chapter 2 examines the changes in the national COMAR policy during the three major historic periods:

- 1949-1978, when national economic development initially occurred;
- 1979-1993, when economic structural reform and policies were instituted opening PR China to the world; and
- 1991 to present, when economic development accelerated.

Chapter 3 provides an analysis of the interconnectivity of changes in coastal populations; the environment and its resources; and economic activities and management systems. The factors that trigger the development of an integrated COMAR policy — including details, reasons for successes and constraints — are also discussed in the chapter. This section was included to provide a context for the illustration of the failures and consequences of bad policies, as well as the potential rewards for the adoption of an integrated COMAR policy.

Chapter 4 analyzes the changes in the mandates of major agencies with regard to COMAR management as a result of COMAR concerns and the government

structure in the three historic periods. This chapter also discusses the major management programmes that will help identify the policy development targets.

Chapter 5 examines the legal framework for COMAR — composed of various COMAR-related laws, regulations, and rules at the national and local levels. Major national laws and regulations related to COMAR are also examined in terms of their appropriateness and effectiveness.

Chapter 6 considers the interconnectivity of national efforts in developing the COMAR policy and the country's activities on the international plane, including those concerning international conventions and programmes. This section was included to help illustrate how transboundary issues are treated in developing national COMAR policies.

Chapter 7 discusses the efforts made in the development of the national legal framework and the implementing mechanisms for integrated COMAR management, focusing in particular on the national legislation for sea area use management.

Chapter 8 summarizes the experiences gained from the Chinese efforts to develop coastal and marine policies to facilitate the sharing of these lessons within the country and abroad. It also outlines future directions for integrated national COMAR policy development and provides recommendations concerning specific actions to be undertaken in the years ahead.

### **Definitions**

For the purposes of this case study, the following operational definitions will be used:

- **Integrated National COMAR Policy** - A state policy, as reflected in official national documents and practices, which defines the nation's course of actions in response to major

COMAR issues and impacts across sectoral, legal and administrative boundaries (both national and international).

- **COMAR Area** - Coastal lands and waters, which include watersheds and their catchment areas, marine habitats and ecosystems. In this study, COMAR area includes, the administrative zones of PR China's coastal provinces and municipalities and marine areas under national jurisdiction.
- **Stakeholders** - Institutions and individuals who have an interest in COMAR issues and areas, including government agencies, industries, private sectors, education and research institutions, local communities, nongovernment organizations and the general public.

## Chapter 2

### HISTORICAL BACKGROUND

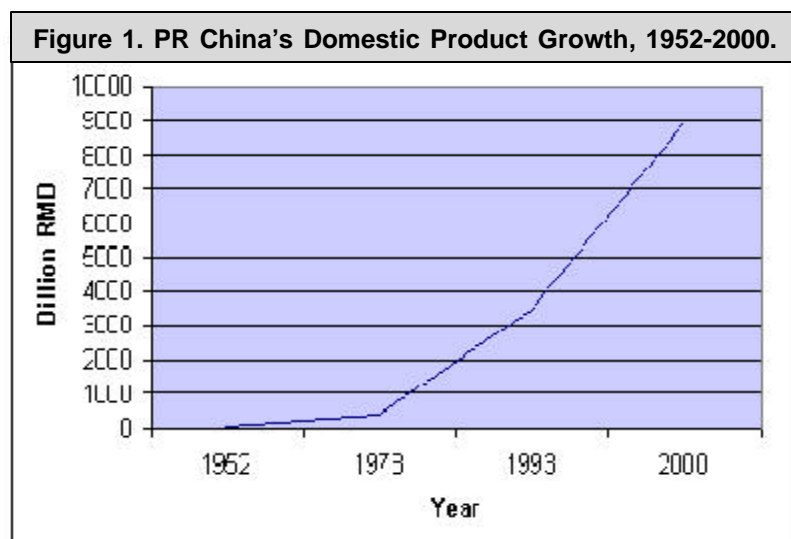
The Chinese COMAR Policy has evolved in three phases that closely follow the pattern of the country's social and economic development, *i.e.* Phase I (1949 - 1978), Phase II (1979-1993) and Phase III (1994 -present). The classification of the three phases takes into account milestones in national COMAR policy development and represent a process in which rapid economic growth has been intertwined with rapid coastal economic growth, increased multiple COMAR use conflicts and impacts, and the search for innovative approaches for managing use conflicts.

Table 1 illustrates the three phases, the country's socioeconomic development pattern, and the COMAR policies that developed during these stages. Figures 1 and 2 show the growth of the country's Gross Domestic Product (GDP) and the corresponding national economic structural changes during the three phases.

Agriculture largely dominated the national economy during Phase I. Towards the end of the phase, however, the heavy industry and construction sectors (secondary industries) began to play a more dominant role. The tertiary (service) industries — including the technology sector — were smaller than the agriculture

sector during this period. During Phases II and III, the secondary industries maintained their dominant position, but the service industry overtook the agriculture sector.

The coastal zone has contributed significantly to PR China's economy for many years. The 90s was a particularly favorable decade for coastal zones and the industries established in these areas. The contribution of coastal provinces and municipalities to the national economy achieved during this time was almost double the level achieved from 1952 to 1990 (Figure 3). Since then, the contribution of ocean related industries to the national GDP has picked up significantly (Figure 4). As of the year 2000, 11 coastal provinces and municipalities (Liaoning, Hebei, Tienjin, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian, Guangdong, Guangxi and Hainan) occupied less than 14 percent of the country's mainland area, but supported 41 percent of the country's mainland population and generated 62 percent of the mainland's GDP (China Statistic Press, 2001 and China Mapping Press, 2001). Available statistics show that the contribution of ocean-related industries (*i.e.*, maritime fisheries, maritime transportation, coastal tourism, shipbuilding, offshore oil and oil production, sea salt making and coastal placer exploitation) to national GDP increased from 2.2 percent in 1986 to 4.6 percent in 2000.



**Source:** State Statistics Administration, 2000 and 2001.

#### 2.1 PHASE I: 1949-1978

Phase I started in 1949 with the foundation of the People's Republic of China, and it ended in 1978 when the government adopted economic structural reform and policies which opened the country to the outside world. This phase

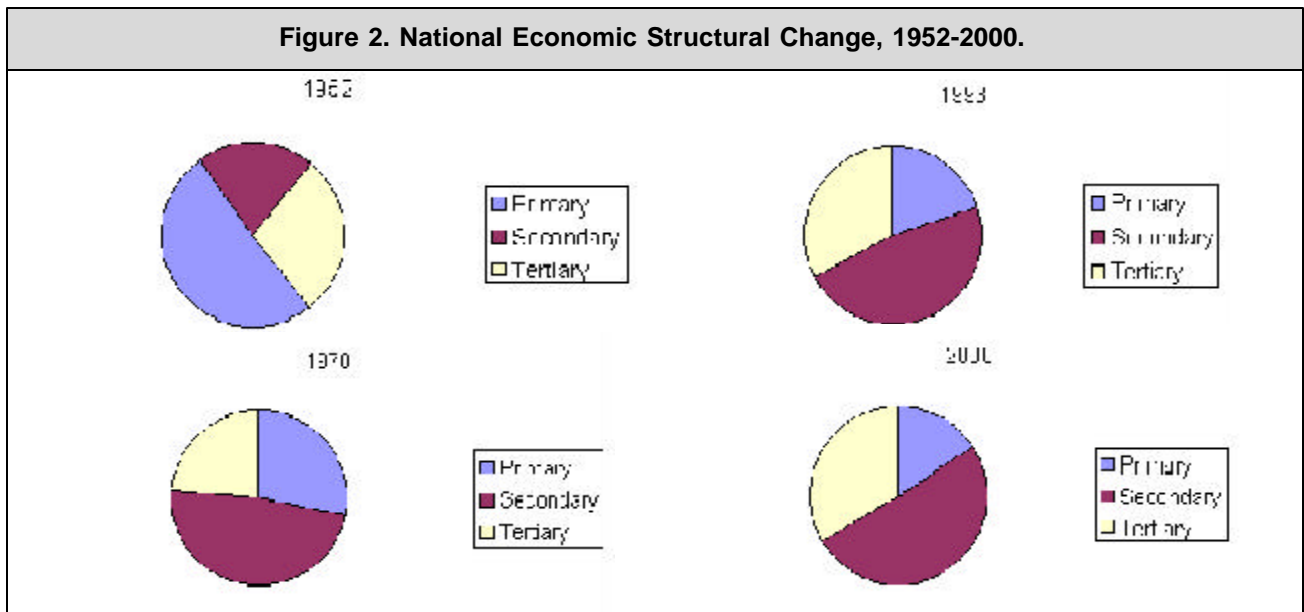
**Table 1. The Evolution of the National COMAR Policy in PR China.**

<b>Historic Period</b>	<b>Socioeconomic Pattern</b>	<b>COMAR Policy Features</b>
<i>Initial National Economic Development Under Central Planning, 1949-1978</i>	<u>1<sup>st</sup> to 5<sup>th</sup> Five-Year Plan:</u> <ul style="list-style-type: none"> <li>• Establishment of a self-reliant economy;</li> <li>• Lead role taken by coastal areas in the growth of the national economy;</li> <li>• “Cultural Revolution”, 1966-1976</li> </ul>	<ul style="list-style-type: none"> <li>• Open access in coastal uses;</li> <li>• Initiation of a nationwide oceanographic survey;</li> <li>• Large-scale coastal reclamation;</li> <li>• First signs of overfishing and red tide;</li> <li>• Inclusion of pollution control and fisheries management in the national agenda</li> </ul>
<i>Introduction of Economic Structural Reform, 1978-1993</i>	<u>6<sup>th</sup> to 7<sup>th</sup> Five-Year Plan:</u> <ul style="list-style-type: none"> <li>• Initiatives for modern economy;</li> <li>• National policy on the prioritization of coastal development adopted;</li> <li>• Opening of the country to the outside world;</li> <li>• Growth of multiple COMAR use conflicts</li> </ul>	<ul style="list-style-type: none"> <li>• Rapid growth in COMAR use sectors, including shipping, fisheries, tourism, mining, waste disposal, etc.;</li> <li>• Nationwide coastal zone and island surveys;</li> <li>• Sea use zonation;</li> <li>• Development of marine protected areas;</li> <li>• Adoption of sea area use regulations by the State Oceanic Administration (SOA)/ Ministry of Finance to mitigate use conflicts</li> </ul>
<i>Accelerated Economic Development, 1993-present</i>	<u>8<sup>th</sup> to 10<sup>th</sup> Five-Year Plan:</u> <ul style="list-style-type: none"> <li>• Deepening of economic structural reform;</li> <li>• Spread of rapid economic growth from coastal area to the central and western parts of the country;</li> <li>• Entry into World Trade Organization (WTO);</li> <li>• Intensification of coastal multiple use conflicts</li> </ul>	<ul style="list-style-type: none"> <li>• Intensification of multiple COMAR uses;</li> <li>• Adoption of integrated management approaches by an increased number of coastal provinces and municipalities;</li> <li>• Paradigm shift of sea area use management from agency regulation to national legislation</li> </ul>

involves a period of 28 years, covering the first five “Five-Year National Social and Economic Development Plans” and the development of a self-reliant centralized planning economy.

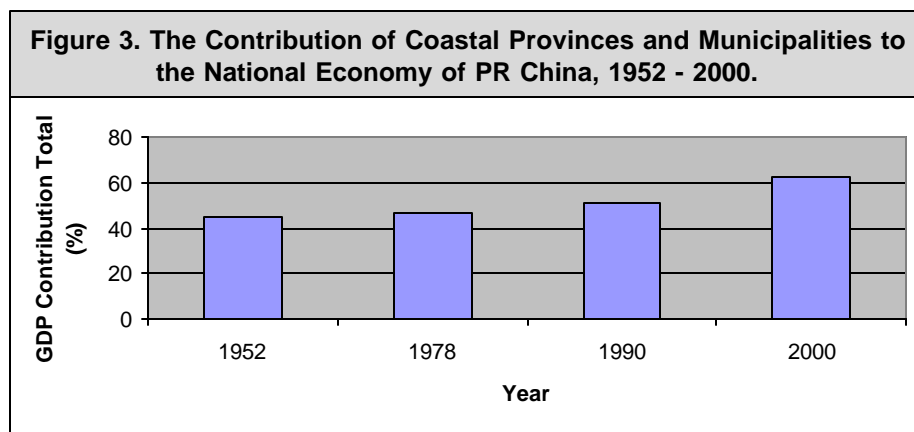
In late 1950s, the impacts of the large-scale reclamation of land from the sea that occurred in many parts of the country became obvious. During the time

of the First and Second United Nations Law of the Sea Conferences, the State Science and Technology Commission organized nationwide oceanographic surveys that contributed significantly to the formation of the country’s multidisciplinary oceanographic database. The first wave of national ocean awareness that followed these pioneering efforts led to the establishment of the SOA in 1964.

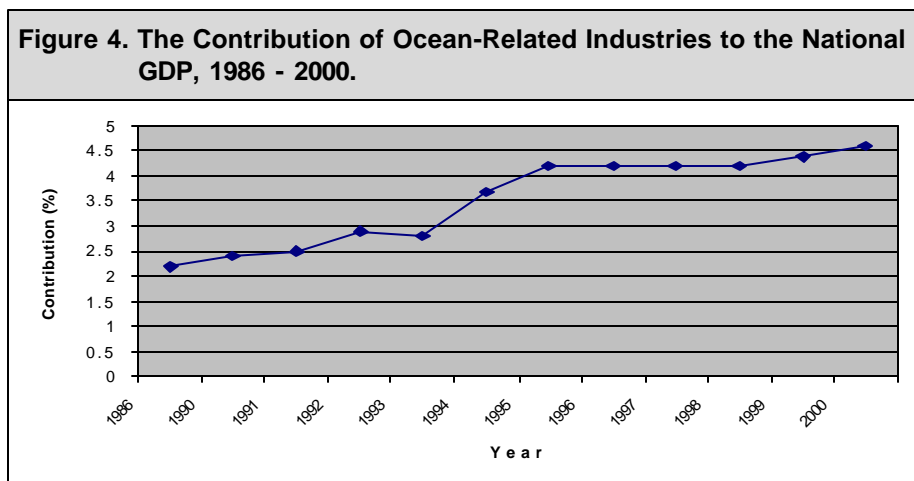


**Source:** State Statistics Administration, 2000 and 2001.

**Note:** Primary = primary industries (agriculture); Secondary = secondary industries (industries and construction) and Tertiary = tertiary industries (transportation, telecommunication, commerce, food, etc.).



**Source:** State Statistics Administration, 2000 and 2001.



**Note:** The term “ocean-related industries” as used here refers to maritime fisheries, maritime transportation, coastal international tourism, shipbuilding, offshore oil and oil production, sea salt making, and coastal placer exploitation.

The main features of the COMAR policy during Phase I include:

- The emphasis on developing marine science, technology, monitoring, data services, etc.;
- The development of sectoral policies and laws on maritime safety and aquatic resource conservation; and
- The recognition of the need to mitigate overfishing, marine pollution, and other problems in government policy.

A significant event in the development of a COMAR Policy during this time was the implementation of Special Economic Zones (SEZ) in coastal areas in 1978. The event changed coastal use patterns and management approaches.

## **2.2 PHASE II: 1978-1993**

Phase II started in 1978 and ended in 1993 with the promulgation of the Interim Management Rules for National Sea Area Uses by the SOA and the Ministry of Finance. For the first time in PR China's legal system, multiple use conflicts in coastal waters were treated as the main targets for regulatory efforts. This stage in the development of the national COMAR policy covered the Sixth and Seventh Five-Year National Economic and Social Development Plans, and marked the transition of the country from a "centrally-planned economy" to a "socialist market economy".

Starting in 1978, SEZs as well as government policies were established that first aimed at the development of the coastal area and then their utilization as leverages to economic growth in the central and western parts of the country.

In the 80s, PR China increased its efforts to absorb foreign capital and technology to develop its industry in cooperation with foreign companies. From 1980 to 1987, the SOA took the lead in conducting an

interagency nationwide comprehensive survey of coastal environment and natural resources, developing a nationwide sea use zonation programme, and undertaking a survey of offshore islands' environment and natural resources (China Ocean Press, 1992). Also during this period, PR China conducted Antarctic expeditions, became a member of the Antarctic Treaty Organization, carried out a series of polymetallic nodule surveys in the Pacific Ocean, and acquired the "Pioneering Investor" status.

By the end of 1997, PR China had signed 131 contracts and agreements with 67 oil companies from 18 countries and regions, and expended a total capital close to US\$ 6 billion for the oil industry (SCIO, 1998). It was during this time that more than 100 oil and gas deposits were discovered, and 1.7 billion tons of oil reserves and 350 billion m<sup>3</sup> of natural gas were found. Twenty oil and gas fields were under development.

In 1997, with an offshore oil and natural gas industry in place, PR China's offshore oil output exceeded 16.29 million tons and its natural gas output stood at four billion m<sup>3</sup>. Offshore oil and gas production therefore became a new major COMAR industry.

The main features of the COMAR Policy in this phase are as follows:

- The improvement and amendment of major sectoral legislation on maritime safety, fisheries management, marine environmental protection; and the prevention of marine pollution by land- and sea-based sources, etc.;
- Increased emphasis on environmental protection and resources conservation in government policies;
- Enhanced COMAR research, monitoring, assessment and technological capabilities; and
- The recognition of the need to address multiple COMAR area use conflicts and interagency policy issues.



Towards the end of Phase II, PR China had already established a database for the COMAR environment and natural resources, including social and economic status and characteristics.

### 2.3 PHASE III: 1993-PRESENT

The early 1990s were generally regarded in PR China as a new phase in the country's economic structural reform. Recognizing that it lagged behind many advanced countries in economic development and the sustainable use of coastal and marine resources, PR China made great efforts to gain membership in the WTO.<sup>1</sup>

Phase III started in 1993 and continues to this day, covering the periods that include the country's Eighth, Ninth, and Tenth Five-Year National Economic and Social Development Programmes. During this phase, national development emphasis gradually shifted from the coastal areas to the central and western parts of the country.

A fast growing coastal population and economy have posed unprecedented pressure on the integrity of the ecosystems and the sustainability of the resource base in the COMAR area, thus hampering rational uses of COMAR resources. To respond to these challenges, PR China has incorporated the issues of rational use and the protection of COMAR resources and environment into cross-century national economic and social development programmes. National ocean awareness has increased significantly, and this is reflected in the following:

- The adoption of national legislations regarding the implementation of the UN Convention on the Law of the Sea (*e.g.*, the decision for ratification of the convention and the laws for

territorial sea, contiguous zone, Exclusive Economic Zone (EEZ) and continental shelf, and the government declaration on the baselines of the territorial sea);

- The adoption of regulations for managing foreign marine scientific research in waters under PR China's jurisdiction; and
- Major policy research aimed at making the country a "powerful maritime state", on sustainable ocean economic development and on the rational use of coastal and marine natural resources and environments (SOA, 2001a).

COMAR area development has provided the impetus for economic growth in the country. This growth has, however, unleashed multiple COMAR use conflicts with severe environmental and socioeconomic consequences affecting provincial and local governments. They have searched for innovative management approaches for use conflict resolution.

