

China's Fourth National Report on
Implementation of the Convention on
Biological Diversity

Ministry of Environmental Protection

November 2008

Table of Contents

| | |
|---|----|
| Executive Summary..... | i |
| Chapter I Status and Trends of, and Threats to Biodiversity in China..... | 1 |
| 1.1 Status of Biodiversity in China | 1 |
| 1.1.1 Forest biodiversity..... | 1 |
| 1.1.2 Agricultural biodiversity | 2 |
| 1.1.3 Inland waters biodiversity | 2 |
| 1.1.4 Marine and coastal biodiversity | 3 |
| 1.1.5 Grasslands biodiversity | 3 |
| 1.1.6 Desert biodiversity | 4 |
| 1.2 Trends in Biodiversity of China..... | 5 |
| 1.2.1 Change in ecosystem structure and function..... | 5 |
| 1.2.2 Threats to species | 5 |
| 1.2.3 Loss of genetic resources | 5 |
| 1.3 Analysis of Causes of Biodiversity Loss..... | 6 |
| 1.3.1 Direct causes of biodiversity loss..... | 6 |
| 1.3.2 Constraints on biodiversity conservation in China..... | 7 |
| Chapter II Current Status of Implementation of National Biodiversity Strategies and Action Plans..... | 8 |
| 2.1 Overview of Biodiversity-Related Strategies and Action Plans..... | 8 |
| 2.1.1 Strategies..... | 8 |
| 2.1.2 Plans and Programs..... | 9 |
| 2.2 Integration of 2010 Target into National Biodiversity Strategies and Action Plans | 15 |
| 2.3 Main Activities Undertaken to Implement National Biodiversity Strategies and Action Plans | 20 |
| 2.4 China's Achievements in Biodiversity Conservation | 27 |
| 2.5 Funding | 29 |
| 2.6 Experiences | 29 |
| 2.7 Lessons..... | 31 |
| Chapter III Integration of Biodiversity Conservation into Sectoral and Cross-Sectoral Strategies and Plans..... | 33 |
| 3.1 Agricultural Sector..... | 33 |
| 3.2 Forestry Sector | 34 |
| 3.3 Urban and Rural Development Sector | 36 |
| 3.4 Marine Sector..... | 37 |
| 3.5 Water Resources Sector | 39 |
| 3.6 Education Sector | 39 |
| 3.7 Science and Technology Sector | 40 |
| 3.8 Poverty Alleviation and Development Sector | 41 |
| 3.9 Other Sectors..... | 42 |
| 3.10 Implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)..... | 43 |
| 3.11 Implementation of the United Nations Convention to Combat Desertification (UNCCD)..... | 44 |

| | |
|---|----|
| 3.12 Implementation of the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention on Wetlands) | 46 |
| 3.13 Implementation of the United Nations Framework Convention on Climate Change (UNFCCC) | 47 |
| 3.14 Adoption and Employment of the Ecosystem Approach in Related Sectors | 48 |
| 3.15 Integration of Biodiversity Conservation into Environmental Impact Assessments | 49 |
| Chapter IV Progress Towards the 2010 Target and Implementation of the Strategic Plan of the Convention | 51 |
| 4.1 Evaluation Indicators for the 2010 Target | 51 |
| 4.2 Statistical Analysis of the Evaluation Indicators for the 2010 Target | 53 |
| 4.2.1 Reduce the rate of biodiversity loss | 53 |
| 4.2.2 Maintain ecosystem integrity and ecosystem goods and services | 57 |
| 4.2.3 Reduce threats to biodiversity | 61 |
| 4.2.4 Promote sustainable use | 66 |
| 4.2.5 Ensure access to genetic resources and equitable benefit sharing | 69 |
| 4.2.6 Increase financial support | 69 |
| 4.2.7 Promote public awareness | 70 |
| 4.2.8 Application of the evaluation indicators for assessing progress towards the 2010 Target | 71 |
| 4.3 Progress Towards the 2010 Target | 72 |
| 4.4 Progress Towards Achieving Goals and Objectives of the Strategic Plan | 74 |
| 4.5 Conclusions | 76 |
| 4.5.1 Contribution of CBD implementation to biodiversity conservation and ecological conservation in China | 76 |
| 4.5.2 Experiences and lessons from the CBD implementation | 76 |
| 4.5.3 Future priorities and capacity-building needs | 76 |
| Appendix I Information Concerning Reporting Party and Preparation of National Report | 79 |
| Appendix II Progress Towards the Global Strategy for Plant Conservation and the Programme of Work on Protected Areas | 85 |
| Annex III Information to be Submitted by Parties through National Report as Required by COP 8 Decisions | 97 |

Acronyms

ADB Asian Development Bank

ASEAN Association of Southeast Asian Nations

CAS Chinese Academy of Sciences

CBD Convention on Biological Diversity

CCICED China Council for International Cooperation on Environment and Development

CITES Convention on International Trade in Endangered Species of Wild Fauna and Flora

COD Chemical Oxygen Demand

COMRA China Ocean Mineral Resources Research and Development Association

COP Conference of Parties

CSPA China Strategy for Plant Conservation

EIA Environmental Impact Assessment

ESIEMO Endangered Species Import and Export Management Office (of China)

GAC General Administration of Customs

GEF Global Environment Facility

GSPC Global Strategy for Plant Conservation

IAS Invasive Alien Species

IPCC Intergovernmental Panel on Climate Change

IUCN World Conservation Union

ISA International Seabed Authority

MA Millennium Ecosystem Assessments

MLR Ministry of Land and Resources

MEP Ministry of Environmental Protection

MOA Ministry of Agriculture

MOC Ministry of Commerce

MOE Ministry of Education

MOF Ministry of Finance

MOHURD Ministry of Housing, Urban and Rural Development

MOST Ministry of Science and Technology

MTI Marine Trophic Index

MWR Ministry of Water Resources

NDRC National Development and Reform Commission

NPC National People's Congress (of China)

NPP Net Primary Productivity

RLI Red List Index

SATCM State Administration of Traditional Chinese Medicines

SFA State Forestry Administration

SOA State Oceanic Administration

TNC The Nature Conservancy

TRIPS Agreement on Trade-related Aspects of Intellectual Property Rights

UNCCD United Nations Convention to Combat Desertification

UNCLOS United Nations Convention on the Law of the Sea

UNFCCC United Nations Framework Convention on Climate Change

WWF World Wildlife Fund

Executive Summary

In accordance with Article 26 of the Convention on Biological Diversity (CBD) and Decision VIII/14 of the Conference of Parties (COP), the Ministry of Environmental Protection (MEP) of China, together with 23 other members of the National Coordination Committee for CBD Implementation and 4 national competent authorities for related conventions, prepared China's Fourth National Report on Implementation of the Convention on Biological Diversity. During the preparation, three seminars were held and experts in related fields and representatives from non-governmental organizations (NGOs) attended these seminars to discuss and revise the Fourth National Report. The Coordination Committee held one meeting to review the draft Fourth National Report. After revision and improvement, the Fourth National Report has been approved and released by the MEP.

I. Biodiversity in China and its Strategic Significance

Biodiversity refers to the variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part. Biodiversity includes diversity within species, between species and of ecosystems. Being one of the countries with the richest biodiversity in the world, China has more than 35,000 species of higher plants and 6,347 species of vertebrates. China is not only rich in species but also has a high level of endemism. There are about 17,300 species of endemic higher plants and 667 species of endemic vertebrates. China also has abundant genetic resources and is one of the world's eight centers of origin of crops.

Biodiversity is the strategic resources for sustainable social and economic development. It demonstrates values in a variety of ways, such as providing sources for food, industrial materials and medicines as well as maintaining natural material cycling, converting energy, purifying the environment, controlling pests, preserving water sources, conserving water and soil, adjusting microclimates and accelerating biological evolution and natural succession. For instance, agriculture and forestry directly rely on biodiversity; many sectors in the secondary industry use biological resources and their products as raw materials; service industries like tourism and catering also base themselves on biodiversity; biodiversity is the source of both traditional and modern medicines, the former of which has been supporting human health for thousands of years, and the latter

of which has been deriving most of its chemical components from biological resources.

II. Threats to Biodiversity

China's biodiversity is facing serious threats from acceleration of industrialization and urbanization, irrational utilization of resources, lack of varieties in artificially propagated and bred species, invasion of alien species and climate change. About 90% of China's grasslands are experiencing different degrees of degradation and desertification; 40% of China's major wetlands are facing threats of severe degradation, especially mudflats and mangroves. The problem of species loss is quite serious. For example, groundfish resources have declined; catches are of younger ages, smaller sizes and lower values; river fishery resources have degraded badly. Genetic resources are also suffering great losses. For instance, local rice varieties planted by farmers across the country fell from more than 46,000 in the 1950s to slightly more than 1,000 in 2006, with most being artificially propagated and hybrid rice varieties; 60~70% of regions where wild rice used to be grown have now disappeared or greatly shrunken.

III. Major Conservation Actions

Faced with severe biodiversity losses, the Chinese government is striving to address the root causes, improve related legislation and management systems and integrate biodiversity into national economic and social development plans and sectoral development plans. Actions aimed at biodiversity conservation are summarized as follow:

1. Strengthening the establishment and management of nature reserves

The establishment and management of nature reserves is a primary approach employed in China to biodiversity conservation. By the end of 2007, China had established 2,531 nature reserves (protected areas in HK, Macao and Taiwan not included) covering a total land area of 151.88 million ha. The coverage of terrestrial reserves accounted for about 15.2% of China's land area. From 1999 to 2007, the number and coverage of nature reserves in China increased significantly, with the coverage exceeding the world average. A national nature reserve system has basically taken shape.

2. Implementing six key forestry projects

The Chinese government has implemented six key forestry projects such as the Natural Forest Conservation Project, the Project of Returning Farmland to Forest and the Wildlife Conservation and Nature Reserve Construction Project. Large-scale afforestation projects were carried out and forest resources management was strengthened. As a result, forest resources have continued to increase. And China has

become the fastest growing country in forest resources in the world.

3. Strictly controlling pollution and ecological destruction

The Chinese government employed a wide range of economic means such as finance, taxation, banking, credit, pricing and trade to protect the environment and undertook comprehensive measures to reduce pollutant emissions. While rapid economic growth was maintained, the ecological destruction was mitigated. In 2007, the total emission of chemical oxygen demand decreased by 3.14% compared with 2006 and that of sulfur dioxide decreased by 4.66%. Overall surface water pollution is being decreased moderately and the overall quality of coastal waters across the country is improving year by year.

4. Promoting the conservation and sustainable use of biological resources

The Chinese government has established a number of management systems concerning the use of wildlife under special national-level protection, including the special hunting permit system, the pharmaceutical use permit system and the animal domestication and breeding permit system. The Chinese government has actively explored models for forest conservation and use as well as sustainable operation and development of forest-related industries. The reforms in accreditation and law enforcement, the logging quota system and the ecological benefit compensation system are being implemented. The management of grassland conservation has further improved. A number of major systems such as the basic grassland conservation system, the forage-livestock balance system and the grazing ban and grazing land non-use period system were implemented. Artificial breeding measures have been taken for endangered species whose populations are hard to restore naturally. Wapitis, mustangs, saigas and other endangered animals were reintroduced to their natural habitats. Special campaigns were launched to crack down on activities which harmed wildlife resources. The fishing licensing system, the fishing ban season and closed area system and the plan of “zero increase” and “negative increase” on marine fish catches were implemented. From 1997 to 2006, China’s marine trophic index maintained a stable growth, thanks greatly to the summer fishing ban policy.

5. Emphasizing *ex-situ* conservation of rare and endangered species and genetic resources

There are more than 160 large botanical gardens and arboretums in China; a number of rare plant nurseries, provenance bases and propagation bases have also contributed greatly to the *ex-situ* conservation of wild plants. China has established modern storage

facilities to safely conserve crop genetic resources. These facilities include long-term, medium-term and duplicate storages and germplasm nurseries. A total of 390,000 accessions of crop germplasm resources have been stored. China has established over 230 zoos (including animal exhibition centers) and 250 wild animal rescue and breeding bases; endemic resource bases for local species of domesticated animals and key national livestock and poultry breeding farms have been established nationwide and a total of 576 species of domesticated animals have been conserved.

6. Preventing and controlling invasive alien species

The Chinese government attaches great importance to the prevention and control of invasive alien species (IAS). A number of departmental regulations on IAS prevention and control have been promulgated and implemented. Capacity building in IAS detection and identification was strengthened and pilot campaigns launched to eliminate IAS.

7. Improving scientific research level

The Chinese government encourages and supports researches on conservation and sustainable use of biodiversity. The government has established related programs or projects in national science development plans. A series of important scientific research achievements were made. These achievements have greatly enhanced the conservation and sustainable use of biodiversity.

8. Enhancing public participation and awareness

The Chinese government encourages the public participation in biodiversity conservation. By organizing activities such as building green communities, schools and families, and holding knowledge contests, lectures, exhibitions, ecological summer camps, article contests and celebration activities, China extensively promoted awareness of biodiversity-related legislation and scientific knowledge. The involvement and awareness of the public were greatly enhanced.

To sum up, by making tremendous efforts in ecological conservation, natural resources management and pollution control, China has achieved substantial progress towards the 2010 Biodiversity Target: a biodiversity conservation and management system with Chinese characteristics has been basically established; ecological deterioration is being slowed down and ecological conditions, especially in some local areas, are getting better and better; forest area and total standing stock volume continue to increase and the quality of freshwater and coastal waters is improving year by year; the populations of some wild animals and plants under special national-level protection are growing steadily and their distribution areas are expanding and habitats improving.

IV. Major Obstacles

Despite remarkable progress towards the 2010 Biodiversity Target, China still faces the following obstacles:

- (1) Forest ecosystems are not performing due functions. There is a sharp drop in the area and serious degradation of grasslands and wetlands;
- (2) There is still serious over-consumption of wildlife resources;
- (3) There is severe loss of genetic resources;
- (4) Total pollutant emissions are high and the pollution is still serious;
- (5) Alien species invasions occur frequently with an increasing tendency;
- (6) Nature reserves are distributed unevenly. There are not enough marine and grassland nature reserves. The institutions of nature reserves are not well established and management and conservation infrastructures are insufficient;
- (7) Technical support is inadequate;
- (8) Funding is inadequate.

V. Future Priorities

The years to come are vital to biodiversity conservation. Only stronger conservation efforts can reverse the trend of ecological deterioration and biodiversity loss so as to promote the construction of a society with man-nature harmony and achieve the objectives of building a well-off society in an all-around way. Future priorities include:

1. Eliminate unfavorable policies and develop favorable incentive policies for the conservation and sustainable use of biodiversity. Further strengthen the establishment of legislative system and increase the law-enforcement capacities of related authorities.

2. Carry out nationwide biodiversity surveys and inventorying, set up related databases and information networks, establish the national biodiversity monitoring and early-warning systems and conduct national biodiversity assessments.

3. Improve national nature reserve system, carry out pilot projects of constructing national nature reserves and reinforce the management of nature reserves. Improve biodiversity conservation outside nature reserves and establish a series of mini-nature reserves and conservation sites.

4. Carry out ex-situ conservation of endangered species and pilot projects of reintroducing artificially bred populations into nature and achieve the natural reproduction of wild populations. Continue to collect and store biogenetic resources and strengthen the construction and management of *in vitro* conservation facilities of genetic resources.

5. Promote use of and innovative research on genetic resources, establish systems and

mechanisms for the conservation, access and benefit sharing of genetic resources and develop genetic resources border control and inspection system.

6. Establish environmental impact assessment system regarding alien species, improve quarantine facilities and control threats from important invasive alien species. Strengthen risk assessment, detection and monitoring of genetically modified organisms.

7. Formulate national strategies and key measures to cope with and reduce adverse impacts of climate change on biodiversity. Set up networks to monitor the impact of climate change on biodiversity as well as key regions and species.

Chapter I Status and Trends of, and Threats to Biodiversity in China

1.1 Status of Biodiversity in China

China is one of the countries with the richest biodiversity in the world. According to statistics, China has more than 35,000 species of higher plants, ranking third in the world after Brazil and Colombia. Among them, there are 2,200 species of bryophytes, accounting for 9.1% of the world's total; about 2,600 species of ferns, some 22% of the world's total; more than 250 species of gymnosperms, ranking top in the world and over 30,000 species of angiosperms, accounting for 10% of the world's total. China also has abundant animal species. It is estimated that China's invertebrate species account for about 10% of the world's total. There are 6,347 species of vertebrates in China, constituting 14% of the world's total. Among them, there are 1,244 species of birds, ranking top in the world; 3,862 species of fishes, which accounts for 20.3% of the world's total.

China is not only rich in species but also has a high level of endemism. There are about 17,300 species of endemic higher plants, which accounts for over 57% of China's total higher plant species, and 667 species of endemic vertebrates, equal to 10% of China's total vertebrate species.

1.1.1 Forest biodiversity

China has 175 million hm^2 of forest, with the stock volume being 12.456 billion m^3 and the forest coverage accounting for 18.21% of the country's total land area. China's forest plantations cover 53 million hm^2 , being the world's number one with a stock volume of 1.505 billion m^3 . China has a wide range of forest types, including coniferous forests, mixed coniferous and broadleaved forests, deciduous broadleaved forest, evergreen broadleaved forests and tropical forests as well as their secondary types. Temperate and subtropical mountain vertical bands are well developed in China. The northern boundaries of montane and monsoon rainforest in the northern hemisphere are located in China. China also has the richest species diversity of *Larix*, *Pinus*, *Picea*, *Abies*, and *Quercus* and the unique spruce forest in the Brahmaputra Valley.

Abundant and diverse wildlife, including most of the 6,347 species of vertebrates, inhabit China's forests or forest fringes. There are over 2,000 species of arbors and 6,000

species of shrubs in China, containing floral components with global, tropical, temperate, pan-Mediterranean and Chinese native distributions. During the ice age of the Quaternary Period in the Cenozoic, except for a few regions hit by mountain glaciers, most mountainous regions in south, central and southwest China survived glacial movements without damage. As a result, many Chinese endemic relic species were retained.

1.1.2 Agricultural biodiversity

Eighty-seven percent of China's farmland is distributed in 22 provinces to the southeast of the 400mm isohyet. Though the 5 provinces (autonomous regions) (Inner Mongolia, Gansu, Qinghai, Xinjiang and Tibet) lying northwest to the isohyet occupy one half of China's total land area, their farmland area is only 13% of the national total.

China's farmland includes two types: paddy fields and dry lands. Paddy fields are mainly for rice production with a small proportion for growing aquatic vegetables and other aquatic crops. Dry lands are mainly distributed in the Yellow River basin, areas north to the basin and Sichuan Province. China has a history of more than 7,000 years of agricultural use. This has given rise to numerous domesticated animal and plant species. China has the most, namely 1,938 species and varieties of domestic animals in the world. In addition, China is one of the eight centers of origin of crops, China has nearly 10,000 species of crops, including their wild relatives. Among them, there are 528 genera and 1,339 species of main cultivated plants, half of which were originated from China.

1.1.3 Inland waters biodiversity

China has three major types of inland wetlands: marsh, lake and river. According to the first survey on national wetland resources conducted from 1995 to 2002, China has 13,700,300 hm² of marsh wetlands, 8,351,500 hm² of lake wetlands and 8,207,000 hm² of river wetlands. Marshes are mainly located in Sanjiang Plain, Daxing'anling, Xiaoxing'anling, Changbaishan Mountain Ranges, Sicuan Ruo'ergai and Qinghai-Tibet Plateau; lake wetlands are mainly distributed in the middle and lower reaches of the Yangtze River and Huaihe River, the lower reaches of the Yellow River and Haihe River, the eastern plains along the Grand Canal, Inner Mongolia-Xinjiang Plateau, Yunnan-Guizhou Plateau, Tibetan Plateau, the Northeast Plain and mountainous areas; river wetlands are distributed unevenly with most in the humid and rainy monsoon regions in eastern China.

There are 1,118 species (including subspecies, the same below) of fishes in China's inland wetlands, with 824 species of cypriniformes which account for 73.3%, i.e. the largest proportion of China's freshwater fish species. There are 271 species of wetland birds in China and 56 of them are species under special state protection. China's wetlands provide habitats for 31 (54%) of the 57 endangered bird species in Asia, 9 (60%) of the 15 crane species in the world and 50 (30%) of the 166 geese and duck species in the world. China has 321 species of amphibians; 122 species of reptiles, 31 species of mammals and about 2,276 species of higher plants (including taxa below species level) find home in China's wetlands.

1.1.4 Marine and coastal biodiversity

China has a long and continuous coastline, a vast sea area and numerous islands and islets, all of which constitute diverse marine and coastal ecosystems, including the Yellow Sea Large Marine Ecosystem, the East China Sea Large Marine Ecosystem, the South China Sea Large Marine Ecosystem and the Kuroshio. China's coastal waters also harbor a variety of typical marine ecosystems including coastal wetlands, mangroves, coral reefs, estuaries, bays, lagoons, islands and islets, upwelling, seaweed beds, etc. According to national wetland surveys, China has 5,941,700 hm² of offshore and coastal wetlands.

There are 20,278 marine species recorded from China's seas, accounting for more than 10% of the world's total. The number of marine species increase as the coastline extends to south, with the Yellow Sea and Bohai Sea harboring 1,140 species, the East China Sea 4,167 species and the South China Sea 5,613 species. China's major marine biological resources include fishes, cephalopods, shrimps and crabs, with fishes being the most abundant resources. According to statistics, there are 1,694 species of fishes, 90 species of cephalopods, more than 300 species of shrimps and over 600 species of crabs in China's seas. Over 1,590 biological species live in China's mudflats, with 513 species of mollusca, which take up the largest proportion, 358 species of algae and 308 species of crustacean. China's shallow seas harbor 744 species of large algae, over 100 of which have economic values.

1.1.5 Grasslands biodiversity

China has nearly 0.4 billion hm² of grasslands, covering about 41.7% of China's land area. These grasslands are mainly distributed in 16 northern provinces (autonomous

regions and municipalities) and are divided into 18 categories and 813 forms. Alpine meadows, temperate deserts and alpine grasslands are the three largest categories, totaling 0.15 billion hm² in area and taking up about 37.5 % of the total grassland area. Alpine meadows are mainly distributed in the high-altitude cold and humid areas of Sichuan, Tibet, Gansu, Qinghai and Xinjiang Provinces (Autonomous Regions); temperate deserts mainly cover extremely arid areas with serious water shortage in Inner Mongolia, Gansu, Qinghai and Xinjiang Provinces (Autonomous Regions); alpine grasslands are mainly located in high-altitude cold and dry areas in Tibet, Qinghai and Xinjiang Provinces (Autonomous Regions).

There are 6,704 known species of forage plants growing on China's natural grasslands, among which 320 species are endemic to China. Natural grasslands also produce a large number of plant resources with economic and medicinal values, such as *liquorice*, *ephedra sinica stapf*, *aweto*, *snow lotuse* and *saline cistanche*. More than 2,000 species of wild animals inhabit natural grasslands and over 40 species are animals under first class state protection.

1.1.6 Desert biodiversity

According to the Third National Report to the United Nations Convention to Combat Desertification (UNCCD), China has 2,636,200 km² of deserts, 27.46% of the total land area. Wind erosion land covers 1,839,400 km², water erosion land 259,300 km², salinized land 173,800 km² and freeze-thaw erosion land 36,3700 km², accounting for 69.77%, 9.84%, 6.59% and 13.80% of the total desert area respectively. There are 8 types of ecosystems in sandy deserts, 13 in chomoeremion-gravel deserts (gobi), 10 in stone-detritus deserts and 7 in argillaceous deserts.

Compared with other terrestrial ecosystems, the species composition of deserts is relatively poor. There are slightly more than 600 species of seed plants growing in China's deserts. However, despite low richness in plant species, deserts contain a large number of ancient and relic species. Ungulates are the most numerous in China's deserts, rodents and reptiles come next and amphibians are the rarest.

1.2 Trends in Biodiversity of China

1.2.1 Change in ecosystem structure and function

For more than ten years, China has been implementing key forestry projects such as those to conserve natural forest resources, returning farmland into forest, construct protective forest systems in northwest, north and northeast China and the Yangtze River basin and along the coastline, conserve wildlife and establish national nature reserves. As a result, China's forest resources have seen continuous growth and China's forest coverage has increased from 8.6% in 1949 to 18.21% now. In contrast with the reduction of world forest resources, China has maintained a sustainable growth in forest resources and has become the fastest growing country in forest resources in the world.

