

# SUBREGIONAL COOPERATION FOR STRENGTHENING MARINE PROTECTED AREAS IN NORTH-EAST ASIA



ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC  
EAST AND NORTH-EAST ASIA OFFICE

## Note

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the NEASPEC or the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

# Table of Contents

<b>1. Background and Executive Summary</b>	<b>1</b>
1.1. Background of this paper	1
1.2. Executive Summary	1
<b>2. Marine Protected Areas</b>	<b>3</b>
2.1. Definitions of Marine Protected Areas	3
2.2. Benefits of MPAs	3
<b>3. MPAs in North-East Asia</b>	<b>4</b>
3.1. China: Marine Nature Reserves and Marine Special Protected Areas	4
3.2. DPRK: Protected Areas related to marine environment	5
3.3. Japan: Marine Parks and Marine Nature Conservation Area	6
3.4. Republic of Korea: Wetland Reserves and Marine Ecological Reserves	6
3.5. Russian Federation: National Marine and Coastal Protected Areas	7
<b>4. Inadequacies in Existing MPA Management Structures</b>	<b>8</b>
<b>5. MPA Networks as a Tool to Facilitate Cooperation</b>	<b>10</b>
5.1. What is an MPA network?	10
5.2. Benefits of a regional MPA network	11
5.3. Examples of MPA networks world wide	12
5.4. Learning from others	14
5.5. EABRN as a reference for an MPA network	14
<b>6. Launching the North-East Asian MPA Network</b>	<b>15</b>
<b>References</b>	<b>17</b>

# 1. Background and Executive Summary

## 1.1. Background of this paper

At the 16th Senior Officials Meeting (SOM-16) of NEASPEC held in September 2011, the Government of Republic of Korea presented a project proposal on “Strengthening Subregional Cooperation to Address Environmental Challenges related to Transboundary Marine Pollution”, which recommended a new framework of cooperation in the subregion to address challenges in protecting marine environment. This new framework would entail the sharing of information and knowledge on issues and policies regarding transboundary marine pollution.

Based on the request of the SOM to further elaborate the proposal on “Strengthening Subregional Cooperation to Address Environmental Challenges related to Transboundary Marine Pollution” an Expert Consultation Meeting (ECM) was organized on 27-28 June 2012 in Seoul. The meeting was attended by sixteen participants including national experts nominated by the governments of China, Japan, Republic of Korea, and the Russian Federation and resource persons from Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), Northwest of Pacific Action Plan (NOWPAP) of UNEP and UNDP/GEF Yellow Sea Large Marine Ecosystem Project (YSLME).

The ECM facilitated exchange of views and ideas among participants on the scope of the project, modality of its implementation and required partnerships with relevant organizations working in the field of transboundary marine pollution in North-East Asia. Participants also exchanged ideas and views on existing gaps in multilateral cooperation in North-East Asia and identified the following possible areas for joint subregional activities within the frame of NEASPEC:

- Marine litter
- Marine Protected Areas (MPA)
- Influence of chemicals
- Ecosystem assessment
- Climate change

In particular, considering existing programmes, scientific capacity and subregional needs for each topic, it was generally perceived that the facilitation of cooperation among Marine Protected Areas could be the main focus of NEASPEC. Following the ECM, the Secretariat conducted research on the situations of MPAs in the subregion as well as potentials of establishing an MPA network.

## 1.2. Executive Summary

### **Marine Protected Area (MPA)**

- “Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.” - IUCN

### **Benefits of an MPA**

- **Conservation:** Increased biodiversity, habitat preservation, protection of species and ecosystems
- **Economic benefits:** Stabilization of fish population, sustainable catch level, increased opportunities for job creation and tourism

### **MPAs in North-East Asia**

- **China:** 33 Marine Nature Reserves and 21 Marine Special Protected Areas (2011), administered by the Ministry of Environmental Protection, the State Oceanic Administration, the State Forestry Administration, and the Bureau of Fisheries
- **Democratic People’s Republic of Korea (DPRK):** DPRK does not have protected areas under the specifications of MPA. However, 3 out of 81 natural parks and 10 out of 74 reserves have similar characters to those of MPAs; 26 Marine Resources Reserves.
- **Japan:** 91 Marine Park Zones in National Parks and Quasi-National Parks, 1 Marine Nature Conservation Area, administered by Ministry of Environment
- **Republic of Korea (ROK):** 12 Wetland Reserves and 4 Marine Ecological Reserves, administered by the Ministry of Land, Transport and Maritime Affairs
- **Russian Federation:** 35 Marine and Coastal Protected Areas, administered by the Ministry of Natural Resources and Ecology

### **Challenges in Managing MPAs in North-East Asia**

- **New concept:** Protected areas have been mostly in the terrestrial context; most MPAs have been designated within the last decade.
- **Different terminologies:** Characteristics, purposes and regulations regarding MPAs vary by country - marine nature reserves (China), national parks (Japan), wildlife reserves (Russian Federation), wetland reserves and ecosystem reserves (Republic of Korea), and habitat reserves (DPRK).
- **Inconsistency in MPA identification:** Statistics about the number of MPAs in the region vary among different countries, international organizations, and research organizations.
- **Different institutional settings of management:** Administering bodies of MPAs include different ministries and entities that operate at various levels of local and national governments.
- **Deficiencies in national-level MPA networks:** Attempts to create national-level MPA networks are hindered by the borderless nature of the marine environment.
- **Limited international cooperation:** Despite the international monitoring efforts, North-East Asia lacks a comprehensive approach addressing the entire region.

### **MPA Networks**

- “A collection of individual marine protected areas operating cooperatively and synergistically, at various spatial scales, and with a range of protection levels, in order to fulfill ecological aims more effectively and comprehensively than individual sites could alone. The network will also display social and economic benefits, though the latter may only become fully developed over long time frames as ecosystems recover.” - IUCN
- **Existing programs:** Regional Seas Programme UNEP, Large Marine Ecosystems, and WWF Marine Ecoregions

- Benefits of regional networks: improved management, information and technology sharing, capacity building, efficient use of resources, and dialogue between stakeholders

### **Role of NEASPEC**

Regional cooperation for sustainable development, which was also emphasized by the outcome document of the Rio+20 Summit, has a significant presence in NEASPEC's ongoing activities in promoting collaborated environmental action in North-East Asia. In terms of MPAs, NEASPEC can contribute to the following:

- Establish common terms and definitions for participating MPAs;
- Create a knowledge platform that collects and disseminates information on MPAs, management plans, and other regional guidelines;
- Devise an administrative manual including a set of common management rules to overcome institutional differences;
- Convene stakeholders, encouraging shared funding and technology;
- Arrange joint assessment and monitoring activities through intergovernmental meetings, management training sessions, and joint research projects;
- Act as a liaison body among individual MPAs, as well as with national, regional and global network programs.

## **2. Marine Protected Areas**

### **2.1. Definitions of Marine Protected Areas**

There is no universal definition of marine protected areas (MPA). A number of international organizations have stated their interpretation of the terminology. Three of them are described below.

#### **Common definition of MPA**

The most widely accepted terminology was phrased by the International Union for Conservation and Nature (IUCN) describing MPAs as “any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.” The IUCN World Commission on Protected Areas (WCPA) further specifies an MPA as a “clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.” Emphasis is placed on the effectiveness of protection, meaning that the area is protected by an Act of the Parliament in the case of a public land, or by a covenant or conservation agreement in the case of a privately-owned or indigenous land.

United Nations Environmental Programme (UNEP) views MPA as a “a generic term to cover all marine sites that meet the IUCN protected area definition, regardless of purpose, design, management approach, or gazetted name including marine reserve, sanctuary, and marine park.”