Prior to the enactment of the national Sea Area Use Management Law (SAUML), most of PR China's coastal provinces and municipalities took the initiative of developing local regulations for sea area uses, incorporating to various extents the Interim Management Rules of National Sea Area Uses. Some local governments, such as the Xiamen Municipal Government in collaboration with the GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas (MPP-EAS), and PEMSEA, adopted integrated coastal management (ICM) systems. Guangdong, Guangxi, and Hainan Provinces have followed the example of Xiamen and adopted ICM approaches with support from UNDP Beijing (SCIO, 1998).

The main features of COMAR policy development in this phase include:

<sup>1</sup> It should be noted, however, that despite all the efforts made thus far, scientific and technological levels in China are still relatively low, and the modes of production in many areas are not at par with the world's advanced level of development.

- Multiple COMAR area use conflicts placed on the national policy agenda;
- Increased ocean awareness, as reflected in the adoption of implementing legislation on the UN Convention on the Law of the Sea (UNCLOS);
- The further improvement and development of national legislation and the implementation of regulations related to COMAR use sectors — *e.g.*, fisheries management and marine environmental protection;
- Initiatives undertaken by subnational governments to adopt an ICM system; and
- National legislation for integrated sea area use management.

The enactment of SAUML of PR China in October 2001 was the most important milestone in national COMAR policy development during this phase (March 1993), which built on the practices of the Interim Management Rules for Seas Area Uses.

## Chapter 3

### ISSUES AND OPPORTUNITIES

#### 3.1 COMAR ECOSYSTEM FEATURES

PR China is located off the Western Pacific Ocean and is adjoined by the Bohai Sea, Yellow Sea, East China Sea, and South China Sea (Figure 5). It has 65,000 islands — 5,000 of which have an area of over 500 m<sup>2</sup> each (Yang and Liu, *et al.*, 1999).

The country exercises sovereign rights and jurisdiction over vast continental shelves and EEZs as defined by UNCLOS (SOA, 2001b). The seas surrounding the country have an area of 4.76 million km<sup>2</sup> with an average water depth ranging from 18 m in the Bohai Sea to over 1,200 m in the South China Sea (Table 2).

PR China has identified the sustainable development of COMAR areas as an important state policy and declared the rational use and protection of the seas and oceans as a historic mission considering that the proportion of the natural resources in the country is lower than that of the world's average.

#### Hydrological Conditions

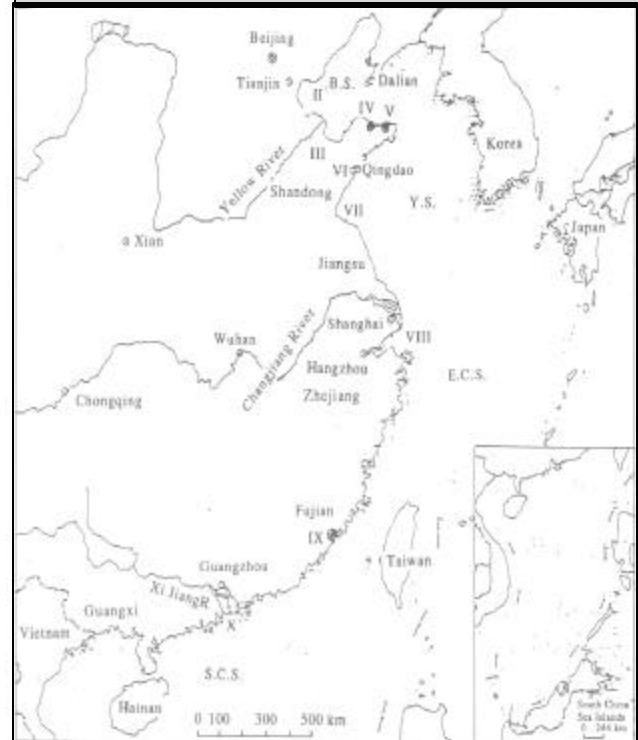
There are 14 major rivers in PR China — including the Changjiang River, the Yellow River, the Heilongjiang River, and the Pearl River — which flow to the sea. The drainage basin area of these rivers accounts for over 50 percent of PR China's total land area (about 9.6 million km<sup>2</sup>) and the total runoff of these rivers amounts to 1.7 trillion m<sup>3</sup> annually.

The seas adjoining the country are located mostly in the middle and lower latitude areas, and are thus subject to monsoon influence. The tidal range varies — *i.e.*, with an average of over three meters in the East

China Sea, two to three meters in the Bohai and Yellow Seas and about one in the South China Sea. The Kuroshio warm current and coastal currents are the most influential ocean currents in the seas surrounding PR China.

Typhoons and their associated torrential rains frequently visit the coastal areas, with most in the southern areas having abundant rainfall of over 1,000 millimeters.<sup>2</sup>

**Figure 5. The Map of the Seas Surrounding PR China.**



**Legend:**

- |                          |                            |
|--------------------------|----------------------------|
| B.S. - Bohai Sea         | IV - Yantai                |
| Y.S. - Yellow Sea        | V - Weihai                 |
| E.C.S. - East China Sea  | VI - Jiaozhou Bay          |
| S.C.S. - South China Sea | VII - Haizhou Bay          |
| I - Liaodong Bay         | VIII - Hangzhou Bay        |
| II - Bohai Bay           | IX - Xiamen                |
| III - Laizhou Bay        | X - Zhujiang River Estuary |

<sup>2</sup> The figure is lower in the northern areas of the country.

**Table 2. The Seas Surrounding PR China.**

Seas	Area km <sup>2</sup>	Average Water Depth (m)
Bohai Sea	77,000	18
Yellow Sea	380,000	44
East China Sea	770,000	370
South China Sea	3,530,000	1,212

### **Topographic Features**

PR China has a straight coastline of over 18,400 km, as well as an indented coastline of about 32,000 km. The length of the coastline of the country's offshore islands is over 14,000 km.

The country's coastal wetlands have a total area of about 180,000 km<sup>2</sup>, including an intertidal land area of 20,000 km<sup>2</sup>. Significant reduction of the coastal wetland area has occurred largely due to reclamation and other human activities.

The seas surrounding PR China are situated in the colliding zones of the Euro-Asian continental plate with the Pacific plate and of the Indian Ocean plate with the western side of the South China Sea. The interaction of these oceanic and continental plates creates island chains, back-arch basins, trenches and broad continental shelves, and causes volcanic and seismic activities.

### **Biological Characteristics**

The seas surrounding the country are the convergence zones of Pacific tropical and temperate marine biological communities. Major ecosystem types include mangroves<sup>3</sup>, coral reefs, marshlands, upwellings<sup>4</sup>, estuaries, islands and bays.

<sup>3</sup> Mangroves are situated mainly in Hainan, Guangxi, Guangdong and Fujian. Most of their habitats have been lost primarily due to human activities; only 22,000 hectares remain.

<sup>4</sup> Upwellings are found offshore of Fujian, Zhejiang, Guangdong and Hainan.

A total of 20,278 species of sea creatures may be found in the seas surrounding PR China (Huang, 1998) while 1,590 biological species — including mollusks, crustaceans, and algae — are found in China's tidal flats. About 150 fish species with market value abound in the seas. Among these are large yellow croakers (*Pseudosciaena crocea*), small yellow croakers (*Pseudosciaena polyactis*), hairtails, eels, Spanish mackerel, etc. There are also endangered marine species which include the Chinese White Dolphin (*Sousa chinensis*), dugongs (*Sirenia*), seals (*Phoca largha*), and lancelets (*Branchiostoma belcheri*).

## **3.2 MULTIPLE USE CONFLICTS**

### **Multiple COMAR Resources**

PR China's offshore areas are notable for their richness in seawater resources and renewable marine energy resources. The country has 13.33 million ha of shallow seas and tidelands with 2.6 million ha of the water surface suitable for raising aquatic products. At present, 2.8 million km<sup>2</sup> have been developed into fishing grounds while 938,000 ha are being utilized for aquaculture.

Additionally, there are more than 30 sedimentation basins, with a total area of nearly 700,000 km<sup>2</sup>, scattered in these offshore waters. It is estimated that 25 billion tons of oil resources and 8.4 trillion m<sup>3</sup> of natural gas may be found in these basins.

More than 160 bays indent PR China's coasts, with deep-water stretching several hundred kilometers long. Many spots along the coastline are suitable for constructing harbors and developing marine transportation. Around 1,500 or more tourist, scenic, and recreational spots are set to be developed for marine tourism.

**Multiple COMAR Uses**

The coastal and marine areas in PR China are used for a multitude of purposes — mariculture, offshore oil and gas, natural gas and tourism, among others. The figures below show the areas used and/or the value of such industries.

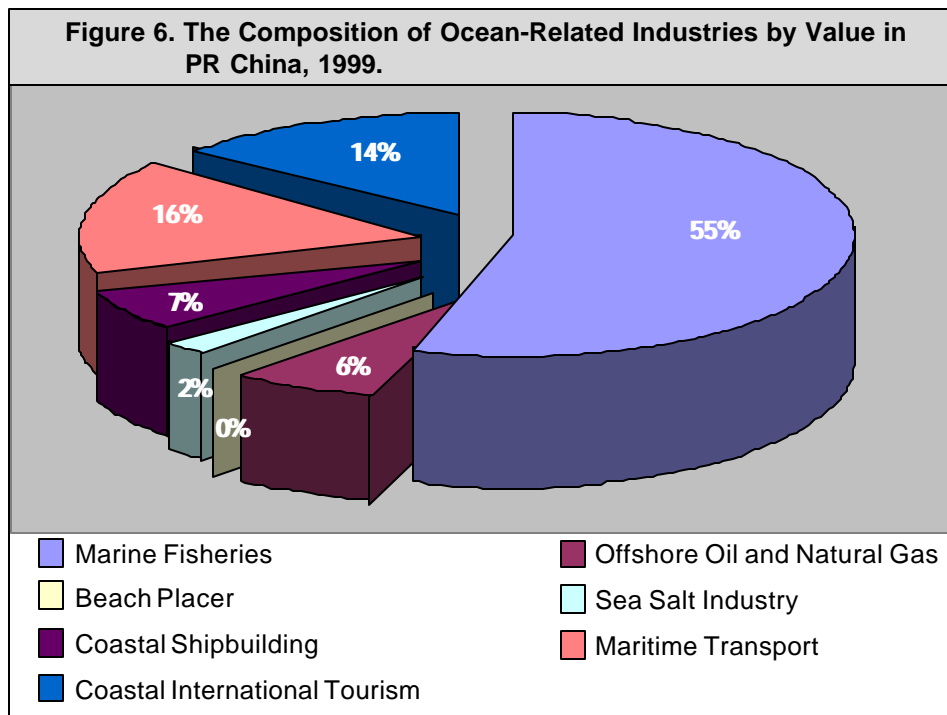
- As of 1999 data, 1,094 ha were used for mariculture.
- Gross output value of the offshore oil and gas industry reached 22.869 billion Yuan.
- Production of crude oil was 18.9123 million tons.
- Output of natural gas was 4.776 billion m<sup>3</sup>.
- Gross output value of the beach placer industry was 89 million Yuan.
- Output of sea salt was 20.514 million tons and the gross output value of sea salt industry was 8.270 billion Yuan.
- Annual maritime freight traffic is 1,984.37 billion ton-km. The volume of cargo handled in major coastal seaports amounted to 1.05 billion tons and resulted in an operational income of 57.278 billion Yuan.

- In recent years, the coastal areas created more than 300 marine and island tourism and recreational zones with a variety of marine themes as a result of an expanding marine tourism sector. In 1999, this sector received more than 13.31 million overseas tourists and produced a foreign currency income of US \$6.268 billion (China Ocean Press, 2000).

Figure 6 shows the order of importance in terms of value of ocean-related industries in PR China:

- a. Maritime fisheries;
- b. Maritime transportation;
- c. Coastal international tourism;
- d. Shipbuilding;
- e. Offshore oil and gas production;
- f. Sea salt making; and
- g. Beach placer exploitation.

With the rapid development of COMAR areas, major conflicts are increasing between and among mariculture/shipping and port development, coastal land reclamation and wetland conservation, coastal mining and measures to prevent coastal erosion, waste



Source: China Ocean Press, 2000.

disposal and the protection of the ecosystem and human health, offshore oil development and fisheries, and coastal subterranean freshwater and land uses.

#### **Conflicts Between Mariculture and Shipping/Port Development**

After decades of stagnation, PR China's marine fisheries started to pick up in the 1980s. As of 1999, production increased to more than 24.7 million tons. The growth in the fisheries industry led to the depletion of the stocks of major traditional species groups (yellow croakers, hairtails and cuttlefish, etc.). Although there have been some initial signs of recovery, stocks remain at low levels. Yet, mariculture continues to be the main priority of PR China's fisheries industry today.

The rapid development of major seaports in PR China in recent years is a result of the expansion of trade and shipping activities. Data in 1999 show that the number of coastal berths reached 1,392, including 490 capable of handling 10,000-ton ships. The total amount of cargo handled by PR China's maritime ports doubled from about 490 million metric tons in 1990 to 1 billion metric tons in 1999 (China Ocean Press, 1992 and 2000).

According to surveys conducted by the SOA during the formulation of SAUML, conflicts between fisheries and port development/shipping occurred in almost all ports.

In Dalian Port located at Dalian Bay bordering the Northern Yellow Sea, for example, the port authority spent millions of Yuan to compensate for the use of some traditional fishery areas for the expansion of the mooring area. This compensation did not totally arrest the encroachment by mariculture rafts. According to port authority reports, some 13-40 percent of the anchoring area was taken over by mariculture rafts

from 1987 to 1991, causing economic loss due to increases in the number of berthing days of visiting ships as a result of the shrinkage of anchoring areas. These reports also noted the concerns of fishermen who complained about the increased sediment loads in the water that inhibited the growth of cultured organisms. An increasing number of lawsuits for damage compensation have been filed over the years (Yu, 1994).

#### **Conflicts Between Coastal Wetland Reclamation and Conservation**

Over the years, there has been a growing recognition of the value of wetlands for ecosystem health and fisheries. About 10.5 million ha of tidal lands have been reclaimed for agriculture, salt-making fields, mariculture (e.g. shrimp ponds), ship berths, and other uses since the middle of the 20<sup>th</sup> century. This led to the loss of almost half of the country's tidal lands and about 70 percent of the country's mangroves, which has, in turn, led to the decrease in the production of shellfish (e.g., razor clams, and variegated clams and oysters) and the loss of general productivity in the reclaimed areas.<sup>5</sup>

The loss of the "green shelter" provided by mangroves also led to serious coastal erosion problems in some locations of PR China's southeast coast. Seawater intrusion inland reached seven meters after mangrove forests in Xiamen (Fujian Province) were cut. In Guangxi Province (1981), a 6.6 km-wide beach belt was reduced to 2.45 km in width as a result of 20 years of mangrove cutting (Yi, 1993).

#### **Conflicts between Coastal Mining and Shoreline Protection**

The 91 placer deposit locations in PR China's coastal lands and 68 locations in the country's waters produced 230,588 tons of coastal placer in the provinces

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<sup>5</sup>Many of the reclaimed mangrove areas offer little use. They are neither fit for agriculture nor for building shrimp ponds because of the strong acids released from the decay of mangrove roots.

of Shangdong, Guangdong, Guangxi, and Hainan in 1999 (China Ocean Press, 2000). Due to coastal placer production activities, a 10-km-long section of the coastline of Shangdong Province (adjacent to the Yellow Sea) retreated by 60-80 m from 1985-1990, causing direct damages of over two million Yuan. Studies of a two-year research project showed that the mining of 10 million m<sup>3</sup> of sand from shallow water sand dunes — 15 km in length and 600 m in width — caused the seawater invasion. Similar destructive sand mining incidents were reported in the coasts of Liaodong Bay in the Bohai Sea and Zhejiang Province adjoining the East China Sea.

Coral reef damage is among the greatest threats to PR China's coastal ecosystem. Unfortunately, due to the aforementioned activities, *i.e.*, mining for construction materials and ornaments, about 80 percent of coral reefs offshore of Hainan Province (one of the major coral reef areas in PR China) have already been damaged or brought to near extinction. In one case, the disappearance of coastal protection by those reefs almost wiped out a local village when 300 m of seawater ate up its coastline.

#### **Conflicts Between Waste Disposal and the Protection of Ecosystem and Human Health**

In 1999, the discharges of industrial and municipal waste effluents reached about 20.1 billion tons. A total of 5.6 million tons of industrial solid wastes were discharged — 3.4 million tons of which were treated, while 1.8 million tons were recycled. By 2000, about 65 offshore dumping sites were designated for dredged materials and put into use. A total of 538 permits had been issued for the disposal of 95.20 million m<sup>3</sup> of wastes.

Although the seas surrounding PR China are generally considered healthy, coastal waters are found contaminated to varying degrees with nutrients, oil and organics. In 2000, water quality in an offshore area of 0.2 million km<sup>2</sup> was found to be below Class I of the

National Sea Water Quality Standards while a 29,000 km<sup>2</sup> area had water quality lower than Class IV Standards (SOA, 2001c).

The frequency, geographic coverage, and duration of harmful algae blooms (red tide) occurrence offshore have significantly increased since 1970 due to the changes in coastal water quality and improved observation techniques and practices. The number grew from 106 red tide incidents in 1971-1989 to 200 from 1990-1999. In 2000 alone, there were 28 red tide incidents recorded covering an area over 10,000 km<sup>2</sup>.

Red tide resulted in the loss of more than 2.0 billion Yuan from 1997-1999 and about 0.3 billion Yuan in 2000.

#### **Conflicts Between "Oil and Fish"**

The amount of oil, and gas and their products handled by PR China's seaports increased from 82 million tons in 1986 to 190 million tons in 1999 (China Ocean Press, 1992 and China Ocean Press, 2000). This situation has increased the risk of oil spills. Around 45 such incidents were reported in 1997 and 1998. Estimates show that the total oil discharges from various sources offshore of PR China amount to at least 91,700 tons/year, without considering the unknown input from commercial vessels which is one of the most important sources of oil pollution (China Ocean Press, 1992).

Currently, about 25 offshore oil fields are being developed in PR China's offshore areas — mostly in the shallow waters of the semi-enclosed Bohai Sea. This has resulted in the widespread discharge of drilling mud and cuttings in the sites and the pollution of 25 percent of coastal waters and over 40 percent of the major estuarine waters in PR China. These areas had water qualities below the lowest limits of national seawater quality standards (0-05 mg/liter) due to high oil content. The long-term impacts of these discharges merit attention.

It should be noted, that the reported conflicts between fisheries and the oil industry are more related to the direct and tangible impacts on fisheries and fish resources brought about by oil spills and the loss of traditional areas for fisheries due to oil development. The serious biological effects of increased oil content in some coastal and estuarine waters (e.g. tainting or deformity) have been claimed by fishermen and are documented in some studies. However, scientific information obtained for the resolution of the administrative/legal disputes arising from these claims failed to prove the above causal relationship, leaving open the question of whether the effects were real and if monitoring and detection capabilities are adequate.

#### **Conflicts Between Coastal Freshwater and Land Uses**

Underground seawater invasion which affects most of the coastal areas in the northern part of PR China is caused by the cumulative impacts of underground freshwater use for industrial and drinking purposes, saline water use for salt production in various localities, and long-term drought. The case of the coastal plain of Laizhou Bay bordering the Bohai Sea offers a good example for impact analysis. In this particular area, the invasion had covered an area of 630 km<sup>2</sup> by 1990, rendering 7,446 freshwater wells unusable, reducing grain production by 500,000 tons in 1989, dislocating industrial plants and causing a serious shortage of quality drinking water.