Since the 1960s, China's grassland ecosystems have been degraded. Now about 90% of China's grasslands are experiencing various degrees of degradation and desertification, salinization and rocky desertification. It is estimated that 40% of China's major wetlands are facing threats of severe degradation and coastal mudflats and mangroves particularly have suffered serious damage.

1.2.2 Threats to species

China's country study on biodiversity published in 1998 estimated the extents of threats faced by China's species: mammals 23.06%, birds 14.63%, reptiles 4.52%, amphibians 2.46%, fishes 2.41%, gymnosperms 28% and angiosperms about 13%. According to the China Species Red Book released in 2004, the status of endangerment of wildlife in China was much worse than previous assessment, with the proportion of endangered plant species far exceeding earlier estimates. Over the recent 20 to 30 years, groundfish resources in China's seas have declined, marine yield has decreased and catches are of younger ages, smaller sizes and lower values.

1.2.3 Loss of genetic resources

China has suffered great losses of genetic resources. For instance, local rice varieties planted by farmers across the country fell from over 46,000 in the 1950s to just over 1,000 in 2006, with most being artificially propagated and hybrid rice varieties. Local maize varieties reduced from over 10,000 in the 1950s to nearly zero, because basically no local

varieties are used for production now. Besides, the distribution of wild relative species of crops keeps decreasing and 60~70% of the regions where wild rice used to grow have now disappeared or greatly shrunken.

1.3 Analysis of Causes of Biodiversity Loss

1.3.1 Direct causes of biodiversity loss

1. Industrialization and urbanization

China is speeding up its industrialization and urbanization process which has imposed tremendous pressure on biodiversity. Excessive reclamation, exploitation and overgrazing deprived many wild animals and plants of their habitats. Massive water conservancy projects and sluice and dam constructions blocked lakes and waters as well as the migrating channels of and communication between fish populations. Railway and highway constructions destroyed the habitats of wildlife, causing immediate threats to population multiplication. Discharging of large amounts of industrial and municipal wastes and extensive application of pesticides and fertilizers destroyed biological species and their habitats, resulting in the extinction or reduction in the population of many species.

2. Irrational utilization of resources

One of the major causes of biodiversity loss is excessive and even rampant use of wildlife resources. Although recently the area of China's forest plantation or secondary forest increased sharply, historical excessive exploitations of forest resources have consumed vast areas of wildlife habitats. In the fishery sector, the still quite serious overfishing has resulted in dramatic reduction in fish resources and fast miniaturization of superior fingerlings.

3. Lack of varieties in cultivated and artificially propagated species

With the development and wide application of new varieties, only a few varieties of cultivated crops are currently used. The promotion of mono variety planting has been upgraded, while many traditional varieties with important genetic resources are discarded, and some disappeared forever. Pure forest plantations with single tree species keep expanding, which has led to the loss of native tree species and biodiversity and the increasingly serious pest and disease issues.

4. Invasion of alien species

Diverse climates and ecosystems in China make it fairly easy for alien species to find

suitable ecological environment. More than half of the 100 of the World's Worst Invasive Alien Species listed by the International Union for the Conservation of Nature (IUCN) have entered China. Currently more than 400 invasive alien species are recorded in China and each year they cause 119.876 billion yuan of economic and environmental losses.

5. Climate change

According to the prediction by the Intergovernmental Panel on Climate Change (IPCC), the average global temperature will rise by 1.1°C to 6.4°C by the end of the 21st century. There is increasing evidence that temperature rise, changes in precipitation patterns and other extreme weathers have already influenced ecosystems and biodiversity. According to the results of the Millennium Ecosystem Assessment (MA) released by the United Nations, climate change is now one of the major factors threatening biodiversity and will continue to become an important driver to biodiversity change in the next several decades.

1.3.2 Constraints on biodiversity conservation in China

Constraints on biodiversity conservation in China include the following aspects: (1) people are still unfamiliar with the concept of biodiversity and not fully aware of its importance; (2) related legislation needs improvement; (3) interdepartmental coordination mechanism needs to be strengthened; (4) scientific research basis is weak; (5) fund is inadequate.

Chapter II Current Status of Implementation of National Biodiversity Strategies and Action Plans

2.1 Overview of Biodiversity-Related Strategies and Action Plans

2.1.1 Strategies

— National Sustainable Development Strategy. Over the past 30 years, China has maintained fast economic growth at an annual rate of about 9%. However, low level of efficiency in utilizing natural resources has imposed great pressure on natural resources and the environment, which have in turn further restrained the sustainability of China's economic and social development. To promote harmonious economic, social and environmental development, the Chinese government has formulated and implemented a national sustainable development strategy which aims at building sustainable development capacities, using rationally national land and natural resources and improving ecological and environmental quality.

— Scientific Development Concept. Building on the successful experience of over 30 years of reform, opening up and modernization, and drawing upon the experiences and lessons of other countries during their development, China has put forward the Scientific Development Concept, a “people-oriented, coordinated, balanced and sustainable approaches for development”. The basic requirements of the Concept are to achieve comprehensive, balanced and sustainable development, namely to enhance civilization by boosting productivity, improving people's life and protecting the environment, and to build a resource-efficient and environment-friendly society. Under the guidance of the Scientific Development Concept, China has set the 2020 target of promoting a conservation culture, which is to basically form an energy- and resource-efficient and environment-friendly structure of industries, pattern of growth and mode of consumption, to develop a large-scale circular economy and considerably increase the proportion of renewable energy sources in total energy consumption, to control effectively the discharge of major pollutants, to improve the ecological and environmental quality significantly and to firmly establish awareness of conservation in the whole society. The Scientific Development Concept has very important strategic and directive significance to the conservation and sustainable use of biodiversity in China.

China also formulated related sectoral development strategies. For instance, the

Strategy for Sustainable Forestry Development in China developed by the State Forestry Administration (SFA) in 2005 sets China's overall forestry goal for the first half of the new century, namely "to promote the sustainable development of forestry based on ecological conservation; to establish a national eco-safety system centered on forest vegetation; and to build an ecologically friendly society with beautiful landscapes".

2.1.2 Plans and Programs

China has promulgated and implemented a number of plans and programs related to biodiversity conservation. Relevant departments have also developed special conservation action plans to integrate biodiversity conservation into national action plans.

1. National plans and programs

— The 11th Five-Year Plan for National Economic and Social Development. Adopted by the National People's Congress (NPC) in March 2006, the 11th Five-Year Plan contains the main targets for China's economic and social development from 2006 to 2010. Specific targets related to natural resources and the environment include reducing energy consumption per unit of GDP by about 20%, reducing water consumption per industrial added value by 30%, increasing the effective utilization coefficient of agricultural irrigation water to 0.5, increasing the comprehensive utilization rate of solid industrial waste to 60%, basically controlling the tendency of ecological and environmental degradation, reducing the total discharge of major pollutants by 10%, increasing forest coverage to 20% and achieving substantial progress in greenhouse gas emission control. The 11th Five-Year Plan proposes a number of strategic tasks, including building a resource-efficient and environment-friendly society and effectively conserving biodiversity and biological resources.

— China Biodiversity Conservation Action Plan. Officially released by the State Council in June 1994, the Action Plan defines the overall target for China's biodiversity conservation as "taking effective measures as soon as possible to avoid further losses of biodiversity by reversing or reducing the current rate of loss of biodiversity". The overall goal includes the following 7 concrete objectives: (1) intensifying basic research on China's biodiversity; (2) improving the national network of nature reserves and other protected areas; (3) protecting wild species of particular importance to biodiversity; (4) conserving the genetic resources of crops and livestock; (5) strengthening *in-situ* conservation outside nature reserves; (6) establishing a national network of biodiversity information and monitoring ; (7) coordinating biodiversity conservation and sustainable

development. Under these objectives, 26 actions and 18 key projects have been identified.

— China's Agenda 21. Adopted by the State Council in March 1994, the Agenda identified the following objectives concerning biodiversity conservation: (a) establishing and improving a national network of nature reserves; (b) conserving habitats and species outside nature reserves; (c) intensifying biodiversity cataloguing and other scientific research efforts; (d) strengthening *ex-situ* conservation of rare and endangered animals and plants; (e) achieving the balance between biodiversity conservation and sustainable use of biological resources and establishing sustainable use patterns.

— National Program for Nature Reserves (1996-2010). This Program sets the targets that, by 2010, the total number of nature reserves will reach about 1,200 (including 160~170 national nature reserves), and the area of nature reserves will occupy 10% of China's land area; a complete legislation system for nature reserves will be established; about 90% of nature reserves will have effective management bodies and adequate personnel, and over 70% of nature reserves will be equipped with advanced conservation and management facilities.

— National Ecological Environment Plan. Promulgated by the State Council in November 1998, the Plan sets the overall target to devote the next 50 years to strengthening conservation of existing natural forests and wildlife resources, carrying out afforestation projects and grass-growing activities vigorously, controlling soil and water loss, preventing and controlling desertification, developing ecological farming and curbing the degradation of ecological environment. The short-term target of the Plan is to bring under control water and soil loss caused by human beings and to strive to curb further desertification by 2010.

— National Ecological Environment Protection Plan. Promulgated by the State Council in 2000, the Plan aims to basically control ecological environment deterioration by 2010, and by 2030, to control completely ecological environment deterioration and effectively conserve the ecological environment of areas with important ecological functions, areas with abundant species and major areas for resource exploitation, and by 2050, to strive to generally improve the ecological environment across the country and create beautiful landscapes in most part of the country .

— National Program for Conservation and Use of Biological Resources. Released upon the approval of the State Council in 2007, this Program sets the targets to effectively check the current dramatic decline of biological resources by 2010, basically control the loss and drain of biological resources by 2015 and effectively conserve biological

resources by 2020. The Program has also identified short-, medium- and long-term tasks in 12 major fields as well as 10 priority actions and 55 priority projects during the 11th five-year planning period.

— National 11th Five-Year Plan for Environmental Protection. Promulgated by the State Council in November 2007, this Plan provides that by 2010, the emissions of sulfur dioxide and chemical oxygen demand shall be brought under control, the quality of environment in major regions and cities shall be improved, the deterioration of ecological environment shall be basically controlled and nuclear and radiation safety shall be guaranteed.

— National Master Plan for Land Use (1997-2010). Issued by the State Council in 1999, this Plan defines the overall target of national land use as maintaining the dynamic balance of total farmland while ensuring the conservation of biological environment, shifting from extensive land use to intensive land use, noticeably improving land use structure and layout, and significantly increasing the yield per unit of land area and the comprehensive utilization rate of land. By 2010, land ecological environment will improve markedly, land degradation be brought under control and initial successes be accomplished in land management.

— National Ecological Functional Zoning Plan. Jointly issued by the MEP and the Chinese Academy of Sciences (CAS) in July 2008, this Zoning Plan analyzes major ecological issues of key ecological functional regions and provides guidance for regional ecological conservation, ecological construction, sectoral development layout, resources utilization and economic and social development.

2. Forest biodiversity conservation plans

China has developed the China Forestry Action Plan for Biodiversity Conservation (1992), the Forestry Action Plan for China's Agenda 21 (1995), the Plan for Natural Forest Resources Conservation Project (2000-2010), and other related plans and programs.

— Plan for Natural Forest Resources Conservation Project. Implemented from October 24 of 2000 upon approval of the State Council, the Plan covers the period from 2000 to 2010 and addresses three major issues: ceasing all deforestation activities in the upper reaches of the Yangtze River and the upper and middle reaches of the Yellow River; significantly reducing the timber output of northeast China, Inner Mongolia and other major state-owned forest regions; conserving natural forest resources in other regions.

— National Plan for Wildlife Conservation and Nature Reserve Construction. The Plan puts forward that, by 2010, China will have 1,800 nature reserves, and the total area

of nature reserves will take up 16.14% of China's land area; and by 2030, there will be 2,000 nature reserves in China, with the total area taking up 16.8% of China's land area, and populations of 60% of the wildlife under special state protection will be restored and increased; and by 2050, the number of nature reserves will reach 2,500, and their area will account for 18% of the national land area, populations of 85% of the wildlife under special state protection will be restored and increased, and the priorities for rescue, population restoration and maintenance will include 15 species such as giant panda, tiger, Tibetan antelope and *Procapra przewalskii*.

— National Plan for Establishment of Forest Nature Reserves. Issued by the SFA in July 2006, the Plan specifies that, by 2030, the area of forest nature reserves in China will take up about 15% of the national land area, all species under special state protection and typical ecosystems will be conserved effectively and 85% of species resources under special state protection will be restored and increased.

— National Project Plan for Establishing Coastal Protective Forest System. Implemented in 2007 upon approval of the National Development and Reform Commission (NDRC), the Plan covers the period from 2006 to 2015 and proposes to construct basic coastal shelterbelts and protective forests, preserve and restore mangroves and wetlands, maintain the ecological safety of national land and conserve biodiversity along the coastline.

— Decision of the Central Committee of the Communist Party of China and the State Council on Speeding up Forestry Development. The Decision lays down the targets that by 2010, China's forest coverage will reach over 19% and the general tendency of ecological deterioration will be basically controlled; by 2020, forest coverage will rise to over 23%, ecological issues of major regions will be basically addressed and ecological condition across the country will be substantially improved; by 2050, forest coverage will increase to and be kept at more than 26%, the country will be basically covered with beautiful landscapes and ecological conditions go into a sound cycle.

3. Agricultural biodiversity conservation plans

China has formulated the Action Plan for Agricultural Biodiversity Conservation (1993).

— Plan for the Construction of Seven Major Agricultural Systems. As one of the major contents of the Plan, the program for agricultural resources and ecological environment protection system sets the following targets: by 2010, a number of areas for wild plants *in-situ* conservation and grassland and forestry nature reserves will be

established, agricultural wild plant resources, natural grasslands, rare and endangered aquatic wildlife and endemic fish resources will be effectively conserved; 0.8 million ha of agricultural non-point sources of pollution will be comprehensively treated, 1.2 million ha of conservation tillage will be completed and the quality of agricultural ecological environment will be improved noticeably.

— Plan for Conservation and Development of New Agricultural Plant Varieties. Issued by the Ministry of Agriculture (MOA) at the beginning of 2007, the Plan contains the following targets: by 2010, legislation and policies related to the conservation of new plant varieties will be further improved, construction of the technological supporting system for new agricultural plant varieties will be strengthened, the level and efficiency of law enforcement concerning variety rights will be greatly increased and the ability to participate in variety rights related international affairs will be further improved.

4. Wetland biodiversity conservation plans

— China Wetland Conservation Action Plan. Developed by the SFA together with 16 other departments and bodies in 2000, the Plan boasts the overall target to strengthen the conservation of wetlands and wetland biodiversity, to maintain and fully exert the functions and benefits of wetland ecosystems and to ensure the sustainable use of wetland resources. The Plan identifies 11 priority areas and 39 priority projects.

— National Project Plan for Wetlands Conservation (2002-2030). Promulgated by the State Council in October 2004, the Plan sets the target that by 2030, 713 wetland reserves and 80 wetlands of international importance will be established, effectively conserving over 90% of natural wetlands of the country.

— The Action Plan for China Aquatic Biological Resources Conservation. In accordance with the Plan, by 2010, the deterioration of water ecological environment and the decline of fishery resources will be slowed down to a certain extent, the composition of resource communities will be improved and fishery productivity and economic benefits will be increased.

5. Marine and coastal biodiversity conservation plans

China has formulated the Action Plan for Marine Biodiversity Conservation (1992), China's Ocean Agenda 21 (1996) and the National Program for Marine Nature Reserves (1996-2010).

— Bohai Blue Sea Action Plan. Adopted by the State Council in October 2001, the Action Plan proposes to effectively control the total discharge of nitrogen, phosphor, oil and other pollutants into Bohai Sea, improve the quality of offshore waters to meet the

objectives of environmental functional zoning plans, restore sound ecosystems and improve the service functions of marine ecosystems by 2015.

— Regulation on Biological Resources Conservation of Bohai Sea. The requirements of the Regulation include improving and restoring the ecological status of Bohai Sea, controlling fishing intensity, replenishing and conserving the biological resources of Bohai Sea, developing ecologically friendly fishery and promoting the sustainable development of fishery resources of Bohai Sea.

— National Marine Functional Zoning Plan. Adopted by the State Council and issued by the State Oceanic Administration (SOA) in 2002, the Zoning Plan divides marine areas under the jurisdiction of China into 10 main marine functional zones, defines the major functions of 30 key regions in the four major sea areas of Bohai Sea, Yellow Sea, China East Sea and China South Sea and identifies the priorities for conservation and use and management requirements for each marine functional zone.

— National Program for Marine Development. Adopted by the State Council in 2008, the Program includes requirements on strengthening marine environment improvement and land-based pollution control, accelerating the implementation of total pollutant discharge control system which takes into account the marine environmental capacity, and curbing the pollution discharging and ecological damages of offshore waters.

The National Project Plan for Wetlands Conservation (2003-2030) and the Action Plan for China Aquatic Biological Resources Conservation also cover the conservation and use of coastal wetlands.

6. Grassland and desert biodiversity conservation plans

In accordance with the National Ecological Environment Plan, the MOA developed the National Grassland Ecological Environment Plan, the Plan for Natural Grassland Recovery in West China and the National Plan for Returning Farmland to Grassland.

— National Master Plan for Grassland Conservation, Construction and Utilization. Issued upon the approval of the State Council in April 2007, the Plan sets the overall target to basically control grassland degradation nationwide, to significantly improve the ecological environment of grasslands and to improve the agricultural and animal husbandry structure and economic structure of grassland regions by 2020.

— National Plan for Desertification Prevention and Control (2005-2010). Issued in February 2005, the Plan proposes to control 13 million hm² of deserts and fence and conserve 3.72 million hm² of deserts by 2010.

7. Plans in other fields

— National Climate Change Programme. Promulgated by the State Council in 2007, the Programme boasts an overall target to reduce greenhouse gas emissions and improve China's ability to adapt to climate change. Targets related to climate change adaption include the following: by 2010, about 90% of typical forest ecosystems and wildlife under special state protection will be well conserved, the area of nature reserves will account for about 16% of the national land area, 22 million hm² of deserts will be brought under control and mangrove regions will be restored on a full scale.

— Program for Poverty Alleviation and Development of China's Rural Areas (2001-2010). The Program sets the target to continue ensuring the provision of food and clothing for rural poor people, promote full-scale development of poverty-stricken areas and create conditions for achieving better life in those areas.

— National Intellectual Property Strategy. Issued by the State Council in June 2008, the strategy aims to improve the intellectual property regime, vigorously create favorable legal, market and cultural environments for intellectual property rights, largely improve the ability to create, utilize, protect and administer intellectual property rights and effectively protect and rationally utilize trade secrets, geographical indications, genetic resources, traditional knowledge as well as folklores.

— The 11th Five-Year Plan for Ethnic Minorities Affairs. Issued by the State Council in February 2007, the Plan aims to greatly improve public infrastructures and ecological environment for ethnic minorities and ethnic autonomous regions, constantly increase the self-development ability of ethnic minorities, develop industries with competitive advantages and unique economies, effectively alleviate poverty, markedly improve people's living standards and practically guarantee the legal rights and interests of ethnic minorities.

2.2 Integration of 2010 Target into National Biodiversity Strategies and Action Plans

Based on the 2010 Biodiversity Target, the Chinese government has developed national biodiversity targets and integrated these targets into related strategies and action plans for implementation (see Table 2-1).

Table 2-1 Integration of 2010 Target in China's Biodiversity-Related Programs and Action Plans

| 2010 Target | Related Programs or Action Plans That Have Integrated the 2010 Target |
|--|---|
| Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes | |
| Target 1.1: At least 10% of each of the world's ecological regions effectively conserved | China Biodiversity Conservation Action Plan; National Program for Nature Reserve Development (1996-2010); National Plan for Wildlife Conservation and Nature Reserve Construction. |
| Target 1.2: Areas of particular importance to biodiversity protected | China Biodiversity Conservation Action Plan; National Ecological Environment Protection Plan; National Plan for Wildlife Conservation and Nature Reserve Construction; National Project Plan for Wetlands Conservation (2002-2030). |
| Goal 2. Promote the conservation of species diversity | |
| Target 2.1: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups | China Biodiversity Conservation Action Plan; National Program for Conservation and Use of Biological Species Resources; National Plan for Wildlife Conservation and Nature Reserve Construction; Action Plan for China Aquatic Biological Resources Conservation. |
| Target 2.2: Status of threatened species improved | China Biodiversity Conservation Action Plan; National Program for Conservation and Use of Biological Species Resources; National Plan for Wildlife Conservation and Nature Reserve Construction; Action Plan for China Aquatic Biological Resources Conservation. |
| Goal 3. Promote the conservation of genetic diversity | |
| Target 3.1: Genetic diversity of crops, livestock, and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained | China Biodiversity Conservation Action Plan; National Program for Conservation and Use of Biological Species Resources; Plan for Conservation and Development of New Crop Varieties. |

| 2010 Target | Related Programs or Action Plans That Have Integrated the 2010 Target |
|--|---|
| Goal 4. Promote sustainable use and consumption | |
| Target 4.1: Biodiversity-based products derived from sources that are sustainably managed, and production areas managed consistent with the conservation of biodiversity | China Biodiversity Conservation Action Plan; National Ecological Environment Protection Plan; Action Plan for China Aquatic Biological Resources Conservation; National Master Plan for Grassland Conservation, Construction and Utilization; National Ecological Functional Zoning Plan. |
| Target 4.2. Unsustainable consumption, of biological resources, or that impacts upon biodiversity, reduced | China Biodiversity Conservation Action Plan; National Ecological Environment Protection Plan; Action Plan for China Aquatic Biological Resources Conservation; National Program for Marine Development; National Master Plan for Grassland Conservation, Construction and Utilization. |
| Target 4.3: No species of wild flora or fauna endangered by international trade | National Ecological Environment Protection Plan. |
| Goal 5. Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced | |
| Target 5.1. Rate of loss and degradation of natural habitats decreased | The 11th Five-Year Plan for National Economic and Social Development; National Ecological Environment Plan; National Ecological Environment Protection Plan; National Master Plan for Land Use (1997-2010); National Plan for Desertification Prevention and Control (2005-2010); Action Plan for China Aquatic Biological Resources Conservation; National Program for Marine Development; National Master Plan for Grassland Conservation, Construction and Utilization. |
| Goal 6. Control threats from invasive alien species | |

| 2010 Target | Related Programs or Action Plans That Have Integrated the 2010 Target |
|--|---|
| Target 6.1. Pathways for major potential alien invasive species controlled | National Ecological Environment Protection Plan; National Program for Conservation and Use of Biological Species Resources; Action Plan for China Aquatic Biological Resources Conservation. |
| Target 6. 2. Management plans in place for major alien species that threaten ecosystems, habitats or species | No specific regulations. |
| Goal 7. Address challenges to biodiversity from climate change, and pollution | |
| Target 7.1. Maintain and enhance resilience of the components of biodiversity to adapt to climate change | National Ecological Environment Protection Plan; National Plan for Wildlife Conservation and Nature Reserve ; National Project Plan for Wetlands Conservation (2002-2030); National Master Plan for Grassland Conservation, Construction and Utilization; National Plan for Desertification Prevention and Control (2005-2010); National Climate Change Programme. |
| Target 7.2. Reduce pollution and its impacts on biodiversity | The 11th Five-Year Plan for National Economic and Social Development; National Ecological Environment Protection Plan; National 11th Five-Year Plan for Environmental Protection; Action Plan for China Aquatic Biological Resources Conservation; National Program for Marine Development. |
| Goal 8. Maintain capacity of ecosystems to deliver goods and services and support livelihoods | |
| Target 8.1. Capacity of ecosystems to deliver goods and services maintained | National Ecological Environment Plan; National Ecological Environment Protection Plan; National Plan for Wildlife Conservation and Nature Reserve Establishment; National Project Plan for Wetlands Conservation (2002-2030); |

| 2010 Target | Related Programs or Action Plans That Have Integrated the 2010 Target |
|---|--|
| | Action Plan for China Aquatic Biological Resources Conservation; National Program for Marine Development; National Master Plan for Grassland Conservation, Construction and Utilization; National Plan for Desertification Prevention and Control (2005-2010). |
| Target 8.2. Biological resources that support sustainable livelihoods, local food security and health care, especially of poor people maintained | China Biodiversity Conservation Action Plan; National Ecological Environment Protection Plan; National Plan for Wildlife Conservation and Nature Reserve Establishment; National Project Plan for Wetlands Conservation (2002-2030); Action Plan for China Aquatic Biological Resources Conservation; National Master Plan for Grassland Conservation, Construction and Utilization; Plan for Natural Forest Resources Conservation Project; National Plan for Desertification Prevention and Control (2005-2010); Program for Poverty Alleviation and Development of China's Rural Areas (2001-2010). |
| Goal 9. Maintain socio-cultural diversity of indigenous and local communities | |
| Target 9.1. Protect traditional knowledge, innovations and practices | National Program for Conservation and Use of Biological Species Resources; National Intellectual Property Strategy. |
| Target 9.2. Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit-sharing | National Program for Conservation and Use of Biological Species Resources; National Intellectual Property Strategy; The 11th Five-Year Plan for Ethnic Minorities Affairs. |
| Goal 10. Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources | |

| 2010 Target | Related Programs or Action Plans That Have Integrated the 2010 Target |
|---|--|
| Target 10.1. All transfers of genetic resources are in line with the Convention on Biological Diversity, the International Treaty on Plant Genetic Resources for Food and Agriculture and other applicable agreements | National Program for Conservation and Use of Biological Species Resources; National Intellectual Property Strategy. |
| Target 10.2. Benefits arising from the commercial and other utilization of genetic resources shared with the countries providing such resources | National Program for Conservation and Use of Biological Species Resources; National Intellectual Property Strategy. |
| Goal 11 Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention. | |
| Target 11.1 New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20 | N/A |
| Target 11.2 Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with its Article 20, paragraph 4 | N/A |

2.3 Main Activities Undertaken to Implement National Biodiversity Strategies and Action Plans

1. Improving legislation system

In recent years, the Chinese government has established a legal system for the conservation and sustainable use of biodiversity by formulating or amending over 50

biodiversity-related laws and regulations. Related laws include the Constitution (enacted in 1954, last amended in 2004), Criminal Law (enacted in 1979, last amended in 2006), Environmental Protection Law (1989), Forest Law (enacted in 1984, amended in 1998), Wildlife Protection Law (enacted in 1998, amended in 2004), Environmental Impact Assessment Law (2002), Law on the Prevention and Control of Water Pollution (enacted in 1984, amended in 2008), Law on the Prevention and Control of Environmental Pollution by Solid Wastes (enacted in 1995, amended in 2004), Marine Environment Protection Law (1999), Fisheries Law (enacted in 1986, last amended in 2004), Seed Law (enacted in 2000, amended in 2004) and Animal Epidemic Prevention Law (enacted in 1997, amended in 2007). Related regulations include the Regulation on Nature Reserves (1994), Regulation on Wild Plant Conservation (1996), Regulation on Protection of New Plant Varieties (1997), Regulation on Administration of Import and Export of Endangered Wild Animals and Plants (2006), Regulation on Scenic Spots and Historical Sites (2006), Regulation on Biosafety Management in Pathogenic Micro-organism Laboratories (2006) and Regulation on the Prevention and Control of Pollution Damage to the Marine Environment from Marine Construction Projects. These laws and regulations are the legal frameworks for the conservation and sustainable use of biodiversity in China.