Lastly, the Convention on Biological Diversity (CBD) defines MPA as “a geographically defined area, which is designated or regulated and managed to achieve specific conservation objectives.” For CBD, an MPA's specific conservation objectives are considered especially important. In other words, a site that is set aside primarily for other purposes such as defense, but may have value for marine biodiversity, will not generally be classified as MPAs. A later CBD decision states, “Marine and coastal protected area means any defined area within or adjacent to the marine environment, together with its overlying waters and associated flora, fauna and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings.”

## 2.2. Benefits of MPAs

IUCN World Database on Protected Areas counts more than 5000 MPAs worldwide for 2011/2012. The largest MPA covers 41,050,000 hectares (Phoenix Islands Protected Area, Kiribati) and the smallest covers merely 0.4 hectares (Echo Bay Provincial Park, Canada). Up to this day, MPAs are mainly coastal areas covering only 0.7% of the oceans. Nonetheless, MPAs contribute a number of benefits that are essential in the management of the marine environment.

### Increased biodiversity and long-term viability of marine ecosystems

MPAs focus on a wide range of conservation objectives. The main goal is to increase biodiversity and to allow marine ecosystems to return to or maintain their natural states. An effective MPA can ensure long-term viability and genetic diversity of marine species and systems. Such benefits are consequences of protecting the rare and endangered species, preserving critical habitats, and preventing outside activities that harm the marine environment.

### Economic benefits from stable fishing levels, job creation, and tourism

There are also economic benefits associated with MPAs. Fish populations are stabilized or increased inside the MPA boundaries, and potentially outside as well. Such effects will bring about steady catch-levels and increase the total-catch. Wave-buffering reefs can also flourish within an MPA, initiating a chain of benefits from ecological services that result as spinoff effects. MPAs furthermore provide a platform for job creation through harvesting renewable and nonrenewable resources such as fish and shells. Non-consumptive activities such as tourism or creation of parks and sanctuaries also hold further economic values. Increasing the number of visitors with a better marine environment can lead to additional jobs and tax revenues for the local community.

## 3. MPAs in North-East Asia

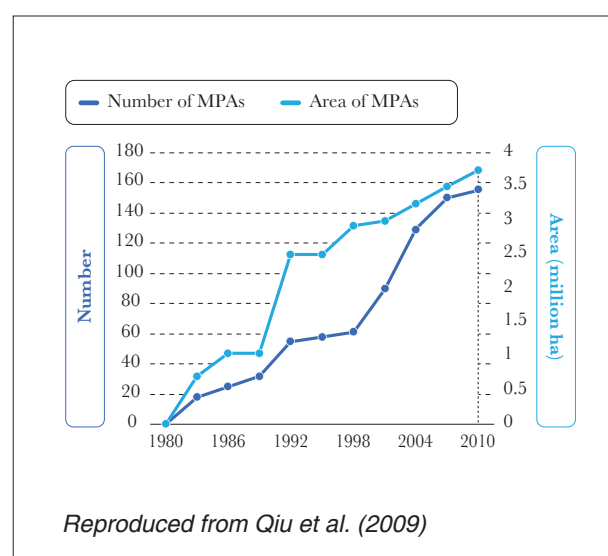
### 3.1. China: Marine Nature Reserves and Marine Special Protected Areas

Though the vast majority of its territory has no connection to the sea, China's coastal areas play a big role for its economy and its ecological activities. China's more than 3 million km<sup>2</sup> of marine territory stretches across three climatic zones with 18,000 km of mainland coastline and 6,900 islands. While MPA in general is a rather young phenomenon in China, it is growing fast [Figure 1].

#### MEP, SOA, SFA and MOA as main institutions

Host to an exceptional biodiversity of about 22,500 recorded species and ecosystems that include mangroves, coral reefs, and coastal wetlands bays – China faces a significant task in protecting the marine environment. MPAs are designated at national or local level (provincial/municipal/county). At the national level, four government agencies are responsible for the administration of MPAs: the Ministry of Environmental Protection (MEP), the State Oceanic Administration (SOA), the States Forestry Administration (SFA)

[Figure 1] Growth in the number and area of MPAs in China (2009)



and the Bureau of Fisheries under the Ministry of Agriculture (MOA). Among the number of administering bodies, SOA carries the overall supervision and manages 56% of the MPAs.

#### National-level MPAs

The national government has identified five different types of Special Marine Protected Areas and Marine Parks: 1) 33 National Marine Nature Reserves, 2) 21 National Special Marine Protected Areas, 3) 7 National Marine Parks, 4) 26 Provincial Marine Nature Reserves, and 5) 10 Provincial Special Marine Protected Areas – altogether adding up to 97 national-level MPAs. Of the

five different types, the highest level of significance goes to the Marine Nature Reserves (MNRs) and Special Marine Protected Areas (SMPAs)[Table 1]. At the end of 2009, there were 170 different MNRs, among them 32 national and 110 local level MNRs. SOA promotes designation of new MNRs and SMPAs for the protection of endangered marine species, marine ecosystems, special marine geographical locations, offshore marine resources, high sea, and archipelago sea area.

[Table 1] MNRs and SMPAs in China, August 2008

		MNR	SMPA	Total
Number	National level	32	7	39
	Local level	114	5	119
	Total	146	12	158
Area (million ha)	National level	2.29	0.13	2.42
	Local level	1.27	0.08	1.35
	Total	3.56	0.21	3.77
Average size of individual sites (million ha)	National level	0.072	0.018	0.063
	Local level	0.011	0.016	0.011
	Total	0.024	0.018	0.024
% of China's total marine area	-	1.19	0.07	1.26

*Adapted from UNEP-WCMC (2008)*

### Fast growing SMPAs

According to the “Marine Environmental Protection Law of the PRC,” SMPAs have special geographical qualifications, ecosystems, species, and non-biological resources. Unlike MNRs, which are completely no-take zones, a special authorization will allow certain level of marine exploitation in the SMPAs. Scientifically informed and rational development of these areas is permitted for harmonizing the protection and the use of marine ecosystems and their resources. The number of SMPAs is growing quickly in China: in 2008, the 7 SMPAs constituted only 5.6% of the total Chinese MPAs in terms of area size. But at the end of 2009, there were over 30 SMPAs, 16 of them at national level [Figure 2]. Furthermore, 5 new SMPAs were added in 2011. This is a rather special case in context of the global trend, where no-take zones such as MNRs had long been the minority while MPAs that allow restricted exploitation have been largely predominant.

[Figure 2] SMPAs in China (2009)



## 3.2. DPRK: Protected Areas related to marine environment

The Democratic People’s Republic of Korea (DPRK) has a coastline of 2,495 km. It has 700,000 ha tideland on its western and southern coast, with about 2,500 islands. DPRK does not have protected areas under the specific terms of MPA. However, DPRK marine areas fall in the categories of Natural Parks, Habitat/Species Reserves, and Reserves for Resource Management. At least 3 of 81 natural parks, 2 out of 25 plant reserves, 1 out of 25 animal reserves, and 7 out of 24 areas for migratory (wetland, breeding area) reserves are associated with marine areas. Furthermore, 26 marine resources reserves belong to the third category of Reserves for Resource Management.