### **3.3 OPPORTUNITIES FOR COMAR POLICY IMPROVEMENT**

Increased multiple COMAR use conflicts are a clear demonstration that the traditional management approaches, particularly the single sector-based management system, are not effective in the resolution of use conflicts. These conflicts are catalysts for management improvement and have served to

strengthen efforts to search for innovative management approaches. The opportunities for COMAR policy improvement are summarized below.

#### **Increased National Ocean Awareness**

The 1990s witnessed a series of efforts concerning the implementation of UNCLOS. The adoption of the Law on Territorial Sea and Contiguous Zone (1992), the Law on the Exclusive Economic Zone and Continental Shelf (1996), the regulations on the management of foreign-related marine scientific research (1996), and the declaration on the baselines of the territorial sea (1996) are examples of such efforts.

#### **Development of the Legal Framework for COMAR Management**

In response to the need to develop a legal framework for COMAR management, the government embarked on several programs. The first was the strengthening or revision of marine environmental laws and regulations, e.g., the regulations concerning prevention of damage to the marine environment by land-based pollutants and by coastal construction projects (1990), and the Marine Environmental Protection Law (MEPL) (1999). The second was the improvement of the legal framework for resource management through the revision of the Mineral Resources Law (1996) and Fisheries Law (2000). The third was the development of a legal framework in response to the increased multiple COMAR use conflicts through Sea Area Use Management Regulations (1993) and Legislation (2001).

#### **Strengthened Political Commitment to Sustainable Development**

The strengthening of the commitment of government leaders is manifested in the following:

- The organization of periodical field surveys by the Congressional representatives of the



National People's Congress regarding the compliance to laws and regulations for environmental protection and resources conservation;

- The recognition of the importance of building a maritime state; and
- The incorporation of the marine programme into the national economic and social development plan.

This augmented political commitment has been translated into the allocation of government resources for “the protection of lands, forests, grasslands, oceans and mineral resources” (People's Daily, 2001).

#### **Streamlining of Government Structure**

Government restructuring, which usually occurs in the cycle of national economic and social development program development, provides opportunities for policy review and the formulation of recommendations for improvement. The success or failure of the efforts to develop high-level integrated policymaking mechanisms for COMAR issues depends heavily on the results of the government restructuring process. One form of government restructuring is streamlining, a method that impacts significantly on the national policy-making and implementation mechanisms related to COMAR uses.

#### **Development of a COMAR-Related Knowledge Base**

Over the past 40 years, various COMAR-related sectors have jointly and individually undertaken research, as well as monitoring and assessment projects

regarding the COMAR environment and its natural resources. Through these efforts and the development of information and data centers, PR China now has a better understanding of the COMAR ecosystem features, the status and impacts of uses, and the operation of related management systems. This improved understanding has facilitated the change of perception of integrated management approaches.

#### **Strengthening of the Management Team**

Through the years, an increasing number of managers and staff at the national and subnational levels have received training on integrated approaches to managing COMAR environment and resources. Since many of them are also ICM practitioners, they see the benefits associated with implementing integrated approaches and support the development of an integrated national COMAR policy.

#### **International Assistance**

Ocean-related United Nations (UN) agencies, international donor agencies and NGOs have cooperated increasingly with concerned Chinese institutions for environmental protection and management, wetland and biodiversity conservation, the protection of endangered species, and research and development related to the COMAR area. Since institutional arrangements, technical advice, policy improvement, and the implementation of international conventions and training are components with international assistance projects, they offer opportunities for the introduction of innovative management concepts and techniques.

## **Chapter 4**

### **MANAGEMENT SYSTEMS**

#### **4.1 MAJOR PLAYERS IN COMAR POLICY DEVELOPMENT**

The major players in national COMAR policy development are the legislative bodies which include the National People's Congress (NPC) and its Standing Committee; the State Council or SC, and its subordinate organizations; subnational governments; and the general public including people's organizations and NGOs. The NPC is the supreme legislative organ while the SC is the supreme administrative organ.

The Chinese Constitution, as well as its laws and regulations, encourages the general public to participate in the formulation of policies related to resource development and environmental and ecological protection. Governments are required to encourage and reward institutions and individuals who make remarkable contributions to the protection and improvement of the environment.

Subnational governments (provincial, municipal and county governments) and their agencies are required to implement national policies, with a certain level of flexibility in policy modification, if needed. With the on-going economic structural reform, subnational governments in COMAR areas are given a higher level of autonomy with regard to local economic and social development programs. They participate in national COMAR policy development by making relevant recommendations.

As subnational governments bear the brunt of impacts of rapid economic development and multiple use conflicts, they are strong movers for COMAR policy change. This is illustrated by the initiatives undertaken by coastal provinces and municipalities to develop local legislation and regulations for sea area use management during the 1990s. These initiatives

paved the way for the national legislation in sea area use management.

SC members play a major part in PR China's national COMAR policy development. The members of the SC with ocean-related mandates are the following:

- The Ministry of Lands and Resources (MOLR);
- SOA — within MOLR's framework;
- The Ministry of Agriculture (Fishery Administration);
- The Ministry of Transportation (MOT);
- The State Environmental Protection Administration (SEPA);
- The State Economic and Trade Commission (SETC);
- The State Planning Commission (SPC);
- The State Tourism Administration (STA);
- The Ministry of Water Works (MWW); and
- The People's Liberation Army (Navy).

The operational roles and mandates of these agencies have changed over time, reflecting the evolution of the country's national COMAR policy. Before the 1980s, the main task of these agencies was solely to promote production, and government investments were channeled into the development of maritime transportation, fisheries (commercial fishing and aquaculture), sea salt making, coastal mining and other industries. It was in the early 1990s that the need to address multiple marine use conflicts and the need to develop an integrated marine management system were recognized. Hence, the government started to refocus its efforts on such concerns. Table 3 shows the roles and functions of COMAR-related national agencies as mandated by law.

**Table 3. The Mandates of National Agencies Related to COMAR in PR China.**

<b>Agency</b>	<b>Management Role and Function</b>	<b>Regulated Laws and Regulations</b>	<b>At-Sea Enforcement Responsibility</b>
<i>Ministry of Land and Resources</i>	<ul style="list-style-type: none"> <li>Mineral, land and sea resources mapping</li> </ul>	<ul style="list-style-type: none"> <li>Management Law</li> <li>Mineral Resources Law</li> <li>Mapping Law</li> </ul>	
<i>State Oceanic Administration</i>	<ul style="list-style-type: none"> <li>Ocean Law formulation and enforcement</li> <li>Ocean and coastal zone surveys</li> <li>Monitoring</li> <li>Research and information services</li> </ul>	<ul style="list-style-type: none"> <li>Sea Area Use Management Law</li> <li>Ocean Dumping Regulations</li> <li>Offshore Source Pollution Regulations</li> <li>Submarine Cables and Pipelines Regulations</li> <li>Foreign Marine Scientific Survey Regulations</li> </ul>	<ul style="list-style-type: none"> <li>Management Law</li> <li>Mineral Resources Law</li> <li>Mapping Law</li> </ul>
<i>Ministry of Transportation</i>	<ul style="list-style-type: none"> <li>Shipping and ports</li> <li>Maritime Safety</li> <li>Water way salvage</li> <li>Ship source pollution</li> </ul>	<ul style="list-style-type: none"> <li>Maritime Safety Law</li> <li>Ship Source Pollution Regulation</li> </ul>	<ul style="list-style-type: none"> <li>Maritime Safety Law enforcement</li> <li>Harbor superintendence</li> <li>Ship registration</li> </ul>
<i>Ministry of Agriculture</i>	<ul style="list-style-type: none"> <li>Capture and aquaculture fisheries</li> <li>Aquatic resources</li> </ul>	<ul style="list-style-type: none"> <li>Fisheries Management Law</li> <li>Aquatic Wildlife Protection Regulations</li> </ul>	<ul style="list-style-type: none"> <li>Fisheries Law enforcement</li> <li>Fishing port superintendence</li> </ul>
<i>State Environmental Protection Administration</i>	<ul style="list-style-type: none"> <li>National environmental policy</li> <li>Pollution from land-based sources</li> <li>National natural resources</li> </ul>	<ul style="list-style-type: none"> <li>Environmental Protection Law</li> <li>Land-Based Sources Pollution Regulations</li> <li>Coastal Engineering Pollution Regulations</li> </ul>	
<i>Customs Administration</i>	<ul style="list-style-type: none"> <li>Anti-smuggling</li> </ul>	<ul style="list-style-type: none"> <li>Customs Law</li> </ul>	<ul style="list-style-type: none"> <li>Anti-smuggling</li> </ul>
<i>Ministry of Public Security</i>	<ul style="list-style-type: none"> <li>Public safety at sea</li> </ul>	<ul style="list-style-type: none"> <li>Various laws and regulations for public safety and social security</li> </ul>	<ul style="list-style-type: none"> <li>Illegal drug trafficking</li> </ul>
<i>Ministry of Water Works</i>	<ul style="list-style-type: none"> <li>Water resources</li> <li>Water conservation projects</li> </ul>	<ul style="list-style-type: none"> <li>Water Law</li> </ul>	

<i>Ministry of Health</i>	<ul style="list-style-type: none"> <li>• Quarantine (including animals and plants)</li> <li>• Food security</li> </ul>	<ul style="list-style-type: none"> <li>• Quarantine regulations</li> <li>• Border area quarantine</li> </ul>	
<i>State Administration of Cultural Heritage</i>	<ul style="list-style-type: none"> <li>• Cultural relics</li> </ul>	<ul style="list-style-type: none"> <li>• Underwater cultural relics regulation</li> </ul>	
<i>State Planning Commission</i>	<ul style="list-style-type: none"> <li>• Coordination in national economic and social development planning, including marine development programmes</li> </ul>		
<i>State Economic and Trade Commission</i>	<ul style="list-style-type: none"> <li>• Coastal industries and commerce</li> </ul>	<ul style="list-style-type: none"> <li>• Saltmaking Regulations</li> </ul>	<ul style="list-style-type: none"> <li>• Salt administration</li> </ul>
<i>State Tourism Administration</i>	<ul style="list-style-type: none"> <li>• Coastal and marine tourism sites and activities</li> </ul>		
<i>People's Liberation Army</i>	<ul style="list-style-type: none"> <li>• National defense and security</li> <li>• Naval affairs</li> </ul>		<ul style="list-style-type: none"> <li>• National Ocean Laws</li> </ul>

**Source:** Yu, 1997; Li, 1999; and Jiao, Ruan and Yu, 2000.

The general public is encouraged to participate in policy development on resource development and environmental protection. A common requirement of legislation is for governments to encourage and reward institutions and individuals who have made remarkable contributions to protect and improve the environment. The role of peoples' organizations, NGOs, industries and the private sector is still evolving.

**State Oceanic Administration (SOA)**

The SOA was established in 1964 with the primary mandate for oceanographic survey and research. During the 1984 governmental restructuring, however, its mandate was modified to include marine environmental monitoring, and the management of environmental protection work in relation to offshore petroleum exploration and exploitation, and ocean dumping activities.

As a result of another government restructuring in 1988, SOA was charged for the first time with the responsibility of "integrated ocean management;" the formulation of basic marine laws, regulations and policies; national marine development programmes; marine use zonation; and coastal zone survey and management, in addition to its existing functions. However, the existing legal framework did not provide for the mechanisms needed for "integrated ocean management", e.g., the coordination of marine resource uses and coastal zone management.

Ever since the UN Conference on Environment and Development (UNCED) in 1992, which espoused the principle of sustainable development and called for the improvement of integrated policy and decision-making processes related to coastal and marine uses, the SOA's mandate has continually changed. In 1993, for example, the agency was authorized, among others, to manage sea

area uses; develop marine nature reserves; and build up marine enforcement capability. In 1998, having been placed within the framework of the MOLR, the agency was required to review and issue permits for sea area uses and levy use fees; develop marine scientific and technical programmes, marine environmental protection standards and criteria, standards for sewage discharges into the sea and a total pollution load control system; and monitor activities in the sea areas under national jurisdiction.

#### **State Environmental Protection Administration (SEPA)**

SEPA plays a lead role in overall environmental management. More specifically, it is in charge of preventing and managing pollution from land-based sources and coastal engineering projects and supervising and managing national nature reserves and the development of national environmental quality standards and effluent discharge standards. It is also responsible for interagency consultations and coordination on national environmental policy through the State Council Environmental Protection Committee (SCEPC). In 1998, specific reference was made in SEPA's mandates to pollution management and ecosystem protection for "major river basins."

PR China's legal framework for environmental management assigns the implementation of environmental policies to various concerned agencies. For example, while the SEPA "provides guidance, coordination and supervision," the SOA is the implementing agency for marine environmental protection and enforcement of the sea particularly with regard to pollution from offshore structures and sea waste disposal. Due to the multiplicity of agencies involved in certain tasks, the division of work between the SEPA and other concerned agencies is not very well defined. There is still much room for further clarification on the agencies' mandates pertaining to environmental policy formulation and implementation in PR China.

#### **Ministry of Transportation (MOT)**

In the 1960s, the MOT was given the responsibility for ensuring safety at sea, the management of ocean-going vessels and crews, and port development. In the 1970s, its mandate was expanded to include the prevention and control of marine pollution by ship sources. In 1984, the MOT was tasked to undertake shoreline use planning and review, and to approve shoreline use projects as part of its responsibilities for ports, navigation channels and waterway salvage activities. Its mandate was again reviewed in 1998, with the growing concern for the increase in oil spill incidents and the consequent problem of oil pollution. The ministry was given the task of developing a contingency plan as well as proper responses to oil spills from shipping accidents.

#### **Fishery Administration (FA)**

The FA was responsible for the management of fishing activities and fishery resources conservation in the early 1980s. In 1984, the FA was tasked with management of the environmental impacts of fishing vessels; the preservation of the fishery biological balance through fishery nature reserves, as well as fishing area and seasonal closures; and the issuance of permits for aquaculture production. Over the next few decades, however, environmental protection and biological preservation became the focus of the FA's efforts, gradually shifting from fishing production promotion to the control of fishing efforts for sustainable fishery development.

## **4.2 COMAR DEVELOPMENT AND MANAGEMENT PROGRAMMES**

Since the adoption of a policy geared towards the coordinated, multiple use and sustainable development of coastal and marine industries, PR China has worked hard to upgrade its capacities in fisheries, transportation, salt making and other

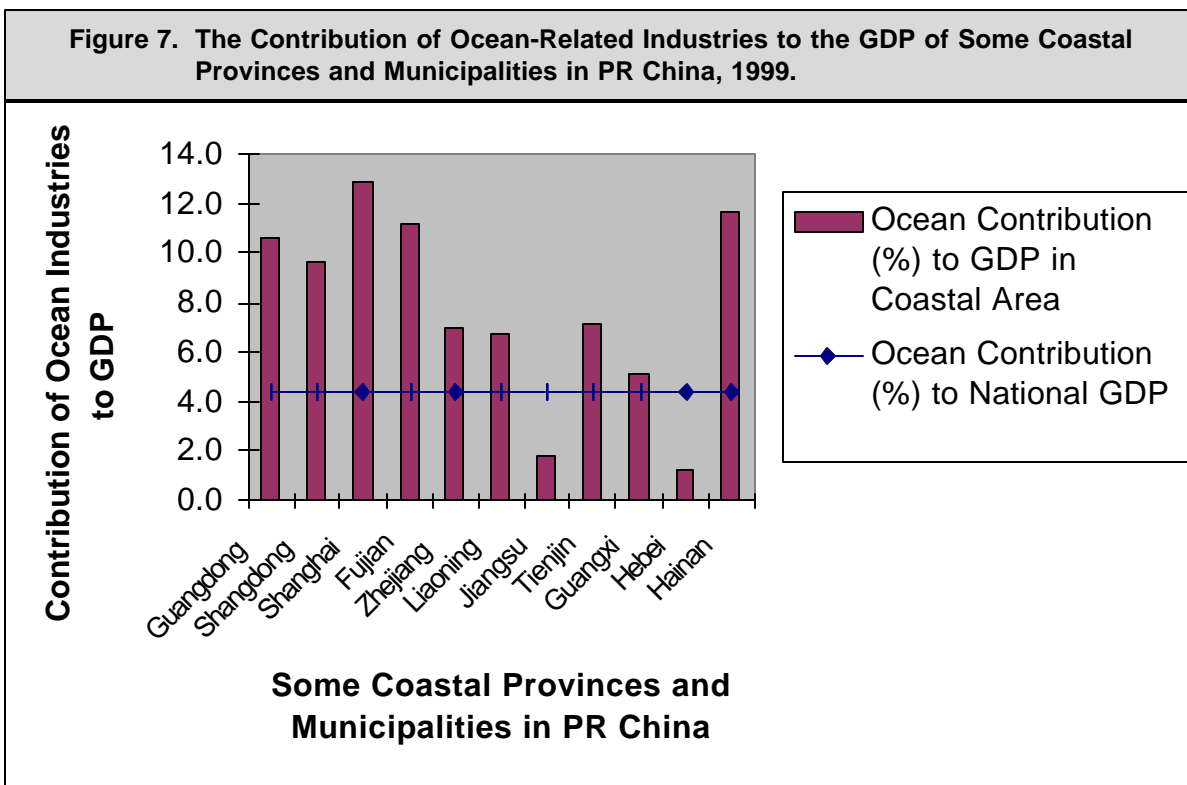
traditional ocean-related industries. At the same time, the country has spared no effort to develop ocean-related industries, *e.g.*, mariculture, offshore oil and gas, coastal tourism and marine pharmaceuticals. It is currently trying to tap the potential commercial value of seabed mining, seawater resources extraction and ocean energy generation, and to actively explore new marine resources.

Ocean industries — including maritime fisheries, maritime transportation, coastal international tourism, shipbuilding, offshore oil and gas production, sea salt making and coastal placer exploitation<sup>6</sup> — contributed about 2.2 percent (22.6 billion Yuan) to the country's GDP (1,020 billion Yuan) in 1986 and 4.6 percent (413.4 billion Yuan) of the national GDP (8,940.4 billion Yuan) in 2000.

Figure 7 shows, the contribution of ocean industries in coastal areas, specifically, in the 11

mainland coastal provinces and municipalities. The GDP amounts to 7.7 percent — well beyond the level of ocean industries' contribution to the national GDP. At coastal county level, however, the ocean industries' contribution to GDP reaches 56 percent. This figure more clearly reflects the increasing importance of ocean industries to the national economy.

Although efforts have been made to develop coastal zone management systems in PR China over the years, the COMAR area as a management unit is still a relatively new concept in the country. The seven-year long comprehensive and nationwide coastal environment and resources survey did not lead to institutional arrangements for coastal management. Although a National Coastal Management Law was drafted, the draft never emerged from the interagency review due to the “lack of clarity on operational modalities”, which were widely interpreted to mean



Source: State Statistics Administration, 2001.

<sup>6</sup> It should be noted that the ocean industries discussed here do not include environmental industries in COMAR area, such as waste management and environmental improvement businesses.

that the proposed law would affect the entrenched interests of concerned agencies in coastal areas.

### **Coastal Management**

In 1993, the SOA and the Ministry of Finance (MF) promulgated the Interim Management Rules for National Sea Area Uses requiring sea area users to apply for a new type of permit in addition to those permits for a given type of production under existing laws. The term “sea area” refers to the water surface, water column, sea bed and subsoil of PR China’s internal seas and territorial sea, while “sea area use” refers to the exclusive use of a given sea area over three months. Once the use rights are granted, the users are required to pay the use fees. This would facilitate the resolution of use rights issues based on the approved sea area “functional zonation” schemes as a mechanism for managing multiple use conflicts.

