Fourth National Report

to the Convention on Biological Diversity

Republic of Korea

May 2009

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Chapter 1 Overview of Biodiversity Status, Trends, and Threats

□. Current Status of National Biodiversity

1. Characteristics of Biodiversity in Republic of Korea

1.1 Republic of Korea's terrain is mostly mountainous, with the Baekdudaegan mountain range as the spine of the Korean Peninsula, and has a wide range of vegetative habitats, from the warm temperate climate zone to the cold climate zone. In addition, the country's unique terrain, topography, and climate conditions, with its forest ecosystem linked to marine life, have made it possible for the country to possess a relatively large variety of flora and fauna compared to other temperate regions given the country's small area (99,000 km^2), with over 30,000 species, including forest and marine resources.

1.2 Republic of Korea's endemic species consist of animals (64%), fungi and lichen (6%), plants (12%), protists (14%), and prokaryote (4%), with a high proportion of endemic species.

1.3 These characteristics of the plant and animal life of Korea are affected by a variety of habitat and environmental factors, such as the well-formed coastlines, the four distinct seasons influenced by the East Asian monsoon, the thousands of islets, the historic background of steady contact with the continents, volcano eruptions, and the overflowing rivers and typhoons during the summer season.

1.4 The plains of the country are mostly arable, representing a high proportion of the total territory at 17.9%, or 1,782,000 ha, 60% of which are paddy fields and 40% are farms.

1.5 As of the end of 2007, the total forest area of the country was 6,382,000 ha, accounting for the 64% of the total territory of 9,972,000ha. Of the entire forest area, national forests represent 1,509,000 ha (24%), public forests 489,000ha (7%), and private forests 4,384,000 ha (69%).

1.6 In the inland territory, due to the geographical conditions, large river water flows west and south slowly, while the rivers flowing to the east are frequently characterized by short and swift currents. Throughout most of the year precipitation tends to be low, except in the summer rainy season when there is a high concentration of rain. Korea's inland wetlands, which take up a total area of 3,541 km^2, are broadly distributed throughout the nation, of which the

wetland conservation areas take up 107.1 km^2, with a high intensity of light, making them appropriate for wild plants and animals to inhabit and breed.

1.7 With regard to costal regions, the total length of the coastline is 12,682 km, 78% of which is natural coast, and 22% artificial. The coastal wetlands occupy 2.5% of the entire territory, 83% of which are concentrated in the western coast. The ocean currents affecting the country include the Yellow Sea Warm Current and the East Korean Warm Current, the branch currents of the Kuroshio Current that begins off the east coast of Taiwan, and the North Korean Cold Current, a tributary of the Liman Current that originates in the Sea of Okhotsk. Naturally formed coastal sand dunes act as buffers to ocean energies such as wind energy, tidal energy, and wave energy, while also functioning as reservoirs of coastal sand and groundwater, habitats, and sources of natural scenic beauty.

1.8 Korea's estuarine ecosystems form various habitat environments, under the conditions of fresh water, nutrient salt, organic and various polluted matters carried in from terrestrial runoff as an ecotone, with a particularly large variety of organisms inhabiting, including freshwater, brackish, and marine life.

2. The current status of endangered species in Republic of Korea

2.1 (Current status) A total of 221 species in Korea are rated and controlled as Critically Endangered (CE) and Endangered (EN) under the Protection of Wild Fauna and Flora Act, Ministry of Environment. The species can be divided into 156 animal species (71%) and 65 plant species (29%). The animal group includes 22 mammal species, 61 bird species, 6 reptile and amphibian species, 18 fish species, 20 insect species, 29 invertebrate species, 64 terrestrial plant species, and 1 aquatic plant species.

<Changes in designation of protected species>

Year	Designation status of endangered species
'89. 3. 10	92 wild animal and plant species designated
'93. 1. 18	179 wild animal and plant species designated
'98. 2. 19	194 wild animal and plant species designated as threatened and protected
'05. 2. 10	221 wild animal and plant species designated as threatened (Critically Endangered (CE) or Endangered (EN))

< Current status of the designation of endangered wild animals and plants, as of 2008>

Section		CE	EN
Animal (156 species)	Mammals (22 species)	12	10
	Birds (61species)	13	48
	Reptiles and amphibians (6 species)	1	5
	Fish (18 species)	6	12
	Insects (20 species)	5	15
	Invertebrates (29 species)	5	24
Plant (65 species)	Territorial plants (64species)	8	56
	Aquatic plants (1 species)	-	1
Total		50	171
		221	

2.2 Current status of the protection of endangered wild species

Increased policy efforts to protect endangered species have focused mainly on the improvement of terrestrial habitats, while further measures are needed related to the protection of marine ecosystems and threatened aquatic animals and plants of high conservation value, as well as that of natural coastlines, habitats, and habitat environments.

3. Biodiversity of Major Ecosystem Types

3.1 Forest Ecosystems

3.1.1 Looking at forest types, needle-leaf trees take up 2,687,000ha of the entire forest floor (42%), broadleaf trees 1,661,000 ha (26%), mixed trees 1,862,000 ha (26.4%), and bamboo groves 7,000 ha (0.1%). By age-class, forests less than 30 years old cover 3,770,000ha accounting for 59% of the total forest area, while 2,439,000 ha of forests over 31 years old accounts for 38%. Bamboo forests cover 173,000 ha accounting for 3%. The forest stand volume per 1 ha by forest type is 98 m^3, which includes forests of needle-leaf trees (165,792,000 m^3) and mixed trees (185,588,000 m^3).

3.1.2 The country's forest vegetation can be characterized as deciduous temperate broad-leaved forest with *Quercus spp*, *Aceraceae*, and hornbeam, but 40% of

the entire forest area is occupied by the Korean pine, which is the largest proportion of area taken by a single tree species. On the southern coast and islets, however, evergreen broad-leaved trees grow, while coniferous trees grow on the high land regions and in the northern part of the country.

3.2 Agricultural Ecosystems

3.2.1 The number of farm households is 1,231,000, representing a population of 3,274,000 as of the end of 2007, which is 7% of the entire population. The proportion of agricultural lands as of the end of 2007 is 17.9% or 1,782,000 ha of the entire national territory of 9,972,000 ha, 60% or 1,070,000 ha of which are paddy fields, and 712,000 ha or 40% are farms.

3.2.2 Rural vegetation of the agricultural ecosystems consists of 527 species, with their biotopes constituting 8 classes, 8 orders, 8 alliances, 7 associations, 2 sub-associations, and 32 communities, for a total of 41 biotopes. The freshwater invertebrate fauna that have appeared in the rice field ecosystems are 5 divisions, 7 classes, and 222 species.

3.3 Freshwater Ecosystems (lakes and marshes, rivers and inland wetlands)

3.3.1 As there are only a few naturally-formed lakes and marshes in Korea, which are mostly small in size, there has been little research on natural lakes. Nevertheless, these lakes must be preserved, as they contain abundant biodiversity as habitats for many endangered wetland species, as well as having paleontological value. In addition, there have been a number of artificial lakes formed as the result of constructing large dams, including Lake Soyang, Lake Chungju, Lake Andong, and Lake Daecheong, in order to create small-scale reservoirs, secure water sources and control flooding. These artificial lakes have created new types of deep-water habitats that had not existed before in Korea, and have brought about changes in the ecosystems. A study has been conducted on the 207 lakes, each of which has a water area of more than 10,000 m^2 that have been built for 10 years or more in Korea.

3.3.2 As there are mostly artificial lakes with high fluctuations of water level, there are relatively few wetlands formed around lakes, where as wetlands located near big rivers – Woopo wetland near Nakdong River, for example – have largely remained intact due to their high changes in water level, thereby eluding the possible reclamation. With the increasing interest in wetland preservation both at home and abroad, Korea joined the Ramsar Convention, with the Yong Wetland of Mount Dae-am as its first Ramsar site. As of 2009, Korea has designated 11 Ramsar sites, amounting to a land area of 82.1 km^2.