### 3.3. Japan: Marine Parks and Marine Nature Conservation Area

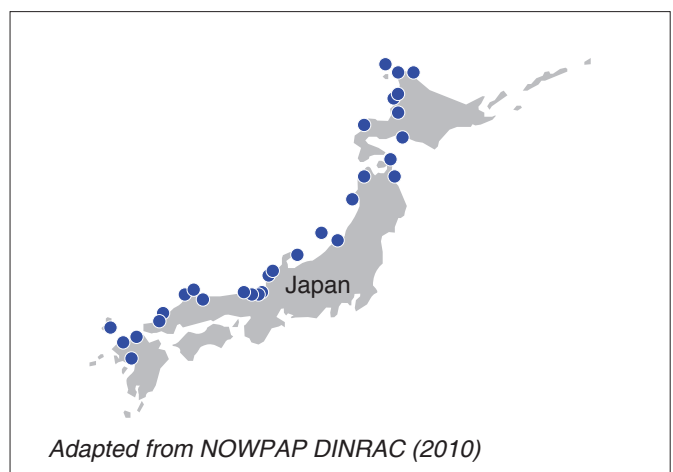
With a coastline of over 29,751 km and about 4,000 small islands in addition to the four main islands, the marine environment has always occupied a big part of the Japanese economic and environmental agendas. Japanese MPAs are classified into five categories: 1) National Parks established under the National Parks Law; 2) Nature Conservation Areas established under the Nature Conservation Law; 3) Protected Waters established under the Fisheries Resource Protection Law; 4) No-take Zones of particular fishery resources established under the Fisheries Law; and 5) Voluntary No-take Zones self-imposed by local fishers within their co-managed fishing areas. Across the five categories, there are more than 400 MPAs, 280 of them being no-take zones.

#### MPA Categories under the Natural Parks Law and the Nature Conservation Law

Different entities administer the national parks, which are divided into national parks, quasi-national parks, and local nature preserves prefectural natural parks. The Natural Environment Bureau of the Ministry of Environment (MOE) manages the national parks, while MOE manages the quasi-national parks in response to requests from local governments.

In 2006, there were 33 marine parks in the national parks category and 31 in the quasi-national park category. The total number of marine parks in the national and quasi-national parks category under the protection of the National Parks Law continued to increase over the recent years: 69 in 2008, 82 in 2010, and 91 in 2012. Under the National Parks Law, certain activities such as discharging polluted water through the sewage disposal facilities, fishing, and capturing coral, plants and animals are prohibited in the marine parks. Under the Nature Conservation Law, only one marine area has been identified so far. Similar restrictions to the national parks apply here, with the addition of banned mining and removing soil or gravel.

[Figure 3] MPAs in Japan (2010)



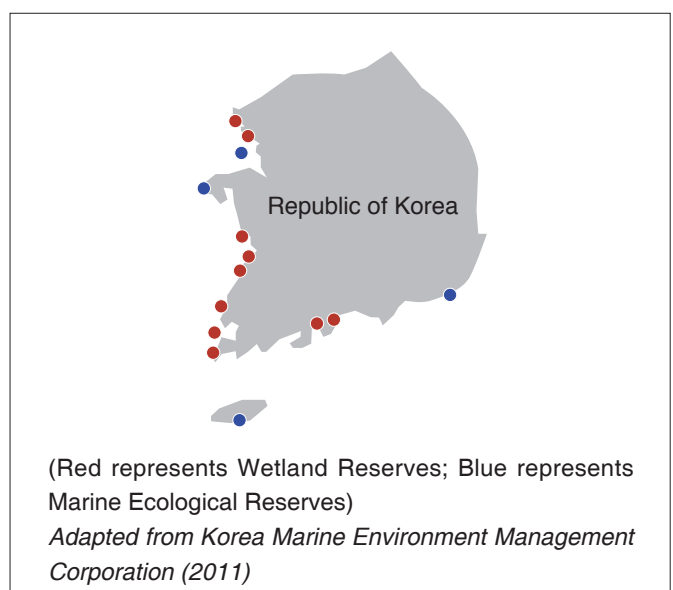
### 3.4. Republic of Korea: Wetland Reserves and Marine Ecological Reserves

With a coastline of 2,413 km, 3,200 islands and 443,000km<sup>2</sup> of sea area under its jurisdiction, the oceans have also been a grave concern for the Republic of Korea.

#### MPAs managed by the Ministry of Land, Transport and Maritime Affairs

MPAs were first introduced to the Republic of Korea in 2006 under the Law on Conservation and Management of Marine Ecosystem, which was enacted by the then Ministry of Maritime Affairs and Fisheries (now the MLTM - Ministry of Land, Transport and Maritime Affairs). There are nine types of marine conservation areas: Coastal and Marine National Parks, Marine Wetland Area, Fisheries Resources Protected Areas (Marine Resources Conservation), Ecosystem Reserves, Birds Habitats, Uninhabited Islands for Special Protection, Natural

[Figure 4] MPAs in Republic of Korea



Heritages, and Underwater Landscape Sites. Of these nine types, MPA status is given only to the Marine Wetland Areas and the Ecosystem Reserves [Figure 4], which are administered under Wetland Preservation Act and Marine Ecosystem Preservation and Management Act, respectively.

The number of MPAs is steadily increasing in the Republic of Korea: 12 MPAs in 2009 increased to 14 in 2011. Ten out of the 14 MPAs were Marine Wetland Reserves, while the rest were Ecosystem Reserves. In 2012, two Marine Wetland Reserves were added. Altogether, the total area size of Marine Wetland Reserves and Ecosystem Reserves now equals 218.96 km<sup>2</sup> and 70.37 km<sup>2</sup> respectively, amounting up to an overall MPA size of 289,33km<sup>2</sup>. This constitutes 0.3% of ROK's total marine territory.

### 3.5. Russian Federation: National Marine and Coastal Protected Areas

Protected Areas have a long history in the Russian Federation. With a coastline of 37,653km, about 12,000 areas are currently protected nature reservations, summing up to a total of 203 million ha.

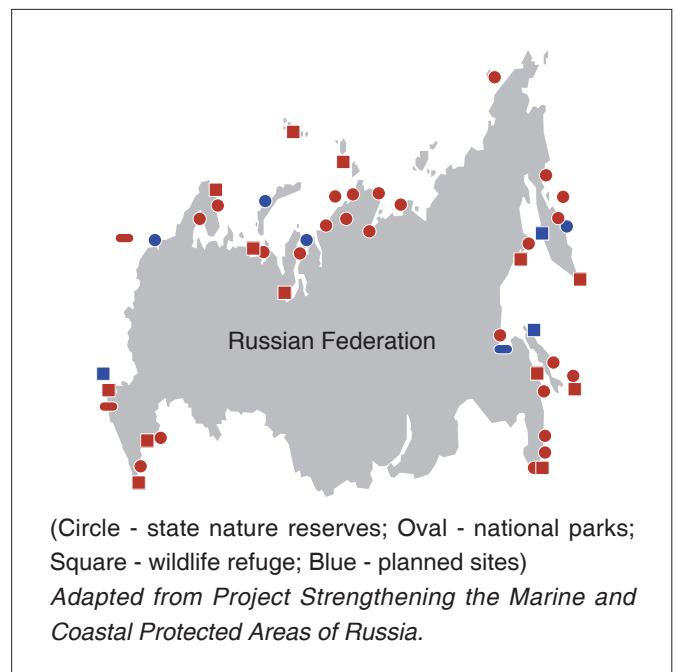
#### Specially Protected Natural Territories

Most of the protected areas in the Russian Federation are organized as so-called Specially Protected Natural Territories (SPNT), which are nationally owned. SPNTs comprise a number of categories: State Wildlife Preservation Territories (which has subcategories of Biosphere Reserves and National Parks), Natural parks, State Wildlife Reserves, Nature Monuments, Dendrological Parks and Botanic Gardens, and finally Health and Recreation Localities and Resorts. In 2006, there existed about 100 SPNTs including 12 associated with marine life that sought to protect waterbirds and their coastal habitats. The size of this network is planned to be enlarged substantially by 2020.