2. Intensifying biodiversity survey and monitoring

Since the 1950s, China has launched a number of large-scale national or regional surveys on biological resources. Over the recent years, China has completed the National Survey on Biological Environment Status, the 6th National Forest Resources Inventorying, National Wetland Resources Survey, National Wildlife Resources Survey, the 3rd Giant Panda Resources Survey and National Survey on the Status of Genetic Resources of Livestock and Poultry Breeds. Currently China is conducting the National Survey on Key Biological Resources and the Special National Survey on the Status of Typical Marine Ecological Environment. Based upon these surveys, China has published a large number of chorographic books, such as the *Flora of China*, which was completed in 2004 and contains 126 published books in 80 volumes, the *Fauna Sinica*, with 115 volumes already published and the *Spore Flora of China*, with 63 volumes published. In addition, a considerable number of books about local floras and faunas were published.

China has established 2,389 environmental monitoring stations at all levels, which form a comparatively complete environmental monitoring system and enable long-term and timely monitoring of the environment in most of the regions across the country. China has also established a national forest resources monitoring system, 4 forest resources

monitoring centers in northeast, east, northwest and south central China, and more than 800 key prefecture- (city-, county-) level agricultural environment monitoring institutions. In addition, a national network for the monitoring of coastal waters environment has been established, making possible a three-dimensional marine environment monitoring with shore-, sea- and space-based monitoring platforms. Furthermore, China has developed the China Ecosystem Research Network and set up 36 field research stations and a number of forest ecosystem monitoring sample sites at Changbai Mountains, Dongling Mountain, Shennongjia, Gutian Mountain, Dinghu Mountain and Xishuangbanna. Some national nature reserves with considerable biodiversity monitoring capabilities are carrying out biodiversity monitoring.

3. Strengthening the establishment and management of natural reserves

By the end of 2007, China has established 2,531 nature reserves (not including those in HK, Macao and Taiwan) covering a total land area of 151.88 million hm^2 . Among them, 303 are national nature reserves and cover a total area of 93.656 million hm^2 . The area of terrestrial reserves accounts for about 15.2% of the national land area. In addition, there are more than 50 wetland parks, 2,151 forest parks, 187 national parks and about 480 provincial scenic spots and historic sites across the country.

4. Implementing six key forestry projects

The Chinese government implemented six key forestry projects, conducted large-scale afforestation, strengthened forest resources management and initiated the forest ecological benefit compensation system. Over the recent years, China's forest area and stock volume increased rapidly, the structure of stand age and forest form became more reasonable and the quality of forest continued to improve. During the 10th five-year plan period, 8 million hm^2 of non-commercial forest was planted and 93.33 million hm^2 of forest resources were conserved and restored in the Natural Forest Resources Conservation Project; 21.33 million hm^2 of land was afforested in the Project of Restoring Farmland into Forest, with 5.38 million hm^2 of ecological forest returned from farmland, 12 million hm^2 of forest planted on uncultivated mountains and land and 1.33 million hm^2 of forest protected by closing off afforested mountains; 6.67 million hm^2 of deserts were brought under control as a result of implementation of the Beijing-Tianjin Sandstorm Source Control Project; 3.41 million hm^2 of land was afforested and 3.46 million hm^2 of forest protected by closing off afforested mountains in key protective forest projects such as those in north, northwest and northeast China and the Yangtze River basin.

5. Strictly controlling pollution and ecological damage

The Chinese government has developed a wide range of economic instruments in finance, taxation, banking, credit, pricing and trade to protect the environment and promote pollutant emission reduction. The proportion of coal-fired units to the country's total thermal power units in desulphurization facilities increased to 48%; the urban sewage treatment rate hit 60%; in 2007 there was a reduction in the emissions of both chemical oxygen demand and sulfur dioxide, with the former down 3.14% and the latter down 4.66% from the previous year, the first "turning point" in the emissions of major pollutants. The Chinese government strictly enforces the Environmental Impact Assessment Law and commits to make environmental impact assessment (EIA) on all construction projects with obvious or potential impacts on ecological environment and biodiversity; China conducted special environmental protection inspections on more than 9,000 newly launched projects nationwide and punished 1,194 projects which failed to meet EIA requirements. China adopted the measures of "restricting project approval in certain regions and river basins" and suspended the authority of reviewing and approving EIA by 10 cities, 2 counties, 5 development areas and 4 electric power groups that fail to comply with EIA-related requirements.

6. Strengthening wildlife conservation management

The Chinese government has enacted and adopted a number of management systems for the utilization of wildlife resources, including the special permit systems regarding the hunting of wild animals under special state protection, the pharmaceutical manufacturing using wild plants under special state protection and the domesticating and breeding of wild animals under special state protection. In addition, any sale, purchase, use, export and introduction of wildlife must be approved by related authorities.

7. Carrying out conservation and sustainable use of forest and grassland resources

China is actively engaged in exploring feasible models for the conservation and sustainable use and development of forest resources. The logging quota system has contributed to the increase of forest areas and stock volume by restricting the logging quantity. In recent years, with the increased law enforcement, the logging quota system was implemented nationwide in a satisfactory manner and logging activities in violation of the quota system were basically controlled. China has established and upgraded the forest ecological benefit compensation system at both national and local levels. The annual compensation fund for key noncommercial forests earmarked from central government finance reached 3 billion yuan. China has also endeavored to promote the forest certification process.

To further improve grassland conservation management, the Chinese government has designed and improved a number of major systems including the basic grassland conservation system, the forage-livestock balance system and the grazing ban and grazing land non-use system. In the last two years, China made a plan to establish the grassland ecological compensation system. The Project of Vegetation Restoration and Construction for Natural Grasslands, the Grassland Fencing Project, the Herb Seed Base Project, the Project of Restoring Grazing Land into Grassland and the Beijing-Tianjin Sandstorm Source Control Project were implemented. These projects have generated considerable ecological, economic and social benefits.

8. Strengthening the conservation and sustainable use of fishery resources

China has implemented the fishing licensing system, the fishing ban season and non-fishing area system, the plan of “zero increase” and “negative increase” on marine catches as well as other measures to shift the focus of fishery sector from the expansion of production scale and increase of catches to building a sustainable development model based on resources conservation, structural optimization and quality improvement. Aquaculture waters were reasonably laid out in accordance with the marine functional zoning plan and the principle of reasonable use, comprehensive utilization and coordinated development. Artificial breeding and baby fish release efforts for replenishment of fishery resources and construction of artificial reefs were strengthened.

9. Giving high priority to *ex-situ* conservation

China has established more than 160 large botanical gardens and arboretums; about 20,000 species of higher plants, 60% of the plant species of the Chinese flora, were introduced into and preserved in botanical gardens set up by the Chinese Academy of Sciences. Many rare plant nurseries, provenance bases and breeding bases have also contributed greatly to the *ex-situ* conservation of wild plants. At present, there are 113 rare plant species cultivated primarily for *ex-situ* conservation. The cultivation area of *taxus chinensis* has approached 5,000 hm², and the populations of *orchidaceae* and *cycad* are growing constantly. The China Southwest Wildlife Germplasm Genebank was close to completion. This genebank is supposed to collect 6,450 species totaling 66,500 accessions (strains) of wildlife germplasm resources within the next five years, and 19,000 species totaling 190,000 accessions (strains) of wildlife germplasm resources within the next decade and a half. By collecting, surveying and introducing from different sites crop germplasm resources, the agricultural sector has established modern storage facilities to safely conserve crop genetic resources. These facilities include long-term, medium-term

and duplicate storages and germplasm nurseries, which have stored 390,000 accessions of crop germplasm resources, and 32 germplasm nurseries for crops and their wild relatives, which have stored more than 1,300 species of rare and endangered plants.

According to incomplete statistics, China has established over 230 zoos (including animal exhibition centers) and 250 wild animal rescue and breeding bases. Unique resource bases for local species of domesticated animals and key national livestock and poultry breeding farms have been established nationwide and a total of 576 species of domesticated animals have been conserved. China has intensified the rescue and breeding of rare and endangered animals, currently maintaining stable artificially bred populations of more than 200 species of rare and endangered animals.

10. Preventing and controlling invasive alien species

The Chinese government attaches great importance to the prevention and control of invasive alien species. The coordination group for IAS prevention and control involving several ministries and commissions under the State Council was established. Related departments also set up their own bodies for IAS prevention and control. A number of sectoral regulations on IAS prevention and control were promulgated and implemented. The government also strengthened the capacities in AIS detection and identification and the early-warning and quarantine inspection on IAS. The national IAS survey was completed and pilot campaigns of eliminating IAS were launched.

11. Strengthening the risk assessment and management of genetically modified organisms

With regard to agricultural transgenic organisms, a safety management system was basically established, related regulations continued to improve, technological systems were under construction and law enforcement capacities have strengthened. Through the implementation of a variety of management systems such as the risk assessment system, the identification system, the production and operation licensing system, the safety examination and approval system for import of genetically modified organisms and the import-export inspection system, biosafety was secured and biotechnology was promoted. Up till now, the MOA has accepted 1,525 risk assessment applications from 192 research institutions home and abroad and has approved 456 pilot experiments on genetically modified organisms, 211 releases into the environment and 181 production tests. The MOA has also issued 424 safety certificates, including those for the production and application of transgenic insect-resistant cotton, long-lasting tomato, petunia with modified flower colors, anti-virus sweet pepper, anti-virus papaya and genetic engineering

vaccine, as well as those for the use of 18 imported genetically modified organisms such as soybean, rape, cotton and maize as raw materials.

12. Improving scientific research level

The Chinese government encourages and supports research work related to the conservation and sustainable use of biodiversity. Research programs or projects related to the conservation and sustainable use of biodiversity were established in national science-technology programs such as the National Fundamental Research Program (named as 973 Program), the National Key Technology Research and Development Program, the National High Technology Research and Development Program (named as 863 Program), the National Natural Science Fund, etc. Backed by national science-technology programs, a number of valuable and influential scientific research achievements have been made, which have greatly enhanced the conservation and sustainable use of biodiversity.

13. Enhancing public participation and environmental awareness

The Chinese government strives to create opportunities for the public to participate in biodiversity conservation. The Environmental Impact Assessment Law requires public involvement in EIA and that public consultations or hearings will be held or other approaches used for assessing environmental impacts of planning or construction projects, opinions from related authorities, experts and the public will be sought on EIA reports. The Provisional Procedures for Public Involvement in Environmental Impact Assessment has detailed the scope, procedure, organization and other aspects of public involvement in environmental impact assessment.

Biodiversity-related legislation and scientific knowledge were widely promoted through celebrations like International Day for Biological Diversity, World Environment Day, Earth Day, Tree-Planting Day, Bird-Loving Week, World Wetlands Day, World Day to Combat Desertification and National Law Day and initiatives like the building of green communities, schools and families. Some zoos and botanical gardens also built popular science education halls to publicize biodiversity-related scientific knowledge. The public involvement in biodiversity conservation was greatly enhanced.

14. Supporting and promoting international cooperation

China successively has ratified or acceded to more than 50 international environmental conventions, including the Convention on Biological Diversity (CBD) and the Cartagena Protocol on Biosafety, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Convention on Wetlands of International Importance

Especially as Waterfowl Habitat and the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol to the UNFCCC. China has tried all means to fulfill obligations as specified by these conventions.

China has strengthened and promoted cooperation with neighboring countries and related regions and actively participated in the establishment of the following regional cooperation mechanisms: the Tripartite Environment Ministers Meeting among China, Japan and Korea, the Greater Mekong Subregional Environmental Cooperation, environmental cooperation under Association of Southeast Asian Nations (ASEAN)-China (10+1) and ASEAN-China, Japan and Korea (10+3) mechanisms, the Environment Ministers Meeting between China and Europe, the Environmental Cooperation Meeting between China and Arab States, etc.

The Chinese government has forged close cooperative ties with related UN bodies and NGOs and developed transnational cooperation with many American, European, Asian, African and Oceanian countries in the field of biodiversity conservation.

2.4 China's Achievements in Biodiversity Conservation

With the support from governments, various stakeholders as well as international organizations, remarkable achievements have been made in biodiversity conservation in China. A biodiversity conservation and management system with Chinese characteristics has been basically established. While fast economic growth is maintained, worsening trend of ecological damage was mitigated. The status of certain species under special state protection was improved.

1. A biodiversity conservation and management system with Chinese characteristics has been basically established, the highlights of which are as follows:

(1) Legislation on the conservation and sustainable use of biodiversity continued to improve.

(2) Biodiversity conservation action plans were successfully implemented.

(3) Cross-sectoral coordination has been strengthened and the government's ability to conserve and manage biodiversity has further improved.

(4) A national nature reserve network has been established. The types of nature reserves were varied, distribution reasonable and functions complete. 85% of the types of terrestrial natural ecosystems, 45% of natural wetlands, 20% of nature forests, 85% of wild animal populations contained in conservation lists and 65% of the community types of higher plants were well preserved in these nature reserves.

(5) The public's capability and enthusiasm for participation in biodiversity

conservation are greatly enhanced.

(6) The innovative capability of universities, colleges and research institutions has been substantially increased.

2. The ecological damage was mitigated.

This can be demonstrated in the following three aspects:

(1) The Chinese government has taken comprehensive measures to promote reduction in pollutant emissions. The proportion of coal-fired units to the country's total thermal power units in desulphurization facilities increased from 12% in 2005 to 48% in 2007. The municipal sewage treatment rate rose from 52% to 60%. In 2007, there was a reduction in the emissions of both chemical oxygen demand and sulfur dioxide, with the former down 3.14% and the latter down 4.66% from the previous year, the first "turning point" in the emissions of major pollutants.

(2) Through effective protection of existing forest resources and more efforts in afforestation, the ecological deterioration in the Yangtze River and the Yellow River basins was initially controlled and the ecological conditions of certain regions were greatly improved. In contrast with reduction in world forest resources, China's forest area maintained an average increase of more than 4 million hm^2 each year. This has made China the fastest growing country in forest resources in the world.

(3) Net reduction was observed in the total area of deserts. From 2000 to 2004, China's total area of deserts was reduced by 6,416 km^2 on the whole. This period was a historic turning point, from an annual average expansion of 3,436 km^2 in the late 1990s to an annual average reduction of 1,283 km^2 .

3. The populations of some wild animals and plants under special national-level protection experienced steady growth and their distribution areas expanded and habitats improved continuously.

The populations of 55.7% of terrestrial wild animals increased. The number of giant pandas rose from over 1,000 in the 1980s to over 1,590 now and the number of populations of animals under first class state protection such as golden monkeys continued to increase on a year-to-year basis. In addition, the artificially bred populations of more than 200 species of rare and endangered wild animals have been stabilized. Among the 189 species of wild plants under special state protection which had been seriously consumed and had high endangerment levels, 71% maintained stable wild populations. The populations of protected plants such as *taxus chinensis*, *orchidaceae* and *cycad* continued to expand. The distribution regions of some species extended gradually and

their habitats continued to improve.

4. Local social and economic development was promoted together with biodiversity conservation.

While getting involved in biodiversity conservation, local communities also enjoyed much better working and living conditions. The Project of Returning Farmland to Forest covers more than 32 million farmer households and 124 million farmers in 25 provinces, autonomous regions and municipalities. By the end of 2006, each household whose farmland was restored into forest received 3,500 yuan of subsidies on the average. The Project also provided favorable opportunities for adjustment of agricultural structure. Many local governments actively tried out efficient management models and advanced operation mechanisms, fostered ecologically friendly industries with regional comparative advantages and achieved satisfactory economic benefits.

2.5 Funding

1. Domestic Funding

While developing economy, China continued to increase investment in environmental protection. From 1990 to 2006, China invested a total of 1,427.83 billion yuan into environmental protection, with 1,210.87 billion yuan for pollution control and 216.96 billion yuan for key forestry projects. After 2001, investment in environmental protection and biodiversity conservation was substantially increased, with the total investment in pollution control and key forestry projects exceeding 1% of the GDP.

2. International Financial Support

China has undertaken extensive cooperation with international organizations such as the World Bank, Asian Development Bank, United Nations Development Program and United Nations Environment Program as well as the European Union, Italy, Japan, Germany, Canada and the United States. A great number of multilateral and bilateral programs were launched. For instance, since 1991, GEF alone has approved a total grant of 99.06 million US dollars to China's biodiversity projects (details are available at the GEF website: <http://www.gefweb.org>).

2.6 Experiences

1. Biodiversity conservation must be led by the government.

Governments at all levels in China have been playing a leading role in enhancing biodiversity conservation by integrating biodiversity conservation into economic and social development plans, establishing and improving related management systems, assigning appropriate level of human resources for relevant work, continuously increasing

investment in biodiversity conservation, strengthening capacity building and establishing a number of nature reserves as rescue measures.

2. Biodiversity conservation must be based on cross-sectoral coordination.

China has established the National Coordination Committee for CBD Implementation of China headed by the MEP and involving 24 ministries and commissions; China also established the Inter-ministerial Liaison Committee for Protection of Biological Resources headed by the MEP and involving 17 ministries and commissions. Under the support of relevant ministries and commissions, the Coordination Committee and the Inter-ministerial Liaison Committee contributed enormously to biodiversity conservation in China. Practice shows that “environmental protection departments coordinating on the whole and all related departments performing their respective responsibilities” is a working mechanism that basically fits China’s situation.

3. Biodiversity conservation necessitates legislation improvement.

The National People’s Congress and the State Council consecutively promulgated a series of laws and regulations related to biodiversity conservation to comprehensively regulate biodiversity conservation and management and accelerate biodiversity conservation.

4. Biodiversity conservation relies on strict law enforcement.

Through increasing law enforcement, local governments and related departments cracked down a considerable number of illegal activities. Since 2004, environmental protection departments at various levels have launched a series of campaigns to enforce laws and regulations related to environmental assessment and punished a large number of projects which started construction and even production without authorization and in violation of the environmental assessment requirements; in 2005, the first round of special law enforcement inspections were carried out in nature reserves nationwide and 622 violations of laws were disclosed and 155 responsible persons were punished. These inspections struck a heavy blow to illegal activities. Forestry departments launched special campaigns to combat activities which brought damage to forest and wildlife resources. From 2001 to 2007, about 2.964 million administrative violations took place in the forestry sector and 2.917 million of them (98.41%) were investigated and prosecuted. During the same period, customs of China cracked down smuggling of 478 rare animals and animal products and 59 rare plants and plant products, and punished 773 persons involved in the smuggling, effectively striking and curbing smuggling of endangered wildlife.

5. The conservation of biodiversity must be integrated with its sustainable use.

In recent years, China followed the strategy of promoting biodiversity conservation by making use of biodiversity and guided the reasonable use of biological resources by shifting from primarily utilizing wild resources to chiefly using artificially bred and cultivated resources. China also intensified the promotion of ecological tourism to prevent adverse impacts on biodiversity caused by tourism activities.

6. Biodiversity conservation must draw support from scientific and technological progress.

Cooperation between governments at all levels, related departments, universities and colleges and research institutions was intensified to promote the conservation and sustainable use of biodiversity and remarkable progress was made in this aspect.

7. Biodiversity conservation requires more public involvement and stronger international cooperation.

Through various forms of promotion, education and participatory activities, local governments and related departments publicized scientific knowledge and demonstrated achievements of biodiversity conservation to make people aware of the importance and urgency of biodiversity conservation and enhance the extent of and capability for public participation. Capability building was strengthened through implementation of international cooperation programs, international communication and cooperation, introduction of advanced concepts and management models and fundraising efforts.

2.7 Lessons

1. More efforts shall be put into the promotion of biodiversity conservation.

Since the CBD entered into force, the term “biodiversity” is heard more often among the Chinese public. However, neither government decision makers nor the public have fully understood the strategic significance of biodiversity conservation. From now on, more efforts shall be put into the promotion of biodiversity conservation and biodiversity indicators shall be included into the system of reviewing government performance and achievement of various targets.

2. Legislation and plans shall be implemented more efficiently.

First, the law enforcement teams shall be strengthened and the solemnity and authority of laws and regulations shall be improved; second, the operability and accessibility of plans shall be increased and related plans and programs shall be introduced into national economic and social development plans; third, oversight by the public, media and civil organizations shall be further increased.

3. More attention shall be paid to the ecosystem approach.

Although remarkable progress was made in the establishment and management of nature reserves in China, disproportional attention was directed to the conservation of endangered species during the design of nature reserves while the overall protection of other species, which are not the targets of conservation, integration of ecosystems and habitats didn't receive enough attention. The ecosystem approach shall be applied and more attention shall be given to the overall protection of ecosystems.

4. Establishment of the national biodiversity monitoring system shall be accelerated.

China has entered a crucial stage for biodiversity conservation, but the biodiversity monitoring work lags far behind conservation needs. The establishment of the national biodiversity monitoring system shall be accelerated and long-term biodiversity monitoring shall be carried out.

Chapter III Integration of Biodiversity Conservation into Sectoral and Cross-Sectoral Strategies and Plans

3.1 Agricultural Sector

1. Actively integrating biodiversity conservation into agricultural development strategies and plans

The MOA formulated the Rules on Conservation of Agricultural Wild Plants to put the conservation of agricultural wild plants on a more solid legal footing; the MOA also formulated the Plan for the Establishment of Seven Major Agricultural Systems and the 11th Five-Year Plan for National Agricultural and Rural Economic Development to strengthen the establishment of protection systems for agricultural resources and ecological environment.