3.3.3 Due to Korea's topographical characteristics, the larger rivers flow west and south slowly, while a few rivers that are mostly short in length and have swift currents flow east. Precipitation is concentrated during the summer rainy months, and is low in other months. Considering the river ecosystems, the endemic ecosystems of the rivers are now being greatly disturbed due to various physical, chemical and biological factors. Physical factors include dam construction, the artificial straightening of streams, dredging, aggregate collection, banking, the construction of submerged weirs and dammed pools, the development of terrace lands on rivers, the excessive utilization of river water for water supply, and the disturbance of river basins due to forest exploitation, wildfires, farmland conversion, and marsh wetland reclamation. Chemical factors include factory waste, domestic wastewater, toxic chemicals, and oil spills. Biological factors include the inflow of invasive species such as bass, blue gills and bullfrogs.

3.4 Marine and Coastal Ecosystems

3.4.1 The total area of the coastal wetlands in Korea amounts to 2,550 km^2, which is 2.5% of the entire national territory. 83% of the coastal wetlands, or 2,109.7 km^2, are situated on the western coast. The coastal regions include highly valued natural resources such as bays, lagoons, sea cliffs, tidal flats, sand spits, sand bars, beaches, and shallow underwaters, which are utilized as eco-tourism resources.

3.4.2 There are coastal sand dunes in a total of 133 sites nationwide, 73 of which are over 1 km long and 28 of which are longer than 2 km. The naturally-formed sand dunes provide diverse services and functions, including buffering marine energies such as wind, tides and waves from the oceans, as well as providing sand and underground water reservoirs, natural habitats, and scenic views. As they are generally distributed on the hinterlands of sand beaches with outstanding views, there is a lot of pressure for those places to be developed as accommodation facilities or car parks.

3.4.3 The total length of the Korean coastline is 12,682 km, 78% of which is a natural coastline and 22% of which is artificial. The share of the artificial coastline is increasing through filling-up, land reclamation by drainage, the development of bays and commercial complexes, and the construction of long-term facilities. The number of marine species is far fewer than the number of terrestrial species, but it consists of a variety of organisms that can be classified into 34 phyla and 83 classes. Marine products supply about 16% of the proteins consumed in the country, making them not only crucial as a food source but also a significant contributor to the country's employment structure.

3.4.4 According to the domestic literature survey, there are a total of 9,534 marine species in Korea. Of these 64.1%, or 6,110 species, are marine animals, followed by phytoplankton at 22.81%, or 2,172 species, marine plants at 11.0%, or 1,048 species, and zooplanktons at 2.1%, or 204 species.

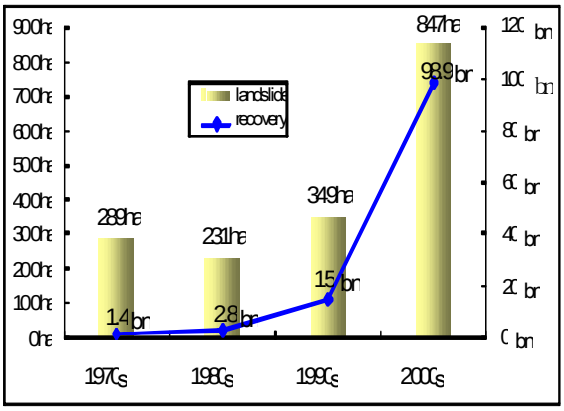
3.4.5 Out of the marine animals, there are 4,989 species of invertebrates, 97 species of urochordates, 987 species of fishes, and 37 species of marine reptiles and mammals in Korea, indicating that invertebrates are dominant at 81.7%.

□. National biodiversity trends

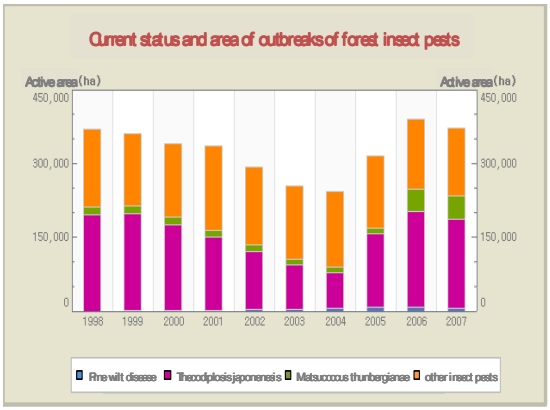
1. Forests

1.1 Frequent incidents of natural disasters such as wildfires and long-term issues such as climate change are resulting in a deterioration of the habitats of rare or indigenous species, leading to a reduction in species diversity in forests. Examples of these include the particularly heavy rainfall that hit Jiri Mountain and the central areas in 1998, the wildfires that spread throughout the east coast in 2000, the severe drought in the spring of 2001, Typhoon 'Rusa' in 2002, Typhoon Maemi in 2003, a heavy snowfall in 2004, wildfires in Yangyang in 2005, and the recent expansion of Asian dust.

<The extent of damage caused by landslides over the last decade >



<The status of insect pests over the last decade >



1.2 There are 8 major environmental issues affecting Korea, which are global warming, desertification, wildlife extinction, the rain forests reduction, acid

rain, depletion of the ozone layer, marine pollution, and air pollution. Of these issues, 5 are directly related with forests.

1.3 Nevertheless, the conservation measures on forest ecosystems need further improvement, since the forest area, which currently covers 64% of Korea's territory, is reduced year after year due to development.

<Changes in the forest area by year >

Division / Year	Forest area (1,000 ha)	Forest Stand Volume (1,000 ㎥)	Volume per ha (㎥)	Remarks
1978	6,578	114,000	17.33	
1980	6,568	145,694	22.18	
1990	6,476	248,426	38.36	
2000	6,422	407,575	63.46	
2007	6,382	624,398	97.83	

2. Agricultural lands

2.1 Korea's agricultural land area has been decreasing steadily, with a mean annual reduction of 14,668 ha between the years 2000 and 2007. In particular, the reduction of paddy fields, which represent 70% of agricultural land and are home to numerous aquatic organisms, has been significant. This decrease can be attributed mainly to the conversion of rice fields into farms, followed in order by the construction of public facilities and buildings, unused land, and others.

2.2 Although new agricultural lands are created every year, the rate is relatively slower than that of agricultural land being converted for other uses.

2.2.1 Most newly-created agricultural land is formed by filling-up, while about 8% is formed through reclamation by drainage.

2.2.2 This suggests that natural green areas, which provide ecologically excellent life habitats, tidal flats of coastal wetlands, or inland wetlands have been turning into agricultural land.

2.2.3 Large reductions of agricultural land area have been due mainly to the construction of buildings and public facilities as a result of urbanization and industrialization (60%), as well as to the conversion of farmlands into

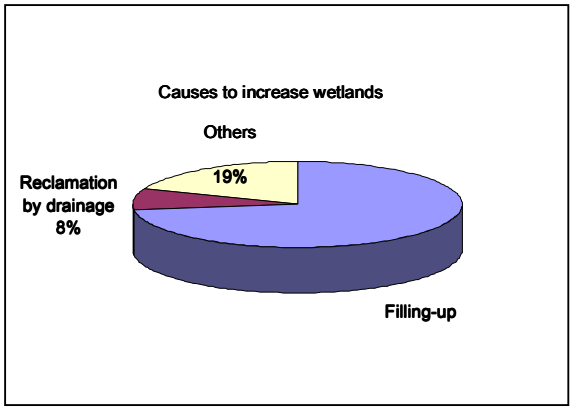
unused land (22%), which is much more likely to be utilized for industrial purposes or city construction than to be used back as agricultural land.

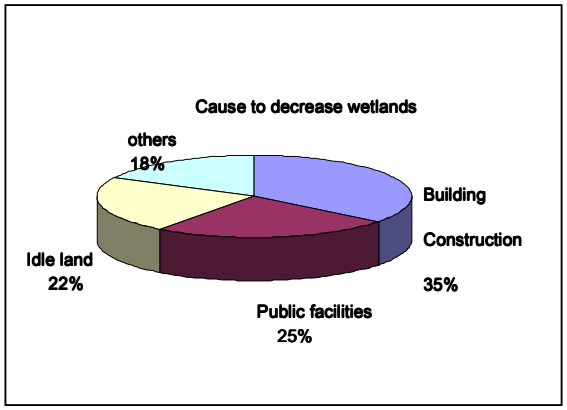
2.2.4 Such encroachment on farmlands may lead to a domino effect of encroachment on natural green areas or wetlands.