#### 35 national Marine and Coastal Protected Areas

According to a joint project by the UNDP, the Global Environmental Fund (GEF), the World Wide Fund for Nature (WWF), and the Ministry of Natural Resources and Ecology of the Russian Federation, there were 35 national Marine and Coastal Protected Areas (MCPA) in 2011 [Figure 5]. The MCPAs accounted for 14% of the entire national system of protected areas with a total area of more than 24.4 million ha. These MCPAs include 19 wildlife reserves, 2 national parks, and 10 zakazniks (wildlife refuges). The regional-level MPAs include 12 wildlife reserves, 11 natural monuments, and one natural park. Furthermore, the MCPA system is complemented by other areas that meet the criteria of IUCN, namely the Marine Mammals Protected Zones (MMPZ).

[Figure 5] MCPAs in the Russian Federation



## 4. Inadequacies in Existing MPA Management Structures

A strong support generally exists for creating an MPA in any one of the North-East Asian countries. While establishing MPAs is a step towards more sustainable marine life, designating a single MPA may be inadequate because the marine environment is in fact borderless.

### Short history of marine protection

MPAs in North-East Asia are young. While there has been a relatively long history of environmental protection, protected areas in North-East Asia has been focused mostly on terrestrial environments. Most of the MPAs have been created within the last decade, many only in the last couple of years. In China for instance, the number of Special Marine Protected Areas has increased from 7 to 21 from 2008 to 2011, and in South Korea the number of MPAs has increased from 12 to 16 from 2008 to 2012.

### Different terms and definitions

The purpose, characteristics, regulations, and needs of MPAs vary not only among different types of marine conservation areas within an individual country but also across the different countries. For example, the predominant concept of MPA is one of ‘no-take marine nature reserves’ in China, ‘national parks’ in Japan, ‘wildlife reserves’ in the Russian Federation, ‘wetland reserves’ and ‘ecosystem reserves’ in the Republic of Korea, and finally ‘habitat reserves’ in DPRK [Table 2]. The types and the extent of restrictions placed on these MPAs can range from simple limitations on a particular activity to a regimentation that completely bans all human activities. Thus, some MPAs may restrict fishing with permission to fish under a catch limit or during a certain seasonal period. Others take the form of national parks or marine reserves with selectively restricted human activities such as allowing only recreational activities. And yet, some do not allow any type of human activity within the MPA.

[Table 2] Forms of Marine Protected Areas in North-East Asia

	China	ROK	Japan	Russian Federation	DPRK
National description	Marine Special Protected Areas (SMPAs)  Marine Nature Reserves (MNRs)	Marine Wetland Area  Ecosystem Reserves	Marine Park Zones in National Park and Quasi-National Park  Marine Nature Conservation Area	Marine and Coastal Protected Areas (MCPA)	Seashore Protected Areas  Dunes Protected Areas
Number (national statistics)	21 Marine Special Protected Areas in 2011 (national level)  33 Marine Nature Reserves in 2011 (national level)	12 Marine Wetland Areas in 2012  4 Ecosystem Reserves in 2012	91 Marine Park Zones in 2012  1 Marine Nature Conservation Areas in 2012	35 Marine and Coastal Protected Areas	8 Seashore Protected Areas  10 Dunes Protected Areas
Responsible Institution	Ministry of Environmental Protection  State Oceanic Administration  States Forestry Administration  Bureau of Fisheries	Ministry of Land, Transport and Maritime Affairs	Natural Environment Bureau of the Ministry of Environment	Ministry of Natural Resources and Ecology	

### Inconsistency in counting MPAs

Different definitions of MPAs lead to conflicts in counting the number of MPAs and conducting statistical analyses. While the national perception of MPAs considers only a narrow definition of marine ecosystems as MPAs (China 21 SMPA and 33 MNR, ROK 16, Japan 91+1, Russia 35, DPRK 18), different agencies consider their own categorizing standards to count the number of MPAs.

The Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Northwest Pacific Region (NOWPAP) for instance has established a regional database on the MPAs in China, Japan, the Republic of Korea and the Russian Federation [Table 3]. Comprehensive information is also provided by the Protected Planet Initiative, which utilizes the data collected by the IUCN World Database on Protected Areas (WDPA). Within this database, 46 protected areas in a marine ecoregion are identified in China, 151 in Japan, 179 in the Republic of Korea and 72 in the Russian Federation. UNEP, in its publication on the Marine Protected Areas Networks, identifies 158 MPAs in China (2008), 423 in the Republic of Korea (2005), and 140 in Japan (2008).

[Table 3] Number and area (ha) of MPAs in the NOWPAP region by country

		Level				Protection Type		
		Total	National	Provincial	Municipal /County	Natural Ecosystem	Wild Animals /Plants	Nature Heritage
Number	China	20	9	5	6	15	17	17
	Japan	23	23	0	0	23	23	19
	ROK	22	22	0	0	22	20	13
	RF	14	7	7	0	14	14	7
	Total	79	61	12	6	74	74	56
Area (ha)	China	1,367,206	1,150,525	194,149	22,532	1,355,210	1,343,716	1,359,955
	Japan	436,235	436,235	0	0	436,235	436,235	421,000
	ROK	357,333	357,333	0	0	357,333	353,710	333,718
	RF	1,956,770	1,121,850	834,920	0	1,956,770	1,956,770	756,000
	Total	4,117,544	2,629,708	1,029,069	22,532	4,105,548	4,105,548	2,870,673

(Note: Japan includes only the national, quasi-national parks and wildlife protection areas.)  
Source: NOWPAP (2010)

### Different institutional settings of management structures

One further difficulty arises from the dissimilar institutional settings for managing the MPAs. MPAs are not all regulated on national levels but may be administrated on local levels. Such inconsistency poses confusion in deciding which party is responsible for international cooperation. Further complicating the matter, some MPAs are not administered by a government body but by the local citizens, civil society organizations or small private groups such as the fishermen's associations. In such cases, the question is not only about *whom*, but also about *how*, to engage in international collaboration.

Disparity also exists in the degree of management capacities for different countries. While some countries place big importance on MPAs and assign a large staff to the task, others lack the capacity to do so. Such differences can imply variance across funding capacities in international collaboration.

### **Borderless marine environments**

Proposals for national MPA networks have been explored in a number of countries. For example, in the 1996 Ocean Agenda 21 Plan, China envisioned a national MPA network for “biodiversity conservation and the sustainable use of marine resources, as well as a comprehensive management and evaluation system for MPAs.” Part of its objectives were the promotion of scientific research, the establishment of a biodiversity information system and monitoring network as well as the protection of species and ecosystems outside MPAs. This vision for the establishment of an MPA network was reaffirmed in the National Marine Economic Development Plan 2000-2010. The Russian Federation also has a strong interest in connecting its national MCPA through a network. An SPNT network already covers all natural zones and all regions of the country. However, these national MPA networks cannot provide full coverage on the scale that is necessary for a comprehensive biodiversity protection.

### **International cooperation limited to a small area**

In order to fill the gaps left by individual national MPA networks, several international cooperation efforts have been initiated. The Japanese government has been interested in facilitating the conservation of coral reefs and related ecosystems through the development of an MPA network. To achieve this, Japan has already hosted the “International Coral Reef Marine Protected Area Network Meeting” in 2008.