Unfortunately, the interim rules did not gain the consent of national agencies. Nevertheless, these were adopted by the majority of coastal provinces and municipalities through local legislation and regulations.

### **Technical Criteria and Standards of Marine Environment**

Over the years, PR China has developed a comprehensive regime of marine environmental quality standards to guide marine pollution monitoring and environmental quality assessment. The National Seawater Quality Standards (NSQS), adopted by the SC in 1986, are among PR China’s earliest sets of statutory national environmental quality standards.

To facilitate the completion of the comprehensive national coastal zone survey which was started in the early 1980s, the interagency group adopted a criteria for marine-sediment quality and biological

assessments. Water quality standards for fisheries were adopted in 1979 and amended in 1989. With the increased emphasis on pollution prevention and source control in China, the standards for discharges into the marine environment, particularly in vulnerable areas, were proposed and adopted. The standards for the discharges of pollutants from ship sources and for the discharges of industrial oil effluent from offshore oil development, for example, were adopted in 1983 and 1985, respectively.

In 1988, the Comprehensive Standards for Waste Effluent Discharges were adopted to control discharges into both ground and seawater. At present, consideration is being given to the formulation of standards for wastewater discharges and for water quality of rivers entering the seas, in addition to those for total pollutant load controls in semi-enclosed seas. These standards are intended to aid the implementation of existing regulations on land-based marine pollution (1990), as well as the formulation of new regulations for water quality of rivers entering the sea and for the environmental quality of semi-enclosed seas.

The scope and level of discharge controls provided in these standards are subject to a number of considerations, *e.g.*, environmental acceptability and financial and technical feasibility. With the enhanced awareness of the impact of pollution on the environment and of the subsequent cost to sustainable socioeconomic growth, particularly in coastal areas, traditional notions concerning “acceptability” and “feasibility” have been questioned. It is necessary to reassess the adequacy of the NSQS, based on an improved understanding of the effects of pollution and the current level of capability involved in coastal and marine pollution research, monitoring, assessment, and control.

The NSQS can be improved, taking into account the following:

- The type and use of the ecosystems (*e.g.*, topographic, hydrographic and biological features);
- Relevant international standards and the standards of other countries in determining the minimum or maximum permissible level of concentrations for some parameters; and
- The introduction of new parameters, particularly in the area of man-made toxic organic compounds.

The existing Comprehensive Standards for Waste Effluent Discharges give more consideration to ground water quality control than to the impacts of such discharges on the marine environment. Any proposed standards for waste effluent discharge in the marine environment should address these limitations.

#### **Marine Functional Use Zonation Programme**

PR China launched its National Marine Functional Use Zonation Programme in 1990. The programme mapped out the “dominant use functions”, “compatible use functions”, and “restricted use functions” of PR China’s sea areas and their components, through the assessment of both the ecosystem and socioeconomic characteristics of those areas. The programme aims to provide a scientific basis for restructuring sea use patterns to reduce multiple use conflicts, to facilitate sea use planning, and to contribute to increased socioeconomic benefits from the society’s investments in sea uses.

The programme highlights the urgent need for, and the promising approaches to, the application of scientific results in sea space management. However, determining the “dominant use function” would be difficult without having a clear criteria for the measurements and aggregation of the values for various uses of a given zone. It is necessary to take into account the application of analytical tools, *e.g.*, cost-benefit evaluation, in assessing the dominant use functions. The MEPL, as amended in 1999, requires

that marine development activities be managed in compliance with the sea use functional zonation schemes as approved by the SC or other levels of the governments.

#### **Pollution Prevention and Control Programmes**

PR China carries out the policy of putting pollution prevention first. It also pays special attention to the prevention and control of pollution from land-based sources in its efforts to protect the marine environment. Large- and medium-sized cities are required to readjust their patterns of industrial development and improve the use of clean production technology and waste recycling. Enterprises creating serious pollution problems are required to take effective measures to control their activities within a specified time or face closure, the suspension of operations, merging with other plants, changing products, or relocation. Increased numbers of sewage treatment plants have been built to control pollution sources and abate dumping of pollutants into the sea.

Through persistent efforts to control point-source pollution, the rate of treatment of industrial wastewater discharges has significantly increased. In 1999, 11 coastal provinces and municipalities discharged a total of 336,565 million metric tons of industrial wastewater. Of this amount, around 85 percent complied with national effluent standards after treatment. The level of discharged industrial effluent that complies with the standards after treatment with respect to individual coastal provinces and municipalities ranges from 98 percent in Guangxi to 70 percent in Guangdong (Figure 8). However, 15-35 percent of municipal sewage discharges in these areas were treated. More efforts are needed for managing municipal sewage discharges and non-point sources (*e.g.*, agriculture drainage).

In 2000, a total of 538 dumping permits were issued (Table 4); 65 offshore dumpsites were designated and in operation, and about 9.4 billion m<sup>3</sup> of waste materials



mostly dredged materials were dumped in these sites. The monitoring conducted by the SOA at the major offshore dumping sites showed no significant change in ecosystem conditions in or around the dumpsites, except for some localities where changes in water color and turbidity were observed.

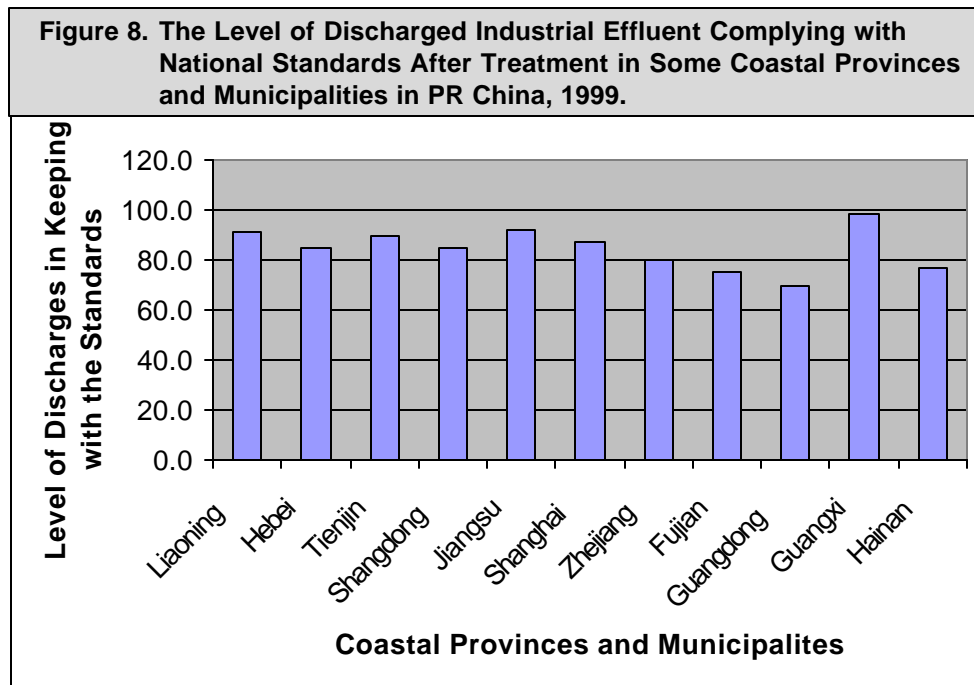
According to the monitoring results in the year 2000, the major concerns regarding China's coastal water quality focused on nutrients. The country's

coastal waters where the contents of inorganic phosphorus and nitrogen exceeded Category I of NSQS covered an area of 164,000 km<sup>2</sup>. Increased shipping and land-based discharges were the causes of the high oil-content found in some inshore waters.

In recent years, more and more policymakers in coastal cities have seen the benefits of improved environmental quality for increasing land value and attracting investments. In these places, waste

Table 4. Offshore Dumpsites in PR China, 2000.			
Sea Area	Dumpsite	Quantity Dumped (billion m <sup>3</sup> )	Permits Issued
Bohai Sea	10	1.4	35
Yellow Sea	13	0.6	62
East China Sea	19	4.6	349
South China Sea	23	2.8	92
<b>Total</b>	<b>65</b>	<b>9.4</b>	<b>538</b>

Source: State Oceanic Administration, 2001c.



Source: China Ocean Press, 2000.

management programmes that address the problems of industrial, municipal, and solid waste problems have been launched.

It should be noted, however, that an effective approach to non-point-source pollution has yet to be developed and that there is a strong need for the integrated management of major types of wastes generated by both land and sea-based sources so that the limited resources for waste management may be effectively used.

To prevent marine pollution resulting from ship and port discharges, contingency planning in response to oil pollution is required. To date, the following have been undertaken:

- Installation of oil-water separators aboard ships of various types in accordance with relevant stipulations.
- Installation of oily water treatment facilities, including those for emergency response.
- Development of emergency response programmes by offshore oilfields to combat oil spills during offshore oil exploration and exploitation and to prevent marine environment pollution resulting from offshore oil exploitation.
- Installation of oily water treatment equipment on all drilling platforms.
- Installation of engine-room oil-water separators aboard all drilling ships and oil tankers.
- Provision of spill recovery ships with oil detergents throughout PR China's offshore oilfields.

#### **Marine Nature Reserve**

The Water Quality Standards for Fisheries have been developed to protect fish habitats and ecosystems. Measures were taken to further strengthen the protection of habitats for marine fish and shrimps, their spawning, feeding and wintering grounds, migration

channels, and aquatic farms. Concerned national and subnational fisheries authorities, have also established mechanisms for the protection of the fisheries environment, including 15 monitoring stations and a number of marine protected areas at the provincial level around the country.

In 1995, concerned agencies worked out the Procedures for Administering Marine Reserves, in accordance with the guiding principle of "conservation first, then appropriate exploitation and sustainable development". Under these procedures, each marine nature reserve is composed of core, buffer and experimental zones, in order to facilitate multiple uses and protect sensitive resources. At present, over 69 marine protected areas in PR China (including bays, islands, estuaries, coasts, coral reefs, mangrove swamps, coastal lagoons, marine natural history sites, seaweed beds and wetlands) have been developed, covering an area of 12,674 km<sup>2</sup>.

#### **Science and Technology**

National programmes related to COMAR research, monitoring, and assessment implemented since the early 1950s include:

- The 1958-59 Oceanographic Survey;
- The 1977-86 Fisheries Resources Survey and Zoning;
- The 1978-85 Coastal Environment and Resource Survey;
- The 1980-87 Ocean Mapping;
- The 1983-90 Coastal Pollution Sources Survey;
- The 1984 Research for the Prediction and Response Strategies for Offshore Environmental Pollution for 2000;
- The 1985-86 Industrial Source Pollution Survey;
- The 1987-92 Island Environment and Resources Survey;
- The 1988-92 Marine Functional Zoning; and
- The Second Marine Environment Baseline Survey (1997-2000).

Since the founding of PR China in 1949, a large amount of work has been done in the field of oceanographic surveys and research. The work started in offshore areas with surface observation of the sea and was later expanded to deep-sea regions by means of aerospace remote sensing and underwater detection, in addition to surface observation. With increased attention being paid to the study of inshore shelf oceanography, PR China has established a multidisciplinary oceanographic research system with regional characteristics. Guided by the ocean development strategy and the support programs developed by relevant state agencies, progress has been made in recent years in physical oceanography, biological oceanography, marine geology, and marine chemistry. These achievements have provided scientific bases and references for marine resource uses, marine environment protection and management, and the prevention and mitigation of marine disasters.

PR China has also made efforts to develop oceanographic technologies, focusing mainly on marine resources utilization and environmental improvements. The country has now turned its attention to implementing a marine high-tech program for tackling key problems in marine science and technology, which gives priority to technologies covering marine monitoring, marine exploration, resources exploitation, deep-sea exploration and marine biotechnology.

The program for tackling key problems in marine science and technology focuses on:

- Sustainable uses of coastal resources and environment;
- Desalinization of seawater;
- Seawater resources extraction; and
- Exploitation of marine energy.

To boost ocean development and environmental protection, the Chinese government has worked out the Medium- and Long-Term Programmes for the

Development of Oceanographic Science and Technology, Ocean Technology Policy, and a number of concrete action plans with the following main tasks:

- Strengthen research on basic oceanographic sciences;
- Tackle key technologies in marine resources exploitation and environmental protection;
- Promote the application of oceanographic technologies in marine industries;
- Develop service support for marine disaster prevention and reduction; and
- Develop cleaner production technology.

In 1996, concerned government agencies jointly formulated the National Plan for Implementing Marine Development Programme through Science and Technology for 1996-2000 and Beyond, which focuses on research and development and the extension of marine resource reproduction and mariculture technology; the refined processing of aquatic products; the extraction of marine pharmaceuticals; and the exploitation of chemical resources in seawater. With the implementation of this plan, PR China hopes to foster marine technology enterprises and improve marine industries' productivity.

Red tide is one of the current national research priorities. Serious efforts have been made in PR China to study the correlation of nutrient distribution and the density of red tide organisms as well as monitor the occurrence of red tide and to develop water treatment technology in response to the threat. The SOA regularly conducts monitoring and forecast for the basic taxonomy of red tide organisms, and studies the mechanisms triggering the events and related toxicology. The SOA also looks into the improvements in the monitoring network.

#### **Environmental Monitoring and Assessment**

Apart from the research, surveys and studies, routine marine environmental monitoring has been

undertaken mainly by the SOA and the SEPA, with the former handling marine environmental quality monitoring and the downstream impact of land-based sources, while the latter taking care of monitoring land-based discharges. Both agencies publish their annual assessments concerning the state of the marine environment. In past years, the SOA took the initiative of organizing a network of coastal monitoring stations across the country with the participation of relevant agencies, including the SEPA. Yet, mechanisms have yet to be developed before major participants in the network actually share resources and monitoring results to fulfill their common objectives.

Despite the implementation of various research and monitoring programmes, the interactions between environmental compartments and the media, the impacts on ecosystem structure and functions, and their associated socioeconomic consequences, are still poorly understood.

#### **Information Services**

Oceanographic data and information services have also been developed in PR China. For example, the National Oceanographic Information Center (NOIC) was established to provide comprehensive information services for ocean development, oceanographic research, and marine environmental protection and management. In the early 1990s, efforts were made to build up an oceanographic information exchange network of government agencies, enterprises, and research and educational institutions.

#### **Education and Training**

An oceanographic education system has been developed in PR China, composed of professional, vocational and popular knowledge education. Oceanography is taught in some 37 institutions of higher learning and 29 secondary specialized schools. Training programmes on various oceanographic disciplines have been conducted for large numbers of technical and managerial personnel. Some vocational

schools offer courses in more than 20 oceanographic subject areas and have trained more than 8,000 people over the past three years.

In recent years, integrated coastal management has been included in the agenda of curriculum development and delivery by a few research and educational institutions. In this regard, the NOIC has collaborated with the International Ocean Institute (IOI) and provided training courses on ocean resource management. Xiamen University has developed the International Training Center for Coastal Sustainable Development which specializes in ICM training, under the co-sponsorship of the Xiamen Municipal Government, the SOA and PEMSEA.

#### **Combating Ocean Natural Hazards**

PR China is among the countries most vulnerable to marine calamities. The economic losses due to storms, tidal waves, ice floes, earthquakes, coastal erosion, typhoons, fog, and red tides, account for about 10 percent of total cost of all natural disasters afflicting PR China.

Over the decades, the country has installed a basic marine environment and disaster observation network, as well as prediction and warning systems for both offshore and distant water areas. The network engages in the analysis, forecast and classification of major marine calamities, and operates maritime rescue centers and coastal emergency response stations. As a result, a marine disaster alleviation framework has been established.

### **4.3 COMAR MANAGEMENT ISSUES**

#### **Primary Management Issue**

Before the enactment of SAUML in October 2001, sectoral laws and regulations governing each sector (fisheries, seaports, hard minerals and energy industries, etc.) provided for authorization processes

— permitting requirements for coastal development projects within their respective mandates. These requirements ensure that the projects minimized the adverse impacts on other uses. However, the effectiveness of these requirements was constrained by the agencies' sectoral mandates, the inadequacies in operational funds, the limited number of qualified personnel and facilities for law enforcement, and the tendency of agencies to be guided by their sectoral interests whenever their projects were in conflict with those permitted by other agencies.

Management responsibilities for COMAR resource uses were divided by individual sectors, whereas multiple COMAR use conflicts and impacts cut across these sectors. The ineffectiveness or failure of the sectoral management approach in dealing with cross-sectoral use conflicts and impacts is often referred to as governance failure, which is the primary management issue for the national COMAR policy.

### **Specific Management Issues**

The following specific management issues need to be addressed with regard to the development of the national COMAR policy:

- The legal system for COMAR resource use management is sectoral by nature. There is a need to improve complementarities and interconnection of the existing laws and regulations related to the COMAR environment and natural resources.
- Mechanisms for interagency or cross-sector consultation and coordination regarding COMAR policies are inadequate.
- There is a need to strengthen the networking of existing monitoring and information centers under individual ocean-related agencies and to create a pool of information for COMAR policymaking and management.
- Environmental quality assessment and reporting should be conducted through interagency consultation and cross-sector collaboration.
- There is no successful working model or experience regarding enclosed or semi-enclosed COMAR water bodies shared by several administrative zones (e.g., an estuary or a sea bay).
- Law enforcement and work plan implementation are often weak. In many places, habitat degradation continues and pollution goes unabated.
- Despite efforts to improve fisheries legislation, regulations, and management, effective ways to resolve overfishing problems are yet to be found.
- There is a need to further develop market-based instruments for managing COMAR environment and natural resources, and to create internal financing mechanisms to sustain conservation efforts, *i.e.*, mechanisms that do not rely on haphazard stimulus packages or foreign aid.
- There is a need to strengthen mechanisms and capabilities for human resource development for managing COMAR areas. It is still a great challenge for the concerned education and training programmes to develop the knowledge and skills to enable authorities to address interdisciplinary research issues and cross sector management problems related to the COMAR area.
- The current level of research, monitoring, and assessment efforts is far from what is needed to generate clear guidance for tackling the major obstacles in making policy choices with regard to COMAR resources conservation, environmental protection, integrated management and sustainable development. Existing environmental impact assessments are mere summaries of research and monitoring results, rather than critical reviews and analyses of issues or options for improvement.

## **Chapter 5**

### **COMAR POLICY DEVELOPMENT**

This chapter will examine the development of the Chinese national COMAR policy in terms of the status of COMAR issues in national development programmes, state policy pronouncements, and national legislation.

#### **5.1 INCORPORATION OF COMAR-RELATED ISSUES INTO NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT PROGRAMME**

The National Economic and Social Development Programme for 2001-2005, adopted by the NPC, gives priority to the following activities which are closely associated with the COMAR area (People's Daily, 2001):

- Restructuring of ownership and corporate systems, including those of the ocean industries for improved economic efficiency;
- Advancing scientific and technological development and maximizing its benefits to the national economy;
- Raising the level of ocean resources survey, development, protection and management activities, and the furthering of ocean industries, including the strengthening of fishery resource and aquatic ecosystem protection;
- Arresting the trend of ecosystem degradation, as well as increasing the forest coverage to 18.2 percent and urban vegetation coverage to 35 percent;
- Strengthening of the prevention and management of pollution by industrial sources, through the closure of industries causing serious pollution and damage to human health, and increasing of municipal waste water treatment rates to 45 percent;
- Strengthening of rural area environmental protection and preventing chemical and non-point source pollution due to the unregulated uses of chemical fertilizers, pesticides and other substances;
- Strengthening of atmospheric pollution prevention and management, as well as reducing sulfuric dioxide levels by 20 percent;
- Extending further clean technology and the strengthening of solid waste recycling and integrated treatment of hazardous wastes;
- Improving environmental standards and regulations, monitoring systems, as well as of enforcing, effluent and garbage fee systems;
- Enhancing environmental awareness and promoting the "green" style of living;
- Strengthening of coastal water quality protection and the undertaking of research for forecasting/harnessing red tide and of integrating environmental management for the Bohai Sea;
- Strengthening of sea area use management; and
- Safeguarding of national maritime rights and interests.