The MOA issued the 11th Five-Year Plan for National Animal Husbandry Development, the National Master Plan for Grassland Conservation, Construction and Utilization, the Measures for Management of Forage-Livestock Balance and the Notice on Further Strengthening Grassland Supervision and Management; together with the NDRC, the MOA issued the Recommendations on Strengthening Grassland Conservation and Construction and the Recommendations on Further Improving Policies and Measures for Returning Grazing Land to Grassland. These plans, measures and notices have fully considered grassland biodiversity conservation.

The State Council distributed the Action Plan for China Aquatic Biological Resources Conservation and the MOA issued the 11th Five-Year Plan for National Fishery Development. These plans set out the targets to preserve fishery resources, to improve the ecological environment of waters and to conserve rare and endangered aquatic wildlife.

2. Concrete measures

(1) Strengthening institutional capacities

In order to promote agricultural biodiversity conservation, the MOA established the Leading Group for Wild Plants Conservation, the Expert Committee for Wild Plants Conservation, the National Committee for Livestock and Poultry Genetic Resources, the Regulatory Committee for Fishery Resources of the Yellow River Basin and the National Coordination Committee for Prevention and Control of Alien Species.

(2) Carrying out surveys on and collection of crop germplasm resources and agricultural wild plant resources.

In recent years, the MOA organized surveys on and collections of crop germplasm resources and agricultural wild plants. More than 5,000 accessions of important agricultural wild plants were collected and well preserved in national genebanks or field genebanks.

(3) Establishing *in-situ* conservation sites for agricultural wild plants

Since 2001, the MOA began to establish *in-situ* conservation sites for agricultural wild plant resources with high endangerment levels. By the end of 2007, a total of 116 sites were established.

(4) Controlling invasive alien species

In 2003, the MOA launched the annual Campaign on Eliminating Invasive Alien Species in One Hundred Counties of Ten Provinces, organizing local governments to particularly weed out invasive alien species such as *eupatorium adenophorum*, *ragweed*, *Solenopsis invicta*, *alligator weed*, *cenchrus pauciflorus* and *lissorhoptus oryzophilus*. Substantial success was achieved in these campaigns.

(5) Conserving grassland biodiversity

The MOA strived to restore grassland vegetation and increase grassland productivity by implementing the Project of Returning Grazing Land to Grassland and measures such as grazing ban, grazing land non-use period, rotational grazing and accommodation of carrying capacity. These projects and measures have boosted more balanced development between grassland ecology and animal husbandry.

(6) Managing and conserving fishery resources

The MOA implemented the plan of “zero increase” and “negative increase” on marine catches, the summer non-fishing season system and the closed season system in the Yangtze River Basin and put more efforts into rescuing and preserving aquatic wild animals and establishing aquatic nature reserves. Fishery resources and aquatic biodiversity were well conserved.

3.2 Forestry Sector

1. Integrating biodiversity conservation into forestry development strategies and plans

As the responsible authority for forest, wetland and desert resources, forestry departments attached more and more importance to biodiversity conservation in sectoral development strategies and plans. Biodiversity conservation was introduced into the following plans as a major content: the Decision on Speeding up Forestry Development, the Plan for Natural Forest Resources Conservation Project (2000-2010), the Project Plan

for National Wildlife Conservation and Nature Reserve Establishment (2001-2050), the Implementation Plan for National Wetland Conservation Projects(2005-2010), the National Plan for Forestry Nature Reserve Development and the 11th Five-Year and Long-and Medium-Term Plan for Forestry Development.

2. Concrete measures

(1) Boosting biodiversity conservation through key ecological projects

Since 2000, China have successively launched a number of national key forestry ecological projects such as those to conserve natural forest resources, restore farmland into forest, construct protective forest systems in north, northeast and northwest China, conserve wildlife and set up nature reserves, control sources of sandstorms in Beijing and Tianjin, conserve wetlands and restore ecosystems. As a result, forest vegetation grew quickly and ecological environment improved significantly. During the 11th five-year plan period, China further improved policies regarding the nature forest conservation and the returning farmland to forest.

(2) Changing classification of forests and the implementing forest ecological benefit compensation system

Forest resources are classified into noncommercial forest and commercial forest according to their main functions and are managed differently. The forest ecological benefit compensation system was established and upgraded at central and local levels. The compensation fund for key noncommercial forests appropriated from central government finance increased each year to hit 3 billion yuan. Besides, Guangdong, Zhejiang, Fujian, Jiangxi and other provinces included the compensation fund for noncommercial forest in the budgets of local governments at all levels and increased the fund a year-to-year basis.

(3) Strengthening the management and sustainable use of forest resources and wild animals and plants

The logging quota system was introduced and promoted nationwide. The Guideline for Sustainable Forest Operation in China and the Outline for Implementation of Forest Operation Models were printed and distributed. The *in-situ* conservation of wild animals and plants was stepped up. An *in-situ* conservation network with nature reserves as the main body and forest parks, wetland parks, mini-nature reserves, game sanctuaries and forest sanctuaries as supplements was basically established. More efforts were made to strengthen law enforcement and address management issues. Special campaigns were launched to crack down on activities causing damage to wildlife resources. Artificial breeding measures were taken for endangered species whose populations were hard to

restore through *in-situ* conservation. Artificially bred populations continued to increase. Breakthroughs were made in technologies for rescuing, feeding and breeding more than 100 endangered species such as the Siberian tiger, the South China tiger and the golden monkey.

(4) Carrying out surveys on and monitoring of ecosystems and biodiversity of forests, wetlands and other resources

The national surveying and monitoring systems for forests, wetlands, wildlife and deserts have been basically established. National survey on and monitoring of forest resources was conducted once every 5 years since 1973. Monitoring of deserts was initiated in 1994 and 3 national monitoring campaigns were completed up till now. The first survey on terrestrial wild animals, plants and wetland resources was completed in 2004. The national forest resources database, desert information base, wildlife information platform and wetland resources management database were set up based upon the statistics obtained from surveys and monitoring activities.

(5) Carrying out comprehensive law enforcement reform in forestry sector

Steady progress was made in the comprehensive reform of law enforcement in the forestry sector. Law enforcement was strengthened and standardized and the construction of more upright, practical, competent and qualified law enforcement teams was deepened.

(6) Encouraging the development of private forestry

Relevant stakeholders were encouraged to invest in and develop forestry across ownerships, sectors and regions. The contracting, leasing and bidding and auctioning of uncultivated mountains and land suitable for afforestation were quickened. The rights and interests of investors are protected in accordance with relevant laws.

(7) Publicizing extensively

The entire society was called upon to participate in and support forestry construction. Forestry-related scientific and technological knowledge was widely promoted. Public and media oversight intensified and illegal activities which harmed forest resources were curbed.

3.3 Urban and Rural Development Sector

1. Integrating biodiversity conservation into campaigns for “garden cities” and “ecological garden cities” and urban construction plans

With regard to the campaign for “national garden cities”, the Ministry of Housing and Urban-Rural Development (MOHURD) disseminated the Measures for Application and Evaluation of National Garden Cities and the Standards for National Garden Cities,

requiring applicants to develop and implement plans for biodiversity conservation in urban planning areas, use native species as garden plants and conserve urban wetland resources.

With regard to the campaign for “ecological garden cities”, the MOHURD issued the Notice on Recommendations on the Building of “Ecological Garden Cities”, requiring cities to further improve urban green space systems and conserve natural landscapes, vegetations, water systems and wetlands.

2. Concrete measures

(1) Carrying out publicity and education concerning biodiversity conservation

Publicity and education efforts concerning urban biodiversity conservation were increased continuously while campaigning for “garden cities” and “ecological garden cities”. Through publicity and education activities, both government officials and the public have generally realized the significance of biodiversity conservation and gradually raised the “Prevention-Oriented and Conservation-First” awareness.

(2) Implementing the measures for management of urban green lines

Through implementation of the Measures for Management of Urban Green Lines, the planning and construction of green space systems of cities at all levels were effectively implemented and urban green spaces are becoming more integrated in types and more balanced in distribution. Increasing attention was paid to urban biodiversity conservation and outstanding achievements were made in this aspect.

(3) Developing and implementing plans for biodiversity conservation in urban planning areas

A great majority of cities in China have developed and implemented plans for biodiversity conservation in urban planning areas to strengthen reasonable and effective conservation of landscapes, hydrological resources, vegetations and species.

3.4 Marine Sector

1. Integrating biodiversity conservation into marine strategies and plans

The Regulations on the Prevention and Control of the Marine Environmental Pollution from Construction Projects include specific provisions on the impacts of project development and construction on marine ecology and biodiversity. The National Program for Marine Development stipulates explicitly that marine ecological environment shall be protected and implementation of the total pollutant discharge control system based on marine environmental capacity shall be accelerated. The Program also identifies detailed measures for the protection of marine ecological environment. China is also developing a national plan for zoning of main functional regions and marine biodiversity conservation

will be taken into account during the division of different types of main marine functional regions. The SOA is developing a plan for coastal protection and utilization to control the impact of sea enclosures and land claiming activities on marine biodiversity.

2. Concrete measures

(1) Strengthening the establishment and management of marine protected areas

Over the past several years, more than 50 local marine nature reserves and 11 special marine protected areas were established along China's coastal areas. The SOA developed a series of regulations and systems such as those to build marine surveillance teams for marine protected areas, manage the use of sea areas and examine and approve exploitation activities. Management bodies for marine protected areas stepped up work related to plan development, patrolling for law enforcement, scientific research and surveying, ecological monitoring, disaster prevention and control and publicity and education.

(2) Energetically protecting the environment of islands and islets

Together with related departments, the SOA initiated the formulation of national legislation and plans for protecting and wisely utilizing islands and islets and the layout and establishment of island and islet reserves. To well protect island and islet resources and the marine environment, the SOA also worked with related departments to promulgate the Regulation on Protection and Utilization of Unpopulated Islands and Islets.

(3) Conducting marine ecological surveys

The SOA organized the first national marine ecological survey, during which many new and major marine ecological problems were discovered. The SOA also made a general assessment on the overall ecological status of China's seas based on the survey.

(4) Actively carrying out marine ecological restoration

By carrying out a variety of marine ecological restoration projects, marine departments of local governments in coastal areas greatly promoted marine biodiversity conservation and gained substantial comprehensive benefits.

(5) Strengthening examination and approval of use of sea areas and assessment of the environmental impacts of marine projects

Through examination and approval of use of sea areas and assessment of the environmental impacts of marine projects, marine biodiversity conservation was strengthened in aspects of project site selection, sea area to be used, manner of sea land claiming, plane layout and environmental protection measures.

3.5 Water Resources Sector

1. Fully considering biodiversity conservation in water conservancy plans

The Ministry of Water Resources (MWR) gave high priority to ecological environmental protection and fully considered ecological water demand during the development of a number of programs such as the comprehensive program for national water resources. The MWR also set down the basic and total ecological water demands at the control nodes of major rivers, the reduction in shallow and deep groundwater use in over-exploited areas as well as measures to restore and conserve water ecology in major areas.

2. Concrete measures

(1) Great importance was attached to biodiversity conservation during construction of water conservancy projects

The MWR attached great importance to biodiversity conservation and fully considered the targets of water ecology conservation during the planning, design, construction and operation management of water conservancy projects. For example, to mitigate the impacts of dam constructions on fish's survival, the MWR required fish passes to be built or artificial breeding and baby release efforts to be made to replenish biological resources.

(2) Carrying out pilot campaigns to protect and restore water ecosystems

In 2004, the MWR issued the Recommendations on Protecting and Restoring Water Ecosystems and launched pilot campaigns in some cities.

3.6 Education Sector

1. Strengthening establishment of biodiversity-related disciplines

The Ministry of Education (MOE) gave high priority to the establishment of disciplines related to the conservation of biological resources (biodiversity). Ten disciplines and dozens of specialties were set up in three disciplinary categories.

2. Putting more efforts into the training of biodiversity professionals

Biodiversity science is a new science with ecology as the core discipline and associated with other related disciplines. At present, most universities and normal universities in China offer ecology courses. Nearly 50 institutions of higher learning offer bachelor's degree in ecology, 38 offer master's degree and 22 offer doctor's degree. According to incomplete statistics, from 2004 to 2006 alone, China's institutions of higher learning have awarded about 50,000 masters and doctors in disciplines related to the conservation of biological resources.

3. Accelerating course and textbook development

Institutions of higher learning began to offer a wide range of ecology courses and published ecology textbooks for students of all educational levels. Meanwhile, a number of outstanding overseas ecology textbooks were introduced into China. Monographs and reports on the study of ecology teaching have also been developed.

3.7 Science and Technology Sector

1. Fully considering the research needs of biodiversity conservation in the National Program for Long- and Medium-Term Science and Technology Development

Much attention was paid to scientific research and technological development concerning the conservation and sustainable use of biodiversity in the National Program for Long- and Medium-Term Science and Technology Development (2006-2020). Themes such as “efficient use of marine resources”, “protection of marine ecology and environment”, “function restoration for regions with vulnerable ecosystems”, “monitoring of and response to global environment change”, “use, storage and innovation of germplasm resources and guided breeding of new species” and “biosafety management” are all related to the conservation and sustainable use of biodiversity.

2. Establishing biodiversity-related research projects in national science and technology programs

The Ministry of Science and Technology (MOST) established special projects on conservation and sustainable use of biodiversity in the National Key Technology Research and Development Program, the National Fundamental Research Program, the National High Technology Research and Development Program and other special funds. The National Key Technology Research and Development Program for the 11th five-year plan period initiated major projects such as those to establish a national support system for the comprehensive monitoring, assessment and decision-making concerning terrestrial ecosystems and develop technologies for and demonstrate restoration of typical and vulnerable ecosystems. The National Fundamental Research Program initiated projects to study the biodiversity evolution and conservation in China’s Himalayan regions and the theories and methodologies for disease and pest control and germplasm resources preservation in agricultural biodiversity conservation. The National High Technology Research and Development Program (named as 863 Program) included the fields of marine technology, resource and environment technology and modern agricultural technology. Some projects in these fields concern development of technologies related to

the conservation of biodiversity and sustainable use of biological resources. With regard to construction of natural science-technology resource platforms, resource survey and collection, information platform construction as well as material and information sharing concerning animal, plant, microorganism and germplasm resources were organized and promoted. These researches generated a number of valuable and influential research achievements and provided strong scientific and technological support for biodiversity conservation in China. Some achievements were well received by the international academic communities.

3.8 Poverty Alleviation and Development Sector

1. Integrating biodiversity conservation into national poverty alleviation plans

In 2001, the Chinese government promulgated and implemented the Program for Poverty Alleviation and Development of China's Rural Areas (2001-2010). The Program specifies that poverty alleviation and development must be linked with resource conservation and ecological construction so as to realize a sound cycle of resources, population and environment and increase the capability of poverty-stricken areas for sustainable development.

2. Concrete measures

(1) Paying special attention to developing human resources and easing population-resource conflict in poverty-stricken areas

The Chinese government addressed poverty alleviation by improving the quality of labor forces in poor areas. Extensive training in working skills and practical agricultural techniques was provided to labor forces from poor households to migrating rural labor forces, ease population-land conflict and improve the ecological environment and biodiversity conservation in poor areas.

(2) Realizing poverty alleviation by relocating and reducing the ecological pressure of areas with extremely severe natural conditions

With regard to areas short of basic living conditions, residents were relocated on a voluntary, flexible and affordable basis to fundamentally improve the living conditions of poverty-stricken areas, reduce the population pressure of these areas and create external conditions for biodiversity conservation.

(3) Vigorously trying out new approaches that integrate poverty alleviation with biodiversity conservation

With regard to areas with extremely vulnerable biological diversity such as the Qinghai-Tibetan Plateau, deserts and rocky deserts, comprehensive control measures were

taken to improve local natural, transportation, education and sanitary conditions. New approaches to poverty alleviation and biodiversity conservation were actively tried out.

3.9 Other Sectors

1. Land and resources management sector

The Ministry of Land and Resources (MLR) integrated biodiversity conservation into the overall land use plans of all levels. For instance, while determining the scale for land use, the MLR made it one of the planning targets to uncompromisingly protect forest land and increase forest coverage. During functional or regulatory division of land use areas, the MLR marked out nature reserves and ecologically sensitive areas and prohibited use of land in protected areas as construction land. With regard to mudflats and sea enclosure and land claiming projects, the MLR coordinated regulations in the Marine Function Zoning Plan and the Overall Land Use Planning and formulated sound policies for mudflat development and sea land claiming activities. Through implementation of land use plans, activities like use of land in nature reserves as project sites were effectively eliminated and biodiversity conservation was enhanced accordingly.

2. Commerce sector

The Ministry of Commerce (MOC) stressed biodiversity conservation in the following two aspects: first, together with related departments, the MOC adjusted the Control List attached to the Regulations on Export Control of Dual-Use Biological Agents and Related Equipment and Technologies by adding viruses such as avian influenza virus and SARS coronavirus and practiced a licensing system for the export of items in the Control List. Second, in sessions of the Council for Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization (WTO), China actively promoted discussions about the relation between TRIPS Agreement and CBD and advocated amending TRIPS Agreement in accordance with CBD so that disclosure of the origin of genetic resources and evidence of prior informed consent and benefit-sharing would become the substantive conditions for patent applications. China also suggested the results of these discussions be included in the "package deal" of Doha talks and urged quicker move towards text negotiations. Besides, China was in favor of inviting as soon as possible the Secretariat of CBD to attend meetings of the TRIPS Council as an observer.

3. Customs sector

As the national authority for import-export supervision and management, the General Administration of Customs (GAC) gave high priority to the import-export management of biological resources. Over the years, the GAC devoted itself to boosting the establishment

of a biodiversity-related import-export legislation system. The GAC engaged in the formulation of the Regulations on Administration of Import and Export of Endangered Wild Animals and Plants and other regulations, and together with related departments, adjusted and released related import-export management catalogues including the HS Commodity Appendix of Import and Export on Wild Fauna and Flora and the Control List of the Import and Export License for Dual-Use Items and Technologies. Chinese customs carried out periodic training to improve the law enforcement capacities of customs officers, performed strict supervision and control over the import and export of biological species in accordance with related laws and regulations and severely cracked down on all kinds of smuggling and illegal activities.

4. Traditional Chinese medicine management sector

In 2007, the State Administration of Traditional Chinese Medicine (SATCM) jointly issued the Recommendations on Strengthening the Development of Traditional Medicines of Ethnic Minorities with 10 ministries and commissions under the State Council, laying emphasis on protecting resources of traditional medicines of ethnic minorities, establishing breeding and cultivation bases for endangered traditional medicine varieties and genuine medicinal materials, establishing nature reserves for traditional medicines and intensifying research on domestication of medicinal animals and plants. The SATCM initiated the amendment of the Regulations on Conservation of Wild Medicinal Resources to further highlight the conservation of wild medicinal resources. Specific recommendations were made as to how to improve the management system and rules for wild medicinal resources.

5. Intellectual property management sector

To regulate the use of genetic resources, the draft amendment on Patent Law introduced the disclosure system for the origin of genetic resources and clarified that no patent right shall be granted if the acquisition or use of genetic resources violated related laws and regulations. The integration of genetic resources conservation and patent system will provide certain institutional guarantees for achieving the objectives of CBD.

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

1. Taking biodiversity conservation into full account during implementation of CITES

Implementing CITES on behalf of the Chinese government, the Endangered Species Import and Export Management Office (ESIEMO) took biodiversity conservation into full

account during CITES implementation and grounded all negotiations involving genetic resources on the principles of sovereign rights and benefit sharing.

2. Concrete measures

(1) Strengthening legislation

The Law on the Protection of Wildlife, the Regulations on Wild Plants Protection and the Regulations on Administration of Import and Export of Endangered Wild Animals and Plants are all aimed at wildlife protection and biodiversity conservation. Especially formulated for CITES implementation, the Regulations on Administration of Import and Export of Endangered Wild Animals and Plants puts strict requirements on the import and export of species in the Appendices to CITES and the export of species under special state protection, thus providing legislative support for the protection of endangered species. To better protect wildlife resources, fees are charged for management services regarding import and export of wildlife and wildlife products, but differentially based on whether the animals and plants are wild or artificially bred or cultivated.

(2) Strengthening establishment of management system

The ESIEMO is under the SFA and has branches in the forestry bureaus of provinces, autonomous regions and municipalities. The ESIEMO and its branches have maintained close cooperation with wildlife management departments at all levels so that international requirements on biodiversity conservation can be duly introduced into China's wildlife management. This has ensured on an institutional basis that international trade in wild animals and plants is under strict control and has effectively prevented the extinction of wildlife species as a result of excessive trading.

3.11 Implementation of the United Nations Convention to Combat Desertification (UNCCD)

1. Integrating biodiversity conservation into desertification prevention and control regulations

During the implementation of UNCCD, China attached great importance to biodiversity conservation, especially the restoration and reconstruction of ecosystem functions. China's legislative system for protection of desert ecosystems include the Law on the Prevention and Control of Desertification, Forest Law, Grassland Law, Law on Water and Soil Conservation, Land Administration Law, Environmental Protection Law, etc.

2. Concrete measures

(1) Thoroughly implementing policies and regulations on desertification prevention

and control

For biodiversity conservation purposes, grazing, reclamation and logging were forbidden in dry land and deserts, stocking rate was determined according to the carrying capacity of grasslands and water resources were rationally used; environmental impact assessments were conducted on construction projects to regulate exploitation activities; law enforcement and inspection efforts were increased to conserve the diversity of desert ecosystems and prevent new occurrence of desertification.

(2) Speeding up desertification control through major projects

Over recent years, supported primarily by central government financing, a series of national key ecological construction projects were launched, including those to control sources of sandstorms in Beijing and Tianjin, construct protective forest systems, control desertification in small watersheds and conserve grasslands. These projects have contributed greatly to the restoration of desert ecosystems.

(3) Conducting surveys and scientific researches

China undertook a series of special fundamental researches and application researches and summarized and promoted more than 100 technological models including the Railway Sand-Preventing Protective Forest Construction Model, the Desert Highway Protection System, etc.

(4) Developing regional industries and achieving positive relationship between ecology and economy

Given the characteristics of biological resources in desert regions, the Chinese government encouraged the development of biological industries with caragana, salix, sea-buckthorn, Chinese wolfberry, almond and rapid-growth and high-yielding forests. Ecological construction was integrated with local economic development and increase of farmers' and herdsmen's incomes to achieve positive relationship between ecology and economy.

(5) Carrying out training, publicity and education related to desertification prevention and control

To strengthen education on and caution the public against land desertification, the national authority responsible for the implementation of UNCCD disseminated posters to publicize general knowledge about desertification prevention and control and promote the ecological awareness of the public. The national authority also held different training courses on desertification prevention and control at the community level to improve related skills of the public and greatly arouse the enthusiasms of all walks of society.

3.12 Implementation of the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention on Wetlands)

1. Integrating the conservation and sustainable use of wetland biodiversity into related plans and programs

The Chinese government integrated the conservation and sustainable use of wetland biodiversity into the priority fields of China's Agenda 21, China Biodiversity Conservation Action Plan, China Wetland Conservation Action Plan, National Plan for Wetlands Conservation Project and Implementation Plan for National Wetland Conservation Project. Biodiversity conservation was given full consideration during the implementation of Ramsar Convention on Wetlands.

2. Concrete measures

(1) Establishing the China National Committee for Implementation of the Convention on Wetlands

In 2007, the State Council approved the establishment of China National Committee for Implementation of the Ramsar Convention on Wetlands headed by the SFA and involving 15 ministries and commissions under the State Council.

(2) Promoting the establishment of wetland reserves

By the end of 2007, more than 550 wetland reserves of different levels and types were established in China and about 45% of natural wetlands were effectively protected. Up to the beginning of 2008, China already had 50 wetland sites included in the List of Wetlands of International Importance.

(3) Carrying out wetland-related monitoring, publicity and education

Various forms of wetland-related monitoring and publicity and education activities were carried out to continuously improve the management level of wetland conservation.

(4) Strengthening international cooperation on wetland conservation

Through the projects of Nature Reserve Management in China and Wetland Biodiversity Conservation and Sustainable Use in China funded by the Global Environment Facility (GEF), the organization, planning, skill development, information management and community involvement concerning wetland reserves were strengthened and China's management level of wetlands and wetland biodiversity conservation was improved.

3.13 Implementation of the United Nations Framework Convention on Climate Change (UNFCCC)

1. Fully considering biodiversity conservation in National Climate Change Programme

The impact of climate change on biological diversity has been fully considered in the National Climate Change Programme, which proposes a series of measures to respond to climate change.