Furthermore, the Korean Ocean Research and Development Institute (KORDI) of the ROK has proposed the establishment of an MPA network in the Yellow Sea Ecoregion. The proposal suggested a thorough evaluation of the management effectiveness of existing MPAs and a comprehensive network of representative MPAs that include all biogeographic regions and all major habitats. The proposal also called for the designation of new MPAs for ecologically important areas, while adding that MPAs should be established at a transboundary scale.

As for a specific project, the Yellow Sea Large Marine Ecosystem (YSLME) Project – supported by the GEF, MLTM of the ROK and funded by the World Bank, UNDP, and UNEP – aims for an environment-friendly management and usage of YSLME. The Project strives to reduce development activities and promote sustainable practices for exploiting the ecosystem, while also supporting the preparation and implementation of national-level strategic action plans.

All existing projects and programs mostly focus on a limited scope of a designated region and do not approach the North-East Asian marine system as a whole. Furthermore, most projects focus on monitoring tasks, while a more active involvement in improving the management procedure is needed.

## **5. MPA Networks as a Tool to Facilitate Cooperation**

### **5.1. What is an MPA network?**

The term “network” is not linked to any international legal understanding; thus, an “MPA network” is not linked to a mutually understood definition. In order to make clear distinctions, UNEP suggests the term “ecological network” to refer to a group of MPAs and “social network” to refer to a group of organizations and institutions that administer the protected areas. Below are some examples of existing “social networks” for administering MPAs.

#### **IUCN: A collection of individual MPAs operating cooperatively**

The IUCN/WCPA definition of MPA networks is as follows: “A collection of individual marine protected areas operating cooperatively and synergistically, at various spatial scales, and with a range of protection levels, in order to fulfill ecological aims more effectively and comprehensively than individual sites could alone. The network will also display social and

economic benefits, though the latter may only become fully developed over long time frames as ecosystems recover.”

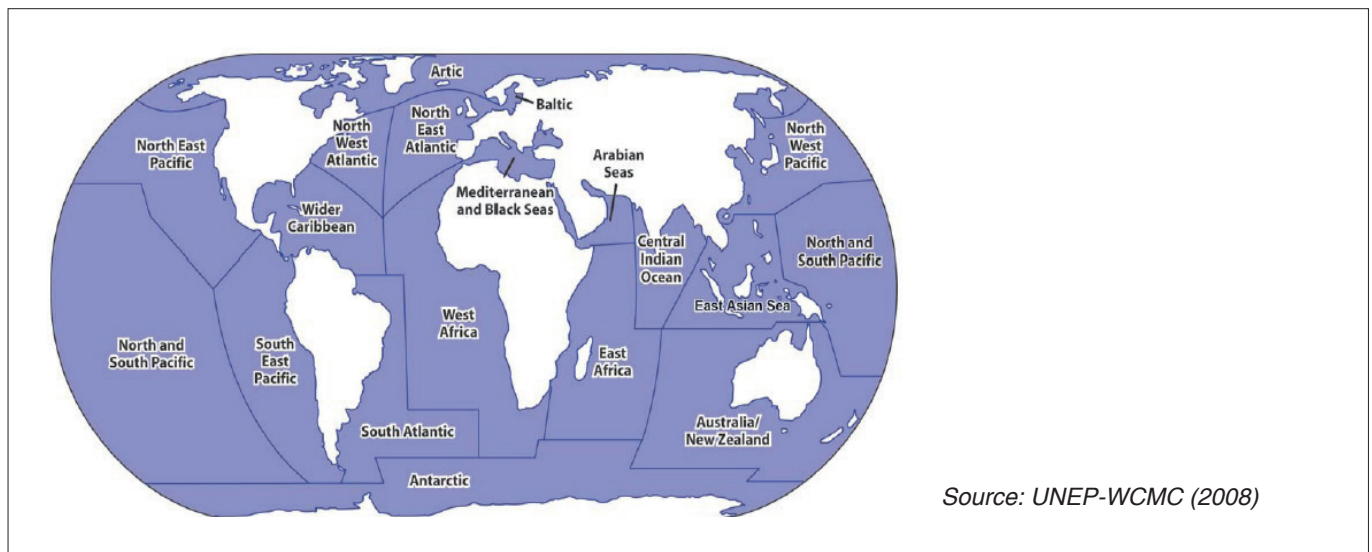
### **CBD: “Global network” as an overall ecological entity made of national and regional systems**

The CBD on the other hand uses the term “networks” for global-level organizations and “system” for national- and regional-level organizations. Following this understanding, the “global network” “has no authority or mandate, but is the overall ecological entity that is made up of all the national and regional systems” and “provides for the connections between Parties, with the collaboration of others, for the exchange of ideas and experiences, scientific and technical co-operation, capacity building and cooperative action that mutually support national and regional systems of protected areas”.

### **Partitioning the marine areas into manageable units**

On a global scale, different organizations have tried to structure the marine areas of the world into smaller entities. First, UNEP divided the oceans into 13 regions and created 5 independent partner programs under the Regional Seas Programme (RSP). Countries are organized according to political compatibility, rather than ecological and geographical groupings. Second, the WCPA partitioned the oceans into 18 regions that are based primarily on bio-geographical criteria [Figure 6]. An important distinction between the two classifications is that RSP only considers waters within national jurisdictions, while the WCPA includes all marine areas. Third, Large Marine Ecosystems (LMEs) are large regions covering the continental shelf, characterized by distinct bathymetry, hydrography, productivity, and tropically dependent populations with boundaries determined primarily by currents and large scale ocean processes. Lastly, WWF’s Marine Ecoregions are defined by the major ecological processes that create and maintain biodiversity within an area. The Marine Ecoregions address species populations and ecological phenomena that require large-scale conservation.

**[Figure 6] 18 WCPA-Marine Regions (2008) covering the entire ocean surface**



## **5.2. Benefits of a regional MPA network**

An international cooperation effort beyond the national borders has a set of compelling potential benefits. Internationally coordinated network can help minimize the duplication of efforts and resources by convening all stakeholders from the public and private sectors, as well as from the local communities. A regional network does not implicate eradication of national-level networks; on the contrary, it can bring additional benefits to the constituent national MPA networks and other smaller programs. Through an MPA network, social and economic connections between protected areas are strengthened, sectoral agencies are brought together, and a common platform for establishing common goals is possible. There are two bases on which an international or a regional MPA network could be established: the first basis is the need to address borderless and interconnected ecosystems, and the second basis is the efficiency gained from collaborated improvement of management.

### Focus on biodiversity prevalence

The first kind of international MPA network would be based on MPAs that are physically overlapped, linked together, or lie in proximity. Such case entails ecosystems or species such as migratory species that cannot be adequately protected under one single country's authority. The MPA network can protect essential functions of the ecosystem while also responding to a wide range of potential threats. For example, if one MPA is damaged, it can be re-colonized by fish and coral that are spawned from another site. Similarly, in the case of storms, coral bleaching, or oil spills in one MPA, others MPAs can remain safe havens and become refugia.

### Focus on management improvement

The second kind of network involves MPAs that are stretched out over a much wider area and do not necessarily lie in one another's vicinity. The significance of the networks in this case lies in facilitating information-sharing, capacity building, joint monitoring, and joint improvement of management techniques. This type of network would also allow cost-sharing to promote efficient use of resources and help resolve various conflicts related to resource exploitation.

## 5.3. Examples of MPA networks world wide

Existing MPA networks in other parts of the world can provide insights into assigning appropriate tasks and goals of networks dealing with marine environments [Table 4].