<Changes in agricultural land area by year>

Year	Total agricultural land area (1,000ha)	Paddy field (1,000 ha)	Farm (1,000 ha)	Reduction of agricultural land (ha/yr)
1990	2,109	1,345	764	△ 17,909
1995	1,985	1,206	779	△ 47,449
2000	1,889	1,149	740	△ 10,160
2001	1,876	1,146	730	△ 12,623
2002	1,863	1,138	724	△ 13,520
2003	1,846	1,127	719	△ 16,628
2004	1,836	1,115	721	△ 10,360
2005	1,824	1,105	719	△ 11,595
2006	1,800	1,084	716	△ 23,569
2007	1,782	1,070	712	△ 18,891

< Components of changes in agricultural lands (1999-2007)>





3. Inland Wetlands

3.1 Korea has a number of wetlands of high conservation value to the country's climatic and hydrological characteristics. Korea's wetlands have provided huge ecological and economic benefits.

3.2 However, until the mid-1990s, many wetlands were reclaimed due to lack of awareness of their importance, in order to fulfill aims such as land extension, the securing of farmland for food supply, as well as to eliminate marsh odors and reduce the mosquito population.

3.3 Now with increased public awareness of environmental issues and the value of ecosystems, a broad social consensus has been formed on the need to conserve wetlands and marshes, and to establish clear measures for their protection and management.

4. Marine and Coastal areas

4.1 Currently, the area of coastal wetlands has been reduced by around 20% compared to that of 3,203 km^2 in 1987, due to the development of coastal regions, including the filling-up and reclamation by drainage of public water surface.

□ Changes in coastal wetlands area: 3,203.5 km^2 ('87) → 2,550.2 km^2 ('05)

4.2 There were reports recently of an outbreak of chlorosis and submarine forest damage in a wide area spanning from Jeju Island along the southeast coast, but it is difficult to identify the scale of the damage due to the absence of accurate base data on the reduced area of submarine forest and the outbreak of chlorosis.

4.3 An estuary is the wide part of a river where it meets the sea. There are a total of 329 estuaries of the national level, the local 1st level, and the local 2nd level rivers in Korea, with local rivers over the 1st level having a total of 17 sites.

4.3.1 A total of 77 industrial complexes and agricultural complexes are situated around estuaries of the national level and local 1st level rivers, with over 300,000 businesses established, and 45.6% of all port logistics are transported through the ports of estuaries.

4.3.2 45.5% of the 1st public water surface reclamation by filling-up, or 328.9 km^2, was carried out at estuaries, and the 2nd public water surface plan ('02~'11) also includes 30% of the planned reclamation area targeting estuaries.

4.3.3 The population of the estuary regions has increased by 3.6% over the last 5 years, well above the national average increase of less than 1%.

4.3.4 However, the natural beauty of areas in which estuary dams have been constructed, such as Nakdong River, Kum River, Yongsan River, Sapkyo River, and Saemankeum region (Mankyung River and Dongjin River), has been largely deteriorated, with the artificial structures weakening the characteristics of the brackish water ecosystems.

4.3.5 The water quality of estuaries is mostly maintained as low as level III~IV of the river criteria, with the exception of small-scale estuaries in the east coast. Estuaries with river edges cause a range of environmental problems such as the blocking of river circulation, the destruction of habitats, the reduction of biodiversity, the aggravation of water quality, and pollution by sediments.

□. Threats to National Biodiversity

1. Climate change

1.1 The progress of climate change in Korea is faster than the global average, which has led to a rapid reduction in national biodiversity. Over the last 100 years, the mean temperature of the 6 metropolitan cities in Korea has risen by around 1.5□, with the total cost of damages caused by typhoons and heavy rains over the last 10 years amounting to 17.7 trillion won. The estimated 2005 greenhouse gas emissions in Korea were a total of 590 million tons, 1.7% higher than the global average, and a 98.7% increase over 1990s levels.

1.2 Climate change has emerged as a factor threatening Korea's forests, as it disturbs ecosystems and increases the risk of natural disasters such as wildfire. With the increase in the number of dry days during the spring months, the average number of wildfires reached three times the 1980s level, while landslides reached three times the 1970s level. Due to this increase in the number of dry days, there have been 49 large wildfires that each burned more than 30 ha of land during the past decade.

1.3 In addition, the increased frequency of torrential rains has increased the average affected area and recovery costs caused by landslides by three times in the 2000s compared to the 1970s. While outbreaks of forest insect pests had been steadily decreasing until 2004, they began to increase rapidly from 2005 due to abnormal weather conditions.

1.4 Surging temperatures during the summer season increased evapotranspiration, leading to a reduction in the growth rate of the Korean Fir, an endemic tree species. Soil acidification has intensified, reaching pH 4.95 in 2006 compared to pH 5.48 in the 1980s.

1.5 In addition, with global climate changes causing sea temperature rise and changes in ocean currents, some tropical marine organisms are now found on the Korean coast, while some indigenous species have disappeared.

2. Invasion of alien species

2.1 The number of alien species that have been introduced to Korea, either naturally or by humans is 894 (287 plant species and 607 animal species). The Marine Biodiversity Conservation Measure Project was conducted for the first time in Korea between 2006 and 2007, and compiled a total of 25 alien species introduced to Korea.

2.2 Some alien species have been responsible for ecosystem disturbance. For example, red-eared sliders feed on freshwater fish, water insects and amphibians, disturbing the food chain. In addition, the carnivorous largemouth bass eat crustaceans when young fish, and then eats water insects and other fishes when mature, destroying the habitats of indigenous species.

2.3 With rapid economic growth and lively trade among countries by sea, the rate of ballast water organisms or those attached to boats during transport has increased. In addition, the number of alien species imported for the purpose of mariculture has also increased, resulting in an overall increase in the number of alien species in Korea. Marine alien species can be classified into established alien species (9) and temporary alien species (16).

3. Biodiversity Conservation System

There is a great need to set up a national integrated biodiversity research and information service system, biodiversity conservation infrastructure as well as education and public awareness programs.

Chapter 2 Overview of National Biodiversity Strategy

□. National Biodiversity Strategy

1. Progress of National Biodiversity Strategy

The 1st National Biodiversity Strategy was finalized in 1997 following the approval by the national cabinet, and its English translation was submitted to the 4th COP in 1998. In October 2008, National Working Group was formed to formulate the 2nd National Biodiversity Strategy and produced a national report. The Working Group launched the 2nd National Biodiversity Strategy, and held a workshop in December to prepare national strategies. By June 2009, the 2nd National Biodiversity Strategy is to be finalized.

2. Background, structure, and characteristics of the National Biodiversity Strategy

2.1 With the increasing need for integrated measures following the formulation of the national sectoral biodiversity strategies in 1997, a cross-sectoral biodiversity strategy and action plans have been established.

2.2 With the conservation of biodiversity and sustainable use as a strategic vision, the strategy consists of three major areas, with 14 strategies. The three major areas include the effective conservation of the major ecosystems and protected areas, the conservation of genetic diversity, international cooperation, and the involvement of stakeholders.

2.3 Major characteristics constitute 1) integrating and compiling each of the formulated plans from different ministries and government institutes, including the Comprehensive Biological Resources Conservation Plans ('05, Ministry of Environment), the Basic plans for Environmental Conservation ('06, Ministry of Environment), the Comprehensive Marine Environment Conservation Plan ('06, Ministry of Land, Transport and Maritime Affairs), the Master Plan for National Forest Biodiversity ('07, Korea Forest Service), and the Master Plan for National Environmental Resources, Management, and Use ('07, Ministry of Education, Science and Technology in collaboration with five other ministries), and 2) goals to achieve the three objectives of the Convention on the basis of CBD decisions, and the 2nd edition of the Global Biodiversity Outlook and the 2010 Biodiversity Target.