2. Concrete measures

(1) Adjusting economic structure, promoting technological progress and increasing energy efficiency

Since the late 1980s, the Chinese government began to attach greater importance to the transformation of the economic development patterns or approaches and the adjustment of economic structure. Reduction in resource and energy consumption, promotion of cleaner production and prevention and control of industrial pollution were regarded as major elements of China's industrial policies.

(2) Developing low-carbon energy and renewable energy and improving energy structure

Under the guidance of national policies and the support of central government budget, the exploitation and use of water energy, nuclear energy, oil, natural gas and coal-bed methane were intensified, the exploitation and use of new types of renewable energy such as biomass energy, solar energy, geothermal energy and wind energy were promoted in rural, remote areas and areas with proper conditions, and the proportion of high-quality and clean energy was raised.

(3) Carrying out extensive afforestation and strengthening ecological conservation

Since reform and opening up, major achievements were made in afforestation as a series of key forestry projects were implemented. Besides afforestation, China also vigorously carried out ecological conservation policies for natural forest resources conservation, restoration of farmland to forest and grassland, grassland conservation and management and establishment of natural reserves in order to conserve biodiversity and at the same time increase the capacity of forests as greenhouse gas sinks.

(4) Further improving related systems and strengthening institutional capacities

The Chinese government established the National Leading Group to Address Climate Change, emphasized and constantly improved research capabilities related to climate change, implemented a number of national key science-technology projects and released

the National Assessment Report on Climate Change. All this has provided scientific foundations for China to formulate national policies on coping with climate change and take part in negotiations of UNFCCC.

(5) Increasing publicity and education efforts concerning climate change

The Chinese government always pays special attention to publicity and education and enhancement of public awareness in the field of environment and climate change. Varied forms of lectures and seminars on climate change were convened and a number of training courses on climate change were organized for decision-makers from central and provincial governments. Satisfactory progress was made in this aspect.

3.14 Adoption and Employment of the Ecosystem Approach in Related Sectors

While integrating biodiversity conservation into sectoral or cross-sectoral strategies and plans, departments of the Chinese government also stressed and adopted the ecosystem approach. Forestry departments fully applied the ecosystem approach to desertification prevention and control by firstly devising desertification prevention and control models suitable for the development of different regions based upon their natural conditions during planning; secondly adopting and employing the ecosystem approach during desertification prevention and control, persistently integrating ecological improvement with sectoral development, bringing the advantages of desert areas in terms of light, heat and other resources into full play under strict protection and effective control, greatly promoting industries with local features and providing special support for industrial projects with low resource consumption, high technology contents and promising market perspectives; thirdly using the ecosystem approach to assess whether ecosystems were healthy and their functions were restored, maintained and even improved after control measures were implemented.

While developing wetland conservation policies, regulations and plans and implementing wetland conservation projects and wetland reserve constructions, the SFA thoroughly applied the ecosystem approach to conserve wetlands and wetland biodiversity, thereby maintaining and ensuring the functions and benefits of wetland ecosystems. The National Plan for Wetlands Conservation Project designed and arranged wetland conservation and restoration projects in the river basins where wetlands or wetland ecosystems were located, which demonstrate application of the ecosystem approach.

The MOA gave high priority to the application of ecosystem approach and tested and demonstrated the approach in related international cooperation projects. For instance, in

the project of Conservation and Sustainable Utilization of Wild Relatives of Crops in China funded by the GEF, *in-situ* conservation sites for wild rice, wild soybean and wild relatives of wheat were constructed in a participatory approach to conserve the wild relatives of crops and their habitats as a whole.

Urban and rural development departments employed the ecosystem approach to improve urban ecology and landscaping. First, the planning of green spaces was grounded on ecological theories and fully represented the zonal characteristics of gardens and the diversity of plants. Second, conservation priority was given to native species, rare and endangered species, ancient and famous trees and primitive habitats crucial to the maintenance of overall ecological functions during construction and conservation projects. Meanwhile, resources of species with important or potential value as well as their habitats were put under special preservation.

Marine departments adopted the ecosystem approach during marine biodiversity conservation. One of the basic principles of the National Program for Marine Development is to carry out regional marine management taking into account needs for conserving marine ecosystems.

While devising and implementing land use plans, the national land and resources departments also applied the ecosystem approach to integrate biodiversity conservation with sustainable social and economic development.

3.15 Integration of Biodiversity Conservation into Environmental Impact Assessments

The Environmental Impact Assessment Law lays down specific provisions on the analysis, prediction, assessment and monitoring of the environmental impacts of plans and construction projects. Certain department rules require biodiversity conservation to be included in EIAs. The Notice on Issues Concerning Strengthening the Management of Nature Reserves released by the MEP in 2004 specifies that, with regard to EIAs for construction projects involving nature reserves, special chapters shall be dedicated to predicting the impact of the projects on the structures and functions, the objects of conservation and the value of nature reserves, and advancing conservation schemes. The development and construction companies shall take related conservation, restoration and compensation measures according to the extent of the impact. To avoid new and major ecological destructions due to improper development and construction, the Recommendation on Strengthening Oversight of Ecological Environment Protection during Resources Development issued by the MEP the same year requires that EIA and

oversight of ecological environment protection shall be strengthened during the development of water, agricultural, mineral, forest, grassland, tourism, wetland and other major resources, the introduction of alien species and the application of transgenic organisms. The Notice on Strengthening Environmental Protection during Hydropower Development jointly issued by the MEP and the NDRC in January 2005 provides that EIA and environmental protection design shall be conducted with great care during hydropower development, and environmental protection measures for low-temperature water treatment, fish protection and conservation of rare terrestrial animals and plants shall be thoroughly implemented to minimize the adverse impacts of hydropower development on the ecological environment.

China has established a basic system of EIA standards, including the Technical Guidelines for Environmental Impact Assessment—Non-Polluting Ecological Impact, the Indicator System for Environmental Impact Assessment of Development of Mountain Scenery Spots and the Technical Guidelines for Environmental Impact Assessment of Marine Projects.

China increased efforts to manage and inspect EIA-related law enforcement. Through implementation of the EIA system, the output of industrial projects increased without increase in pollutant emissions or with reductions in pollutant emissions. Through adjustment of locations, routes and engineering schemes, new ecological damage was effectively avoided during construction of projects involving important environmentally sensitive issues; construction projects inconsistent with marine function zoning and conservation plans were declined approval.

Pilot EIAs were carried out in certain areas and sectors. Rich experience was accumulated and substantial progress was made in these pilot assessments.

Chapter IV Progress Towards the 2010 Target and Implementation of the Strategic Plan of the Convention

4.1 Evaluation Indicators for the 2010 Target

The 2010 Biodiversity Target adopted by the CBD COP is to achieve by 2010 a significant reduction of the current rate of biodiversity loss. China has established its own indicator system for evaluating progress towards the 2010 Target (see Table 4-1).

Table 4-1 China's Evaluation Indicators for the 2010 Biodiversity Target

| Indicator | Meaning |
|---|--|
| Status and trends of the components of biodiversity | |
| 1. Status of threatened species | Refers to changes in the endangerment level, number of populations, etc. of threatened species. This may be calculated by the Red List Index (RLI). RLI measures general changes in the endangerment level of species in a specific taxonomic group. |
| 2. Area and proportion of land cover | Refers to areas and proportions of different types of land covers at different periods and indicates the status and trend of changes in ecosystems. |
| 3. Genetic diversity of domesticated animals, cultivated plants, and cultured fish species of major socio-economic importance | Refers to the number of domesticated animals, cultivated plants and cultured fish species and shows change in species used for production and loss of traditional genetic resources. |
| 4. Number and coverage of nature reserves | Coverage refers to the percentage of the area of terrestrial nature reserves to the national terrestrial area and reflects the status of <i>in-situ</i> conservation of biodiversity. |
| Ecosystem integrity, ecosystem goods and services | |
| 5. Integrity of forest, grassland and river ecosystems | Refers to the integrity of ecosystems of forests, grasslands and inland waters as shown by the following indicators: <ul style="list-style-type: none"> ● Change in net primary productivity; ● Area of deserts; |

| Indicator | Meaning |
|--|--|
| | <ul style="list-style-type: none"> ● Density of railways and highways. |
| 6. Marine trophic index (MTI) | Refers to the mean trophic level of fisheries landings and reflects the length of marine food chain and therefore the capability of marine ecosystems to resist intervention and supply fishery resources. |
| 7. Sea water quality | Refers to the cleanness index of water in all sea areas. The water environmental quality in different sea areas can also be indirectly indicated by the area of red tide occurrences along coastal regions. |
| 8. Water quality of freshwater ecosystems | Refers to the general water quality of inland water systems including Yangtze River, Yellow River, Zhujiang River, Songhua River, Huaihe River, Haihe River, Liao River, etc. |
| Threats to biodiversity | |
| 9. Emissions of major pollutants | Refers to the annual discharge of sewage, effluent gas and solid waste and indicates threats to biodiversity. |
| 10. Impact of climate change on biodiversity | Refers to the impact of climate change on the structures and functions of ecosystems and the distribution and growth of species and genetic resources. |
| 11. Degree of damage caused by invasive alien species | <p>Refers to the damage caused by invasive alien species to ecosystems, endemic species and genetic resources. This can be shown by the following indicators:</p> <ul style="list-style-type: none"> ● Number of invasive alien species newly discovered at a certain interval; ● Batches of quarantine pests seized during inspections. |
| Sustainable use | |
| 12. Total standing stock volume and annual net stock increase of forests | Total standing stock volume refers to the stock volume of all trees growing in a certain land area; annual net stock increase refers to the difference between increase of timber stock volume from the growing of standing trees and the actual consumption. |
| 13. Difference between nitrogen input and output | Refers to the application rate of agrochemicals and shows degree of the impact of agricultural activities on agricultural biodiversity. High nitrogen input and nitrogen imbalance often pose major threats to biodiversity. |
| 14. Ecological | Refers to the land and water area a human population requires to |

| Indicator | Meaning |
|---|---|
| footprint | produce the resource it consumes and to absorb its wastes. It shows the impact of the total resources demand of human beings on biodiversity. |
| Status of access to genetic resources and benefit sharing | |
| 15. Status of access to genetic resources and traditional knowledge and benefit sharing | Reflects the status of use of genetic resources and traditional knowledge and associated equitable benefit sharing. |
| Status of financial resources | |
| 16. Investment in biodiversity conservation | Refers to the total investment in environment pollution control and ecological environment construction. |
| Public awareness | |
| 17. Public awareness | Refers to the public awareness of the knowledge and significance of environmental protection. |

4.2 Statistical Analysis of the Evaluation Indicators for the 2010 Target

4.2.1 Reduce the rate of biodiversity loss

Indicator 1: Status of threatened species

Red List Index (RLI) measures general changes in the endangerment level of species in a specific taxonomic group. An RLI value of 0 (zero) indicates all species are extinct; an RLI value of 1 (one) indicates no species are threatened and need conservation. This National Report evaluated the RLI of freshwater fishes, birds and mammals in China. A total of 81 fish species, 138 bird species and 107 mammal species were evaluated. From 1998 to 2004, the RLI of China's freshwater fishes and mammals decreased; the RLI of birds increased (Equal-steps approach), but the rate of loss of critically endangered birds increased (Figure 4-1). Thanks to the remarkable achievements made in wetland conservation, birds in China were better protected, but more efforts were required for the conservation of critically endangered species. Loss of biodiversity of mammals and fishes was accelerated as their habitats were damaged and shrank.

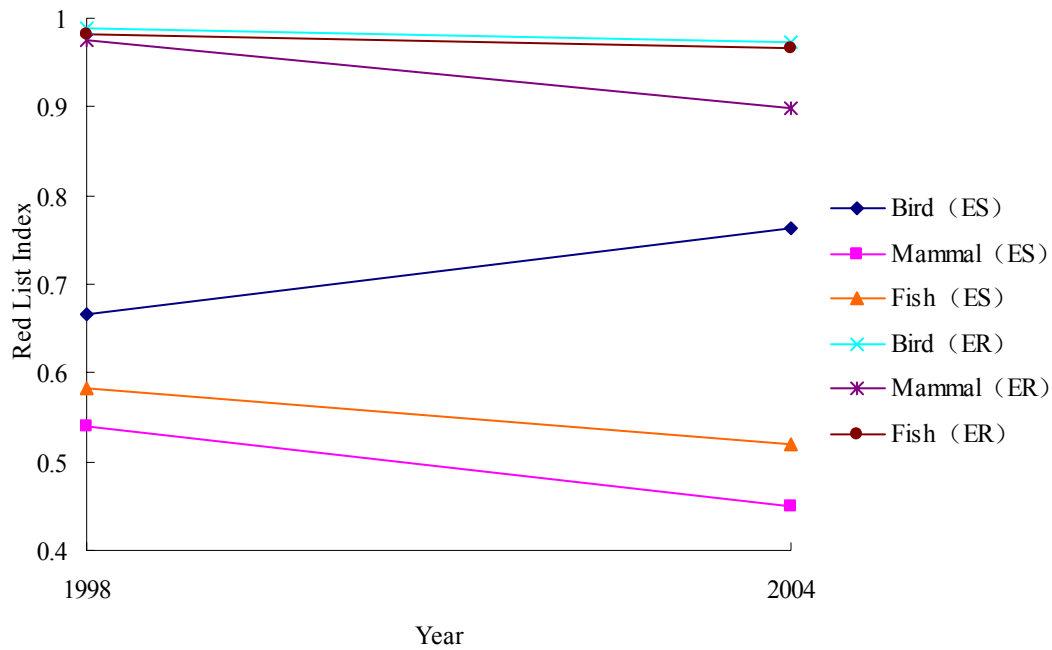


Figure 4-1 Change in the RLI of Vertebrates in Different Taxonomic Groups and Different Years

(ES is the RLI based on Equal-steps weights, ER is the RLI based on Extinction-risk weights)

Indicator 2: Area and proportion of land cover

From the late 1980s to 2000, the areas of farmland, waters and residential land rose in China while those of forest land, grassland and unused land dropped (Figure 4-2). The area of forest land reduced by 10,898.22 km², mainly in northeast and southwest China, but the area of forest land in Fujian and Zhejiang grew significantly. The area of grassland reduced by 34,363.01 km², mainly in northern China and also significantly in Fujian, a coastal province in southeast China. The area of waters increased by 1,649.83 km².

From 2000 to 2005, the areas of farmland, grassland and unused land decreased in China while those of forest land, waters and residential land increased (Figure 4-2). The area of grassland decreased by 12,185.98 km², chiefly in northeast, northwest and southwest China and most significantly in Inner Mongolia, Xinjiang and Guizhou. The area of forest land rose by 2,078.38 km², chiefly in northeast, central and southwest China.

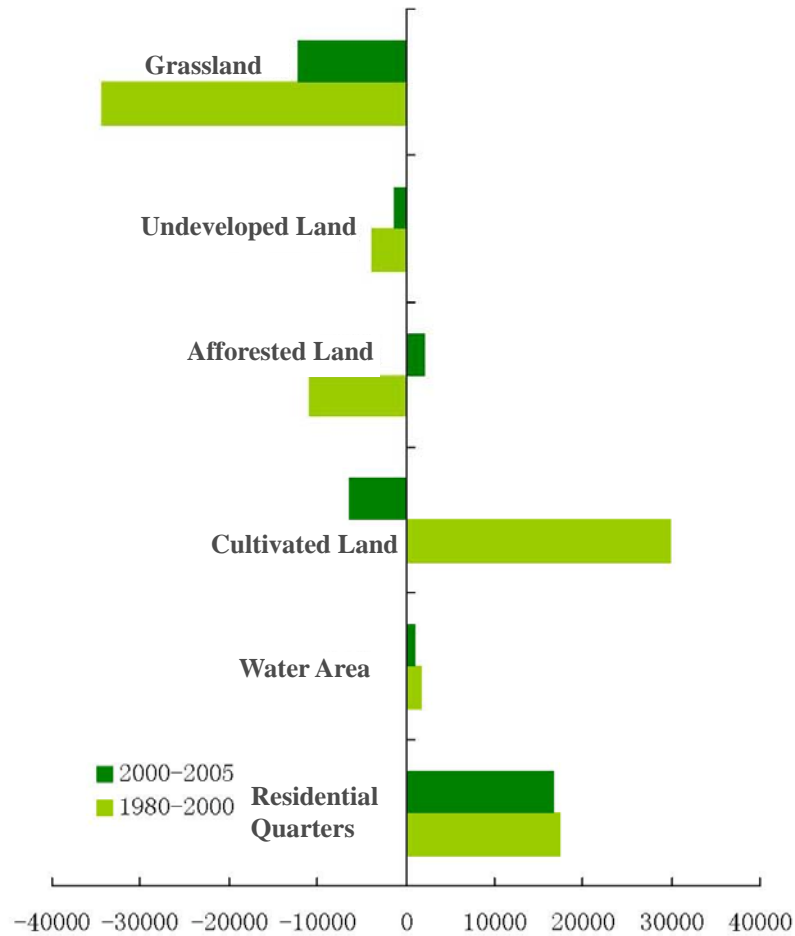


Figure 4-2 Net Change in Land Cover Area in China at Different Periods (km²)
(from Xu et al. 2009)

Indicator 3: Genetic diversity of domesticated animals, cultured fish and cultivated plants species with major socio-economic importance

It is estimated that China has suffered great losses of genetic resources. Cases are used here to show the status due to insufficient statistics. Cereal crops are cultivated as the main crop in China, which chiefly include rice, wheat and maize. In the past half century, China suffered serious losses of genetic resources of rice, wheat and maize for various reasons (Figure 4-3). It was estimated that the losses of genetic resources of domesticated animals and cultured fishes were also quite prominent.

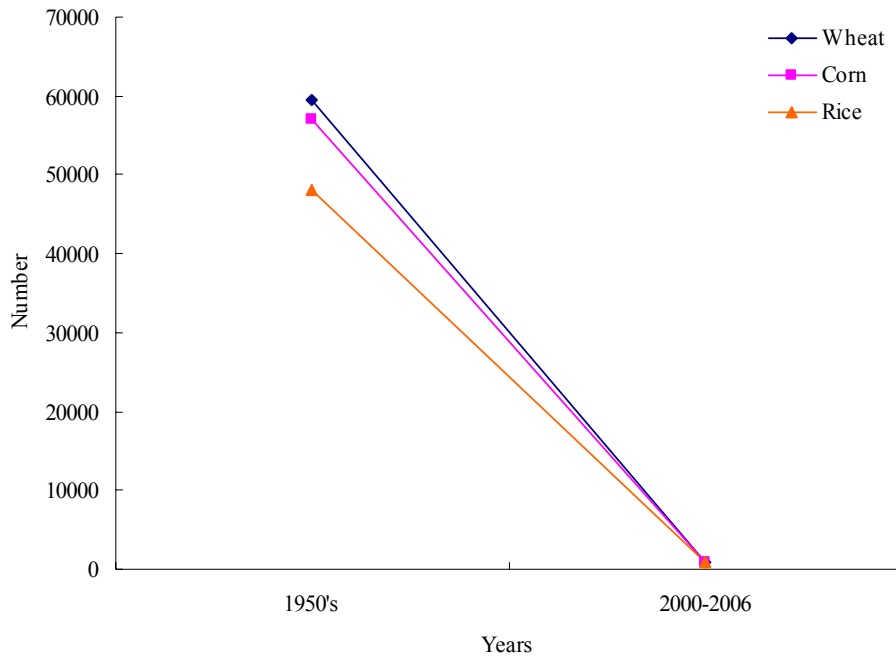


Figure 4-3 Change in Varieties of Rice, Wheat and Maize Used for Production in China

Indicator 4: Number and coverage of nature reserves

From 1999 to 2007, the number and coverage of nature reserves both increased significantly in China. In 2007, the coverage of nature reserves reached 15.2% of the country's total land area, exceeding the world average. A national nature reserve system has been basically established (Fig.4-4).

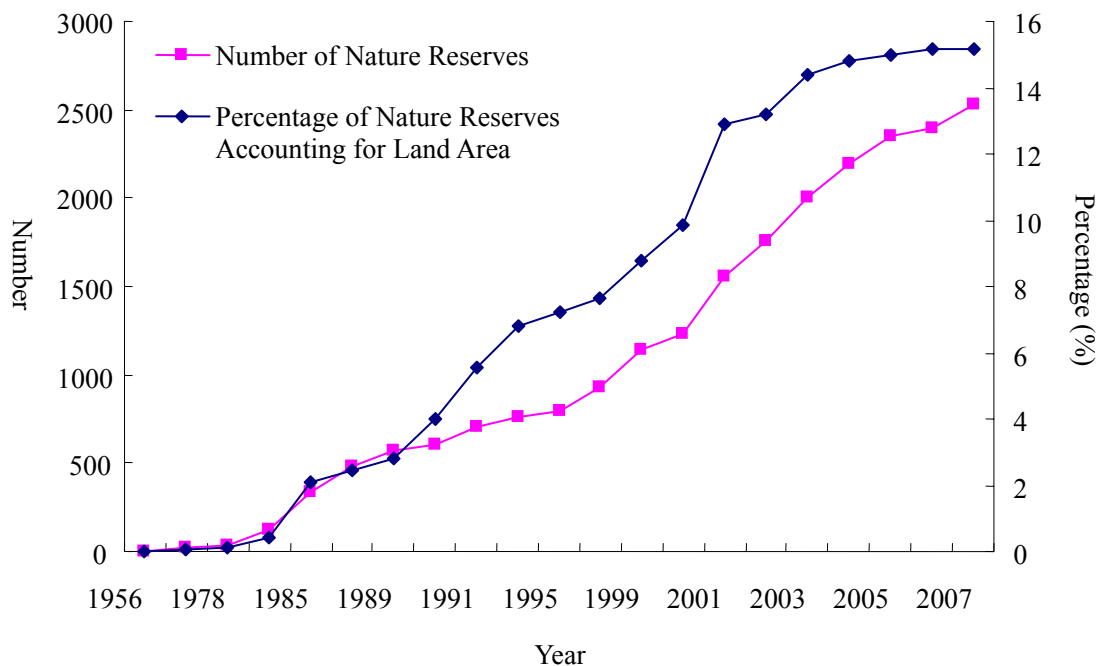


Fig. 4-4 Development of Nature Reserves in China

4.2.2 Maintain ecosystem integrity and ecosystem goods and services

Indicator 5: Integrity of forest, grassland and river ecosystems

(a) Change in net primary productivity

The net primary productivity (NPP) of vegetations plays a key role in maintaining global carbon balance. The annual average NPP of China, generated from monthly statistics simulated by the three models of CEVSA, GLOPEM and CASA over the years, shows that China's NPP was on upward trend over the past 20 years, with the growth rates demonstrated by the trend lines being 0.67%, 0.96% and 0.51% respectively (Figure 4-5).

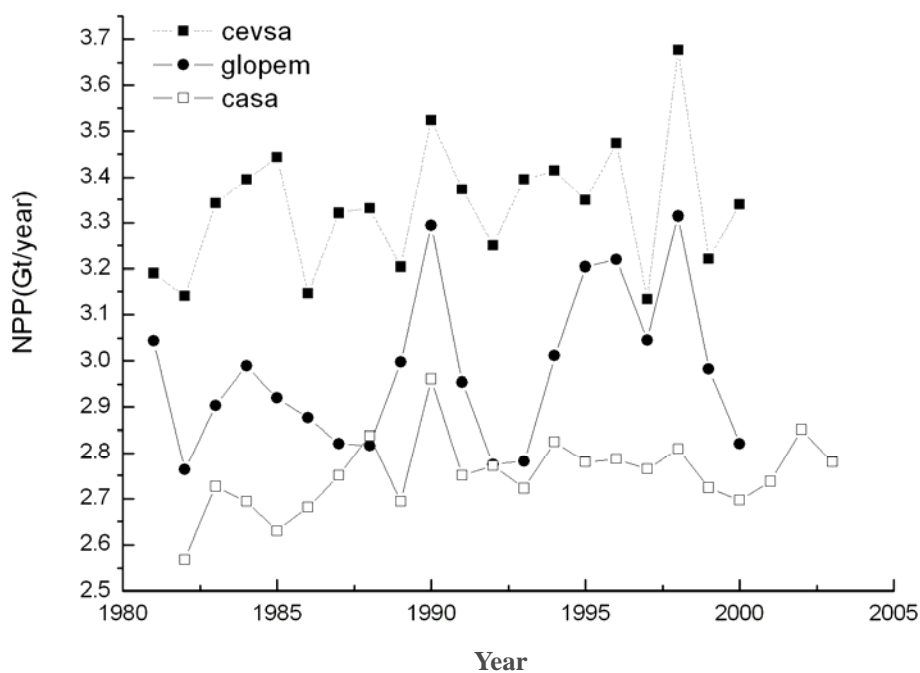


Figure 4-5 Change in China's Annual Net Primary Productivity Simulated by Multiple Models

(from Gao Zhiqiang, Liu Jiyuan. *Comparative Studies on Net Productivity of Vegetations in China*. Chinese Science Bulletin, 2008.53(3):317-326)

(b) Area of deserts

According to the third national desertification monitoring, from 2000 to 2004, the total area of deserts saw a net reduction of 6,416 km², changing from an annual average expansion of 3,436 km² in the late 1990s to an annual average reduction of 1,283 km² (Figure 4-6).