[Table 4] Examples of MPA networks in Europe, North America and Southeast Asia

	<b>Mediterranean Action Plan/ Barcelona Convention</b>	<b>OSPAR</b>	<b>NAMPAN</b>	<b>LMMA</b>
General Description	Implemented through the Programme for the Assessment and Control of Pollution in the Mediterranean region (MedPOL), established in 1975	Part of the OSPAR Commission, Member countries nominate MPAs, established in 2003	Network of both important marine places and the institutions and people connected with those places, established in 1999	Consists largely of conservation and resource management projects using LMMA approach, established in 2000
Members	Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, the European Community, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Syria, Tunisia, Turkey	Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom	USA, Mexico, Canada	Palau, Phillipines, Fiji, Papua New Guinea, Solomon Islands, Indonesia, Vanuatu, Pohnpei
No. of MPAs	121 MPAs (2007)	181 MPAs (2010)	24 Marine Ecoregions, 28 Priority Conservation Areas, 10 pilot MPA areas (2011)	

Goals	<ul style="list-style-type: none"> <li>• Reduce pollution from land-based sources, monitor invasive species;</li> <li>• Protect marine and coastal habitats and threatened species;</li> <li>• Make maritime activities safer and more conscious of the Mediterranean marine environment;</li> <li>• Integrate coastal area planning.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure an ecologically coherent network of well-managed MPAs;</li> <li>• Protect, conserve, restore, and prevent degradation of species, habitats and ecological processes following the precautionary principle.</li> </ul>	<ul style="list-style-type: none"> <li>• Integrate conservation efforts;</li> <li>• Increase collaboration for cross-cutting conservation common strategies;</li> <li>• Increase regional, national and international capacity in technologies and management.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure healthy ecosystems and communities, abundant marine resources, and fishery practices;</li> <li>• Promote sustainable development in coastal communities;</li> <li>• Study community approaches in managing marine areas and ecological /socio-economic responses to LMMA.</li> </ul>
Achievements	<ul style="list-style-type: none"> <li>• Addressed land-based pollution through the Strategic Action Programme;</li> <li>• Managed maritime accidents and illegal discharges;</li> <li>• Implemented 13 Coastal Area Management Programmes;</li> <li>• Outreached to public on safeguarding cultural heritage.</li> </ul>	<ul style="list-style-type: none"> <li>• Adopted guidelines on developing and managing an ecologically coherent OSPAR MPA network;</li> <li>• Adopted basic documents to assess MPA Network;</li> <li>• Issued a checklist for ecological coherence of MPA networks;</li> <li>• Designed a database on monitoring work</li> </ul>	<ul style="list-style-type: none"> <li>• Devised N American Conservation Action Plans for four marine species;</li> <li>• Identified Priority Conservation Areas;</li> <li>• Conducted a pilot project on sharing information through scorecards/reports;</li> <li>• Developed an interactive map on the network's MPAs</li> </ul>	<ul style="list-style-type: none"> <li>• Organized locally-managed marine areas and community-based adaptive management;</li> <li>• Launched training in project design, monitoring, analysis, fundraising, and communications;</li> <li>• Held cross-site visits, meetings and trainings.</li> </ul>

### **Mediterranean Regional Seas Programme**

Though there are difficulties in cooperation between EU and non-EU countries, Mediterranean Regional Seas Programme (MRSP) conducts multiple projects. One example is the Network of Managers of MPAs in the Mediterranean (MedPAN). It brings together 23 partners (14 Europeans and 9 non-Europeans) from 14 countries representing over 40 MPAs, and the main focus includes inducting new MPAs and knowledge exchange. Another example project of the MRSP is the Mediterranean Wetlands Initiative, an EU-funded project that aims to create and strengthen MPAs in the Eastern and Southern Mediterranean. The Mediterranean Action Plan (MAP) adopted in 1975, overseeing 121 MPAs in 2007, focuses on topics such as reduction of land-based pollution and monitoring of invasive species.

### **OSPAR Commission Network**

The OSPAR Commission (Oslo-Paris Commission) Network of MPAs in the North-East Atlantic was established in 2003 and includes 15 countries within the North-East Atlantic area. Its main criteria for the selection of sites include the level of ecological significance and natural biodiversity as well as the presence of a need for protection of particular species or a habitat type. MPAs are divided into three biomes according to water depth: 1) *Pelagic* for areas with water less than 1,000m in depth; 2) *Shelf and Slope* with waters and the seafloor to a depth of 1,000m; and 3) *Deep Sea* with waters and the seafloor deeper than 1,000m. In 2010 the OSPAR network included 181 MAPs, adding up to 439,679 km<sup>2</sup> or 3.15 % of the OSPAR maritime area in the North-East Atlantic.



### **North American MPA Network**

In the Americas, the North American MPA Network (NAMPAN) focuses most of its activities on the area between the Baja California and the Bering Sea Region. Its major initiatives include developing marine ecoregions (24 developed as of 2011), devising Priority Conservation Action Plans for four marine species of common conservation concern (28 Plans devised as of 2011), and creating tools for information sharing through ecological scorecards and condition reports.

### **Locally-Managed Marine Area Network**

One example from Southeast Asia is the Locally-Managed Marine Area (LMMA) Network, which was founded in 2000. The LMMA Network consists of practitioners who are involved in various community-based marine conservation projects, primarily in the Indo-Pacific region. The Network oversees conservation and resource management projects that endeavor to protect biodiversity at designated sites. In addition, the Network also promotes LMMA approach through offering capacity-building for implementing community-based adaptive management and contributing to policy-making for widespread adoption of LMMAs.

## **5.4. Learning from others**

Along with the formal requirements and suggestions found in UNEP and IUCN publications, common elements identified among the existing MPA networks and regional environmental cooperation mechanisms shed light on the necessary factors in establishing a comprehensive MPA network.

First and foremost, establishing clear definition, guidelines and rules is important. A clear set of criteria should be established for an MPA to become a part of the network. Also, guidelines are necessary for of the process of setting up and managing the network, with the roles of participating MPAs vividly defined. Second, a network needs commitment of all members. This is crucial for making decisions on the form of the network, and in providing assistance in the successive progress of the network. Lastly, benefits for the members should be clear. The network must provide certain benefits for the participating MPAs and their managing bodies. The benefits can include having a clear management plan, increasing education and training programs for MPA management and knowledge-sharing, and finally having a unified institutional setting for MPA monitoring.

## **5.5. EABRN as a reference for an MPA network**

The East Asian Biosphere Reserve Network (EABRN), which was officially launched in 1995, serves as an example of regional cooperation concerning knowledge sharing and joint research among over 50 biosphere reserves in all six North-East Asian countries.

### **Ecotourism, conservation policy, and transboundary conservation as priority areas**

EABRN is one of the regional networks supporting the UNESCO's Man and the Biosphere (MAB) Programme. The Network has three priority areas: ecotourism, conservation policy, and transboundary conservation. The Network's main tasks include facilitation of information exchange between reserves and the governing bodies, and the organization of regular regional meetings on issues of common concern. The Secretariat of EABRN is provided by the UNESCO office in Beijing; however, the management responsibilities remain in the participating countries. A national MAB committee nominates the sites to be inducted to the MAB Programme. The nomination is then forwarded to the MAB Council who has the final authority to approve the induction.

### **Major activities in training courses and creating country atlases**

EABRN pays special attention to the capacity-building of biosphere reserve (BR) managers. It strives to share BR management experiences - including information and know-how's regarding zoning, biodiversity conservation, and socio-

economic development. Aside from knowledge sharing, another important goal is to promote cooperative research on biodiversity conservation. For this, EABRN has organized several training courses and capacity-building workshops over the recent years. Furthermore, BR atlases for China, DPRK, Mongolia and Japan were published to share information about each Member State and to promote the BR concept to the general public. A long-term goal is to strengthen cooperation between EABRN and its member countries, and to encourage international and regional cooperation with other Networks such as EuroMAB, the Southeast Asian Biosphere Reserve Network (SeaBRnet), and the IUCN. EABRN regularly conducts network meetings, which provide opportunities for experts and BR managers to exchange their experiences and carry out cooperative scientific studies in East Asia.