<National Strategies on major areas of the Convention on Biological Diversity>

CBD Focal Areas	National Strategies (2009-2013)
Protect the components of biodiversity	1. Effective conservation of major ecosystems and habitats (1) Protect the biodiversity of major ecosystems and habitats Forest / freshwater / coast and marine / islands / urban ecosystems (2) Expand and conserve protected areas
	2. Conserve species diversity (1) Pursue strategy for global plant conservation (2) Research the status of threatened species and restoration
	3. Conserve genetic diversity
Promote sustainable use	4. Promote sustainable use and consumption (1) Apply ecosystem approach (2) Implement CITES
Address threats to biodiversity	5. Research and manage invasive alien species
	6. Manage Living Modified Organisms (LMO)
	7. Establish countermeasures to climate change
Maintain biodiversity for human well-being	8. Maintain capacity of the ecosystem to deliver goods and services (1) Eco Tourism (2) Use of positive incentives
Protect traditional knowledge, innovations, and practices	9. Protect traditional knowledge, innovations and practices (1) Protect traditional knowledge (2) Maintain socio-cultural diversity of indigenous and local communities
Ensure the fair and equitable sharing of benefits arising from the use of genetic resources	10. Ensure access to genetic resources and benefit sharing
Ensure provision of financial, human, and technological capacity	11. Transfer technology and provide adequate resources (1) Technology transfer (2) Financial resources and system

	12. Facilitate international collaboration and involvement of stakeholders
	13. Perform communication, education and public awareness (1) Communication and publicity work (2) Education (3) Information Sharing System
Monitoring and Assessment	14. Perform monitoring and Assessment (1) Monitoring and Research (2) Global Taxonomy Initiative

□. Current Implementation Status of National Biodiversity Strategy

1. Protection of the components of biodiversity

1.1 Effective conservation of major ecosystems and habitats

1.1.1 Protect the biodiversity of major ecosystems and habitats

1.1.1.1 Forest Ecosystems

(a) Formulate Basic Plan for National Forest Biodiversity in 2007, to develop and promote the national goals and framework for the conservation of forest biodiversity.

(b) Establish Korea Forest Seed and Variety Center in 2008, in order to create a national management system for forest seed varieties.

1.1.1.2 Freshwater Ecosystems

(a) Formulate and enact conservation plans for protected wetland areas

(b) Formulate wetland conservation and management project ('04 ~ '09)

(c) Formulate a plan for the establishment of a National Wetland Center ('08 ~ '12)

1.1.1.3 Coast and Marine Ecosystems

(a) National Institute of Biological Resources of Korea launched in 2007, to secure specimens of territorial and marine life resources.

(b) Formulate a Marine Biodiversity Conservation Program ('06~'07)

(c) Promoting to establish National Institute of Marine Biological Resources for conservation and research of marine biological diversity ('07~'13)

(d) Enactment of Act on Conservation and Management for Marine Ecosystem('07)

1.1.1.4 Islands Biodiversity

(a) Establish 「Special Acts on ecosystem conservation for Dokdo and other islands」('97)

(b) Establish a basic plan for research on the natural environments of uninhabited islands nationwide, and the designation of specific islands for conservation ('05~'14)

(c) Research the actual conditions of uninhabited islands nationwide ('06~'12)

1.1.1.5 Urban Ecosystems

(a) Form a guideline for constructing urban ecological belts

(b) Plan to make a biotope map for the status of urban ecology

1.1.2 Expand and preserve protected areas

1.1.2.1 Expand protected areas and enhance their management

(a) About 2.8% of the national territory, or 2,801.1 km^2, were designated as protected areas after the CBD COP-7 in 2004

(b) New positions were introduced in 2003, including Nature-Environment Management P.E. and Engineer in Nature Environment and Ecological Restoration, and Management Effectiveness Evaluation on protected areas was enacted ('07.12~'09.5)

(c) With a basic plan for the establishment of a wide-ranging ecological belt ('07), an ecological belt is constructed in five successive metropolitan cities ('07~'09), ultimately linking all five cities.

(d) Formulate a basic plan for the protection of the Baekdudaegan mountain range ('06~'15), and enact a plan to conduct annual research on the ecosystems of the mountain range from 2006

(e) Plan for the Formation of a DMZ Ecology Peace Park as a national agenda, and push forward with research on DMZ ecosystems ('08~'10)

(f) Assess the ecosystems of Dokdo Island in all four seasons ('05~'08), with regular monitoring and research of invasive alien species ('07~'08)

(g) Undertake the systematic conservation of Korea's national parks, with the establishment of management plans for the 20 national parks (1^{st} phase carried out between '03~'05, 2^{nd} phase between '06~'10),

1.1.2.2 Improve the management system for protected areas, and build a network among those areas

(a) Undertake research on the current conditions of the natural resources in the part of the Baekdudaegan that belongs to Republic of Korea, by dividing it into 5 zones ('06~'10)

(b) Enact the Forest Reserve Act

1.2 Conserve species diversity

1.2.1 Strategy for global plant conservation

1.2.1.1 Establish conservation and management system for biological resources, and lay a foundation to ensure national sovereignty over natural resources

Construct a conservation and management system for bio resources through plans such as the Comprehensive Biological Resources Conservation Plan ('05), and lay a foundation to ensure national bio-sovereignty

□ Publication of "Flora of Korea" ('04~'10), development of conservation technology by securing Korea's endemic vascular plants and gene analysis ('04~'08), establishment of a foundation for a DNA bank for economic resource plants in North East Asia ('02~'05), assessment of genetic and ecological risks to endemic plants of the indigenization of foreign plants (' 02~'05), etc.

□ National Project of Biological Collection ('04-'10), Conservation and Restoration of Rare and Endemic Species ('08-'12), Collection of and Taxonomic Study on Forest Seeds ('02-'11)

1.2.1.2 Perform research on forest marshes, and develop and maintain GIS technology

Conduct research on forest marshes (including those in national forests) and develop GIS Technology, with a view to establishing a standardized reference for research on forest marshes

1.2.1.3 Prepare measures on the conservation, management and utilization of biodiversity at the national level

Prepare 「Master Plan on the securing, management and utilization of Korean Bio-resources」('07.12)

1.3 Conservation of genetic diversity

1.3.1 Conserve the genetic diversity of local species

1.3.1.1 Collect samples of genetic resources, including living bodies and species, through means such as “Project to lay a foundation for providing wildlife resources,” and “Project on the research and exploration of indigenous organisms”

1.3.1.2 Research the genetic diversity of biological resources, including endangered species, through the project for “Research on Analysis of Genes in Major Bio-resources” and the accumulation of data from species genome research

- Conduct a “Tree of Life” project to accumulate phyletic data of organisms in the nation, and construct a molecular species identification system through the establishment of a DNA barcode system for wildlife resources

1.3.1.3 Construct a database system to integrate and manage data, including organism resources taxonomy, ecological information, confirmatory samples, and gene analysis data

- Forming an integrated management system of biological information through the project for "Forming of Korea Forest Biological Species Information System"('03-'10)

1.3.1.4 Effective information system, strategy development, and enhancement of conservation both in- and ex-situ

1.3.2.1 Promotion of sustainable in-situ conservation through the assignment and periodically monitoring of genetic resources conservation areas

1.3.2.2 Ex-situ conservation and restoration including regional collection and propagation of rare and endemic plants

1.3.2 Improve ecological safety through the expansion of forest genetic resources conservation in-situ and ex-situ

(a) Conduct sustainable in-situ conservation through the designation of protected forest area for genetic resources and periodical monitoring

(b) Conserve and restore ex-situ, by collecting, conserving, and restoring rare and genetically diverse indigenous plants

1.3.3 Establish comprehensive management system for agricultural gene resources

Build agricultural gene resources data network, including a comprehensive management and utilization system for agricultural gene resources, or a DNA Bank for endemic gene resources as a national asset

1.3.4 Secure and conserve gene resources through national research and development projects

1.3.4.1 Secure and conserve gene resources of Korean native plants through various projects, including the construction of the Plant Extract Bank, the Seed Bank Project, and seed collection of Korean Native Plants ('00~)

1.3.4.2 Construct a micro bank through the Microbial Genomics and Applications Center Program, and secure and conserve animals, plants, and human bio resources through the project of the Korea National Research Resource Center

2. Promote sustainable use

2.1 Sustainable use and consumption

2.1.1 Application of Ecosystem Approach

2.1.1.1 Introduction of 「Ecosystem Approach」 to promote bio diversity and put the approach into practice

Enforcement of biodiversity management contract as a means of providing incentives to facilitate biodiversity conservation and sustainable use, based on the principles of the Ecosystem Approach ('02~present)

2.1.1.2 Introduction of 「Ecosystem Approach」 to promote forest biodiversity ('04)

(a) Systematic research and monitoring have been conducted for 5 major forests, including Gwangneung Forest, at a five-year interval since 2005, with the aim of promoting forest biodiversity.

(b) Make a guideline for forest restoration, as a basis for ecological restoration.