#### **5.2 INCREASED POLITICAL WILL TO ADDRESS PRIORITY COMAR ISSUES**

The 1990s marked a new level of public awareness on the oceans. This was reflected in the increased coverage of ocean affairs in mass media, increased efforts in ocean-related legislation, and regulations, and the public pronouncements by state leadership. As shown in Table 5, many state leaders in various occasions, stressed the importance of the oceans to sustainable development and the value and nature of policies to be implemented for realizing ocean benefits during the second half of the decade.

<b>Table 5. Selected Policy Pronouncements by State Leadership on COMAR Issues.</b>		
<b>State Leadership</b>	<b>Policy Pronouncement</b>	<b>Source</b>
<i>Jiang Zeming, President of the People's Republic of China</i>	To strengthen the integrated management of the marine resources and to improve marine environmental protection and enforcement	<ul style="list-style-type: none"> <li>National Conference on Population, Environment and Resource, 16 March 2001, People's Daily, 17 March 2001</li> </ul>
<i>Zhu Rongji, Premier of the State Council</i>	To strengthen the integrated utilization, development and protection of the marine resources, and to continue combating pollution in major sea areas	<ul style="list-style-type: none"> <li>The Fourth Session of the Ninth National People's Congress, 5 March 2001, People's Daily, 6 March 2001</li> </ul>
<i>Li Ruihuan, Chairman of the National Political Consultative Conference</i>	To maintain a healthy and sustainable ocean for future generations	<ul style="list-style-type: none"> <li>The Peace Conference on Oceans in Beijing, November 1996, People's Daily, 25 November 1996</li> </ul>
<i>Wen Jiabao, Vice-Premier of the State Council</i>	To implement the system of payment for the use of land, mineral and marine resources, and to formulate sea area and marine resource use plans	<ul style="list-style-type: none"> <li>The National Conference on Land and Resource, 25 December 2000, China's Land and Resource Daily, 26 December 2000</li> </ul>
<i>Zou Jiahua, Vice-Chairman of the Standing Committee of the National People's Congress</i>	To acknowledge the marine environment and resources as important and substantial bases for survival and development	<ul style="list-style-type: none"> <li>The Conference on Implementation of Law on Marine Environmental Protection, 19 August 1998, China's Environment Daily, 20 August 1998</li> </ul>

The key elements of the policies as expressed by the state leaders are summarized below.

- An integrated approach is a viable alternative for the management of the marine environment and its resources.
- Economic instruments (*e.g.*, user fees for public lands and waters) are effective management tools.
- The development of a legal framework and enforcement capability is important.

In addition to the policy pronouncements by the state leadership, COMAR issues have received increased attention from the NPC and the National

Political Consultative Conference. The second half of the 1990s witnessed the growth in the number of proposals submitted by representatives for the consideration of the above bodies with regard to COMAR issues (Table 6). These proposals covered a wide range of COMAR issues from coastal zones and offshore islands to Antarctica — policy, law and management, science, technology, education and equipment. From 1998 to 2001, the most frequently mentioned topics in these proposals were the following:

- Development of the Sea Area Use Law;
- Development of an integrated coastal and marine management system; and
- Bohai Sea pollution abatement.

During the same period, increased attention was given to the formulation of policies for building PR China into a powerful maritime country. These proposals and the associated consultations within and outside the national conferences generated great impacts on COMAR policy development, and led to the adoption of the National Sea Area Use Law and

the incorporation of Bohai Sea pollution abatement into the 2001-2005 National Economic and Social Development Programme.

### 5.3 NATIONAL LEGISLATION RELATED TO COMAR ISSUES AND AREAS

<b>Table 6. Agenda Items Proposed by the Representatives of the National People's Congress and the National Political Consultative Conference, 1998 - 2001.</b>	
<b>Year</b>	<b>Proposed Agenda Items</b>
1998	<ul style="list-style-type: none"> <li>• Formulation of a Sea Area Use Law</li> <li>• Development of an Integrated Marine Management System</li> <li>• Development of cross-sector law enforcement capabilities</li> <li>• Strengthening of marine education</li> <li>• Surveying and researching on marine science and technology</li> <li>• Construction of survey vessels</li> <li>• Rationalizing resource utilization</li> </ul>
1999	<ul style="list-style-type: none"> <li>• Abatement of Bohai Sea pollution</li> <li>• Protection of fishery resources and submarine cables</li> <li>• Establishment of a National Marine Management Commission</li> <li>• Formulation of a Coastal Management Law</li> <li>• Formulation of a Sea Area Use Law</li> </ul>
2000	<ul style="list-style-type: none"> <li>• Abatement of Bohai Sea pollution</li> <li>• Development of marine monitoring installations</li> <li>• Formulation of a Sea Area Use Law</li> <li>• Strengthening islands management</li> <li>• Development of policies to make PR China a powerful maritime country</li> <li>• Strengthening coastal ecological management</li> <li>• Strengthening Antarctic research</li> </ul>
2001	<ul style="list-style-type: none"> <li>• Abatement of Bohai Sea pollution</li> <li>• Development of multipurpose seawater uses</li> <li>• Prevention and mitigation of red tide</li> <li>• Formulation of a Sea Area Use Law</li> <li>• Development of policies to make PR China a powerful maritime country</li> <li>• Safeguarding national maritime rights and interests</li> <li>• Integrated marine management</li> <li>• Marine planning</li> </ul>

PR China has worked at developing a legal framework for marine environmental protection, ecological preservation, and resources development and management since the 1970s. This legal framework is composed of the Constitution, national laws, national administrative regulations, and subnational regulations.

The provisions governing environmental protection and resource management in the Constitution are the legal bases of all activities and legislations relating to environmental protection and resource management. In the Constitution, Article 9 (ii) reads:

*“The State ensures the sustainable usage of natural resources, protects rare animals and plants.”*

Article 26 provides:

*“The State protects and improves the environment of residential quarters and ecosystems and prevents and eliminates pollution and other hazards to the public.”*

The national legislative bodies are the NPC and its Standing Committee. The SC has the power to issue administrative “regulations”, “management rules” and “measures” for the implementation of the laws, while governmental agencies are responsible for issuing related rules and circulars.



Normally, there are two mechanisms that may initiate the process of making a law or regulation: recommendations from governmental agencies or recommendations from representatives of the NPC.

The Legal Affairs Commission under the NPC may request the Legal Bureau of the SC to organize the drafting of a law or regulation. The draft must be reviewed and adopted by the NPC or its Standing Committee before it becomes a formal law; the adoption of a regulation, depends only on the decision of the SC.

The major laws related to COMAR issues and areas are discussed below.

### **Marine Environmental Protection Law**

The country adopted the MEPL in 1982 for the general purpose of protecting the marine environment and its resources, preventing pollution damage, maintaining ecological balance, ensuring human health, and promoting maritime developments. In 1999, the MEPL was amended to cover the following:

- Supervision and management of marine environmental protection (Chapter II);
- Marine ecological preservation (Chapter III);
- Land-based pollutants (Chapter IV);
- Prevention of pollution from coastal construction projects (Chapter V);
- Prevention of pollution from offshore construction projects (Chapter VI);
- Dumping of wastes (Chapter VII); and
- Prevention of pollution from vessels (Chapter VIII).

The law also provides for the implementing mechanisms as follows:

- Environmental Impact Assessment (EIA);
- A system for the “total quantity control” of contaminant discharges in major zones;

- Marine zoning and marine environmental protection planning;
- Marine environmental quality standard and pollutant discharge standards;
- The levying of discharge fees and dumping fees;
- A contingency plan for oil-spills from offshore platforms, vessels and coastal units likely to cause marine pollution;
- Marine nature reserves;
- Reports of quantity, type, content and installation of discharge;
- Permits for discharge;
- Dumping permits and zoning; and
- Damage compensation.

These provisions have adopted the sustainable development principle and have incorporated some proven and innovative concepts and practices, such as the “total quantity control” of contaminant discharges based on the measured environmental carrying capacity and contingency plan. These, therefore, provide the legal basis for ecosystem-based management, pollution prevention and reduction in accordance with environmental carrying capacity, marine zonation, improved interagency coordination, the use of market mechanism, and better implementing mechanisms (Jiao, Ruan and Yu, 2001).

To implement the MEPL, regulations have been promulgated with regard to pollution from land-based sources (1990), ship sources (1983), at-sea waste disposal (1985), offshore oil and gas development (1983), coastal construction projects (1990) and ship-breaking operations (1986).

Legal instruments that affect marine environment and natural resources include:

- Regulations concerning the exploitation of offshore petroleum resources in cooperation with foreign enterprises;
- Regulations for the implementation of the

- Fisheries Law;
- Regulations concerning the management of marine protected areas;
- Regulations concerning the combination of industrial pollution elimination with technical innovation;
- Regulations concerning nationwide environmental monitoring;
- Regulations of marine environmental surveys;
- Management measures for imposing administrative penalties for damaging the environment; and
- Interim measures for the use of the special fund for pollution sources control.

### **Fisheries Law and Regulations**

PR China adopted the Fishery Law in 1986 and amended it in 2001, to strengthen fisheries resources protection, enhancement, rational use and management. To implement the law, special regulations such as the Regulations on the Implementation of the Fisheries Law (1987) and the Regulations on the Protection of Aquatic Wildlife (1993) were formulated.

Under the Fisheries Law, any institution or individual desiring to engage in offshore or deep-sea fishing must first apply for a fishing license with the Fishery Administration. The fishing licenses for marine operations do not allow the use of trawls and other harmful fishing gear. Institutions and individuals intending to use sea surfaces and tidal flats owned by the state must obtain permits from the government (at or above the county level) to conform with the fisheries management master plan.

In developing the fisheries sector, PR China adheres to the principles of:

- Fast-tracking aquaculture development;
- Conserving and rationally utilizing the resources;
- Expanding actively distant water fishing;

- Emphasizing processing and marketing; and
- Strengthening legal administration.

Since the mid-1980s, PR China's saltwater aquaculture has developed rapidly, with a substantial increase in the number of species cultured and expansion of breeding areas. The output of such activities rose from 1.92 million tons in 1987 to 7.91 million tons in 1997, while the total output from marine harvest rose from 27 to 36 percent of the country's total aquaculture production in the same period.

PR China has restructured the fisheries sector to make it adaptable to the changes in resource status. Measures to protect fisheries resources such as area and seasonal closures for fishing, fishing moratoria, bans on harmful fishing gear and methods, and fishing net mesh size restrictions, have been implemented.

The country began to adopt fishing permit systems to curb fishing activities in 1979 and to control fishing boats in 1987. Since 1995, the country has practiced a mid-summer moratorium from July to August each year, banning offshore fishing north of 27°N latitude. In 2001, the moratorium area was expanded to 26°N latitude, and the duration of the moratorium extended to three months. It should be noted, however, that the effectiveness of these measures in reducing excessive fishing efforts is yet to be demonstrated.

The fisheries laws and regulations provide for the following:

#### **1. A system to establish and manage natural reserves**

The SC, concerned national agencies, and the subnational governments may designate natural reserves and take protective measures.

#### **2. A system to provide special protection for rare and endangered aquatic wildlife**

Aquatic wildlife is classified into two

categories, depending on the level of protection. Actions causing changes and damages to wildlife habitats under protection are prohibited. The protection and management authority for aquatic wildlife resides in the FA and the Harbour Superintendence Administration.

### **3. A system to protect commercially important species, mangroves, and coral reefs**

The destruction of mangroves and coral reefs is forbidden. Measures must be taken to protect aquatic resources when building harbors and oil terminals, as well as water conservancy facilities and tidal-power stations in estuaries. Dams to be built across fish and crab migration routes must be provided with fish ladders. The authorities shall take measures to protect fishery resources, particularly in connection with spawning, feeding and wintering grounds, and the migration passages of important species of fish, shrimp, crab, shellfish, algae, and other aquatic animals and plants.

In addition, the laws and regulations affecting conservation of species, the protection of ecosystems and habitats, tidelands, mangroves and coral reefs, and establishment of marine sanctuaries include:

- The Forest Law;
- The Forest Law Implementation Regulations;
- The Mineral Resources Law;
- The Wildlife Protection Law;
- The Implementation Rules for the Wildlife Protection Law;
- The Wild Plants Protection Regulations;
- The Interim Regulations for Managing Scenic Spots;
- The Natural Reserve Regulations;
- The Measures for Managing Forests and Wildlife Natural Reserves; and
- The Natural Reserve Classification Principles.

### **Legislation on Marine Non-Living Resource Uses**

Legal instruments applicable to marine non-living resource uses include:

- The Mineral Law;
- The Mineral Law Implementing Regulations; and
- The Regulations on the Exploitation of Offshore Petroleum in Cooperation with Foreign Enterprises.

The Ministry of Land and Resources (MOLR) is in charge of issuing permits for mineral resource exploration and exploitation. The legal system for managing non-living marine resources comprises:

#### **1. Permits and Approval**

Those who want to carry out exploration and exploitation of resources such as offshore oil/ gas, and beach sand/ gravel, must first get a permit from the MOLR for the confirmation of exploration and exploitation rights. Activities must be carried out in accordance with the overall plan of mineral development developed by the MOLR.

#### **2. Taxes and Fees**

Two types of taxes and fees are collected: resource taxes and compensation fees. Any institution or individual who uses the state- or collectively-owned natural resources and environment must pay the resource tax as well as the compensation fees for recovering natural resources. These taxes and fees become part of national and local revenues.

### **Legislation on Maritime Transportation and Ships**

The national legal regime for maritime transportation and vessels consists of:

- The Maritime Traffic Safety Law (MTSL);
- The Regulations Concerning Seagoing Ships Register (RSSR);
- The Regulations Concerning Management of Old Ships;
- The Measures for Management of Salvage;
- The Regulations Governing Supervision and Control of Foreign Vessels (RSCFV); and
- The Regulation Governing Inspection of Ships and Offshore Installations.

Under the law, the Harbour Superintendence Administration is responsible for managing vessels, ports, submarine activities, and maritime safety. The FA under the Ministry of Agriculture and Harbour Superintendence Administration is responsible for the supervision of fishing vessels and fishing ports, as well as for the investigation and settlement of traffic accidents of fishing vessels.

PR China's maritime legal framework to marine environment encompasses:

### **1. Regulations on Prevention of Pollution by the Discharge of Harmful Substances from Vessels (RPV, 1983)**

The discharge of ballast water and harmful residues by vessels must be conducted in compliance with the state regulations on discharge from vessels and should be accurately recorded in the Log Book.

The discharge of wastewater containing high-level radioactive substances into the sea is prohibited. Any discharge of wastewater containing low-level radioactive substances into the sea, if necessary, must be carried out in strict compliance with the state regulations and standards concerning radioactive protection. Chapter V (Arts. 21-23) of the RPV requires that safety and preventive measures be in compliance with the relevant

international and national standards for transportation and the carrying of inflammable, explosive, corrosive, poisonous or radioactive cargo (including loading poisonous liquids in bulk). Art. 36 of RSCFV and Chapter VI (Arts. 24-26) of RPV include strict procedures for discharging of "other dirty water from vessels", referring to ballast water and tank wash discharges from ships that contain nuclear, radioactive, pathogenic, poisonous and corrosive substances.

### **2. Control of Garbage from Vessels**

Art. 33 of RSCFV and Chapter VII (Arts. 27-30) of RPV deal specifically with the control of garbage from vessels, while Art. 28 describes the general procedure of garbage disposal from vessels.

No vessel is allowed to dump garbage into port areas and vessels carrying harmful or dusty bulk cargoes must not willfully wash decks or tanks, or discharge the residues into the port. If absolutely necessary, the activities must be approved by the Harbour Superintendence Administration in advance (Art. 27). Plastic products must not be thrown into the sea at any time, but a vessel's galley garbage and food wastes (those not broken into grains) can be thrown into the sea — 12 miles from the nearest land. Other such items (*i.e.*, those already broken into grains and those less than 25 mm in diameter) can be thrown into the sea three miles from the nearest land (Art. 30).

### **3. Certification Systems**

Oil Record Book. Any oil tanker (of 150 tons and above) or any other vessel (of 400 tons and above) that uses oil as fuel must carry an Oil Record Book on board. The discharge of

oily water from these vessels must be accurately recorded in the book. In order to implement these provisions, there are a number of strict requirements for abundant equipment, measures, and rules for oil operation and oil water discharge from ships in RPV. (Art. 37 of RSCFV).

Credit Certificate. Any vessel carrying more than 2,000 tons of oil in bulk as cargo must have a valid Certificate of Insurance or Financial Security Against Civil Liability of Oil Pollution Damage, a Credit Certificate for Civil Liability Against Oil Pollution Damage, or hold other financial credit guarantees.

Log Book. Several kinds of discharge from vessels — *i.e.*, discharge of hold-washings and other residues by vessels carrying noxious or corrosive goods — must be recorded in the Log Book. If pollution has occurred within the port area or coastal waters, the vessel at fault shall have all related particulars entered in the Oil Record Book and the Log Book while taking other preventive measures (Art. 38 of RSCFV).

#### 4. System for Survey and Inspection

The MTSL and the RSSR are the main legislation concerning systems for the survey and inspection of vessels for the purpose of traffic safety. The prevention of marine pollution is not directly tackled.

#### 5. System for Monitoring and Detection

The Harbour Superintendence Administration has the power to take coercive measures to avoid or minimize pollution damage caused or likely to be caused by a marine accident. Furthermore, all vessels have the obligation to watch out for pollution at sea.

Upon discovery of acts in violation of law or of occurrences of pollution, they must immediately report these to the proper authorities.

#### 6. Incident Report

If pollution has already taken place, the vessel concerned must immediately take measures to control and eliminate marine pollution and report this case to the proper authority, namely the Harbour Superintendence Administration, for investigation and settlement (Similar clauses were provided both in Art. 34 MEPL and Art. 6 RPV).

#### Legislation on Transboundary Movement of Hazardous Substances

Administrative measures and rules concerning management of transboundary movement of hazardous substances and its wastes include:

- a. The Rules Governing the Supervision of Ships Loading Dangerous Goods;
- b. The Rules Governing the Inspection of Imported Wastes Before Loading (Interim);
- c. The Rules Governing the Inspection of Packing Exported Dangerous Goods by Sea-Going Transportation (Interim);
- d. The Rules for the Environmental Management of First-Time Imported Chemicals and of Imported and Exported Toxic Chemicals;
- e. The Rules for Wastes Importation Environmental Protection (Interim);
- f. The Rules for the Prevention of Environmental Pollution by Electrical Power Installations Containing Polychlorinated Biphenyl (PCB) and Its Wastes;
- g. The Circular on the Strict Control of the Transfer of Harmful Wastes from Abroad into China; and

- h. The State Council Urgent Circular to Prohibit the Importation of Radioactive Contaminated Old and Scrap Metal Matters.