## 6. Launching the North-East Asian MPA Network

MPAs are an important approach to supporting biodiversity and protecting the marine environment. They not only guarantee the sustainable survival of various species and habitats, but also offer great ecological and economic benefits in managing the biospheres. In North-East Asia, MPAs are seen favorably and is given relatively high importance. As result, there is a variety of MPAs in the region with a steadily growing number.

Considering the transboundary character of marine ecosystems, the establishment of North-East Asian MPA Network is proposed to facilitate cooperation among various marine protected areas in the region. The benefits to such a network include information sharing, joint training, and the improvement of management skills. In this regard, roles of NEASPEC and the Network could be as follows.

### **Common definitions and framework for convening MPAs**

One of the first actions needed in establishing an MPA network is identifying the MPAs to be included in the network. This in turn necessitates a clear definition for an MPA that is unified across North-East Asian countries. With clear standards that identify MPAs, NEASPEC can help bring together the relevant stakeholders on local and national levels. In addition to the decision-makers in the respective governments, research institutions and civil society organizations can be involved as well. NEASPEC's main role is therefore identifying the main stakeholders, objectives and management procedures.

### **Common rules on management**

A guideline that lays out the Network's role for managing the participating MPAs and the Network itself will help overcome the institutional differences that exist among the multiple agencies administering the MPAs. Because MPAs are relatively new in the region, the proposed North-East Asian MPA Network could provide a foundation for refining the policies and management styles. Such collaborative efforts through the Network could become the seedbed for devising a common management manual. The vast disparity among the levels of capacity to manage MPAs could be reduced by mobilizing each member's expertise and technological tools.

### **Information platform**

North-East Asian MPA Network can become the hub for information sharing. Many of the existing MPA networks have organized various countries' information into a database that is accessible to the members and the general public. An information platform will promote accessibility to exchanging ideas about MPA management plans, as well as share progress on the ongoing biosphere preservation activities. The information collected could also contribute to devising a regional guide, as demonstrated in the regional guide developed by the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA).

### **Joint assessment and monitoring platform**

The proposed Network could also provide a platform for joint assessment and monitoring of different MPAs. Such platform will trigger multilateral policy dialogues that share comparable data and scientific findings. In practice, such interaction will be carried out through joint research projects, regular intergovernmental meetings, and management training workshops.

### **Liaison between MPAs and other national, regional and global network programs**

North-East Asian MPA Network can act as a liaison body to all participating MPAs and simultaneously liaise with other global programs on MPAs. Activities of the Network at the global level will help increase the visibility of regional collaboration as well as of the individual MPAs. Such interaction with other existing networks will offer regular opportunities to evaluate the region's MPAs against those under different geographic conditions and other management approaches.

### **Rio+20 emphases on regional cooperation**

The outcome document "The future we want" from the Rio+20 Conference in June 2012 reiterated the importance of the regional dimension in sustainable development. Also, the potential of regional frameworks in facilitating effective translation of visions and policies into concrete actions (paragraph 97) was stressed. Concerning subregional cooperation, the outcome document urged the regional and subregional organizations to prioritize sustainable development through, inter alia, more efficient and effective capacity-building, development and implementation of regional agreements and arrangements as appropriate, and finally exchange of information, best practices, and lessons learned. It also welcomed regional and cross-regional initiatives for sustainable development and recognized the need to ensure effective linkage among global, regional, subregional and national processes to advance sustainable development. The United Nations regional commissions and their subregional offices were encouraged to become further enhanced in their respective capacities to support Member States in implementing sustainable development (paragraph 100).

In the realm of marine environment, the outcome document highlighted the role of healthy marine ecosystems, sustainable fisheries, and sustainable aquaculture for food security and the livelihoods of millions of people (paragraph 113). The adopted document noted with concern that the health of oceans and marine biodiversity are negatively affected by marine pollution from a number of marine and land-based sources (paragraph 168). The importance of biodiversity and the marine environment were stressed also for their relationship to addressing the adverse effects of climate change. Moreover, conservation and sustainable use of marine biodiversity beyond areas of national jurisdiction was duly noted with urgency (paragraph 162). Such recognition of significance in the marine environment conceived renewed commitment to protect and restore the health, productivity, and the resilience of the oceans and marine ecosystems (paragraph 158). Finally, the document reaffirmed the CBD decision to conserve 10 per cent of coastal and marine areas by 2020 through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures (paragraph 177).

Hence both the regional cooperation and the commitment to sustainable development in oceans and seas are substantiated by this landmark document. Such global consensus and commitment reveal the need felt by the States for international cooperation on large and long-term environmental issues. In this respect, the proposed North-East Asia MPA Network can respond to such demand and help the region move towards collaborated governance on transboundary environmental issues.

## REFERENCES

- APEC (2007), 2007 Leaders' Declaration: Sydney Declaration - Strengthening Our Community, Building a Sustainable Future. [http://www.apec.org/Meeting-Papers/Leaders-Declarations/2007/2007\\_aelm.aspx](http://www.apec.org/Meeting-Papers/Leaders-Declarations/2007/2007_aelm.aspx) (13/08/2012)
- Boere, G.C.; Galbraith, C.A.; Stroud, D.A. (2006), *Waterbirds around the world*. Edinburgh: The Stationery Office, pp. 743-749.
- CBD (2004), "COP 7 Decision VII/5", CBD online. [http://www.cbd.int/decision/cop/?id=7742#\\_fm11](http://www.cbd.int/decision/cop/?id=7742#_fm11) (02/08/2012)
- Convention on Biological Diversity (1992), 1760 U.N.T.S. 79, 143; 31 I.L.M. 818.
- Dixon, John A. (1993), "Economic benefits of marine protected areas", in *Oceanus* 36:3.
- Education for Sustainable Development: Russian-Swedish Project (2012), "Russian Sustainability Newsletter", *Faculty of Geography Lomonosov Moscow State University online*. [http://www.eng.geogr.msu.ru/science/newsletter/1\\_12.pdf](http://www.eng.geogr.msu.ru/science/newsletter/1_12.pdf) (02/08/2012)
- G 8 Conference (2003), Marine Environment and Tanker Safety: A G8 Action Plan, Evian, June 3, 2003. [http://www.g8.utoronto.ca/summit/2003evian/marine\\_en.html](http://www.g8.utoronto.ca/summit/2003evian/marine_en.html) (13/08/2012)
- Huang Linhao 黄林昊 (2011), "国家海洋局发布新建国家级海洋特别保护区暨首批国家级海洋公园名单", *The Central People's Government of the People's Republic of China online*. [http://www.gov.cn/gzdt/2011-05/19/content\\_1866854.htm](http://www.gov.cn/gzdt/2011-05/19/content_1866854.htm) (15/07/2012)
- KORDI, WWF, KEI (2006), *Marine Protected Areas and the Yellow Sea Ecoregion: A strategy for Biodiversity Conservation*. Seoul: KORDI, WWF, KEI.
- Laffoley, D. d'A., (2008), *Towards Networks of Marine Protected Areas. The MPA Plan of Action for IUCN's World Commission on Protected Areas*. Gland: IUCN WCPA.
- LMMA Network (2012), "Structure of The LMMA Network", *LMMA Network online*. <http://www.lmmanetwork.org/whowere/structure> (29/07/2012)
- Lutchman, Indrani (2005), *Marine Protected Areas: Benefits and Costs for Islands*. Hilversum: WWF the Netherlands.
- MAB National Committee of DPR Korea (2005), *Natural Protected Areas in the DPRK*. Pyongyang: MAB National Committee of DPR Korea.
- MAB National Committee of DPR Korea (2002), *Wetland (Waterfowl Habitat) and Its Conservation in DPR Korea*. Pyongyang: MAB National Committee of DPR Korea.
- Meijaard, Erik (2010), *Lessons from Biosphere Reserves in the Asia-Pacific Region, and a Way Forward*. Jakarta: UNESCO Office Regional Science Bureau for Asia & the Pacific.
- Ministry of Environmental Protection of the People's Republic of China (2011), "Nature and Ecology", *Ministry of Environmental Protection online*. <http://websearch.mep.gov.cn/was40/detail?record=2&channelid=24398&searchword=marine+protected+areas> (15/07/2102).