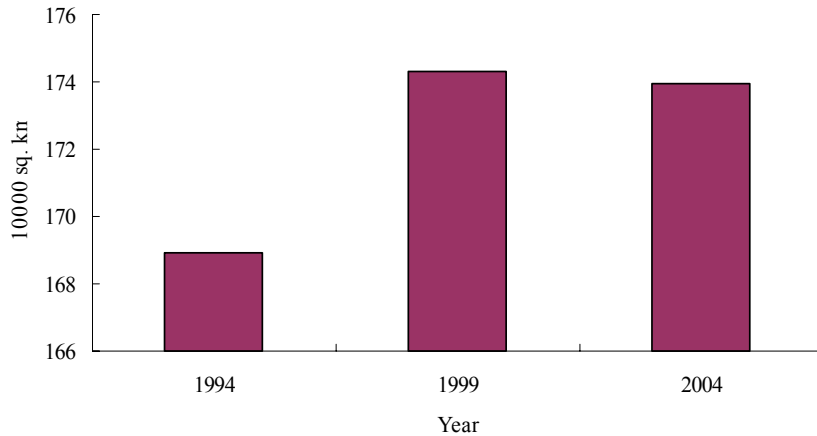


Figure 4-6 Area of Deserts in China (1994-2004)

(c) Density of railways and highways

The density of railways and highways reflects to a certain extent the degree of fragmentation of wildlife habitats and natural ecosystems. As shown in Figure 4-7, since 1989, the mileage of railways and highways began to increase steadily in China. Fast growth of the mileage of highways in recent years worsened the fragmentation of wildlife habitats. To reduce the impact of railway and highway construction on wildlife and ecosystems, the Chinese government strictly followed the environmental impact assessment requirements, made every effort to keep railways and highways away from sensitive areas such as nature reserves and took measures to lower their environmental impacts, such as building passages for wild animals during the construction of Qinghai-Tibet Railway to mitigate the impacts on fragile plateau ecosystems.

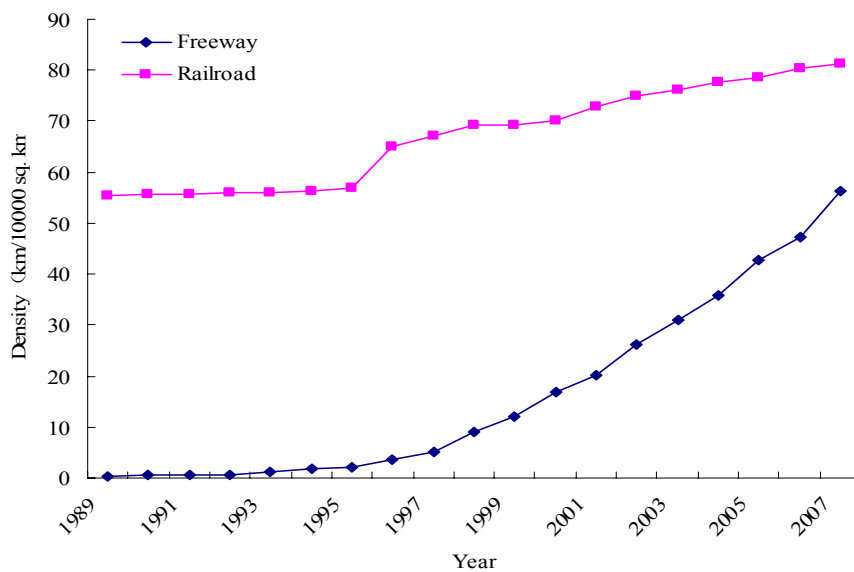


Figure 4-7 Density of Railways and Highways in China over the Years

Indicator 6: Marine trophic index

From 1950 to 1980, China's marine trophic index(MTI) fluctuated stably between 3.45 and 3.50. Due to over fishing, the index kept dropping dramatically for more than ten years from the beginning of the 1980s to the mid-1990s, and decreased afterwards to about 3.25, lower than the global mean index over the same period. This resulted in serious degradation of marine ecosystems, as shown by reduction in predatory fishes and increase in fishes of younger ages, smaller sizes and lower values. From 1997 to 2006, China's MTI rose steadily (Fig 4-8). One possible reason may be the implementation of the summer fishing ban policy, which contributed to the conservation of China's marine fishery resources. Since 1995, the summer fishing ban policy was put into practice in East China Sea, Yellow Sea and Bohai Sea areas on a full scale. Beginning from 1999, this policy was also introduced to the South China Sea area. Thorough implementation of the summer fishing ban policy has conserved and restored fishery resources. In addition, the increasingly intensive baby fish release efforts over recent years also boosted the restoration of fishery resources. China's MTI is still at a relatively low level despite stable increase over the past ten years. There is a long way to go to lift the index to the level before the 1970s and restore marine biological resources, especially large predatory fishes.

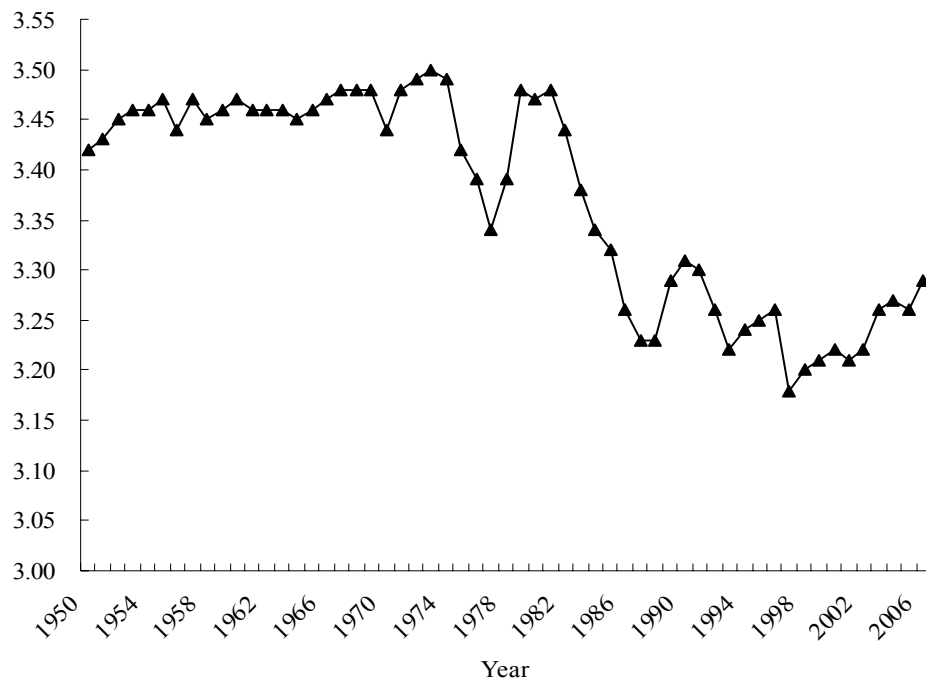


Figure 4-8 Change in China's Marine Trophic Index over the Years (from Xu et al. 2009)

Indicator 7: Sea water quality

In recent years, the sea area with water quality below the clean standard declined gradually while the cleanness index of sea water was on upward trend (Figure 4-9). The area and frequency of red tides both came down (Figure 4-10). The overall water quality of offshore areas improved year by year. However, pollution in these areas is still very serious, the deterioration of the health status of offshore ecosystems was not effectively curbed and red tides still occurred frequently.

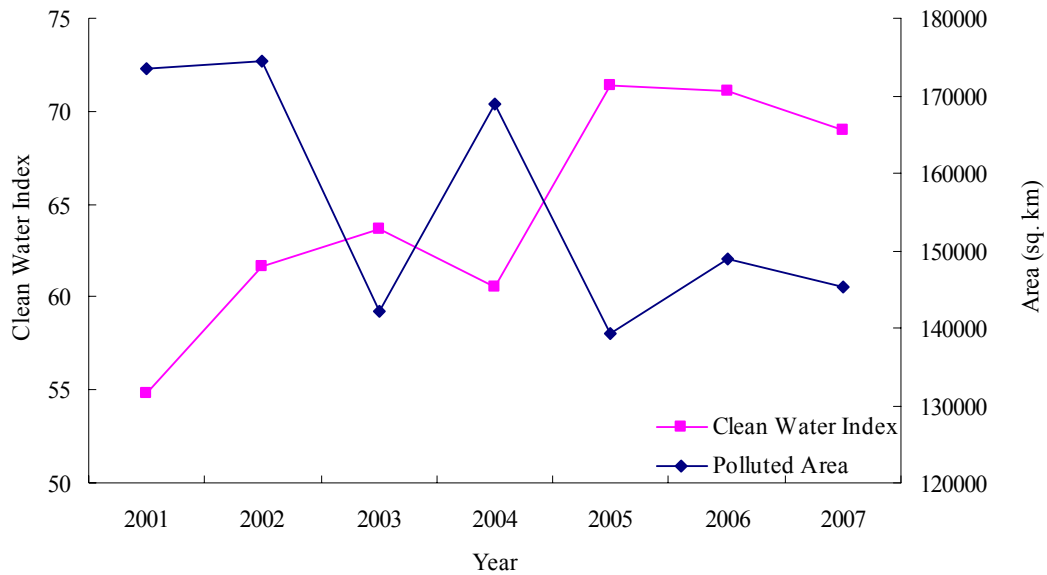


Figure 4-9 Change in Cleanness Index of Sea Water and Area with Water Quality below the Clean Standard in China over the Years

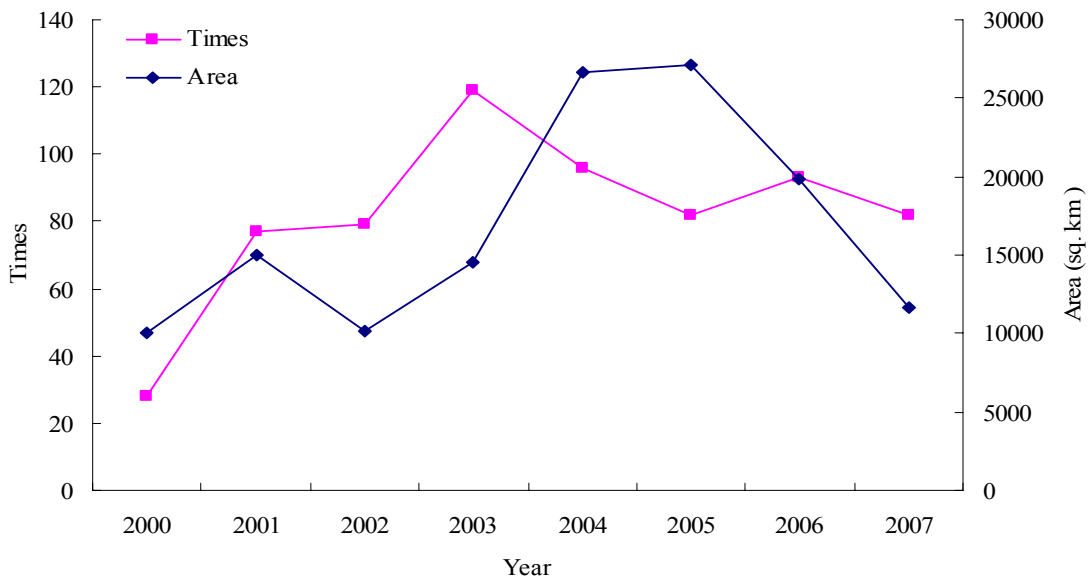


Figure 4-10 Change in Area and Frequency of Red Tides in China over the Years

Indicator 8: Water quality of freshwater ecosystems

From 2001 to 2006, the pollution of surface water was generally reduced (Figure 4-11), but part of the branches of Haihe River, Liao River, Huaihe River, Yellow River and Songhua River systems, especially those sections flowing through cities were seriously contaminated and some lakes and reservoirs had serious eutrophication problems. Surface water was moderately polluted on the whole.

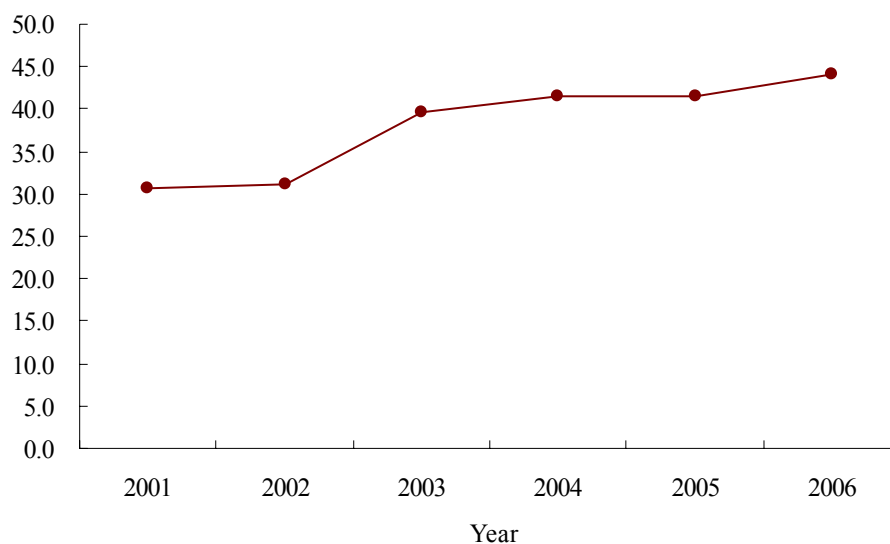


Figure 4-11 Cleanness Index of Freshwater in China over the Years

4.2.3 Reduce threats to biodiversity

Indicator 9: Emissions of major pollutants

In 2007, for the first time in recent years there was a reduction in the emissions of major pollutants, with the emission of chemical oxygen demand (COD) down 3.14% (Figure 4-12) and that of sulfur dioxide down 4.66% (Figure 4-15) from the previous year. There were decreases in the toxic and hazardous pollutants contained in sewage (Figure 4-13), the emission intensity of chemical oxygen demand of key industries (Figure 4-14), the emission of smoke and dust in effluent gases (Figure 4-15) and the discharge of solid waste (Figure 4-16). However, the total sewage and ammonia-nitrogen discharges showed an increasing trend and the total emissions of pollutants were still high in China.

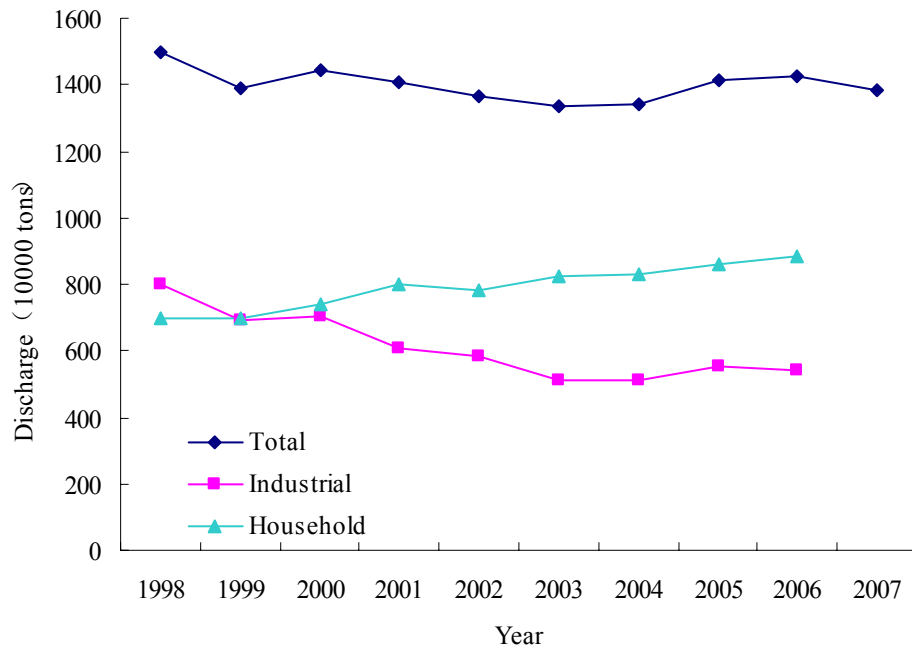


Figure 4-12 Total COD Emissions in China over the Years

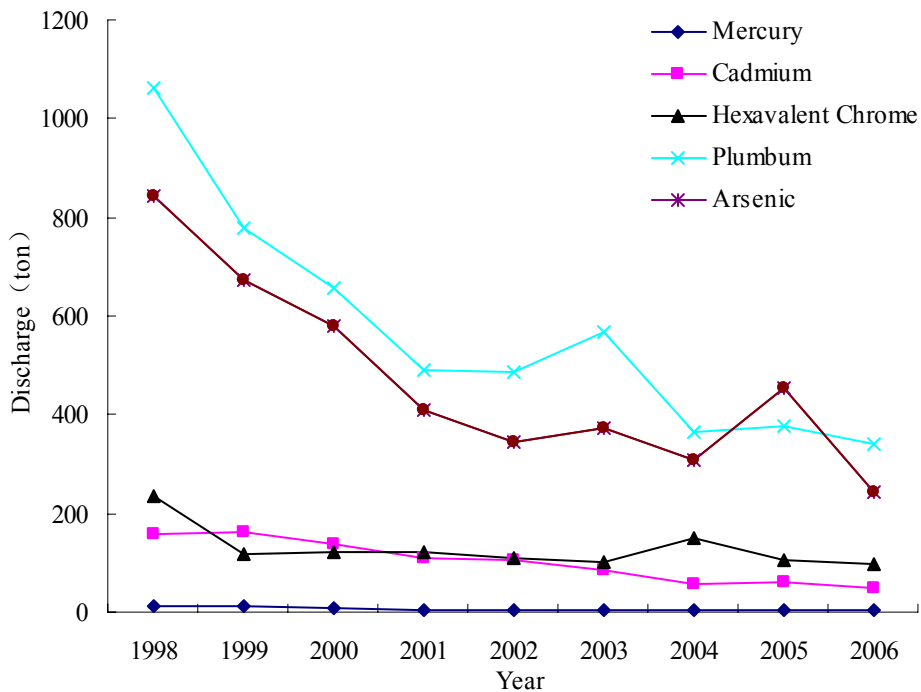


Figure 4-13 Discharges of Toxic and Hazardous Pollutants in Sewage in China over the Years

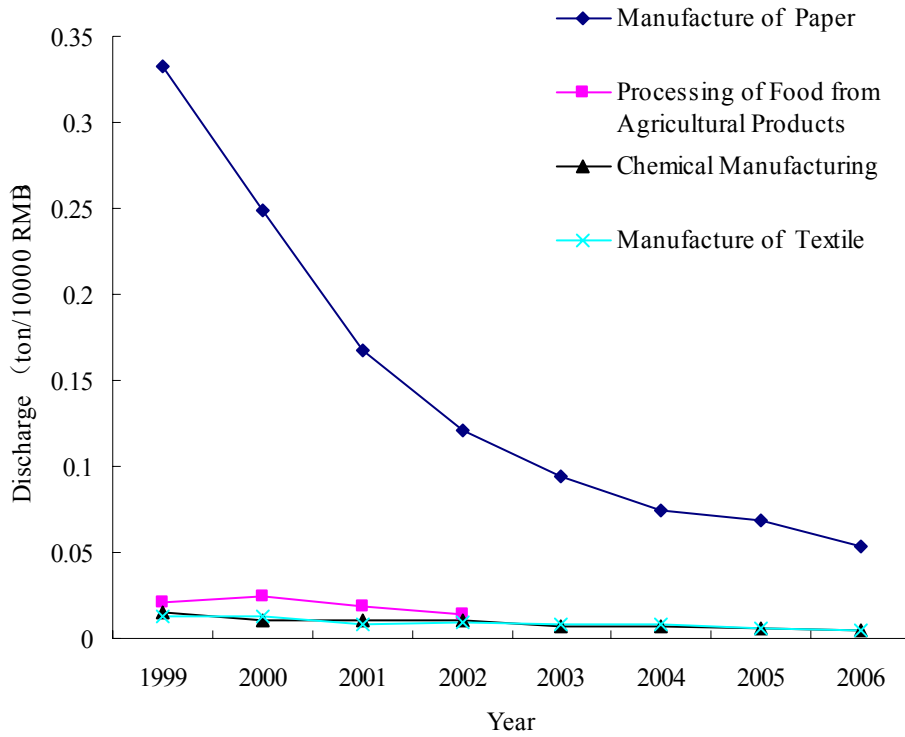


Figure 4-14 Emissions of Chemical Oxygen Demand of Key Industries in China over the Years

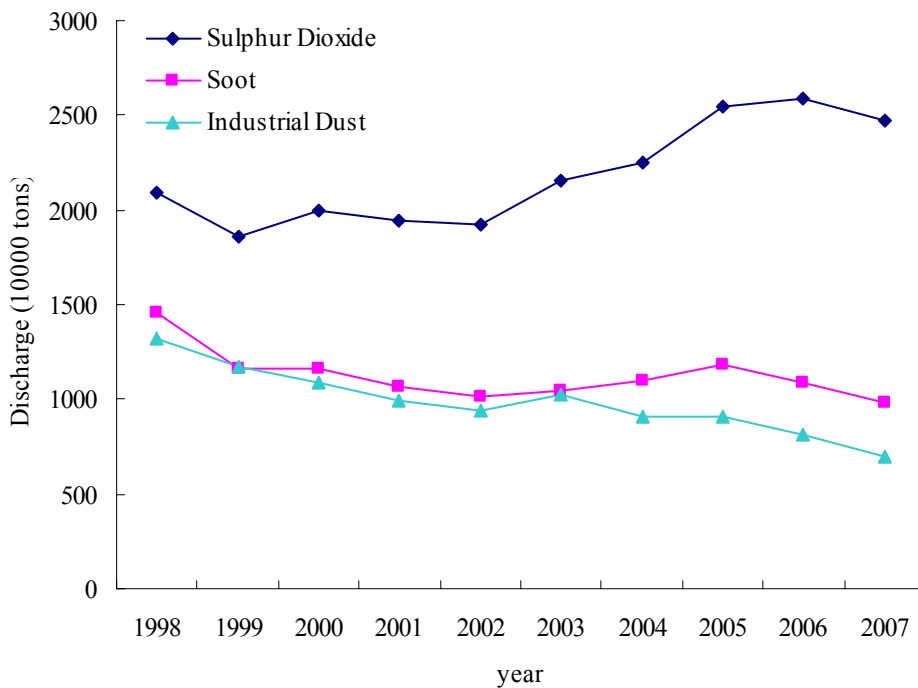


Figure 4-15 Emissions of Sulfur Dioxide, Smoke and Industrial Dust in Waste Gases in China over the Years

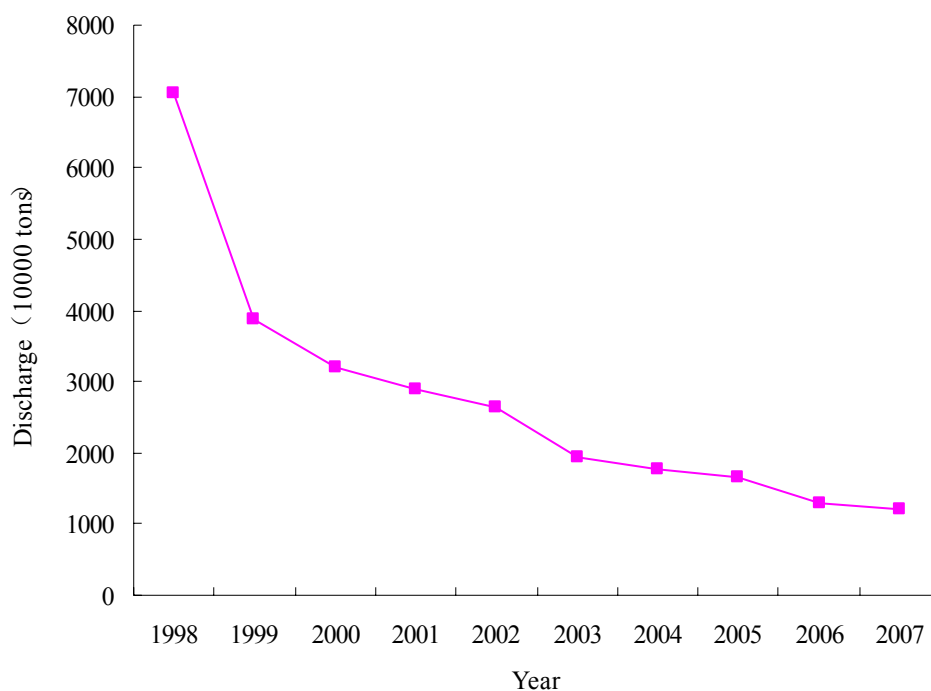


Figure 4-16 Discharges of Industrial Solid Waste in China over the Years

Indicator 10: Impact of climate change on biodiversity

Over the past century, China's surface air temperature increased noticeably by about 0.5~0.8°C with an average warming rate of about 0.08 °C per 10 years. Over the last 50 years, temperature rose at a higher rate in China. From 1951 to 2001, average temperature increased by 1.1°C with a rate of 0.22°C per 10 years. Since the 1980s, the warming trend became quite obvious. A warming climate led to the increase in the length of climatic growing period. Statistics showed that from 1961 to 2000, climatic growing periods greater than or equal to 10°C turned longer in southern and northern China and the Qinghai-Tibetan Plateau, with increase rates of 1.2 days per 10 years, 1.2 days per 10 years and 3.1 days per 10 years respectively. During this 40-year period, China's climatic growing period increased 6.5 days on average and that of the Qinghai-Tibetan Plateau increased 12.3 days.