The competent authorities involved in the management of the transboundary movement of toxic and hazardous wastes include the Environmental Protection Administration, MOT, Ministry of Foreign Trade and Economic Cooperation, Economic and Trade Commission and the Customs Administration. These authorities are responsible for the release of permits, the supervision and inspection of importation/exportation of hazardous substances, and the prohibition of the importation of hazardous wastes. They also manage and survey the surrounding places where these substances are stored.

The essential elements in the legislation on transboundary movement of hazardous substances and its wastes include:

### **1. Measures to Prohibit the Importation of Hazardous Wastes**

Under administrative regulations, the importation of harmful wastes into PR China is prohibited. There are two circulars concerning the importation of hazardous wastes. One is the Circular on the Strict Control of the Transfer of Harmful Wastes from Abroad into China (co-issued by the Environmental Protection Administration and the Customs Administration of China) for the control of the transfer of harmful industrial and domestic wastes into Chinese territory. This circular was developed in line with the country's commitments to the Basel Convention (a legal instrument which was ratified by PR China). The Circular provided that "the importation of wastes listed in Annex I of this Circular for the purpose of dumping and dealing is not allowed." In the event that

such wastes are needed for recycling as raw materials and energy, the importation must be examined and approved by the Authority in advance (Item III).

The other circular is the Urgent Circular to Prohibit the Importation of Radioactive Contaminated Old and Scrap Metal Matters issued by the SC whose provisions are similar to those in related regulations, such as the Rules for the Prevention of Environmental Pollution by Electrical Power Installations Containing Polychlorinated Biphenyl (PCB) and its Wastes. Violations of regulations and rules are subject to legal and administrative liability.

### **2. Permit**

Administrative rules specify that a permit obtained in advance from the competent authority is required for the import or export of some toxic and hazardous substances. These also indicate that the transport or disposal of hazardous wastes is prohibited unless authorized ahead of time.

### **3. Requirements for Environmentally-Sound Management**

Supervision, survey, and inspection must be strengthened to place hazardous substances and their wastes under strict control.

Control over the harmful substances and its wastes should be exercised during the entire process of the transboundary movement. Any institution and individual involved in the transportation and/or use of hazardous substances should take preventive measures, use the appropriate storage facilities and labels<sup>7</sup>, and comply with regulations for

<sup>7</sup> There should be adequate labels to indicate that the hazardous substance therein are toxic and harmful.

the operation and transfer to prevent environmental pollution from hazardous and toxic substances and their wastes.

#### **5.4 CHINESE GOVERNMENT WHITE PAPER ON MARINE POLICIES**

During the International Year of the Ocean, which was designated by the United Nations in 1998, the Chinese government published a white paper on the country's marine policies for the first time. The document, entitled the "Development of China's Marine Affairs" (SCIO, 1998), discussed the progress of PR China's work in this particular field.

The white paper recognized that the ocean, which covers 71 percent of the earth's surface, is a basic component of the global bio-support system and that it is a source of precious resources, as well as an important regulator of the environment. Other issues tackled in the document were:

- The great importance given by PR China, as a major developing country with a long coastline, to marine development and protection and the inclusion of related matters in the State's development strategy;
- The constant strengthening of comprehensive marine management, as the country steadily improves its marine-related laws and actively develops science, technology, and education pertaining to the oceans; and
- PR China's active participation in UN events, bodies, programmes and projects related to marine affairs, and the carrying out of its international obligations.

In the white paper, PR China declared its intent to implement a sustainable development strategy for marine programs. This strategy was first proposed in China's Ocean Agenda 21 in 1996 and incorporated

into the Ninth Five-Year Plan on National Economic and Social Development in 1996. The basic ideas of this strategy are encapsulated in the following quote:

*"To effectively safeguard the state's marine rights and interests, rationally develop and utilize marine resources, provide active protection to the marine eco-environment and achieve sustainable utilization of marine resources and the marine environment, as well as the coordinated development of the work in this field."*

In this connection, PR China adopts the following basic policies and principles:

##### **1. Safeguarding the New International Ocean Order and National Maritime Rights and Interests**

PR China upholds its maritime rights and interests in accordance with the 1992 Law of the People's Republic of China on Its Territorial Seas and Adjacent Zones, the 1998 Law of the People's Republic of China on Its Exclusive Economic Zone and the Continental Shelf, and the UN Convention on the Law of the Sea. As such, it exercises sovereignty over its territorial seas and jurisdiction over the adjacent zones, including the archipelagoes and islands listed in the above law on Territorial Seas and Adjacent Zones and strives to protect national maritime security.

PR China supports the new international ocean legal system, and will — together with the neighboring countries or those on opposite coasts, through consultation, and on the basis of international laws and the principle of fairness — determine the maritime boundary lines. Regarding disputes over marine issues between PR China and its neighboring countries, the government shall, in view of the vital interests with bearing on

peace and development, work towards settlement through friendly consultations. On issues that cannot be solved for the time being, PR China supports the joint development of the area, the pigeonholing of issues causing conflict, and the focusing on the strengthening of cooperation between the parties.

## **2. Comprehensive Planning for Marine Development and Management**

PR China will take positive measures to strengthen the comprehensive development and administration of its coastal zones, and to rationally develop and protect the offshore areas. Furthermore, it is committed to the gradual development of coastal and marine economic growth belts and zones and actively participates in the development and utilization of international seabed and oceans.

## **3. Rationally Utilizing Marine Resources and Promotion of Coordinated Development of Marine Industries**

Development and protection will be taken into consideration to ensure the sustainable utilization of marine resources. PR China will use new technologies to comprehensively develop and utilize its marine resources, and to form and develop new marine industries that will promote the sustained, rapid, and healthy development of the marine economy.

## **4. Planning and Implementation of Marine Resources Development in Parallel with Marine Environmental Protection**

A programme for the coordinated development of marine resources and the protection of the marine environment will be worked out in line with the "prevention first"

principle, in combination with the "mitigation" and "polluters-pay" principles. The monitoring, surveillance, and law enforcement and management of the marine environment will be improved; emphasis will be given to the control of land-sourced pollutants. A system for pollution load reduction will also be developed and implemented to prevent the degradation of marine environment.

## **5. Reinforcing Ocean Research and Development**

PR China will take strong action to tackle key oceanographic problems, develop marine technology and constantly improve the technological levels of marine development and services. It will speed up the promotion and utilization of advanced and applicable technologies, and consistently narrow down the differences between the regions in terms of technological levels of marine development. Oceanographic programmes will be strengthened in institutions of higher learning, including vocational education, and oceanographic personnel of various levels will be trained. Oceanographic knowledge will also be disseminated to the general public.

## **6. Establishing a Comprehensive Marine Management Framework**

PR China will take measures to improve its marine use zoning and planning and to learn from the experiences and lessons gained from the practices of the integrated coastal management. It will also strengthen the scientific management of marine uses and environmental protection, with the aim of gradually establishing an integrated management system.



## **7. Participating Actively in International Cooperative Efforts Geared Towards Marine Development**

PR China will conscientiously fulfill its obligations under the modern Law of the Sea and its agreements with other countries. It will also actively take part in international marine affairs through international and regional cooperation and exchanges related to oceanic matters and contribute its full share to the prosperity and development of international community in this field.

In the wake of the white paper, several actions were undertaken with regard to the furthering of PR China's COMAR policy framework. First, the MEPL and the Fishery Law were amended in 1999 and 2000, respectively, to ensure improved implementation. Second, SC issued Policies on National Ecological Protection in November 2000, which stipulated that the development and utilization of marine and fishery resources should be carried out rationally in a planned

manner and in compliance with the marine use functional zonation scheme and that land reclamation and the construction of harbors, coastal projects and tourism installations should be strictly reviewed and approved. The policies also took up issues related to mangroves, coral reefs, coastal forestry, major fishing grounds, estuaries, bays and other important waters. The SC gave priority to the following:

- Prevention and mitigation of pollution;
- Development of a scheme for pollution load reduction;
- Environmental management of offshore petroleum exploration and exploitation, ocean dumping and discharges from vessels and ports; and
- Development of pollution contingency planning and response mechanisms.

The third action taken after the release of the white paper was the enactment of the National Sea Area Use Management Law in 2001.

## Chapter 6

# INTERNATIONAL COLLABORATION

PR China, aware of its responsibilities and obligations in regional and international maritime affairs, has been active in the ratification and implementation of the relevant international conventions and in the promotion of cooperation and exchanges in this field.<sup>8</sup> The country's high level of commitment to such endeavors is made clear by the fact that its international obligations prevail over national legislations whenever they conflict. As an example, Article 46 of the Environmental Protection Law provides:

*"When there is any difference in the promulgations of the domestic laws of the People's Republic of China and international conventions concerning environmental protection, which are ratified or acceded to by the People's Republic of China, the provisions of international conventions should be implemented, except in those cases where the country specified its reservations."*

### 6.1 INTERNATIONAL CONVENTIONS

To date, PR China has signed, ratified and acceded to over 20 international conventions and agreements governing maritime affairs, particularly those relating to marine environment (Box 1).

#### **UN Convention on the Law of the Sea (UNCLOS)**

The efforts of 1958 and 1960 UN Conferences concerning the legal regimes for the territorial sea and contiguous zone, continental shelf, fisheries, and high seas resources conservation led to negotiations for a new convention that would deal with all aspects of the law of the sea. These negotiations resulted in the adoption and opening for signature of UNCLOS on

10 December 1982. The Convention, which came into effect on 16 November 1994, provides the framework for, and general principles of, global marine environmental protection and the allocation of legislative and enforcement powers between the coastal and flag states.

Under the 1982 UNCLOS (Art. 192), the protection and preservation of the marine environment is a basic obligation of a coastal nation. The Convention adopts the basic principle of international law (i.e., that activities be conducted in a manner that does not cause damage by pollution to other countries) and extends the principle to protect areas beyond national jurisdiction (i.e., the high seas and deep sea) [Art. 194(2)]. PR China became a party to the aforementioned Convention in 1996 and immediately started the formulation of policies that would help fulfill its commitments. From 1993 to 1995, the country participated in the formulation of the agreement for the implementation of the 1982 UNCLOS provisions relating to the conservation and management of straddling fish stocks and highly-migratory fish stocks.

PR China also attended the sessions of the preparatory committees on the International Seabed Authority (ISA) and the International Tribunal on the Law of the Sea. A Chinese expert was elected one of the first batch of judges for the International Tribunal on the Law of the Sea. It supported and participated in the founding of the ISA and was elected as one of its first B-level council member states.

#### **IMO-Related Conventions**

The International Maritime Organization (IMO) has sponsored a number of conventions for controlling

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<sup>8</sup> PR China resumed its UN membership in 1971, 22 years after the establishment of the People's Republic in 1949.

**Box 1. International Conventions and Agreements to Which PR China is a Party.**

1. Agenda 21, United Nations Programme of Action from Rio (UNCED)
2. Global Programme of Action for the Protection of Marine Environment from Land-based Activities
3. United Nations Convention on the Law of the Sea (UNCLOS)
4. International Convention for the Prevention of Pollution from Ships, 1973, as amended by the Protocol of 1978 (MARPOL 73/78), Annex III, Annex V and the Protocol of 1990
5. Convention on the Prevention of Marine Pollution by Dumping Waste and Other Matter, 1972 and Its Protocols of 1989 and 1996
6. International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969 (Intervention Convention) and Its Protocol, 1973
7. International Convention on Civil Liability for Oil Pollution Damage, 1969 and Its Protocols in 1976 and 1984 (CLC)
8. International Convention on Salvage, 1989 (Salvage Convention)
9. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1989 (Basel Convention)
10. The 1973 Convention on International Trade in Endangered Species, Wild Fauna and Flora and Its Amendment on Article 21 (CITES)
11. The 1979 Convention on the Preservation of Migratory Species of Wild Animals
12. The 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage
13. The 1993 Convention on Biological Diversity
14. The 1971 Convention on Wetlands of International Importance, Especially as Waterfowl Habitat
15. The UN Convention on Prevention of Desertification
16. The Antarctic Treaty
17. Convention on the Regulation of Antarctic Minerals Resource Activities
18. Convention on the Conservation of Antarctic Marine Living Resources
19. The 1971 Convention Relating to Civil Liability in the Field of Maritime Carriage of Nuclear Materials
20. Vienna Convention on Assistance in Cases of Nuclear Emergency
21. Vienna Convention on Early Notification of a Nuclear Accident
22. The 1994 Framework Convention on Climate Change
23. The 1946 International Convention for the Regulation of Whaling

intentional discharges and minimizing accidental discharges. The first such international instrument was the 1954 International Convention for the Prevention of Pollution of the Sea by Oil. This treaty was amended in 1962, 1969, and 1971.

Since then, several conventions related to various aspects of oil pollution have been developed. Examples of such instruments are the 1969 International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, the 1969 International Convention on Civil Liability for Oil Pollution Damage (and the Protocol of 1992), and the 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (and the Protocol of 1992).

The 1973 International Convention for the Prevention of Pollution from Ships as amended by the 1978 Protocol (MARPOL 73/78) is the primary international agreement for the prevention and control of sea-based discharges. The experience of major oil pollution calamities led to the adoption in 1990 of a new Convention on Oil Pollution Preparedness, Response, and Co-operation. The problem of ocean waste disposal is covered by the 1972 Convention for the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (as amended by the 1996 Protocol of the 1972 London Convention).

PR China ratified MARPOL 73/78 in 1983, Annex V in 1988 and Annex III in 1994. It acceded to the 1972 London Convention in 1985 and signed its Protocol in

1996. National legislation for the implementation of MARPOL can be divided into two categories of requirements: (a) for ships, including technical standards of ships, equipment and crew training, in order to build capacities for preventing marine pollution and (b) for the prevention of marine pollution from vessels.

PR China, elected as an A-Level Council member state during the 16<sup>th</sup> to 20<sup>th</sup> Sessions of the IMO, is a party to Conventions, such as:

- The 1965 Convention on the Facilitation of International Maritime Traffic;
- The 1990 International Convention on Oil Pollution Preparedness, Response, and Cooperation;
- The 1974 International Convention for the Safety of Life at Sea;
- The 1974 Athens Convention Relating to the Carriage of Passengers and Their Luggage by Sea;
- The 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers; and
- The International Convention for the Unification of Certain Rules of Law with Respect to Collision Between Vessels.

#### **Framework Convention on Climate Change**

The Framework Convention on Climate Change aims to stabilize atmospheric concentrations of all greenhouse gases including carbon dioxide. The Convention establishes a process by the parties, on the basis of national greenhouse inventories and regular national reports on policies and measures, to limit emissions, and monitor and control effects on climate change. It also provides for general obligations with regard to scientific research, exchange of information, and education and training. The Framework Convention became effective on 21 March 1994.

PR China signed the Framework Convention on Climate Change on 11 June 1992 and ratified it on 7 November 1992. In 2001, it unveiled the National Climate Observation Plan and National Climate Action Plan for 2001-2010. PR China has established a network of 300 sea-level observation stations, two maritime satellites, 61 coastal and marine monitoring units, and other facilities to monitor ocean environment (NCC, 2002).

#### **Convention on Biological Diversity**

The Convention on Biological Diversity was negotiated under the auspices of the United Nations Environment Programme (UNEP) in 1993. The Convention aims for the conservation and sustainable use of biological diversity, the fair and equitable sharing of the benefits from its uses, and the regulation of biotechnology. It provides for national monitoring and the development of plans, programmes and measures for conserving biodiversity, in addition to international reporting obligations. It also deals with the priority access of the source country to the results and benefits arising from biotechnologies based on its genetic resources in accordance with mutually agreed terms. The stipulations of the Convention specified the responsibility of developed countries to support the developing countries to implement the legal instrument (subject to the Convention's financial mechanism).

PR China signed the Convention on Biological Diversity on 11 June 1992 and ratified it on 11 November 1992. The country has formulated a Marine Biological Diversity Action Plan, Mangrove Conservation Action Plan, the China Wetlands Conservation Action Plan, among others. Increased emphasis on biological conservation can be found in the revisions of the National Law on Marine Environmental Protection and the Fisheries Law in the late 1990s (SEPA, 2001).

### **Other Conventions**

The 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (and its Amendment) deal with the protection of nature and the conservation of species, while the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal deals with international transport and disposal of hazardous waste. PR China is a party to both conventions. To fulfill its obligations under the Basel Convention, the country has promulgated and implemented a series of administrative measures and rules concerning the management of the transboundary movement of hazardous substances and its wastes.<sup>9</sup>

PR China has also taken part in other international activities to protect fisheries resources such as tunas, whales and other endangered species of marine life on the high seas. The country acceded to the International Convention for the Conservation of Atlantic Tunas and participated in the formulation of the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas.

## **6.2 UN CONFERENCES ON ENVIRONMENT**

Chinese participation in the UN Conference on the Human Environment held in Stockholm in 1972 (Stockholm Conference), and in the UN Conference on Environment and Development held in Rio in 1992 served as milestones for national environmental policy development.

### **Stockholm Conference**

The UN Conference on the Human Environment was held in Stockholm in 1972. Participants at the Conference adopted the Stockholm Declaration, in

response to the urgent need for the international community to share the responsibility of arresting resource depletion and environmental degradation. Principle 21 of the Declaration lays down the standard of state responsibility in environmental protection e.g., “to ensure that the activities within their jurisdiction and control do not cause damage to the environment of the other states or areas.”

PR China’s participation in the Stockholm Conference made a great impact on the country’s economic and social development policy and contributed to the enhanced awareness of the Chinese population on environmental issues. Through its involvement in the international event, the country was able to incorporate environmental considerations into the early phase of its modernization process. The National Environmental Protection Steering Group was established under the SC in 1976 (the predecessor of the State Environmental Protection Administration) and a nationwide marine environmental baseline survey was organized by the SOA in the late 1970s. These efforts, which were follow-up actions to the Conference, helped brought marine environmental protection onto the national policy agenda.

### **UN Conference on Environment and Development (UNCED)**

UNCED in 1992 adopted the Rio Declaration on Environment and Development and Agenda 21: Programme of Action for Sustainable Development. The Rio Declaration contains 27 principles with special references, *inter alia*, to common but differentiated state responsibilities for the protection of integrity of the global environmental and developmental system. These responsibilities take into account the right to development, the different contributions of the states to global environmental degradation, the need for the states to collaborate with each other to reduce and eliminate unsustainable patterns of production and consumption and to implement appropriate

<sup>9</sup> See Legislation on Transboundary Movement of Hazardous Substances, 5.2 National Legislation related to COMAR Issues and Areas, Chapter 5: COMAR Policy Development.

demographic policies, and the precautionary approach and environmental impact assessment, among others.

Agenda 21 covers sectoral issues (*i.e.*, atmosphere, oceans, fresh water, and land resources) and cross-sector issues (poverty; demographics; human health; means of implementation; finances; transfer of technology; and institutional and legal issues). Special attention is given to groups, such as women, children, indigenous peoples and NGOs, with regard to the Programme of Action for Sustainable Development.

Chapter 17 of Agenda 21 calls for the integrated management and sustainable development of coastal and marine areas. In this connection, coastal states commit themselves to provide for, among other things, “an integrated policy and decision-making process, including all involved sectors, to promote compatibility and a balance of uses” (Item 17.3).