2.1.2 Implement the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

2.1.2.1 Determine measures for improving the legal system and preventing poaching

(a) Constitute the legal system following the regulations of CITES, including the amendment of the Wildlife Protection Act

(b) Establish a poaching and trafficking prevention measure ('00), along with the launch of a Poaching Prevention Task Force by the Ministry of Environment, Anti-Poaching Team by the Office of Environment and provincial governments, and Poaching Inspection Group with 150 members from the private sector. These groups work to crack down on people who are poaching or trafficking during the winter season. ('00~)

3. Address threats to biodiversity

3.1 Research and management of invasive alien species

3.1.1 Control the inflow of invasive alien species to Korea, and their spread

3.1.1.1 Prevent the spread of or damage caused by invasive alien species, and improve management and control infrastructure, through approaches such as collecting data on foreign animals introduced to the nation, or building a comprehensive search system

(a) Collect detailed data on the 287 foreign plants species in Korea, and construct a web-based database

(b) Analyze ecosystem of the 18 major alien species, and derive ecological risk assessment and management measures for each species ('05~'08)

(c) Conduct monitoring on 10 species that disturb ecosystems nationwide ('07~)

3.1.1.2 Strategic management to curb the spread of invasive alien species, such as those that disturb ecosystems, and classification of those species by ecosystem and damage type

(a) Regular monitoring and the elimination and prevention of the spread of invasive alien species, such as forest insect pests

(b) Strengthen management of invasive alien species by performing a risk assessment on invasive alien species that have flowed into the nation, and establish a control and management manual for distribution

3.1.1.3 Strengthen the basis for managing invasive alien species, through cooperation and integration with national, overseas and private sectors,

ecological research on foreign species, and capacity building for risk assessment

(a) Eliminate the possibility of introduction of foreign aquatic organisms from ballast water by development and installation of a treatment system for ship's ballast water, abiding by the 「Laws on the Control and Management of Ship's Ballast Water and Sediments」, enacted in 2008

(b) Research measures to tackle alien organisms that disturb marine ecosystems, research ballast water, make a list of indigenous and foreign marine species, with the main aim of controlling harmful red-tide organisms, out of a total of 13 harmful marine species

3.2 Management of Living Modified Organisms (LMO)

3.2.1 Construct a safe and consistent management system that encompasses research and development, import, production, supply, and consumption

Korea enacted ('01.3) and enforced ('08.1) a law on the Management of Living Modified Organisms in order to comply with the Caragena Protocol on Biosafety.

3.2.2 Strengthen organic cooperation among relevant organizations for effective safety management

3.2.3 Strengthen biosafety communication as the supply and consumption of living modified organisms increases

3.2.4 Keep pace with domestic and international trends to ensure harmony with international safety management standards

3.3 Establishment of countermeasures to climate change

3.3.1 Research and investigation on ecosystem changes caused by climate change

3.3.1.1 Developed the National Long-term Ecological Research Project, a study on ecosystem variations in 3 representative regions, including territorial, freshwater, and coastal regions, and on ecological variation in certain species ('04~)

3.3.1.2 Conduct research on the current conditions of natural environments in each sector nationwide through various means, including the National Natural Environment Survey, Estuarine Ecosystem Preservation Program, Monitoring of Sand Dune Plants, Winter Bird Census, Nationwide

Inland Wetland Survey, Survey of Natural Environment of Uninhabited Islands of Korea, and the National Park Environment Survey

3.3.1.3 Conduct a pilot study to select climate change impact indicator species ('06)

3.3.1.4 Promotion of national monitoring of phenology and climate change

3.3.2 Establish a system to minimize the impacts of climate change on forest biodiversity

3.3.2.1 Plan for the expansion of forest carbon sinks ('05), Master Plan for National Forest Biodiversity ('07), Comprehensive Forest Protection Measures to Climate Change ('08)

3.3.2.2 Monitor forest ecosystems to enhance their adaptation capacity to climate change, and manage species and ecosystems vulnerable to climate change

3.3.3 Establish a system to minimize the impacts of climate change on agricultural ecosystems, and to effectively control insect pests

3.3.3.1 Launch a climate change task force in 2008, formulating mid-to-long term research and development plans, and putting them into practice to respond to climate change

3.3.3.2 Set future agriculture technologies to combat climate change as an agenda for 2009, and carry out agricultural ecosystem impact assessment, while developing prediction technology

4. Maintain biodiversity for human well-being

4.1 Maintain capacity of the ecosystem to deliver goods and services

4.1.1 Activate eco-tourism

Designation of "UNESCO Biosphere Reserve Area" to Kwangnung Forest for "Ecosystem Approach" on harmony of preservation and utilization

4.1.1.1 Improve the legal basis for establishing an infrastructure to activate eco tourism

(a) Generate jobs within the community by using local residents as eco-tourism guides, and introduce a certification system for tourism goods of excellent quality

(b) Launch a policy consultation committee involving the government agencies related to eco-tourism, which in turn can create synergies through the linking of businesses

4.1.1.2 Expand green infrastructures

Expand green infrastructures that enable people to learn, experience, and enjoy, through measures such as increasing the infrastructure using the natural environment, creating education facilities for eco-tourism, or making a National Ecology and Culture Tour Road

4.1.1.3 Generate demand for eco-tourism through promotion and marketing, such as providing tour information

Use promotion and marketing to create demand, by constructing a portal site on eco-tourism, as well as an eco-phone system, or a ubiquitous eco-guide, which can provide comprehensive and systematic eco-tourism information

4.1.1.4 Improve value of the environment through the conservation and restoration of excellent natural ecosystems

Begin restoration work for eco-tourism by implementing the Eco-river restoration project nationwide

4.1.1.5 Globalize Korean eco-tourism through a pilot eco-tourism project that reflects Korea’s uniqueness

Develop an eco-tour model that encapsulates Korea’s uniqueness by selecting a model project region for eco-tourism, globalizing the region, and creating new eco-tourism programs and goods that include narratives and themes

4.1.2 Develop positive incentives, such as the improvement of legal and financial systems

4.1.2.1 Establish a foundation for eco-tourism and the improvement of the legal system

(a) Organize an eco-tourism forum, and produce a report on eco-tourism that includes the model of Korea eco-tourism ('09)

(b) Sign a Memorandum of Understanding on eco-tourism between the Ministry of Environment and the Ministry of Culture, Sports and Tourism (Feb '09) and create a policy consultation committee on eco-tourism involving the three parties including the Korea Forest Service (January 15, '09), and promote the eco-tourism project through mutual cooperation

4.1.2.2 Guide the public in protecting the ecosystem according to the Principle of Cost Sharing among Stakeholders, such as the Ecosystem Conservation Fund, and secure revenues to conserve the natural environment, such as ecosystem restoration

Provide forest owners in protected areas of the Baekdudaegan mountain range with compensation for abstaining from lumbering, and grant afforestation cost following the conversion of marginal farmlands into forests and the restoration of poor grasslands to forests.

5. Protect traditional knowledge, innovations, and practices

5.1 Protect the traditional knowledge and socio-cultural diversity of indigenous and local communities

5.1.1 Protection of traditional knowledge

5.1.1.1 Construct a portal site on Korean traditional knowledge

(a) A project to set up database on traditional knowledge was initiated in 2004 in order to protect traditional knowledge, innovations, and practices, and in December 2007 the Korean Traditional Knowledge Portal (KTKP) was launched at (www.koreantk.com)

(b) A Korean/English database include theses and papers related to traditional knowledge selected from national journals in areas such as herbal medicine, traditional treatment, and the nature of diseases

5.1.1.2 Support the promotion of traditional knowledge to facilitate the sustainable use of forest resources

(a) Support the activities of indigenous and local societies, such as the utilization of traditional knowledge regarding forests

(b) Promote the implementation of a forest certification system by 3rd parties given the rights and benefits of indigenous and local societies

5.1.2 Protect the socio-cultural diversity of indigenous and local communities

5.1.2.1 Construct a foundation for protecting the intellectual property ownership of traditional knowledge techniques in agriculture and farm villages

(a) Select excellent traditional techniques to develop for contemporary use

(b) Analyze intellectual property ownership of traditional mainstreaming and local indigenous products, the current status of product merchandising, and the utilization and commercialization of traditional knowledge resources

(c) Explore native resources, through means such as selecting promising resources that can be developed as industry in each region, and support projects to foster native industries by developing industrial models