Temperature rise also brought about changes in China's phenological phenomena. Since the 1980s, spring phenophase occurred 2 days earlier in areas with an average temperature rise of more than 0.5°C in spring and 3.5 days earlier in areas with a rise of 1.0°C; on the contrary, spring phenophase occurred 4 days later in areas with drops in average temperatures. Observations showed that in northeast China, north China and the lower reaches of Yangtze River, phenophase came earlier as the average spring

temperature rose; while in central southwest China, the middle reaches of Yangtze River and some areas of south China, phenophase came late as the average spring temperature dropped; in Inner Mongolia, the flowering period of white poplars came much earlier and the leaf fall period came obviously late.

A warmer climate may change the distribution of forests. It was observed that the lower line of the forest belt of Qilian Mountains moved up to a higher altitude. Rise in temperature and change in precipitation resulted in change of life zones. Under the impact of climate change, the humid forest zone in northern China migrated northward obviously as compared with the 1960s.

Increasingly intensive extreme weathers also posed direct threats to biodiversity. The unusual snow storms and icy winter that attacked southern China during January and February 2008 caused serious snaps, lodging and frost damage to artificially introduced and cultivated trees across 19 provinces and autonomous regions. Nearly 23 million ha of forests were affected by the weather and direct economic losses exceeded 50 billion yuan. A large number of protected wild animals were frostbitten or frozen to death.

Indicator 11: Degree of damage from invasive alien species

Invasive alien species destroy the structures and functions of ecosystems and increase the rate of biodiversity loss. Since modern times, China has been invaded by 187 alien species and 58.8% of the invasions took place after 1950. Over the past 40 years, the frequency of alien species invasions was increasing (Figure 4-17). According to incomplete statistics, from late 20th century to early 21st century, the numbers of species and the batches of harmful pests seized by China's quality inspection departments increased ten times and dozens of times respectively, showing a dramatic increasing trend (Figure 4-18). Economic and environmental losses caused by invasive alien species amounted to 119.876 billion yuan each year, equal to 1.36% of China's GDP.

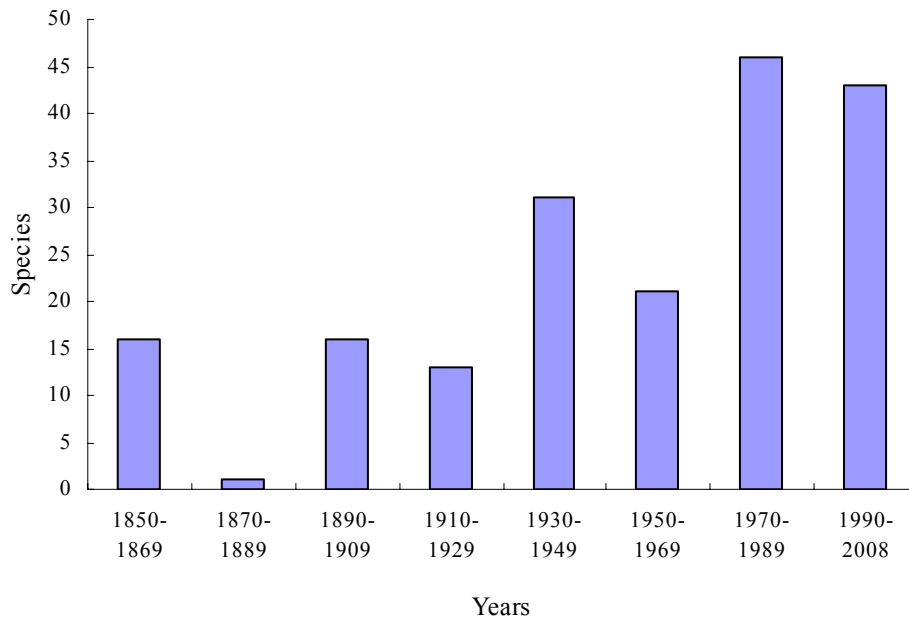


Figure 4-17 Numbers of Invasive Alien Species Newly Discovered at Different Times (from Xu et al. 2009)

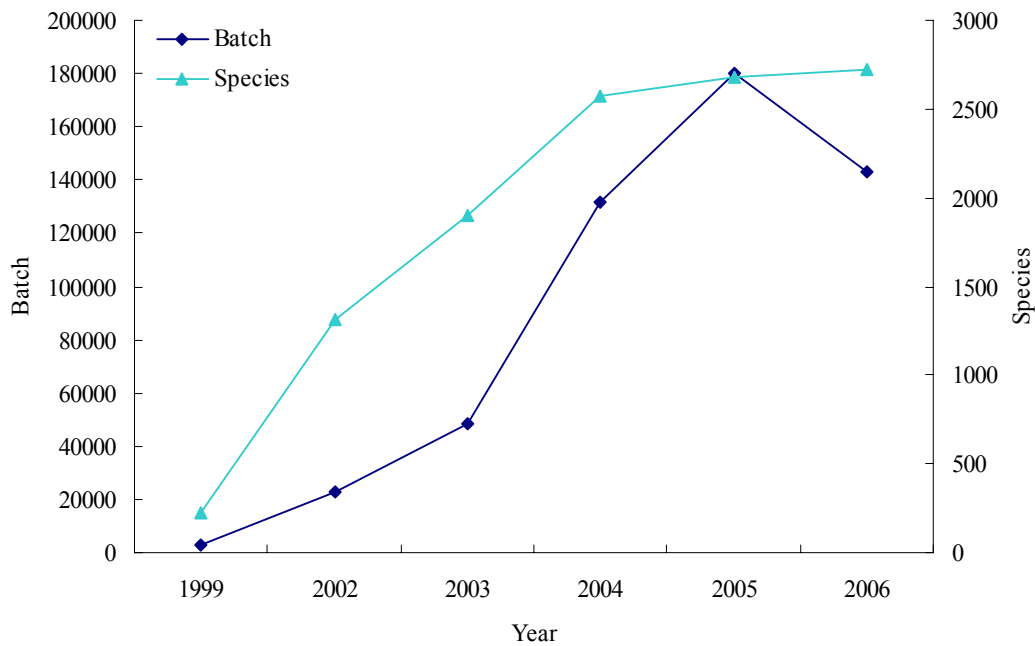


Figure 4-18 Change in Numbers of Species and Batches of Harmful Pests Seized by Quality Inspection Departments of China over the Years

4.2.4 Promote sustainable use

Indicator 12: Total standing stock volume and annual net increase of forest

Over the past decade or so, China's forest resources continued to grow. Forest coverage rose from 12.7% in 1973 to 18.21% now; total standing stock volume increased

from 9,532.27 million m³ to 13,259.356 million m³; annual net stock increase was negative from 1984 to 1988, but afterwards grew steadily to 143.92 million m³ in 2003; the area and stock of natural forest also experienced steady growth since 1989 (Figure 4-19). China has become the fastest growing country in forest resources in the world.

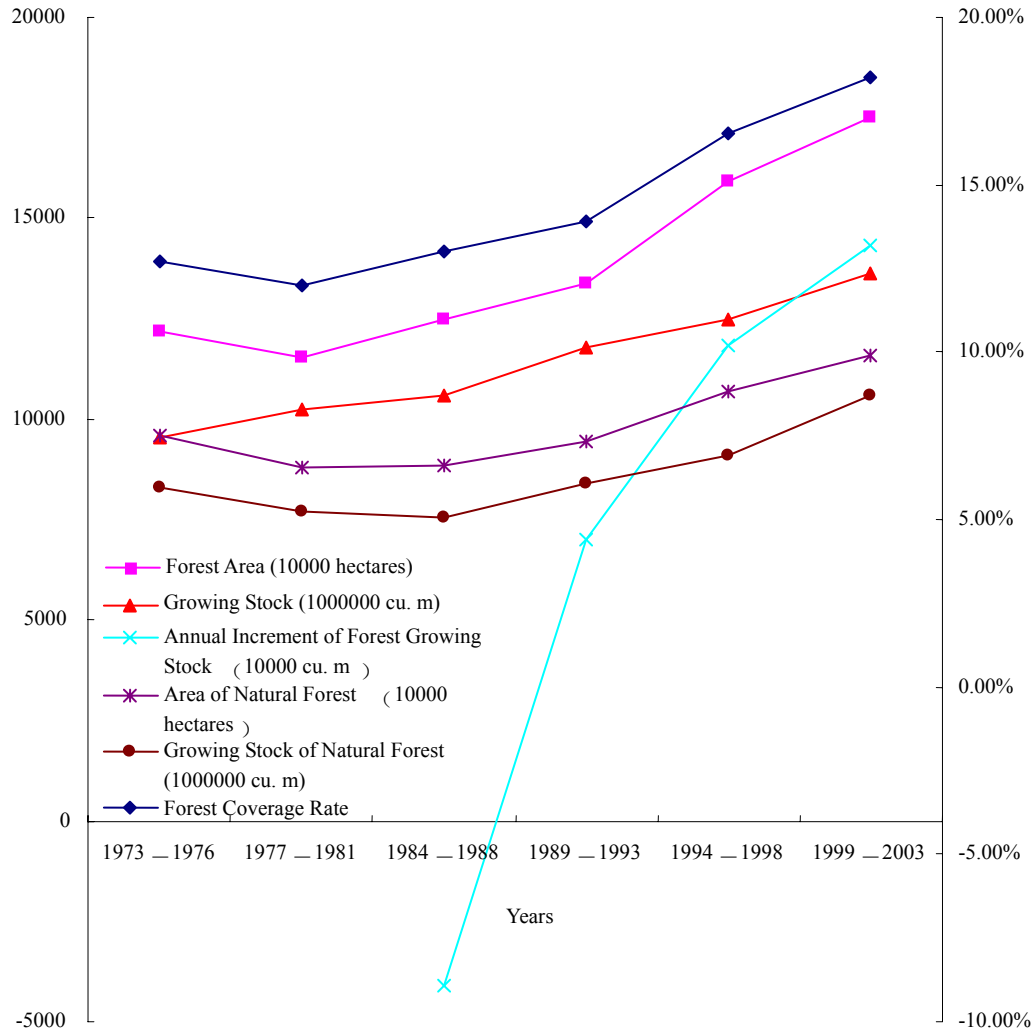


Figure 4-19 Total Standing Stock Volume and Annual Net Stock Increase

Indicator 13: Difference between nitrogen input and output

In China, agricultural production is highly dependent on all kinds of agrochemicals. Nitrogen fertilizers are the most applied, but the utilization rate is low. Agricultural activities greatly increased the content of active nitrogen in ecosystems and consequently broke ecological balance. The application rate of agrochemicals continued to increase (Figure 4-20). Water environment was facing severe threats.

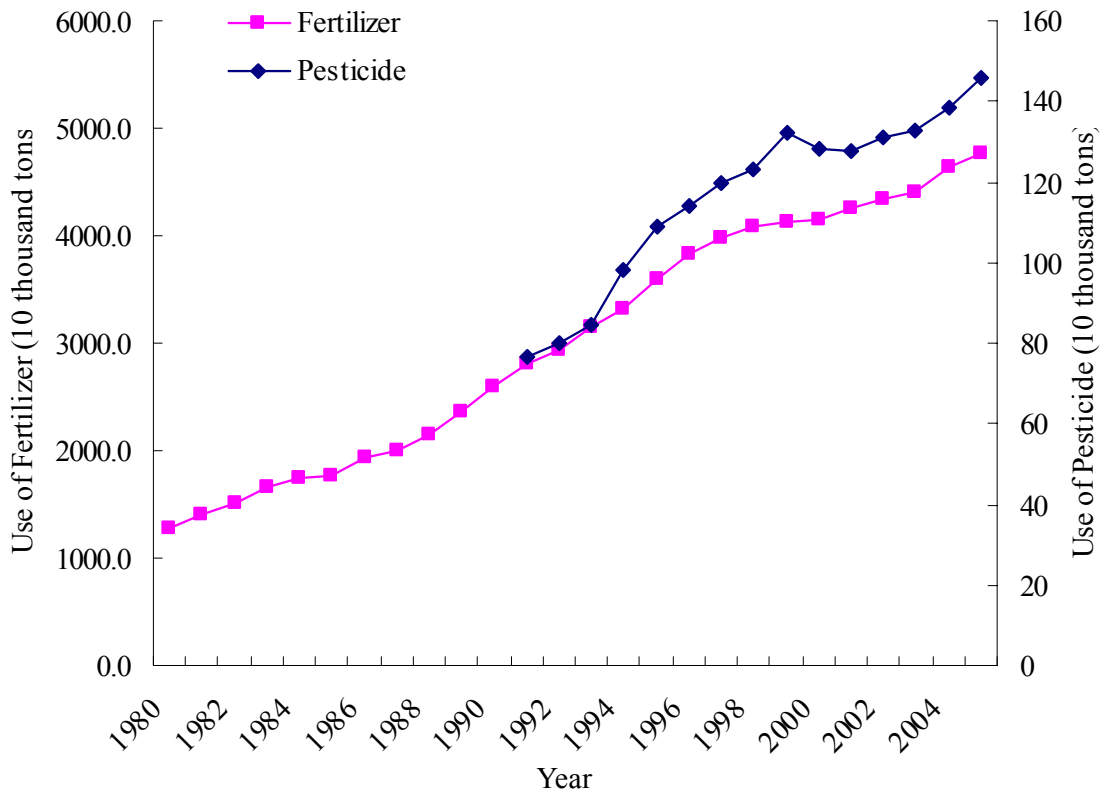


Figure 4-20 Application of Agrochemicals in China over the Years

Indicator 14: Ecological footprint

In 2003, China’s average ecological footprint was 1.6 global hectares per capita (gha), lower than the global average 2.2 gha. Despite relatively low per capita consumption, China began to run an ecological deficit from the mid-1970s as ecological footprint rose considerably (Figure 4-21). In the long run, China needs to reduce its ecological print sharply in order to lay a solid foundation for achieving the 2010 Target.

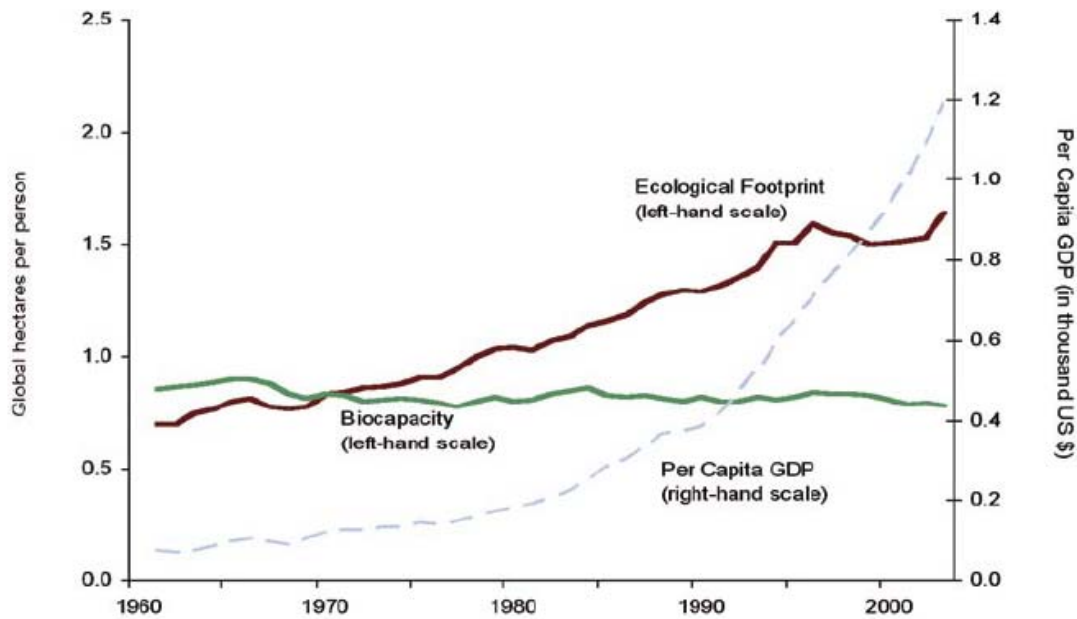


Figure 4-21 China's Ecological Footprint, Biocapacity and GDP (1961-2003)
 (Quoted from the Report on Ecological Footprint in China (2008) produced by China Council for International Cooperation on Environment and Development and World Wide Fund for Nature)

4.2.5 Ensure access to genetic resources and equitable benefit sharing

Indicator 15: Status of access to genetic resources and traditional knowledge and benefit sharing

The Chinese government improved legislation related to genetic resources and traditional knowledge; promulgated the National Intellectual Property Strategy and the National Program for Conservation and Use of Biological Resources, setting the development of the system of access to genetic resources and traditional knowledge and benefit sharing as their major objective; established fairly complete systems for conservation and storage of genetic resources and made more efforts in the collection, compilation, cataloguing and protection of traditional knowledge. The status and trend of this indicator cannot be explained due to lack of statistics.

4.2.6 Increase financial support

Indicator 16: Investment in biodiversity conservation

Over the recent years, the Chinese government continued to increase investment in environment pollution control and ecological environment conservation. Now the annual investment has reached 1% of the GDP. This has contributed significantly to biodiversity

conservation (Figure 4-22).

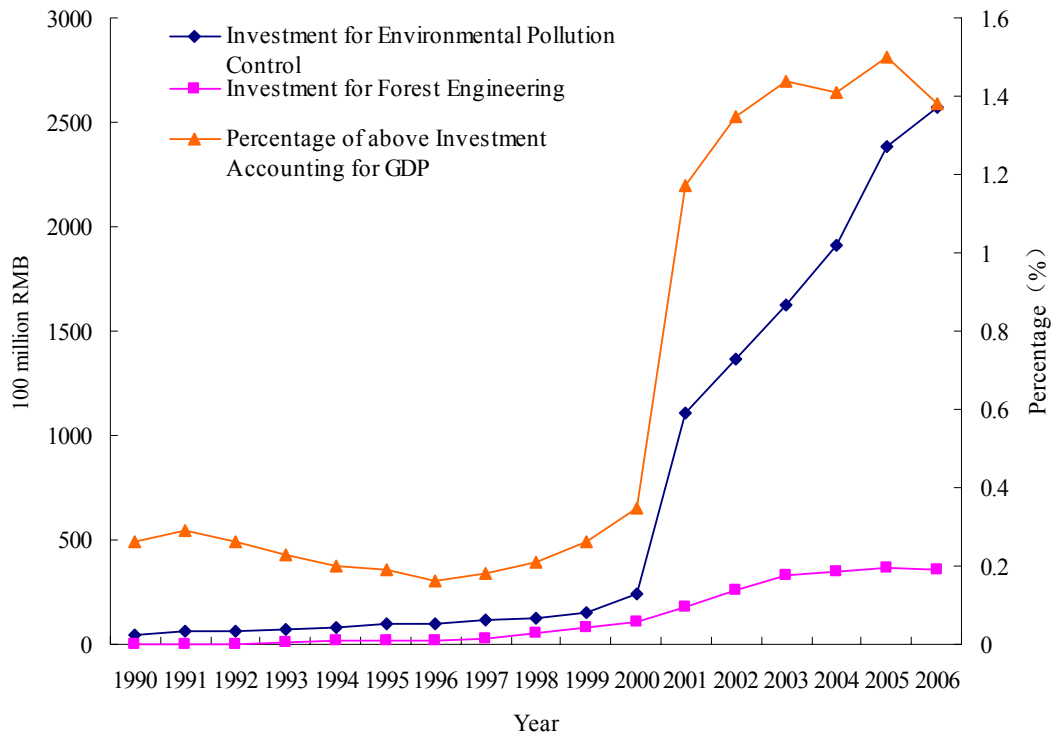


Figure 4-22 China’s Investment in Biodiversity Conservation over the Years

4.2.7 Promote public awareness

Indicator 17: Public awareness

The Chinese government launched a number of campaigns to improve public awareness and made substantive progress accordingly. The proportion of people who know the concept of “environmental protection” rose from 76.4% in 1995 to 81.5% in 2007 and people’s awareness of the significance of environmental issues increased from 40% in 1995 to 71.4% in 2007 (Figure 4-23).

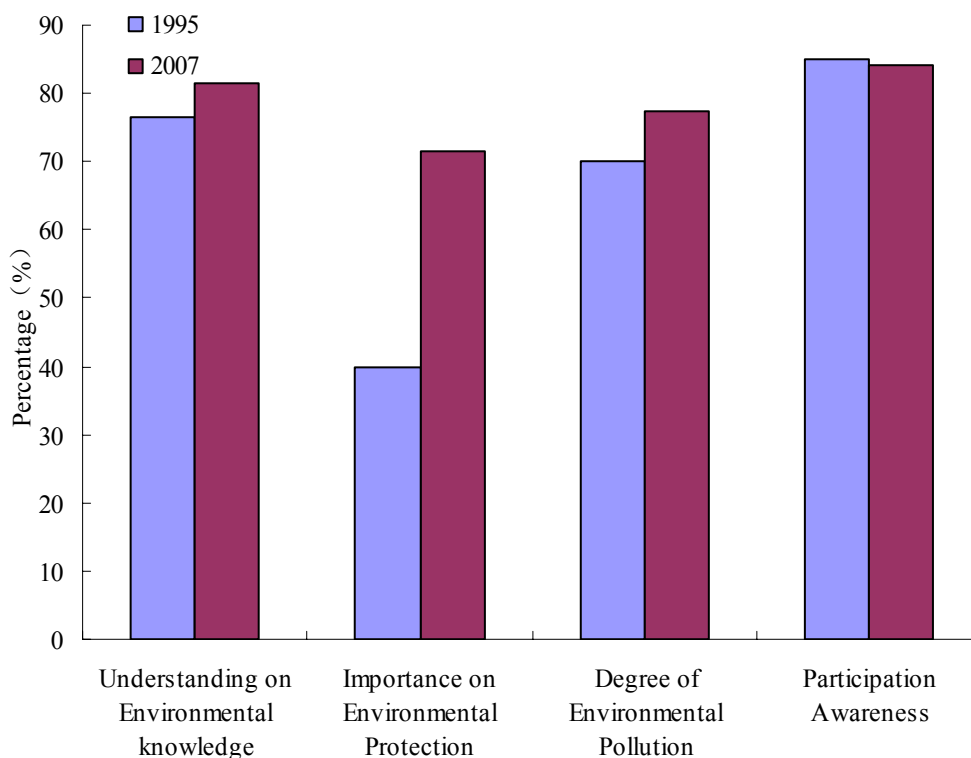











Figure 4-23 Comparison between Environmental Awareness Surveys in 1995 and 2007

4.2.8 Application of the evaluation indicators for assessing progress towards the 2010 Target

Table 4-2 Application of the evaluation indicators for assessing progress towards the 2010 target

| Trend | Indicators | Rate |
|--|--|------|
| Status and trends of the components of biological diversity | | |
| | (1) Change in status of threatened species | ★★ |
| | (2) Change in land coverage | ★★★★ |
| | (3) Genetic diversity of domesticated animals, cultivated plants, fish species of major socioeconomic importance | ★★ |
| | (4) Number and coverage of nature reserves | ★★★★ |
| Ecosystem integrity and ecosystem goods and services | | |
| | (5) Integrity of forests, grasslands and river ecosystems | ★★★★ |

| Trend | Indicators | Rate |
|---|--|-------------|
|  | (6) Marine Trophic Index | ★★★★ |
|  | (7) Water quality in marine ecosystems | ★★★★ |
|  | (8) Water quality in freshwater ecosystems | ★★★★ |
| Threats to biodiversity | | |
|  | (9) Discharge of major pollutants | ★★★★ |
| ? | (10) Impact of climate change on biodiversity | ★★ |
|  | (11) Trends in invasive alien species | ★★★★ |
| Sustainable use | | |
|  | (12) The total growing forest stock and annual net increase of growing forest stock | ★★★★ |
|  | (13) Difference between nitrogen input and output | ★★★★ |
|  | (14) Ecological footprint | ★★★★ |
| Status of access and benefit-sharing of genetic resources | | |
| ? | (15) Status of access and benefit-sharing of genetic resources and traditional knowledge | ★ |
| Financial resources | | |
|  | (16) Financial resources for biodiversity conservation | ★★★★ |
| Public awareness | | |
|  | (17) Public awareness | ★★★★ |

Note: Arrows indicate the direction of trends. Broad arrows indicate a high level of confidence about the trend; narrow arrows indicate low confidence; red arrows indicate a trend that is negative for biodiversity; green arrows indicate a trend that is positive for biodiversity.