MLTM, KOEM (2011), Marine Protected Area Center, *KOEM online*. [http://mpa.koem.or.kr/sc\\_board\\_sp/bbsUpFiles/MPA%20Center%20Korea\\_Broschure\\_EN.pdf](http://mpa.koem.or.kr/sc_board_sp/bbsUpFiles/MPA%20Center%20Korea_Broschure_EN.pdf) (16/07/2012)

NOWPAP (2007), *Regional Overview and National Reports on Marine and Coastal Nature Reserves in the Northwest Pacific Region*. Beijing: UNEP/ /DINRAC/Publication No. 7, DINRAC.

NOWPAP (2010), *Threats to Marine and Coastal Biodiversity in the NOWPAP Region*, NOWPAP.

NOWPAP DINRAC (2010), Summary on Marine and Coastal Protected Area in NOWPAP Region, [http://dinrac.nowpap.org/publications.php?item=DINRAC&var=org &org\\_code=3&org=DINRAC](http://dinrac.nowpap.org/publications.php?item=DINRAC&var=org &org_code=3&org=DINRAC) (10/10/2012)

NOWPAP DINRAC (2011), “Database on Marine Protected Areas in the Northwest Pacific Region”, *NOWPAP DINRAC online*. <http://dinrac.nowpap.org/NowpapMPA.php> (15/07/2012)

NAMPAN (2011), “About the North American Marine Protected Areas Network”, *NAMPAN online*. <http://www2.cec.org/nampan/page/about-north-american-marine-protected-areas-network> (29/07/2012)

OSPAR Commission (2011). *2010 Status Report on the OSPAR Network of Marine Protected Areas*. London: OSPAR Commission.

Protect Planet Ocean (2010). “Protect Planet Ocean is about Marine Conservation”, *Protect Planet Ocean online*. <http://www.protectplanetoccean.org/introduction/introbox/mpas/introduction-item.html> (10/07/2012)

Park, Heung-Sik (2010), “The Current Status of Marine Protected Areas in Korea (2010)”, *ICRI East Asia regional workshops, 2008-2010*. [http://earw.icriforum.org/2010/11.Korea\\_\(Heung\\_Sik\\_Park\).pdf](http://earw.icriforum.org/2010/11.Korea_(Heung_Sik_Park).pdf) (16/07/2012)

Park, Soyung (2009), “The fourth comprehensive national territorial plan”, Ministry of Land, Transport and Maritime Affairs: Seoul.

Protected Planet (2010), “Discover and learn about protected areas”, Protected Planet online. <http://www.protectedplanet.net/> (23/07/2012)

Qiu, Wanfei (2010), *Governing Marine Protected Areas (MPAs) in China: Towards the Repositioning of the Central State and the Empowerment of Local Communities - Doctorial Thesis*. UCL: London.

Qiu W, Wang B, Jones PJS and Axmacher JC (2009), “Challenges in developing China’s marine protected area system”, in *Marine Policy* 33(4): 599-605.

Sanchirico, James N.; Cochran, Kathryn A.; Emerson, Peter M. (2002), “Marine Protected Areas: Economic and Social Implications”, *Resources for the Future Discussion Paper* 02–26.

Schwarte, Christoph; Siegele, Linda (2008), *Marine protected areas on the high seas?*, London: FIELD.

Sanders, Jessica S.; Greboval, D. F.; Hjort, Antonia (2011): *Marine protected areas. Country case studies on policy, governance and institutional issues*. Rome: Food and Agriculture Organization of the United Nations.

SOA (2010). “General Review”, *SOA online*. <http://www.soa.gov.cn/soa/hygbml/hjgb/tenEnglish/webinfo/2011/09/1315180837414231.htm> (15/07/2012)

SOA (2012). “全国海洋功能区划（2011-2020年）”, *SOA online*. <http://www.soa.gov.cn/soa/governmentaffairs/faguijiguowuyuanwenjian/gwyfngxwj/webinfo/2012/04/1334536407603533.htm> (23/07/2012).

Takahashi, Susumu (2008), *Some Cases from Japan for Integrating Protected Areas into Wider Landscapes and Seascapes*. Expert Workshop on Integrating Protected Areas into Wider Landscapes and Seascapes, Isle of Vilm, Germany, 1-4 November 2008

WCPA/IUCN (2007), *Establishing networks of marine protected areas: A guide for developing national and regional capacity for building MPA networks*. Non-technical summary report.

World database of protected areas (2009). “Frequently Asked Questions”, *WDPA Marine*. <http://www.wdpa-marine.org/FAQ.aspx> (30.07.2012)

World database of protected areas (2009). “Explore the World Database on Marine Protected Areas”, *WDPA Marine*. <http://www.wdpa-marine.org/#/countries/about> (10/07/2012)

UNCSD (2012). The future we want (A/CONF.216/L.1). 19 June 2012. (Rio de Janeiro).

UNDP/ GEF (2011), “General information”, Strengthening the Marine and Coastal *Protected Areas of Russia online*. [http://www.mpa-russia.ru/en/marine\\_reserves/general\\_information/](http://www.mpa-russia.ru/en/marine_reserves/general_information/) (28/07/2012)

UNDP/ GEF (2011)<sup>2</sup>, “Expanding the MCPA Network”, *Strengthening the Marine and Coastal Protected Areas of Russia online*. [http://www.mpa-russia.ru/en/project/project\\_description/expanding/](http://www.mpa-russia.ru/en/project/project_description/expanding/) (28/07/2012)

UNDP/ GEF YSLME Project (1994), “The objective of the project”, UNDP/ GEF *Yellow Sea Large Marine Ecosystem Project online*. <http://www.yslme.org/introduction.htm> (01/08/2012)

UNEP-WCMC (2008), *National and Regional Networks of Marine Protected Areas: A Review of Progress*. Cambridge: UNEP-WCMC.

UNESCO Beijing (2011), “East Asian Biosphere Reserve Network (EABRN)”, *UNESCO online*. <http://www.unescobej.org/natural-sciences/environment/ecological-and-earth-sciences/east-asian-biosphere-reserve-network-eabrn/> (22/07/2012)

Yagi, Nobuyuki (2010), *Marine protected areas in Japan: their main characteristics and spatial/temporal distributions*. International Symposium on Integrated Coastal Management for Marine Biodiversity in Asia, January 14-15, 2010, Kyoto, Japan.

Yagi, Nobuyuki; Takagi, Akira P.; Takada, Yukiko; Kurokura, Hisashi (2010), “Marine protected areas in Japan: Institutional background and management framework” in *Marine Policy* 34:6, pp. 1300-1306.

日本自然保護協会 (2012), 日本の海洋保護区のあり方: 生物多様性保全をすすめるために～. 東京: 日本自然保護協会