(d) Develop a manual on traditional knowledge that has been transmitted by word of mouth, and find measures to utilize such knowledge

(h) Produce publications to support the efficient use of traditional knowledge

6. Ensure the fair and equitable sharing of benefits arising from the use of genetic resources

6.1 Access to genetic resources and benefit sharing (ABS)

6.1.1 Strengthen global cooperation regarding ABS

Participate in the ABS Working Group Meetings, and in the COP

6.1.2 Identify the current conditions of forest genetic resources, and conduct research in this field

(a) Complete reports on 「Distribution of Korea's endemic vascular plants」 ('04~'11), Identify the distribution regions of special native plants, publish the collected list ('05), and operate a nationwide network for special native plants (' 08)

(b) Construct information exchange under which the organizations responsible for the tasks and users will share information on forest genetic resources, along with application and registration service for approval

6.1.3 Enactment of Act on the Securing, Management and Utilization of Bio Research Resources

6.1.4 Promoting to Act on the Security, Management and Utilization for Marine Biological Resources

7. Ensure the provision of financial, human, and technological capacity

7.1 Technology transfer and provision of adequate resources

7.1.1 Technology transfer and resources provision

7.1.1.1 Provide official development aid (ODA) for continuous environmental conservation, and pay the country's share

(a) Contribute to the international community by providing approximately 15.3 billion won of environment-related ODAs (using 2008 as a base year), and by making annual contributions to the relevant conventions including GEF, CBD, CITES, IUCN, and UNFCCC.

(b) Contribution to Global Environment Facility (GEF)

□ In the 1st ('95~'97), 2nd ('98~'01) and 3rd replenishments ('02~'06), the country paid $5.5 million. In the 4th replenishment ('07~'10), $6 million.

7.2 International cooperation and involvement of stakeholders

7.2.1 Discussion and Cooperation at the national and international levels

7.2.1.1 Actively participate in the ongoing joint projects conducted by international organizations including UN, OECD, and GEF, providing international assistance at a level befitting Korea's economic status, and improve the country's role and position on the global stage

□ Numerous international agreements have been promoted, including the Convention on Biological Diversity, the Cartagena Protocol on Biosafety, the Convention to Combat Desertification, the Ramsar Convention on Wetlands, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and Korea is committed to leading these conventions to national implementation.

7.2.1.2 Conclude agreements and Memoranda of Understanding with major neighboring countries in order to achieve cooperation within the region

and reach a consensus on the need for international collaboration to conserve biodiversity, as well as to discuss more concrete joint initiatives

- Improve awareness of the need to conserve biodiversity and expand cooperation among countries in Northeast Asia, through projects such as Northeast Asia Sub-regional Programme for Environmental Cooperation (NEASPEC), which is a multilateral environmental cooperation mechanism in Northeast Asia, the Northwest Pacific Action Plan (NOWPAP), and the Tripartite Environment Ministers Meeting (TEMM)

7.2.2 International collaborations, such as multilateral international agreements

7.2.2.1 In the 10th Ramsar Convention on Wetlands, Korea suggested a joint resolution with Japan for improving the biodiversity of wetlands and enhancing conservation efforts

7.2.2.2 Make continuous efforts to raise public awareness by publishing a collection of international conventions and a terminology book to help people understand the international conventions

7.2.2.3 Related ministries made joint efforts to legislate laws on Antarctic actions and environmental protection ('04.3) to fulfill the Protocol on Environmental Protection to the Antarctic Treaty

7.2.2.4 Conduct research on the designation of protected areas in the Antarctic region ('05~'06) and perform preliminary research on the designation of Antarctic Specially Protected Areas (ASPA) ('07).

7.2.2.5 Narębski Point, or “Penguin Village” located near the King Sejong Station designated as an ASPA, pursuant to the Protocol ('09.4)

7.2.2.6 As of July 2008, there are a total of 34 MOUs on the environment with foreign organizations that have been agreed upon or have come into effect, including MOUs on the conservation of biodiversity and on joint research.

7.2.3 Strengthen collaboration with countries rich in forest resources through bilateral or multilateral cooperation

Form strong ties with advanced countries having affluent forest resources, in order to acquire advanced technology and information as well as exhibition techniques and facilities, and secure new species of plants using the Seed Management Program

7.2.4 Support international collaboration

7.2.4.1 Approximately 16.9 billion won has been allocated to spend on strengthening international collaboration and environmental conservation, over a 5-year period beginning in 2001

7.2.4.2 Promote a project on the Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Northwest Pacific Region (NOWPAP), and build a system for systematic cooperation with neighboring countries

7.2.4.3 Hold Korea-Japan Working Group Meeting on Marine Environment Inspection on an annual basis, and promote Korea-China Joint Research on the Yellow Sea Environment to lay a foundation for marine environment collaboration between the two countries

7.2.4.5 Attract the NOWPAP Secretariat jointly with Japan to pave the way for leading international cooperation in the area of the marine environment in East Asia

7.3 Communication, education, and public awareness

7.3.1 Improving communication and publicity work

7.3.1.1 Perform publicity work for the conservation of biodiversity

(a) Operate “Camp for the Conservation of 100,000 Treasures in Korea,” and “Youth Ambassador to Conserve Biodiversity,” programs, TV co-promotion for the restoration of endangered species in Korea, develop “characters” to represent endangered species, and post information on internationally endangered species in travel journals and in-flight magazines ('07)

(b) Hold special exhibitions such as the Egg Diversity Exhibition, the Jirisan Insects Exhibition, and the Exhibition on Biodiversity of Wetlands, as well as the Competition on Indigenous Organisms Illustration ('06~'08) promoted by the National Institute of Biological Research, to demonstrate the importance of our ecosystems and bio resources to our environment and economy ('07~'08)

7.3.1.2 Promote nationwide ‘Korea Forest Conservation Movement’ ('08), to encourage citizens to look after the forests

Promote nationwide Wildfire Prevention Campaigns to raise public awareness of the importance of wildfire prevention

7.3.2 Education

7.3.2.1 Open education programs for children, students, and adults who wish to improve their awareness of the significance of biodiversity

Open biodiversity classes for teachers, and internship courses for college students ('08)

7.3.2.2 Produce and distribute a single-volume textbook on marine environment education each year (implemented since 2002)

7.3.2.3 Establishment and utilization of various botanic garden as education places of natural environment and forest biological

7.3.3 Information sharing system

7.3.3.1 Currently, the homepage of the Ministry of Environment (www.me.go.kr) is utilized as an official website for the Clearing-House Mechanism (CHM) of the Convention on Biological Diversity, and thus provides related CHM data, such as information on biological diversity in Korean

8. Monitoring and Assessment

8.1 Monitoring and assessment

8.1.1 Monitoring and assessment

8.1.1.1 An ongoing nationwide survey on the natural environment has included the 1st survey ('86~'90), the 2nd survey ('97~'04), and the 3rd survey currently underway ('06 ~ '15)

(a) Perform a survey of excellent eco-regions nationwide to designate protected areas

(b) Conduct research on the natural environment of uninhabited islands nationwide at 762 sites ('97-'07), 162 of which were designated and managed as special environment islands as of December 2008.

8.1.1.2 Inspection and Monitoring of marine biodiversity components

(a) National survey on marine ecosystem ('06~'15), research on tidal flat ecosystems every five years, research on current conditions of uninhabited islands ('06~'12)

(b) Research on environments of coastal fishing grounds ('99~'01), research on current conditions of seashores nationwide, Korean Coastal Environment Monitoring, survey on estuary ecosystems ('04~'10), etc.

8.1.1.3 Make the national forest survey information available, and develop a forest survey support system for data management and utilization

(a) Based on the 5th National Forest Resources Survey, which has been conducted since 2006, the country will proceed with a new research system that allows forest dynamics monitoring

(b) Lay a foundation for estimating national forest statistics in order to respond to the international demand for statistics on the forest environment

8.1.2 Global Taxonomy Initiative

8.1.1.1 Produce Comprehensive Biological Resources Conservation Plan ('05.1)

The plan includes several projects related to the implementation of the Global Taxonomy Initiative, which is to research and explore, classify, and conserve biological resources

8.1.1.2 The Forest Biology Sample Center was launched in Korea in 2003, and laid an infrastructural foundation to conduct forest life taxonomy research

(a) Secure forest biology samples, descriptions, criteria, and images

(b) Make a list of national reference plants, and operate a management system to activate research on the classification of forest species

Chapter 3	Sectoral and Cross-sectoral Integration or Mainstreaming of Biodiversity Considerations

□. Overview

Republic of Korea launched a domestic working group on the convention on biological diversity, with the participation of 10 relevant ministries as well as national and public research institutes, in order to formulate national biodiversity strategies and action plan and to draft a national report.