Item 17.6 in Chapter 17 specifically states:

*“Each coastal State should consider establishing, or where necessary strengthening, appropriate coordinating mechanisms (such as a high-level policy planning body) for integrated management and sustainable development of coastal and marine areas and their resources, at both the local and national levels.”*

In the spirit of the UNCED 1992, the Chinese Government expressed its commitment to adopt and implement sustainable development policies by formulating PR China's Agenda 21 or the “White Paper on China's Population, Environment, and Development in the 21<sup>st</sup> Century”. The paper, which showed the government's recognition of the increased dependency of social and economic development on the sea, was adopted by the SOA in 1996. It identified the conservation and sustainable development of marine natural resources as some of its major programme areas. Other elements included in PR China's Agenda 21 are:

- The sustainable development of ocean-related industries;
- The sustainable development of coastal, island and ocean areas;
- The conservation and sustainable use of marine living resources;
- The promotion of sustainable ocean development through science and technology;
- The integrated management of coastal areas and national jurisdictional waters;
- Marine environmental protection;
- Ocean natural hazard prevention and mitigation;
- International marine affairs; and
- Public participation.

The programme on the integrated management of coastal areas and national jurisdictional waters of PR China's Ocean Agenda 21 provides for six programme areas, as follows:

1. The establishment of marine legal system;
2. The establishment of an integrated marine management system and the coordination mechanism;
3. The formulation and implementation of marine use functional zonation and development plans;
4. Sea area use management;
5. The establishment of marine resources as part of national assets; and
6. The development of information system on marine resources, environment, and management.

As envisaged by PR China's Ocean Agenda 21, the integrated coastal and marine management system should, where necessary and appropriate, provide for two basic mechanisms: (a) an interagency policy coordinating mechanism, such as a Marine Affairs Management Commission attached to both the national and subnational levels of government;

and (b) an integrated implementing mechanism at all levels of government. Although the integrated management authority and administrative boundaries remain to be defined and an interagency policy coordinating mechanism has yet to be established, a substantial part of the action programmes contained in PR China's Ocean Agenda 21 have been implemented.

### 6.3 BILATERAL AND MULTILATERAL AGREEMENTS

PR China abides by the principle of "equality, mutual benefit, rational development of resources and non-infringement of other countries' interests." As such, it has developed bilateral and multilateral cooperative relationships with other countries in various fields, such as maritime transportation, fisheries, and marine science and technology. It has signed bilateral agreements with 51 countries for cooperation in maritime transportation and engaged in negotiations with more than 30 countries (including Russia, the United States, and Japan) on the development and protection of the fisheries resources of the Bering Sea<sup>10</sup>. Under the fisheries agreement between PR China and Japan in 1975, the two countries made consultative arrangements for the development and protection of their fisheries resources. In 1997, PR China and Japan signed a new agreement for long-term cooperation in fisheries. Similar fisheries agreements have been reached with RO Korea. PR China has also held talks with the Philippines and other neighboring countries for the development and protection of fisheries resources in the surrounding seas.

PR China has also participated in extensive marine scientific and technological programmes in collaboration with many other countries, *e.g.*, Canada, DPR Korea, France, Germany, Japan, the Philippines, RO Korea, Russia, Spain and the United States. The

programmes have achieved positive results concerning the Changjiang River Delta, the Yellow River Delta, the Kuroshio Current, air-sea interaction and the biodiversity of Hainan Island, among other things. During the Kuroshio Current survey jointly conducted by PR China and Japan from 1986 to 1992, more than 100 field operations were carried out. This helped build up a rich information source for understanding the current movement, regular pattern of changes, origin and implications on the variations of fishing grounds in the Western Pacific.

### 6.4 INTERNATIONAL COOPERATIVE PROGRAMMES

PR China has supported and participated in many ocean-related activities under the auspices of the UN and other international agencies and programmes. It is a member of over 20 international organizations and programmes — *e.g.*, the UN Food and Agriculture Organization (FAO); IMO; UNEP; the United Nations Development Programme (UNDP); the International Atomic Energy Agency; United Nations Educational, Scientific and Cultural Organization (UNESCO) and its Intergovernmental Oceanographic Commission (IOC); World Meteorological Organization and some international funding agencies and nongovernment organizations.

The country strives to promote international cooperation in coastal and marine sciences, and has participated in and contributed to many global ocean-related research programmes - *e.g.*, Global Ocean Ecosystem Dynamics (GLOBEC), Global Studies and Monitoring of Marine Pollution (GSMMP), Joint Global Ocean Flux Study (JGOFS), Land-Ocean Interaction in the Coastal Zone (LOICZ), Tropical Ocean and Global Atmospheric Project (TOGA), and World Ocean Circulation Experiment (WOCE). PR China is a member of the

<sup>10</sup> PR China already signed and ratified the Convention on the Conservation and Management of Pollack Resources in the Central Bering Sea.

Working Group on Marine Resources Conservation of the Asia-Pacific Economic Conference. It participated in the development of the Global Ocean Observation System (GOOS) and other international initiatives.

From 1985 to 1990, Chinese scientists and ships conducted three major experiments on the coupled ocean and atmospheric response in the tropical Western Pacific Ocean. Scientific data concerning the influence of the response in the Western Pacific's "Warm Pool" on global climate changes were obtained for purposes of improving global ocean and climate forecast modes and heightened understanding of the El Niño Phenomenon.

In addition, PR China also actively supports and participates in many international regional arrangements and collaboration with regard to coastal and marine affairs. Examples of such arrangements are the North Pacific Marine Science Organization (PICES), the Coordinating Body on the Seas of East Asia (COBSEA), and the Subcommission for the Western Pacific of the Intergovernmental Oceanographic Commission (IOC/WESTPAC).

PR China is a participating country in two GEF/UNDP/IMO projects – *i.e.*, the Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas (MPP-EAS) and the Regional Programme on Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). With assistance from both programmes, PR China developed an ICM demonstration site in Xiamen that has achieved considerable progress in the application of ICM in mitigating marine pollution and showcases the operational path to sustainable development. Following the Xiamen example, and with technical aid from UNDP Beijing and other organizations, ICM capacity building projects were carried out in Fangcheng (Guangxi Province), Yangjiang (Guangdong Province), and Wenchang (Hainan Province). These projects have achieved positive results.

The country also participated in programmes to develop and implement the Bohai Sea Environmental Management Project (BSEMP), geared towards the development and testing of working models for pollution management across legal and administrative boundaries.



## Chapter 7

### TOWARDS AN INTEGRATED COMAR POLICY

An assessment of PR China's efforts and processes for establishing an integrated national COMAR policy suggest five major milestones:

1. Well-developed ocean-related sectors making an increasingly important economic contribution to the national economy;
2. Practices and experiments conducted in developing integrated COMAR management approach in response to resource depletion and environmental degradation through the formulation of a draft Coastal Zone Management Act;
3. Initial steps taken towards integrated COMAR management through national legislation for sea area use management in response to increased multiple use conflicts;
4. Interagency and cross-sector sea area use management system established involving all major stakeholders in decision making at both national and subnational levels; and
5. Integrated management system and legal framework for the COMAR area (including major river basins and their associated marine habitats) developed on the basis of the legal framework and implementing mechanisms for sea area use management.

The achievement of these five milestones represent the completion of the initial process of the development and implementation of an integrated Chinese national COMAR policy. Enhanced efforts are needed, however, to deal with challenges and tasks ahead.

#### 7.1 DRAFT COASTAL ZONE MANAGEMENT ACT

The national policy and legal framework development in relation to COMAR area is closely associated with the perception changes of the

policy-makers regarding priority COMAR issues. Before the 1980s, COMAR issues were perceived as problems related to specific resource uses; particular sectors; at-sea illegal drug trafficking; smuggling; animal and plant quarantine systems; and maritime security, etc. (Yang and Liu, 1999). To respond to these issues, the following laws and regulations concerning fisheries and maritime safety were developed:

1. Fisheries
  - a. The Interim Management Rules for Bottom Trawling by Motor Boats Offshore of East China, East China Military and Administrative Commission, 1950;
  - b. The Ordinance of Area Closure for Bottom Trawling by Motor Boats in Bohai Sea, Yellow Sea and East China Sea, State Council, 1955;
  - c. The Regulations for the Protection and Reproduction of Aquatic Resources, State Council, 1979; and
  - d. The Interim Rules for Fisheries Administrative Work, Fisheries Agency, 1979.
2. Navigational Safety
  - a. The Maritime Harbour Supervision Statutes, Ministry of Transportation, 1953;
  - b. The Interim Rules for Maritime Harbour Management, State Council, 1954;
  - c. The Interim Rules for Maritime Bay Management, State Council, 1954;
  - d. The Navigational Rules for Laotieshan Channel, Ministry of Transportation, 1956;
  - e. The Interim Rules for Maritime Safety of Non-Mechanized Boats, Ministry of Transportation and the former Ministry of Fisheries, 1958;
  - f. The Regulations on Pilot Work in Harbour Waters, Ministry of Transportation, 1959; and
  - g. The Management Rules for Passage through Qunzhou Strait by Foreign Non-Military Ships, 1964.

A review of these legislations will reveal that they were single-sector oriented, addressing only certain sectoral resources and management issues. No cross-sector national review of multiple use conflicts and consequences related to the COMAR area was undertaken prior to the development of these regulations. The emphasis of management improvement was directed towards specific sectors concerned. This may be a reflection of the low level of COMAR uses and that multiple use conflicts and related cross-sector management issues were not being taken seriously during that period.

In the 1980s, the speed of COMAR urbanization and industrialization picked up, exposing COMAR resource depletion and environmental degradation problems and making the scarcity of COMAR space and resources more apparent. New legislation was developed while existing sectoral regulations were upgraded to respond to these concerns. Examples of the laws are as follows:

- The Marine Environmental Protection Law, 1982;
- The Regulations for the Prevention of Marine Pollution by Ships, 1983;
- The Regulations for Ocean Dumping Management, 1985;
- The Prevention of Pollution Damage to Marine Environment by Land-Based Sources, 1990;
- The Maritime Transportation Safety Law, 1993;
- The Navigation Management Regulations, 1987;
- The Fisheries Law, 1986;
- The Implementation Rules for Fisheries Law, 1987; and
- The Regulations on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises, 1982.

During the same period, and with the adoption of the 1982 UNCLOS, the “coastal zone management”

concept was developed. A large-scale nationwide coastal resources and environmental status survey was conducted from 1980-1987 and its results accelerated the approval of the formation of a Drafting Group for the Coastal Zone Management Act by the Legal Bureau of the State Council. The group completed the preparation of the Draft Coastal Zone Management Act in 1986 and submitted it for interagency review. Unfortunately, the draft was not approved during the review process in subsequent years and the efforts to develop integrated management approaches related to the COMAR area were consequently delayed.

The failure of the development of the coastal zone management legislation may be attributed to multiple and complex factors. Some of the main factors are discussed below.

First, there was no clear demonstration of the need for the new legislation. Coastal problems discussed in the reports of the national survey were largely characterized as resulting from the misuse of resources and weak environmental protection. It was the general perception then that these problems could be addressed through the improved implementation of existing policies and laws relating to resource conservation and environmental protection, rather than through the formulation of new legislation. This major factor was insufficiently studied due to the lack of awareness of top-level policymakers regarding the “system failure” of the sectoral management approach in addressing cross-sector issues (multiple use conflicts).

Second, the lack of clarity regarding priority issues for new legislation resulted in the ambiguity of the scope and operational modalities of the new management approaches envisioned in the draft act. The mere emphasis on the need for the comprehensive management of coastal resources and environment is misleading and untenable, in view of the complexity of both the physical environment and the management systems involved.

Institutional barriers also affected the policy development process. Since the sectoral mandates related to the management of coastal lands and waters were based on the prevailing national legislation and regulations, there was strong resistance from some ocean-related agencies regarding the coastal zone management concept.

The lack of awareness among policy makers and the general public on the severity of multiple COMAR use conflicts and their associated socioeconomic consequences slowed the policymaking process. While these conflicts and their impacts have not yet escalated into “management crises”, the urgency and the momentum for change was not felt by the relevant authorities and action was not taken as expeditiously as it should have been.

## 7.2 NATIONAL LEGISLATION FOR SEA AREA USE MANAGEMENT

As discussed in Chapter 1, COMAR uses expanded and accelerated significantly in the 1990s. Multiple use conflicts and impacts were elevated to a new level and the implications of these changes

for COMAR management presented opportunities for policy changes.

The use conflicts and impacts can be classified into three categories:

- a. Property rights and use rights in tidal lands and sea areas were not clearly defined. Numerous cases of the occupation and enclosures of these areas for reclamation, aquaculture and other purposes by some institutions and individuals, as well as some incidences of the purchase and sale of blocks of these areas were reported. Mass fighting and other occurrences that threatened social stability and economic life in some coastal localities broke out. This highlights the seriousness of multiple use conflicts. Ocean use sectors could not ignore the impacts of uses by various sectors, if normal operations are to be maintained (Box 2).
- b. Open access to tidal lands and sea areas led to the misuse and depletion of resources. These negative effects were compounded by the lack of a mechanism to collect the “rents” created by the resource scarcity (Box 3).

### Box 2. Dispute Over the Rights to Use Tidal Lands.

**Wenling County vs. Huangyan County, Zhejiang Province.** Zhejiang Province borders western East China Sea. In 1972, coastal villagers in Wenling County conducted a tidal land reclamation project. However, Huangyan County coastal villagers claimed that the tidal lands being reclaimed by the Wenling County villagers belonged to the Huangyan County, and they demanded a compensation for the infringement. The disputes caused mass fights between the groups of villagers, which led to the disruption of county aquaculture production and the destruction of production facilities of the Wenling County villagers. The disputes continued until the late 1990s.

**Wutou Village vs. Jianglong Village, Guangxi Region.** Guangxi Region borders the northern China Sea. In the Dongxin Municipality of the Guangxi Zhuang Autonomous Region, there is a dispute between the Wutou Village and Jianglong Village dating to the late 1990s regarding rights to use nearby tidal lands. In 1997, the Wutou Village blocked the Jianglong Village's access to its adjacent tidal lands. The Jianglong Village, in retaliation, blocked the three adjacent public roads and denied the Wutou Village access to the township where the shopping areas were located. The disputes led to mass fighting and personal injuries, and posed a threat to local social stability.

Note: Similar disputes also occur in other provinces.

**Box 3. Some Examples of Multiple Use Conflicts and Their Consequences: Shipping vs. Mariculture.**

Dalian Municipality borders the Northern Yellow Sea. The Dalian Port is an important fisheries production base, contributing some 20 percent of the municipality's total export value. It is also one of the largest seaports in China, linked through shipping routes with some 150 countries. With port expansion, the demand for more anchoring space in the port continues to grow.

According to the Dalian Maritime Court, the number of legal cases related to damages to mariculture facilities and fishing gear stemming from the navigation of both domestic and foreign ships in the shipping routes are increasing. While only one incident occurred in 1991, similar incidents have occurred 6-7 times annually since 1993. A government survey in 1997 listed shipping routes in Dalian as potential sites for major accidents. The total amount of compensation for the damages claimed each year from accidents in the shipping lanes increased from 1.7 million (in 1991) to 14.2 million Yuan in 1998. Encroachment by mariculture facilities into ship anchoring areas affected 4 m<sup>2</sup> in 1991, 7 m<sup>2</sup> in 1995, and 9 m<sup>2</sup> in 1998 (about 34 percent of the total anchoring area).

Dalian is not unique with reference to conflicts between mariculture and shipping. The Port Authority in the Beihai Municipality of the Guangxi Region bordering northern South China Sea reported that the radar of a Russian vessel was entangled by the driftnets placed by local sea farmers, causing the delay of the delivery of goods by the vessel and associated economic losses. The same port authority also reported several similar incidents involving domestic passenger ships.

Note: The sea-farmers claimed compensation for the driftnet damages.

**Box 4. Some Examples of Multiple Use Conflicts and Their Consequences: Fishing vs. Submarine Cables and Pipelines.**

With the rapid development of the telecommunication industry and the exploration and exploitation of offshore petroleum and gas, the laying of the submarine cables and pipelines has grown in recent years, resulting in an increased probability of damage done to the cables and pipelines by fishing activities. There are several major submarine cables offshore of Shanghai, e.g., the China-Japan Cable, the Sino-US Cable, and the FLAG Cable. According to the Shanghai Branch of China Telecommunication, there were about 31 submarine cable breakage incidents attributable to outside forces, such as anchoring by fishing vessels.

Cable Breaking Incidences Offshore of Shanghai, 1994-2000.

Year	Accident Occurrences
1994	6
1995	2
1996	2
1997	5
1998	4
1999	7
2000	5

Among the above incidences, the Shanghai portion of the FLAG Cable experienced the highest number in one month -- i.e., four accidents from March to April 1999. Each repair or maintenance operation took over 30 days and cost around US\$ 0.6-1.2 million. The equipment damaged during the highly-publicized breakage of the SINO-US cable near Shanghai, which was caused by the operation of a fishing vessel from Jiangsu Province in 11 February 2001, took two months to fix and interrupted a substantial part of the telecommunication activities between the two countries for weeks.

It is important to emphasize, that the breakage of submarine petroleum pipelines cause economic losses and ecosystem damage. The breakage of the pipeline of the Huizhou Petroleum Platform by fishing vessel operations caused the spillage of large amounts of oil into the sea and led to the suspension of production for 37 days due to the extensive nature of the repair and pollution cleaning operations required.

- c. In many instances, where property rights and use rights were not clearly defined, there was no legal basis for the protection of the normal operation of ocean-related businesses and for penalizing rights infringements. Hence, the cycle continues.

### **Interim Sea Area Management Rules**

In an effort to directly confront the use conflicts and their adverse impacts, local governments took the initiative of developing integrated management approaches. By 1992, coastal counties and cities in the Hainan Province had adopted ordinances for sea area use management aimed at lessening these conflicts. Their experiences, as well as those of other provinces were built upon by the SOA and the MOF, which later on jointly promulgated the Interim Management Rules for National Sea Area Uses.<sup>11</sup>

The Rules provide for two systems:

- a. a permit system for sea area development projects; and
- b. a fee system for using the sea area.

Their enactment represented an important change in the national policy on COMAR areas. Unlike other national laws and regulations related to such areas, they do not target specific resource use issues or environmental problems, but instead aim to strengthen “integrated sea area management” in a bid to “ensure sea area rational use and sustainable development and enhance the total social, economic and eco-environmental benefits of the sea area uses.” The scope of their application is the transfer of sea area use rights by “the agencies, enterprises, companies and other institutions and individuals”.

Under the Chinese legal system, all important natural resources (including internal and territorial seas) are owned by the State<sup>12</sup>. It is therefore necessary to address the open access problem in sea area use and to adapt to the needs of a developing market economy. The Rules separate the rights of the State to possess the sea area from the rights to use and benefit from them, thus paving the way for the transfer of use rights and their associated beneficial rights to the interested institutions and individuals.

The Rules dictate that the Ocean Administrations of local governments are responsible for reviewing and processing permit applications in accordance with “state ocean policies, national sea area use functional zonation schemes and marine development programmes, in consultation with other concerned agencies”. These subnational governments are also responsible for the development of sea area use fee rates, taking into account specific local conditions and the formulation of requirements and criteria whereby use fees may be reduced or waived for the poverty areas or in case of damages to the users caused by severe natural disasters or *force majeure* (Table 7).

Sea area users are required to obtain use rights from the above governments at the county level and to pay for the following use fees<sup>13</sup>:

- The fees for the transfer of use rights from the State to individual users;
- The fees for the transfer of use rights to other users (collected in proportion to the earnings made by the users); and
- The fees for the subletting of use rights (collected in proportion to the earnings made by the users).

<sup>11</sup> See definition of “sea area” and “sea area use” in section 4.2 above.

<sup>12</sup> State ownership includes rights to possess, use, benefit from, and appropriate the objects being owned.