□ Ministry of Foreign Affairs and Trade; Ministry of Education, Science and Technology; Ministry of Food, Agriculture, Forestry and Fisheries; Ministry of Knowledge and Economy; Ministry of Health, Welfare, and Family Affairs, Ministry of Environment; Ministry of Land, Transport, and Maritime Affairs; Rural Development Administration; Korea Forest Service; Korean Intellectual Property Office

The 2nd National Biodiversity Strategy and Action Plan, which is now underway, includes various sectoral strategies, policies and some government projects that mainstream biodiversity considerations.

This chapter describes the texts of the Convention that incorporate aspects of biodiversity in each sector including agriculture, forest, fisheries, tourism, protected areas, and international cooperation, along with the efforts of provincial governments and corporations to safeguard biodiversity.

□. Sectoral efforts to safeguard biodiversity

1. The central government

Strategy	Reference in Chapter 2	Relevant provisions of the Convention
1. Effective conservation of major ecosystems and habitats (1) Protection of biodiversity of major ecosystems and habitats (2) Expansion and conservation of protected areas	□. 1. 1.1	- Articles 6, 8, and 9 of the Convention
2. Conservation of species diversity (1) Global Strategy for Plant Conservation Strategies	□. 1. 1.2	- Articles 8 and 9 of the Convention

(2) Research on the status of threatened species and restoration		
3. Conservation of genetic diversity	□. 1. 1.3	- Articles 8 and 9 of the Convention
4. Sustainable use and consumption (1) Application of ecological approach (2) Implementation of CITES	□. 2. 2.1	- Article 10 of the Convention
5. Research and management of invasive alien species	□. 3. 3.1	- Articles 7, 8, and 9 of the Convention
6. Management of genetically modified organisms	□. 3. 3.2	- Article 19 of the Convention
7. Establishment of countermeasures to address the challenges of climate change	□. 3. 3.3	- Article 14 of the Convention
8. Maintaining the capacity of the ecosystem to deliver goods and services (1) Eco Tourism (2) Use of positive incentives	□. 4. 4.1	- Articles 10 and 11 of the Convention
9. Protection of traditional knowledge, innovations and practices (1) Protection of traditional knowledge (2)Maintenance of socio-cultural diversity of indigenous and local communities	□. 5. 5.1	- Paragraph (j) of Article 8 of the Convention
10. Access to genetic resources and benefit sharing	□. 6. 6.1	-Article 15 of the Convention
11. Technology transfer and the provision of adequate resources (1) Technology transfer (2) Financial resources and system	□. 7. 7.1	-Article 21 of the Convention
12. International cooperation and involvement of stakeholders	□. 7. 7.2	- Article 5 of the Convention
13. Communication, education and awareness (1) Communication and promotion (2) Education (3) Information Sharing System	□. 7. 7.3	- Articles 13 and 17 of the Convention
14. Monitoring and Assessment (1) Monitoring and Research (2) Global Taxonomy Initiative	□. 8. 8.1	- Article 7 of the Convention

2. Local governments

The conservation of biodiversity requires action according to national strategies and related legislation, and an increased awareness among stakeholders, including local governments, businesses, and NGOs on the importance of promoting biodiversity conservation through their actions. Policies and measures appropriate to provincial characteristics need to be taken into consideration.

The country is carrying out action plans through active cooperation with local governments, including the construction of a metropolitan ecological belt, the designation of species that need to be restored, the designation of protected areas, the establishment of a guideline for urban ecological belts, the protection of traditional knowledge and support for traditional activities, and the expansion of biotopes within urban regions, expediting the mainstreaming of biodiversity in regions.

In terms of policy measures for the conservation of biodiversity, local governments are committed to preserving indigenous species through the substantial management of major habitats and the control of alien species. Preliminary actions are being taken, such as the designation of endangered and protected species within each region, the creation of a biotope map, the designation and management of the habitats of those species as protected areas, as well as the integrated management among the governments of provinces vulnerable to the spread of foreign species.

Since the 10th Ramsar Convention, held in October 2008 in Changwon, Korea, public awareness of the importance of wetland related biodiversity and eco-tourism has greatly increased.

A wide range of activities have been carried out to raise public awareness, including monitoring birds at each major river basin, bird watching, tree planting, making ecological maps, hosting wetland forums and workshops with the participation of local residents, conducting related research, monitoring, and publishing education materials, and facilitating effective efforts to conserve local biodiversity by linking biodiversity to wetlands.

3. Private Sector Efforts

With the aim of developing an economic organization that aims to conserve the natural environment and biodiversity, Korea launched the Korea Association of Environmentally Friendly Companies, which involved 179 companies as of

December 2008. This organization established an Environment Protection Fund Management Association in each metropolitan city, and changed its name to the Environmental Protection Association in 2000, promoting and supporting environmental protection projects in each metropolitan city.

The Association has set environmental targets for each company, such as assisting in habitat restoration projects of endangered species such as ibis, *Sericinus montela*, *Pieridae*, Horseshoe crab, and Korean rose bitterling, capturing alien species like nutria that disturb local ecosystems, creating eco parks, purifying river water, and looking after mountains in partnership with local organizations. In addition, it is coming up with a number of new initiatives to promote sustainable biodiversity for a better environment.

Since 2008, when some local companies made an agreement with the Environmental Office on the protection and management of some islands with good topography and geological features as well as beautiful views, the Association has been undertaking conservation activities like removing marine waste and alien plants from the islands.

Recently, when the major oil spill accident involving the Hebei Spirit occurred on the west coast of Korea in 2007, the entire country made a concerted effort to support cleanup operations, and many firms provided aid in the form of environmental technology donations, which in turn led to the early restoration of the coastal environment.

Chapter 4 Conclusions

From the national biodiversity strategy and action plan, Korea has formulated 3 national targets, 8 focal areas, and 14 detailed strategies, and achieved some outcomes to fulfill the targets. The country is making steady efforts to achieve the 2010 target of the Convention (Refer to Chapter 2).

In addition, since the second half of 2008 the country has engaged in the task of establishing the 2nd National Strategy on Biological Diversity, with a view to evaluate the current status and trend of biodiversity in Korea. A mid-year review has been made for the 2010 target, as well as a comprehensive review of the biodiversity policies that have been promoted.

This chapter describes a few cases relating to Korea's progress toward meeting the 2010 target under the Convention, and the country's strategic action plans.

After Korea successfully hosted the 10th Meeting of the Ramsar Convention on Wetlands in 2008, the country's data collection and efforts in the area of biodiversity have greatly improved through the involvement of various stakeholders in the preparation process and the promotion of biodiversity projects linked to wetlands.

Ⅰ. Progress toward the 2010 Target

1. Implementation status of 2010 biodiversity target

- 3 Priorities and 13 targets

Focal Area	Strategy and implementation
	1. Effective conservation of major ecosystems and habitats (1) Protection of the biodiversity of major ecosystems and habitats e.g. Comprehensive Biological Resources Conservation Plans ('06), Comprehensive Marine Environment Conservation Plan ('06), Master Plan for National Forest Biodiversity ('07), Special Acts on the Ecosystem Conservation of Dokdo and other islands ('07), Guideline for constructing urban ecological belts ('08), etc. (2) Expansion and conservation of protected areas

1. Protect the components of biodiversity	e.g. About 2.8%, or 2,801.1㎢, of the national territory was designated as protected areas after CBD COP-7 in 2004, and a wide-ranging ecological belt was designated, including the DMZ and Baekdudaegan mountain range **2. Conservation of species diversity** (1) Strategy for global plant conservation - Develop a construction and management system, through means such as the Comprehensive Biological Resources Conservation Plans ('05), the Standardized Reference for Research on Forest Marshes ('05), and the Master Plan on Securing, Management and Utilization of Korean Bio-resources (2) Research the status of threatened species and restoration e.g. Projects to Restore Species, such as the Manchurian black bear, the antelope of Wolak Mountains, and the Manchurian Sika Deer, the creation of botanical gardens for endangered plants, and related projects such as the restoration and multiplication of endangered wild fauna and flora **3. Conservation of genetic diversity** e.g. Accumulate national species data, collect samples of genetic resources including living bodies and species, build an ex-situ preservation facility for agricultural gene resources (248,000 pieces), Construct a DNA Bank for endemic gene resources and a Microorganism Culture Bank, enact a law for the conservation, management, and use of agricultural gene resources ('08), Construct a network among 17 institutes including the National Science Museum and the Museum of Natural History
2. Promote sustainable use	**4. Sustainable use and consumption** (1) Application of an ecosystem approach e.g. Develop systematic research, monitoring and forest restoration systems (2) Implementation of CITES e.g. Improve the legal basis to strengthen the enforcement of CITES, and prepare measures to prevent poaching
3. Address threats to biodiversity	**5. Research and management of invasive foreign species** e.g. Construct a comprehensive research system to prevent the spread of invasive alien species and to expand the managed targets **6. Management of Living Modified Organisms (LMO)** e.g. Enact a law for Management of Living Modified Organisms ('01.3) and enforce the law ('08.1), to put the Caragena Protocol on Biosafety into practice, and construct a consistent and safe management system that spans from research and development, to import, production, supply, and to consumption **7. Establishment of countermeasures to climate change** e.g. Long-term Ecology Research and Investigation, construction of bio network,

	Expansion of forest carbon sinks, establishment of a master plan for forest diversity
4. Deliver goods and services through biodiversity to support human well-being	8. **Maintain capacity of the ecosystem to deliver goods and services** (1) Eco Tourism e.g. Visiting national parks, creating education facilities and national ecology and culture tour roads for the expansion of eco-tourism, activating eco-tourism and creating greater demand through constructing an eco-phone system (ubiquitous eco-guide) and eco-tour portal site (2) Use of positive incentives e.g. Implementing positive incentives, such as the expansion of the support project for biodiversity management agreements, the banning of lumbering in the Baekdudaegan, mountain range the conversion of marginal lands into forests, and the afforestation of poor grasslands
5. Protect traditional knowledge, innovations, and practices	9. **Protection of traditional knowledge and innovations and practices** (1) Protection of traditional knowledge e.g. Preparing measures to protect and use our traditional knowledge by constructing a traditional knowledge portal system ('07), and promoting the implementation of a forest certification system (2) Maintenance of socio-cultural diversity of indigenous and local communities e.g. Exploring traditional knowledge resources such as classical materials (97,563 cases), classification, development of industrial resources and models for each region, the formation of a research manual, and the publication of a manual for traditional knowledge utilization (23 kinds)
6. Ensure the fair and equitable sharing of benefits arising from the use of genetic resources	10. **Access to genetic resources and benefit sharing** e.g. Participating in ABS meetings, conducting a survey of the distributed regions of indigenous plants, operating a network, and constructing a forest genetic resources information system
7. Ensure provision of financial, human, and technological capacity	11. **Technology transfer and provision of adequate resources** e.g. Contributing to the international community by providing approximately 15.3 billion in environment-related ODAs (using '08 as a base year) and making annual contributions to the conventions including GEF, CBD, CITES, IUCN, and UNFCCC 12. **International collaboration and involvement of stakeholders** e.g. Incorporating land-use change and biodiversity issues into the Changwon Declaration adopted in the 10th Ramsar Convention on Wetlands held in Korea in 2008, suggesting the Korea-Japan joint resolution on improving biodiversity

	of wetlands in the meeting, and designating “Penguin Village” as an ASPA('09.4) 13. **Communication, education, and public awareness** (1) Communication and publicity work e.g. Increasing public awareness through comprehensive measures to conserve biodiversity, such as TV co-promotion for the restoration of endangered species in Korea (‘07), and the nationwide promotion of the ‘Korea Forest Conservation Movement’ ('08) (2) Education e.g. Education programs in biodiversity, marine environment, tidal fields, wetlands, migratory birds, and the publication of textbooks related to marine environment education ('02~) (3) Information Sharing System e.g. The Ministry of Environment serves as a focal point for the information sharing of conventions. Its website provides CHM data, including website information on Korea’s wild flora and fauna, with 54 other sites on biodiversity.
8. Monitoring and Assessment	14. **Monitoring and Assessment** (1) Monitoring and Research e.g. Three nationwide environment surveys, including one now in progress ('86~'90, '97~'04, '06~'15), the creation of a biotope map to use for the conservation and development of the national territory, the conducting of preliminary research on marine ecosystems ('06~'15), airborne digital image monitoring and utilization techniques and LIDAR image use techniques are to be introduced (2) Global Taxonomy Initiative e.g. the forest sample biology center was launched ('03); the Comprehensive Biological Resources Conservation Plan ('05) incorporated much of the Global Taxonomy Initiative; the National Institute of Biological Research was launched ('07), for which experts were secured; A list of national plants was made

Ⅱ. Progress toward the Goals and Objectives of the Strategic Action Plans under the Convention

(Goal) To provide an efficient system to fulfill the three obejectives of the Convention on Biodiversity, through the integration of National Biodiversity Strategy and Action Plans in the relevant fields.

As stated in Chapter 2, Korea is in the process of formulating its 2nd National Biodiversity Strategy and Action Plans, which is to be completed in June 2009, and the mainstreaming of biodiversity in the relevant fields is proceeding on a gradual basis.

Particularly significant is Korea's hosting of the 10th Ramsar Convention on Wetlands from October to November of 2008, along with the adoption of the Changwon Declaration and the resolution to 'Enhance biodiversity in rice paddies as wetland system.' Public awareness of the need to protect wetlands and ecosystems has grown, and eco-tourism has increased as well, as people have become more aware of the importance of ecosystems and their services.

(Target 1) Conserve major ecosystems and protected areas effectively.

Korea is making efforts to protect the components of biodiversity by registering a greater number of wetland conservation areas in Korea as Ramsar sites, and by founding a National Ecology Institute, Baekdudaegan Arboretum, National Institute of Biological Research, and Korea Institute of Coastal Ecology. In addition, Korea will designate the DMZ as a UNESCO Biosphere Reserve by 2012.

(Target 2) Conserve genetic diversity

Korea will address the threats of invasive alien species to genetic and biological diversity in Korea, by investigating the major alien species, performing risk assessment, creating a regional and ecological vulnerability map, developing ecosystem assessment techniques to measure climate change, and constructing a comprehensive database to store the results of monitoring ecosystem changes.

(Target 3) Facilitate international collaboration and involvement of stakeholders on the issue of biodiversity

Korea is willing to contribute to and play a role in biodiversity-related conventions, including the Ramsar Convention, CITES, Convention on the Conservation of Antarctic Marine Living Resources, and Convention for the Protection of the World Cultural and Natural Heritage.

In addition, Korea will facilitate the involvement of stakeholders through public awareness activities, such as by hosting a seminar on "access to genetic resources and benefit sharing", publishing a guideline, and increasing the utilization of database on Korea traditional knowledge, as well as through traditional foods and native resources.

□. Conclusions

As stated in this report, Korea is committed to meeting the 2010 target under the Convention by establishing and implementing its 2nd National Biodiversity Strategy, some of which has been achieved but most of which is still actively underway. Conservation on biodiversity and ecosystems in some sectors has made progress. (Refer to Chapter 2)

In addition, as described in Chapter 1, the National Biodiversity Strategy raise concerns about the serious impact of climate change on national biodiversity, an impact that is already measurable.

In brief, the current major challenges on biodiversity are as follows; and to address these issues, the country will enhance its future system based on the 3 priorities, with the strategies and detailed action plans of the National Biodiversity Strategy.

First, climate change in Korea is progressing at a faster pace than the global average, which has led to a rapid reduction in biodiversity in the country. In addition, climate change is a serious factor that threatens Korea's forests by increasing the number of natural disasters such as wildfires and causing disturbance in the ecosystem.

Second, ecosystems are being disturbed by the dramatic increase of naturally occurring and human-introduced alien species, as a result of the rapid economic growth and expansion of international trade, as well as the reduction in the area occupied by forests, rice paddies and coastal wetlands.

Third, a great deal of progress has to be made in the areas of education and publicity in order to achieve an integrated biodiversity research and information system at the national level, construct an adequate infrastructure for the conservation of national biodiversity, secure human resources, and raise public awareness.