<sup>13</sup> The 30 percent and 70 percent of the use fees collected by the Ocean Administrations at the various levels are submitted to national and local treasuries, respectively. All the fees are to be used for “sea area development, protection and management”.

Type of Use	Rates	Mode of Payment	Locality
Coastal construction	> 3,000/ha	Yearly	Liaoning Province
Land reclamation	> 150,000/ha	Lump sum	Liaoning Province
Land reclamation	40% of the adjacent land rate	Lump sum	Hebei Province
Seaboard recreation	> 1,500 - 7,500/ha	Yearly	Hebei Province
Mineral development	> 12,000/ha	Yearly	Hebei Province
Sewage outfalls	> 4,500/ha	Yearly	Liaoning Province
Cables and pipelines	> 1% of total construction cost	Lump sum	Liaoning Province
Cables and pipelines	> 1,000/km	Yearly	Jiangsu Province
Ship breaking/repair	> 3,000/ha	Yearly	Hebei Province
Mariculture	150-750/ha	Yearly	Guangxi Region
Mariculture	> 1,500	Yearly	Hebei Province
Mariculture	> 1,500	Yearly	Jiangsu Province

### ***Implementation of the Interim Management Rules***

The Interim Management Rules were welcomed and implemented to various extents by the coastal provinces and municipalities and were even supported by some ocean-related national agencies. However, the national line agencies had management responsibilities with regard to specific uses of the sea areas (*e.g.*, mariculture activities) and expressed concern on the consistency of these rules with related national legislations, as well as some implementation issues. In spite of these differences, the new management approaches put forward in the Rules were increasingly being adopted on the ground level, generating positive impacts that facilitated consensus building for the development of the National Sea Area Management Law.

Within a few years after the promulgation of the Rules, almost all the coastal provinces and municipalities had adopted, in one way or another,

sea area use regulations based on the Rules (Table 8). In 1997, the Xiamen Municipal People's Congress, with technical assistance from the MPP-EAS, adopted legislation developed as part of its ICM institutional arrangements dealing with sea area uses. Theirs was

### **Box 5. Unregulated Enclosures of Tidal Lands and Sea Areas.**

The enclosure of submerged lands and their overlying waters translates into the rent-free use of these resources. As property rights are not clearly defined, the unregulated enclosure of these areas occurs recurrently in China. In Guangdong Province and the Guangxi Region (northern South China Sea), for example, there have been several incidences over the past few years of such enclosures and the reclamation of large areas of the submerged lands in a number of localities by some institutions and individuals for the creation of shrimp ponds and other coastal development projects. Initially, these activities were done only in a few hectares of land, but around a dozen km<sup>2</sup> of the area has now been affected.

**Table 8. Subnational Regulations for Sea Area Uses in PR China, 1992-2001.**

Type of Use	Mode of Payment	Locality
Hainan Coastal Counties	Sea Area Use Management Methods	1992
Liaoning Province	Detailed Implementation Codes for the Interim Management Rules for Sea Area Uses	1994
Dalian Municipality	Interim Management Rules for Sea Area Uses	1995
Hebei Province	Detailed Implementation Codes for the Interim Management Rules for Sea Area Uses	1995
Guangdong Province	Sea Area Use Management Rules	1996
Shandong Province	Sea Area Use Management Rules	1997
Shanghai Municipality	Sea Area Use Management Methods	1997
Xiamen Municipality	Municipal Legislation for Sea Area Use Management	1997
Guangxi Region	Sea Area Use Management Methods	1997
Qingdao Municipality	Sea Area Use Management Rules	1997
Haikou Municipality, Hainan Province	Municipal Legislation for Sea Area Use Management	1998
Hebei Province	Provincial Legislation for Sea Area Use Management	1999
Jiangsu Province	Interim Management Rules for Sea Area Uses	2001
Hainan Province	Sea Area Use Management Rules	2001
Fujian Province	Sea Area Use Management Rules	2001

the first sea area use legislation in China adopted by a local legislative assembly. Similar legislation was adopted in the Haikou Municipality of Hainan Province in 1998 and in Hebei Province in 1999.

According to surveys and assessments by the Legal Bureau of the SC and the SOA, the Rules proved instrumental for the reduction of use conflicts (Box 6) and the protection of the lawful uses of the sea areas.

Findings also showed that their implementation facilitated the capacity building of management teams at various levels, as well as the enhancement of public awareness of major environmental and management issues. Many subnational governments expressed their concerns regarding the constraints of the Rules, as follows:

- Since the Rules were agency regulations, their legal effects were inadequate for the task of regulating cross-sector use conflicts in many circumstances.
- The Rules were not in accordance with the provisions in the Fishing Law regarding the permitting authority for use rights for mariculture activities in tidal lands.
- The prevailing management structure and capacity were inadequate for the effective implementation of the Rules.
- In some localities, marine functional zonation schemes and development programmes were lacking or not well formulated, making it difficult to implement the permit review procedures as required by the Rules.

Despite the constraints identified above, the subnational governments of the coastal provinces and municipalities, together with the SOA and other agencies, recommended the upgrading of the Rules into a national law.

### **Sea Area Use Management Law (SAUML)**

Under the guidance of the Legal Bureau of the SC and the SOA, the draft SAUML was prepared by several groups of experts in 1997. It was subsequently refined through a series of workshops and stakeholder consultations among concerned agencies and with subnational governments. The Legal Bureau of the SC, in collaboration with the SOA and other concerned agencies, finalized the text of the draft law, taking into account the feedback received from the coastal provincial and municipal governments and the concerned national agencies. Upon the approval of the SC, the draft law was submitted to the Standing Committee of the NPC for deliberation and adoption.

In the process of developing the draft law, case studies were prepared on the adverse impacts of multiple use conflicts in COMAR areas and the inability of the existing single sector-oriented management systems to resolve the conflicts. For example, case studies for Hainan, Guangxi, Xiamen, and other parts of the country, which illustrated the

cost of maintaining the status quo and the benefits of moving towards integrated management approaches, provided supporting documents for the draft law and highlighted the success stories regarding the implementation of such approaches to COMAR issues.

The Standing Committee of the NPC amended the Fisheries Law on 30 October 2000. Under the old law, institutions and individuals working in aquaculture were required to submit permit applications to the FA above the county level for the use of water areas and tidal flats for aquaculture projects. Subnational governments concerned were in charge of processing the aquaculture permits and confirming the rights of the approved applicants to use water areas and tidal flats.

In view of the increased multiple use conflicts in sea areas including tidal flats, the amendment to the Fisheries Law removed a major legal discrepancy between the law itself and the proposed Sea Area Use Law by deleting the reference to the confirmation of use rights. The amendment removed the mandate of the FA for granting the said rights, leaving it with only the permitting authority for aquaculture production. The actions of the Standing Committee paved the way for the launching of the SAUML and showed that sea area use rights were cross-sector issues which cannot be addressed merely through aquaculture permits.

#### **Box 6. Reducing Conflicts Between Mariculture and Shipping: The Raoping County, Guangdong Province Success Story.**

Raoping County is an important mariculture base in Guangdong Province. Covering an area of over 3,880 hectares and containing some 40,000 cages, it produces 74,000 tons of fish and shellfish annually.

The intense mariculture development has been accompanied by eutrophication, red tide, the encroachment of mariculture facilities into navigational channels, as well as other such threats to maritime safety. To address these issues, the county government invested over 1 million Yuan to implement an integrated management programme involving extensive public awareness campaigns, the reduction of mariculture efforts and the removal of unregulated mariculture facilities, particularly those in the navigational channels. The Interim Management Rules for Sea Area Uses required the registration of mariculture activities during programme implementation, thereby creating the right conditions for processing the "use right" permits for the sea farmers. As a result of these efforts, 37 km of navigational channels were cleared of mariculture facilities.



The SAUML was adopted by the Standing Committee of the NPC on 27 October 2001 after several rounds of deliberation and field surveys. Containing 54 articles in eight chapters, it inherits the spirit and principles of the Interim Management Rules, and elaborates the implementation mechanisms. The SAUML provides for the following four major legal regimes pertaining to the sea area uses:

### **1. Sea Area Use Rights Management System**

Under the SAUML, sea area users must obtain use rights in accordance with the law by applying to the Ocean Administrations above the county level for sea area use permits or through bidding and auction. The concerned governments must issue permits to the users upon the approval of their applications. The sea area use rights obtained are to be protected against any infringement. Ocean Administrations should prepare the bidding and auction procedures in consultation with other concerned agencies at the corresponding levels. These procedures are then submitted for approval the authorized governments before implementation.

### **2. Marine Functional Zonation Scheme**

The Marine Functional Zonation Scheme defines the uses of a given sea area in the order of priority, taking into account their particular ecosystem functions, socioeconomic values and other special features based on the best available information. Because the SAUML considers the Scheme to be the scientific basis for managing multiple use conflicts, it requires that the use of sea areas conform to the Scheme. It further gives the competent ocean agency of the State Council the mandate for the preparation of national marine functional zonation schemes (in consultation with other

concerned agencies of the State Council and coastal provincial and municipal governments), while giving the Ocean Administrations (above the county level) the responsibility for the preparation of local marine functional zonation schemes – *i.e.*, in accordance with the marine functional zonation schemes of the upper level governments, and in consultation with other concerned agencies at the corresponding levels. The SAUML also requires that sectoral development planning (for aquaculture, salt-making and marine tourism), as well as coastal land use, urban and port planning, be consistent with the Marine Functional Zonation Scheme.

### **3. Sea Area Use Fee Scheme**

The SAUML requires sea area users to pay user fees. The payment for the use fees embodies, in economic terms, the transfer of sea area use rights from the State to the users. Sea use fees go to the national treasury.

The fees are waived for uses by military activities, terminals for public vessels, transportation facilities such as non-commercial navigational channels and mooring sites and non-commercial public activities such as education, scientific research, the prevention and mitigation of natural hazards and maritime salvage and rescue operations. The reduction and the waiving of the fees may also be applied to the sea area uses by public works, key state development projects, and mariculture endeavors, if approved by the competent authorities specified by the SAUML.

Studies show that sea farmers have higher incomes than conventional fishers and land farmers. Sea area use fees only account for 0.2-

2 percent of the sea farmers' income on the average and therefore the implementation of the sea area use fees will not significantly impact their livelihood. However, as the labor-intensive mariculture and its level of production is subject to the mercy of changes in environmental conditions, the risk of production is also high. For this reason, the SAUML requires that a separate use fee scheme be prepared by the SC for the use of the sea area by fishers for mariculture.

#### **4. Sea Area Management Mechanisms**

In the past, the sea area was within the jurisdiction of the national government and there was no division of sea area jurisdiction between the national and local governments. In view of the increased complexity of coastal and marine activities, the SAUML allowed the SC to authorize coastal provincial and

municipal governments to exercise some management responsibilities on its behalf, depending on the type and size of the sea area use projects.

The SAUML's target is "use rights" management. It therefore leaves sectoral management to the concerned agencies, and delineates the administrative boundaries between Ocean Administrations which take care of "rights" and other ocean-related agencies which maintain permitting authorities over sectoral activities, *e.g.*, navigation and maritime safety, fisheries production, and mineral and energy development.

It is expected that the new law will be improved over time as concerned parties and government officials continue to learn lessons from the implementation process.

## **Chapter 8**

# **CONCLUSIONS AND RECOMMENDATIONS**

### **8.1 EXPERIENCES AND LESSONS LEARNED**

The experiences and lessons learned from the Chinese efforts in developing an integrated national COMAR policy may be summarized, as follows:

- a. It is a misconception that a highly-centralized planning economy facilitates integrated management. As demonstrated by the significant progress made in the adoption of integrated management approaches and ICM practices at the local levels when reform took place in PR China in 1978, a system that readily incorporates the views of the stakeholders and the discoveries and assessments of scientific communities is far more conducive to the progress of integrated approaches.
- b. Considering that subnational governments and local people directly bear the impacts of rapid development on the coastal and marine environment that sustain their livelihood, they are an important driving force for COMAR policy changes. Local initiatives have driven and triggered national policy changes, particularly in sea area legislation. Local management experiments/practices and national policy initiatives have proven to be mutually reinforcing.
- c. The need for cross-sector management mechanisms arises when involved sectors/parties feel that their normal activities in the COMAR cannot be sustained without considering cross-sector impacts. The maritime transportation and the fisheries sectors have raised these concerns. On various occasions, the maritime transportation sectors expressed that navigation and maritime safety have been significantly affected by mariculture facilities and operations and by submarine cables and pipelines. The fisheries sector articulated concerns about pollution by various industries. The level of consensus on the severity of cross-sector issues shapes the outcomes of efforts to develop integrated management.
- d. National overviews of multiple use conflicts and their associated ecological and socioeconomic consequences often serve as the catalyst for national policy changes. They play a critical role in changing the perceptions of decision makers towards the integrated COMAR policy. As such, these assessments should be conducted in a multi-sector and interdisciplinary manner to facilitate consensus building. They must take into consideration the economic valuation of impacts and extend beyond the discussion of “environmental problems” and their relation to “governance failure”. They should also address two most important aspects: (a) what and how the adverse consequences are caused or aggravated by the failures of single sector-based management systems in handling the cross-sector issues; and (b) the success stories of integrated coastal and marine management.
- e. The shift to integrated management approaches is a process that entails overcoming of resistance from entrenched sectoral interests. As such, it is important to take things gradually and to focus on one or two priority concerns at a time, instead of trying to address all major COMAR issues simultaneously. Recent Chinese efforts have so far only focused on “rights issues” in the limited “sea area”, putting aside, for the moment, the disputes on specific management

boundaries and legal terminology — as long as these disputed points do not significantly detract from the objective and intent of the efforts. The SAUML, for example, uses the term coastline as landward side of “the sea area” without defining its physical location. This allows for the continuation of the consultation process and directs the focus on the main issues involved.

- f. As can be concluded from aborted efforts in the 1980s, when the SOA worked almost single-handedly to develop a Coastal Management Act, sectoral interests may be powerful and unyielding. They can, however, be overcome by developing a broad alliance of stakeholders that can be mobilized to break the sectoral resistance and to support the efforts for the adoption of the integrated national COMAR policy, as shown in the case of the SAUML. Most of the coastal provinces and municipalities, concerned national agencies, and prominent experts in the country were involved from the start in the development of the SAUML. The Legal Bureau of the SC also played a prominent role in the latter part of the process, when the issues moved onto the Congressional agenda. The decisions regarding the direction and provisions of the new law had already been debated and agreed upon by the stakeholders, hence their support for the new law was ensured prior to its adoption by the Congress.

## 8.2 CONCLUSIONS AND RECOMMENDATIONS

An examination of the Chinese COMAR policy development process reveals 12 essential elements, as discussed in Section 1.3. The progress of Chinese efforts in developing an integrated COMAR policy is evaluated and illustrated in Table 9.

### **Conclusions**

The following conclusions can be drawn from the overall evaluation of the Chinese efforts to develop a national COMAR policy:

- a. The enactment of the SAUML marks the end of open access to the sea areas of PR China. With the law in place, significant progress has been made in clarifying property and use rights concerning these areas.
- b. Integrated sea area management mechanisms and legal regimes have been developed, thereby facilitating the resolution of multiple use conflicts.
- c. A mix of administrative, legal, and economic measures have been undertaken to encourage the promotion of good practices in conserving the national resources and protecting the environment.
- d. The sea areas have been assessed, depending on their ecosystem and socioeconomic values, thus contributing to sustainable resource use.
- e. Comprehensive national legislation to implement international conventions were put in place, creating favorable conditions for addressing transboundary environmental impacts.
- f. Public awareness of the ocean has been enhanced; political commitment to sustainable development and integrated approaches is increasing.
- g. In many circumstances, enforcement and implementation are insufficient due to limitations in management capacity and available resources.
- h. Despite all the efforts, marine fish resources are continuously being depleted. Programmes for the significant reduction of excessive fishing have yet to be developed and implemented, and innovative approaches to fisheries management are urgently needed.
- i. Indigenous capabilities to meet international

**Table 9. An Evaluation of the Progress Made in Developing an Integrated National COMAR Policy.**

	<b>Indicator of Progress</b>	<b>Slight</b>	<b>Some</b>	<b>Significant</b>	<b>Remarks</b>
1	High level policy coordinating mechanisms	√			Lack of inter-ministerial mechanisms
2	Cross sector permitting process/mechanisms		√		With SAUML implementation, improvement is expected
3	Application of administrative, legal, and market-based instruments			√	With SAUML implementation, open access to sea area use changed
4	Implementation of international conventions			√	Implementation of national legislation was developed; efforts made for ground level implementation
5	Incorporation of COMAR management in national development programmes		√		COMAR issues better addressed but the consideration of COMAR as management unit still lacking
6	Multi-sector monitoring programmes	√			Efforts made but with slow progress
7	Cross-sector sharing and assessment of information collected	√			Efforts made but with slow progress
8	Implementation of protection programmes		√		Efforts made in waste reduction and zonation
9	Defining property rights and use rights			√	With SAUML implementation, significant progress expected
10	Sustainable financing options and mechanisms		√		Government investment increased; more efforts needed to diversify funding sources from the private sector, in particular
11	Public awareness and participation		√		Environmental publicity enhanced; there is a need to strengthen involvement of NGOs, scientific and local communities
12	Policy monitoring and evaluation mechanisms		√		Role of mass media and People's Congress strengthened; cross sector and interdisciplinary assessment insufficient to generate the needed feedback

obligations should be enhanced, *e.g.*, national contingency planning and response mechanisms for marine pollution incidents.

- j. The role of the general public, NGOs, enterprises, the private sector and scientific

and local communities in COMAR policymaking and implementation should be further strengthened.

- k. More efforts are needed to cultivate the perception of the COMAR area as a

management unit, taking into account the impacts of the river basins, the catchment areas, and the associated coastal and marine ecosystems and habitats.

### **Recommendations**

To build on the progress already made and to achieve an Integrated National Coastal and Marine Policy, the following actions are recommended:

- a. The development of a National Coastal and Marine Policy that focuses on integrated planning and management mechanisms and processes for coastal land and water uses through cross-sectoral and stakeholder consensus building at all levels, as part of the state policy for sustainable development;
- b. The establishment of a national interagency coordination mechanism within the SC to oversee the implementation of the National Coastal and Marine Policy and the strengthening of the role of an existing competent national agency to provide secretariat services for the above mechanism;
- c. The establishment of a cross-sectoral committee or the restructuring of an existing committee within the framework of the NPC to provide a focus for coastal and marine issues as an important stakeholder consultative forum;
- d. The organization of an interagency law enforcement network and teams at sea for navigational safety, pollution prevention and management, the conservation of habitats and living resources and the protection of endangered species, etc., to optimize use of resources currently managed by individual enforcement agencies;
- e. The development of an innovative legal, regulatory and management framework for coastal and marine areas of national importance that cut across administrative boundaries (*e.g.*, internal waters, major estuaries and bays);
- f. The development and strengthening of innovative packages of regulatory and market-based instruments to encourage clean production, pollution prevention and reduction, and corporate responsibility for sustainable development (including the further implementation of rights-based resource management systems and user fee schemes);
- g. The institutionalization of good practices (that ensure the participation, involvement, and provision of scientific inputs by the stakeholders in the formulation of coastal and marine policies and the management of development projects (including various sectors of the society, mass organizations, local communities and the general public); and
- h. The strengthening of cross-sectoral and multi-disciplinary research, monitoring and assessment and information systems that would effectively address the management of multiple use issues and impacts.

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