- ★★★★----Good indicator with time series data;
- ★★----Relative good indicator without time series data;
- ★----indicator needs to be improved or with insufficient data

4.3 Progress Towards the 2010 Target

China has made substantial progress towards the 2010 Target, with target 1 mostly

fulfilled, targets 2, 3, 4, 5, 8, 9, 10 and 11 partially fulfilled, and targets 6 and 7 basically unfulfilled despite some progress (Table 4-3).

China's biodiversity is still facing severe threats. The years to come are vital to biodiversity conservation. Only stronger conservation efforts can turn the trend of ecological deterioration and biodiversity loss to promote the construction of a society with man-nature harmony and achieve the objective of building a well-off society in an all-around way.

Table 4-3 Progress Towards the 2010 Target

| Goal | Progress |
|---|-----------------|
| Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes | ★★★ |
| Target 1.1: At least 10% of each of the world's ecological regions effectively conserved | ★★★ |
| Target 1.2: Areas of particular importance to biodiversity protected | ★★★ |
| Goal 2. Promote the conservation of species diversity | ★★ |
| Target 2.1: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups | ★★ |
| Target 2.2: Status of threatened species improved. | ★★ |
| Goal 3. Promote the conservation of genetic diversity | ★★ |
| Target 3.1: Genetic diversity of crops, livestock, and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained. | ★★ |
| Goal 4. Promote sustainable use and consumption | ★★ |
| Target 4.1: Biodiversity-based products derived from sources that are sustainably managed, and Production areas managed consistent with the conservation of biodiversity | ★★ |
| Target 4.2 Unsustainable consumption, of biological resources, or that impacts upon biodiversity, reduced | ★★ |
| Target 4.3: No species of wild flora or fauna endangered by international trade | ★★ |
| Goal 5. Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced | ★★ |
| Target 5.1: Rate of loss and degradation of natural habitats decreased | ★★ |
| Goal 6. Control threats from invasive alien specie | ★ |
| Target 6.1: Pathways for major potential alien invasive species controlled | ★ |
| Target 6. 2: Management plans in place for major alien species that threaten ecosystems, habitats or species | ★★ |
| Goal 7. Address challenges to biodiversity from climate change, and pollution | ★ |
| Target 7.1: Maintain and enhance resilience of the components of biodiversity to adapt to climate change | ★ |
| Target 7.2: Reduce pollution and its impacts on biodiversity | ★★ |
| Goal 8. Maintain capacity of ecosystems to deliver goods and services and support livelihoods | ★★ |

| Goal | Progress |
|---|----------------|
| Target 8.1: Capacity of ecosystems to deliver goods and services maintained | ★★ |
| Target 8.2: biological resources that support sustainable livelihoods, local food security and health care, especially of poor people maintained | ★★ |
| Goal 9 Maintain socio-cultural diversity of indigenous and local communities | ★★ |
| Target 9.1: Protect traditional knowledge, innovations and practices | ★★ |
| Target 9.2: Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit sharing | ★★ |
| Goal 10. Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources | ★★ |
| Target 10.1: All transfers of genetic resources are in line with the Convention on Biological Diversity, the International Treaty on Plant Genetic Resources for Food and Agriculture and other applicable agreements | ★★ |
| Target 10.2: Benefits arising from the commercial and other utilization of genetic resources shared with the countries providing such resources | ★★ |
| Goal 11: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention | ★★ |
| Target 11.1: New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20 | Not applicable |
| Target 11.2: Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with its Article 20, paragraph 4 | Not applicable |

Note: ★★★★★--fully met; ★★★--met to large extent; ★★--partially met;
★- basically not met although some progress made

4.4 Progress Towards Achieving Goals and Objectives of the Strategic Plan

Table 4-4 Progress Towards the Strategic Plan

| Strategic goals and objectives | Progress |
|---|----------|
| Goal 1: The Convention is fulfilling its leadership role in international biodiversity issues. | ★★★★ |
| 1.1 The Convention is setting the global biodiversity agenda. | ★★★★★ |
| 1.2 The Convention is promoting cooperation between all relevant international instruments and processes to enhance policy coherence. | ★★★★ |
| 1.3 Other international processes are actively supporting implementation of the Convention, in a manner consistent with their respective frameworks. | ★★★★ |
| 1.4 The Cartagena Protocol on Biosafety is widely implemented. | ★★★★ |
| 1.5 Biodiversity concerns are being integrated into relevant sectoral or cross-sectoral plans, programmes and policies at the regional and global levels. | ★★ |
| 1.6 Parties are collaborating at the regional and subregional levels to implement the Convention. | ★★ |

| Strategic goals and objectives | Progress |
|---|----------|
| Goal 2: Parties have improved financial, human, scientific, technical, and technological capacity to implement the Convention. | ★★ |
| 2.1 All Parties have adequate capacity for implementation of priority actions in national biodiversity strategy and action plans. | ★★ |
| 2.2 Developing country Parties, in particular the least developed and the small island developing States amongst them, and other Parties with economies in transition, have sufficient resources available to implement the three objectives of the Convention. | ★★ |
| 2.3 Developing country Parties, in particular the least developed and the small island developing States amongst them, and other Parties with economies in transition, have increased resources and technology transfer available to implement the Cartagena Protocol on Biosafety. | ★★ |
| 2.4 All Parties have adequate capacity to implement the Cartagena Protocol on Biosafety. | ★★ |
| 2.5 Technical and scientific cooperation is making a significant contribution to building capacity. | ★★ |
| Goal 3: National biodiversity strategies and action plans and the integration of biodiversity concerns into relevant sectors serve as an effective framework for the implementation of the objectives of the Convention. | ★★★★ |
| 3.1 Every Party has effective national strategies, plans and programmes in place to provide a national framework for implementing the three objectives of the Convention and to set clear national priorities. | ★★★★★ |
| 3.2 Every Party to the Cartagena Protocol on Biosafety has a regulatory framework in place and functioning to implement the Protocol. | ★★★★ |
| 3.3 Biodiversity concerns are being integrated into relevant national sectoral and cross-sectoral plans, programmes and policies. | ★★★★ |
| 3.4 The priorities in national biodiversity strategies and action plans are being actively implemented, as a means to achieve national implementation of the Convention, and as a significant contribution towards the global biodiversity agenda. | ★★★★ |
| Goal 4: There is a better understanding of the importance of biodiversity and of the Convention, and this has led to broader engagement across society in implementation. | ★★★★ |
| 4.1 All Parties are implementing a communication, education, and public awareness strategy and promoting public participation in support of the Convention. | ★★★★★ |
| 4.2 Every Party to the Cartagena Protocol on Biosafety is promoting and facilitating public awareness, education and participation in support of the Protocol. | ★★★★★ |
| 4.3 Indigenous and local communities are effectively involved in implementation and in the processes of the Convention, at national, regional and international levels. | ★★ |

| Strategic goals and objectives | Progress |
|---|-----------------|
| 4.4 Key actors and stakeholders, including the private sector, are engaged in partnership to implement the Convention and are integrating biodiversity concerns into their relevant sectoral and cross-sectoral plans, programmes and policies. | ★★ |

Note: ★★★★★--fully met; ★★★--met to large extent; ★★--partially met; ★- basically not met although some progress made

4.5 Conclusions

4.5.1 Contribution of CBD implementation to biodiversity conservation and ecological conservation in China

(1) The implementation of the Convention has promoted the conservation of ecosystems and sustainable use of biological resources in China;

(2) The implementation of the Convention has boosted the establishment of the system for genetic resources conservation and benefit sharing;

(3) The implementation of the Convention has greatly advanced goals for ecological civilization.

4.5.2 Experiences and lessons from the CBD implementation

See Sections 2.6 and 2.7, Chapter II.

4.5.3 Future priorities and capacity-building needs

1. Develop policies and legislation system for the conservation and sustainable use of biodiversity

- Evaluate all existing economic, investment, taxation, trade and other policies,
- Eliminate unfavorable policies and develop favorable incentive policies for the conservation and sustainable use of biodiversity,
- Strengthen the construction of legislation system and increase the law-enforcement capacities of related authorities.

2. Carry out biodiversity survey, evaluation and monitoring

- Carry out nationwide surveys and cataloguing on major ecosystems, species, genetic resources and related traditional knowledge,
- Set up related databases and information networks, establish national biodiversity monitoring and early-warning systems, and
- Undertake national biodiversity assessments.

3. Strengthen in-situ biodiversity conservation

- Improve the national system of nature reserves,
- Carry out pilot projects of establishing national nature reserves, and enhance the management of nature reserves,
- Improve biodiversity conservation outside nature reserves and establish a series of mini-nature reserves and conservation sites.

4. Strengthen *ex-situ* biodiversity conservation and storage

- Carry out *ex-situ* conservation of endangered species and pilot projects of reintroducing artificially bred populations into nature and achieve the natural reproduction of wild populations,
- Put more efforts into the construction and management of *in vitro* conservation facilities of genetic resources.

5. Promote access to and use of genetic resources and traditional knowledge and benefit sharing

- Intensify use of and innovative research on genetic resources, establish the system and mechanism for conserving and accessing genetic resources and sharing related benefits, and
- Establish the import-export inspection system for genetic resources.

6. Strengthen environmental risk management regarding invasive alien species and genetically modified organisms

- Establish environmental risk assessment systems regarding alien species,
- Improve quarantine facilities and control threats from important invasive alien species,
- Establish the technical system for risk assessment, detection and monitoring of genetically modified organisms.

7. Formulate national strategies and action plans to mitigate the impacts of climate change on biodiversity

- Formulate national strategies and key measures to mitigate the adverse impacts of climate change on biodiversity,
- Set up networks to monitor the impacts of climate change on biodiversity and carry out monitoring over key regions and species.

4.5.4 Suggestions for enhancing implementation of the Convention at the regional and global levels

1. Strengthen capacities of developing countries to participate in the implementation of the Convention

More opportunities should be provided for developing countries to get involved in the processes under the Convention to increase their capacities to participate in the implementation of the Convention and better meet their needs. Developed countries should increase their financial support and technology transfer to developing countries. International and regional organizations should provide more support to developing countries.

2. Promote regional cooperation mechanisms

Make the best of existing regional cooperation mechanisms to provide more support for biodiversity conservation at various levels; innovate approaches and mechanisms and establish new regional cooperation mechanisms which may facilitate the implementation of the Convention.

3. Increase experience exchange and technical training

Increase experience exchange and technical training so that the Contracting Parties can share experiences, grasp technologies and skills needed to conserve biological diversity and better fulfill their commitments in the Convention.

4. Focus on key issues

The Convention covers many issues while resources used to implement the Convention are limited. Now the Conference of Parties tends to address a wide range of issues without identifying priorities or focuses. The Strategic Plan of the Convention should be further improved to focus on key priorities or issues and put major resources into address these key priorities or issues.

Appendix I Information Concerning Reporting Party and Preparation of National Report

A. Reporting party

| | |
|--|--|
| Contracting Party | The People's Republic of China |
| NATIONAL FOCAL POINT | |
| Full name of the institution | Department of International Cooperation, Ministry of Environmental Protection |
| Name and title of contact officer | Zhang Jieqing, Director, Division for International Organizations |
| Mailing address | No.115 Xizhimennei Nanxiaojie, Beijing, China, 100035 |
| Telephone | +86-10-66556320 |
| Fax | |
| E-mail | zhang.jieqing@mep.gov.cn |
| CONTACT OFFICER FOR NATIONAL REPORT (IF DIFFERENT FROM ABOVE) | |
| Full name of the institution | Department of Nature and Ecology Conservation (the Biodiversity Conservation Office), Ministry of Environmental Protection |
| Name and title of contact officer | Zhuang Guotai, Director General, Department of Nature and Ecology Conservation, MEP |
| Mailing address | No.115 Xizhimennei Nanxiaojie, Beijing, China, 100035 |
| Telephone | |
| Fax | |
| E-mail | zhuang.guotai@mep.gov.cn |
| SUBMISSION | |
| Signature of officer responsible for submitting national report | |
| Date of submission | |

B. Preparation of the National Report

1. Preparation Outline developed and Preparation Expert Group established

In January 2008, the MEP decided to work with members of the National Coordination Committee for CBD Implementation of China and other related departments to prepare the Fourth National Report. In February 2008, the MEP worked out the Outline for the Fourth National Report and invited members of the Coordination Committee to recommend related experts.

2. Preparation Expert Group Meeting convened, preparation work launched and tasks assigned

On March 18, 2008, the Preparation Expert Group Meeting was convened in Beijing to officially launch the preparation work. During the meeting, the Preparation Outline was improved and the preparation schedule and task assignments were clarified.

3. Literary research and classification and drafting of the Fourth National Report

In April 2008, experts recommended by each department began to collect and classify materials and data within their department as required by the Preparation Outline. From May to August 2008, the Preparation Expert Group sorted materials and data submitted by relevant departments and developed the chapters and appendices of the report. The first draft of the Fourth National Report was completed.

4. Expert Seminar convened to deliberate on the evaluation indicators for the 2010 Target

On June 27, 2008, the MEP held the Seminar on Evaluation Indicators for the 2010 Target in Beijing to discuss and improve the evaluation indicators for the 2010 Target proposed by the Preparation Expert Group. Experts from relevant departments and organizations were also invited to provide statistics for the evaluation of progress towards the 2010 Target.

5. Preparation Expert Seminar convened

On September 4, 2008, the MEP held the Preparation Expert Seminar in Beijing to discuss the first draft of the report. Suggestions for revisions were made and the Draft Report for Comments was developed accordingly.

6. Meeting of the Coordination Committee convened to seek suggestions from different departments

On October 10, 2008, the Meeting of the Coordination Committee for CBD Implementation of China was held in Beijing. During the meeting, representatives from different departments put forward suggestions for revision of the Draft Report for

Comments. The Preparation Expert Group formulated the Draft Report for Reviewing and Approval after further revision based on these suggestions and submitted the draft to the MEP.

7. Reviewing and approval, translation and submission of the Fourth National Report

In November 2008, the Fourth National Report was approved by the MEP. From February to March 2009, the Fourth National Report was translated into English. In March 2009, the Chinese and English versions of the Fourth National Report were submitted to the Secretariat.

Departments and institutions involved in the preparation of the report:

Ministry of Environmental Protection, Ministry of Foreign Affairs, National Development and Reform Commission, Ministry of Education, Ministry of Science and Technology, Ministry of Finance, Ministry of Land and Resources, Ministry of Housing and Urban-Rural Development, Ministry of Water Resources, Ministry of Agriculture, Ministry of Commerce, General Administration of Customs, State Administration of Industry and Commerce, General Administration of Quality Supervision, Inspection and Quarantine, State Forestry Administration, State Intellectual Property Office, Chinese Academy of Sciences, State Oceanic Administration, State Administration of Traditional Chinese Medicine, State Council Leading Group Office of Poverty Alleviation and Development, Endangered Species Import and Export Management Office, China Ramsar Convention Implementing Office, Office of National Coordination Committee on Climate Change, National Bureau to Combat Desertification of the State Forestry Administration, Institute of Geographical Sciences and Natural Resources Research of the Chinese Academy of Sciences, Institute of Botany of the Chinese Academy of Sciences, Peking University, Tongji University, National Climate Center, Nanjing Institute of Environmental Sciences of the Ministry of Environmental Protection, The Nature Conservancy, Conservation International, Wildlife Conservation Society.

References

- [1] Editorial Board of National Assessment Report on Climate Change. *National Assessment Report on Climate Change*. Beijing: Science Press, 2007
- [2] Chief Editorial Team of China Biodiversity Conservation Action Plan. 1994. *China Biodiversity Conservation Action Plan*. Beijing: China Environmental Sciences Press
- [3] Compilation Committee of National Strategy for Plant Conservation. 2008. *National Strategy for Plant Conservation*. Guangzhou: Guangdong Science & Technology Press
- [4] Chao Min, Quan Weimin, Li Chunhou, Cheng Yanhong. 2005. *Research on Trophic Level Changes in Marine Catches in East China Sea*. *Marine Science*, 29(9):51-55
- [5] Gao Zhiqiang, Liu Jiyuan. 2008. *Comparative Studies on Net Productivity of Vegetation in China*. *Chinese Science Bulletin* 53(3):317-326
- [6] State Oceanic Administration. *2007 Bulletin of Marine Environmental Quality of China*.
- [7] State Environmental Protection Administration. 1998. *China's First National Report on Implementation of the Convention on Biological Diversity*. Beijing: China Environmental Science Press
- [8] State Environmental Protection Agency. 1998. *Report on China Biodiversity Country Studies*. Beijing: China Environmental Science Press
- [9] State Environmental Protection Administration. 2001. *China's Second National Report on Implementation of the Convention on Biological Diversity*. Beijing: China Environmental Science Press
- [10] State Environmental Protection Administration. 2005. *China's Third National Report on Implementation of the Convention on Biological Diversity*. Beijing: China Environmental Science Press
- [11] State Environmental Protection Administration. *China Environment Year Book (1990-2006)*. Beijing: China Environmental Science Press
- [12] State Environmental Protection Administration. *Report on the State of the Environment in China (1991-2007)*
- [13] State Forestry Administration. 2008. *Report on the State of Forestry and Ecological Construction in China*
- [14] State Forestry Administration. *China Forestry Year Book (1990-2006)*. Beijing: China Forestry Publishing House
- [15] State Forestry Administration. 2005. *Report on Desertification Status in China*
- [16] State Forestry Administration, etc. 2000. *China Wetlands Conservation Action Plan*. Beijing: China Forestry Publishing House
- [17] State Environmental Protection Administration. *Report on the State of the Environment in China. 2007*
- [18] Ministry of Environmental Protection. *China Biodiversity Conservation Strategy and Action Plan (To be published)*
- [19] Ministry of Communications. *Statistical Report on Development of Highway and Waterway Transportation Industries (1989-2007)*

- [20] Li Zhenyu, Xie Yan. 2002. *Invasive Alien Species in China*. Beijing: China Forestry Publishing House
- [21] Liu Juan, Zhang Zengxiang, Zhuang Dafang, etc. *A study on the Spatial-Temporal Dynamic Changes of Land-use and Driving Forces Analyses of China in the 1990s*. Geographical Research, 2003, 22(1):1-12
- [22] Ministry of Agriculture. *National Agricultural Statistics (2002-2006)*. Beijing: China Agriculture Press
- [23] Ministry of Agriculture. *China Grassland Monitoring Report (2005-2007)*
- [24] Shen Guofang. *Concerning the Impact of Major Snow Disasters on the Forestry of China*. Scientia Silvae Sinicae 2008, 44(3):1
- [25] Ministry of Railways. *China Railway Yearbook (1989-2007)*. Beijing: China Railway Publishing House
- [26] Wang Song, Xie Yan. *China Species Red List*. Vol. I, *Red List*. Beijing: Higher Education Press, 2004
- [27] Wang Song. *China Red Data Book of Endangered Animals*, Beijing: Science Press, 1998
- [28] Xi Xiaolin, Fan Lihong, Deng Xueming. *Status of the Environment in China — Analysis of Public Survey Results*. China Soft Science, 1998, (9):24-30
- [29] China Environmental Awareness Program/Institute of Sociology of the Chinese Academy of Social Sciences. *2007 National Report on Public Environmental Awareness Survey*
- [30] China Council for International Cooperation on Environment and Development and World Wide Fund for Nature. 2008. *Report on Ecological Footprint in China*
- [31] Zhou Zhizhong. *Public Environmental Awareness Survey*. Environment Herald, 1996, (4):29-30
- [32] Barinaga M. 1990. Where have all the frogs gone? Science, 247: 1033-1034
- [33] Butchart SHM, Akcakaya HR, Chanson J, Baillie JEM, Collen B, *et al.* 2007. Improvements to the Red List Index. PLoS ONE 2(1): e140. doi:10.1371/journal.pone.0000140
- [34] Butchart SHM, Stattersfield AJ, Baillie JEM, Bennun LA, Stuart SN, *et al.* 2005. Using Red List Indices to measure progress towards the 2010 target and beyond. Philosophical Transactions of the Royal Society of London B 360: 255–268
- [35] Chen WZ. 1999. Marine resources, their status of exploitation and management in the People's Republic of China. FAO Fisheries Circular No. 950
- [36] European Environment Agency. 2007. Halting the loss of biodiversity by 2010: proposal for a first set of indicators to monitor progress in Europe. EEA Technical report No 11, Copenhagen
- [37] FAO. Capture Production 1950-2006, FAO Fishstat
- [38] Liu JY, Liu ML, Zhuang DF, Zhang ZX, Deng XZ. Study on spatial pattern of land-use change in China during 1995-2000. 2003. Science in China (D), 46(4): 373-384
- [39] Liu JY, Tian HQ, Liu ML, Zhuang DF, Melillo JM, and Zhang ZX. 2005. China's changing landscape during the 1990s: Large-scale land transformations estimated with satellite data. Geophysical Research Letters, 32, L02405, doi: 10.1029/2004GL021649
- [40] Millennium Ecosystem Assessment. 2005. Ecosystems and human well-being: biodiversity

synthesis. World Resources Institute, Washington, DC

- [41] Pauly D and Watson R. 2005. Background and interpretation of the “Marine Trophic Index” as a measure of biodiversity. *Philosophical Transactions of the Royal Society (Biological Sciences)* 360(1454): 415-423
- [42] Red List Index Working Group. 2007. IUCN Red List Index guidelines for the sampled approach
- [43] Secretariat of the Convention on Biological Diversity. 2006. *Global Biodiversity Outlook 2*. Montreal, Canada
- [44] Waston R, Kitchingman A, Gelchu A & Pauly D. 2004. Mapping global fisheries: sharpening our focus. *Fish and Fisheries* (5):168-177
- [45] Xu HG, Ding H, Li MY, Qiang S et al. 2006. The Distribution and Economic Losses of Alien Species Invasion to China. *Biological Invasions*, 8:1495–1500
- [46] Xu HG, Wu J, Liu Y, Ding H, Zhang M et al. 2008. Biodiversity Congruence and Conservation Strategies: a National Test. *BioScience*,58: 632-639
- [47] Xu HG, Tang XP, Liu JY, Ding H, Wu J, Zhang M et al. China’s Progress towards the Significant Reduction of the Rate of Biodiversity Loss. *Science*, 2009 (under review)

Appendix II Progress Towards the Global Strategy for Plant Conservation and the Programme of Work on Protected Areas

I. Progress towards the Global Strategy for Plant Conservation

In 2008, the State Forestry Administration, the Ministry of Environmental Protection and the Chinese Academy of Sciences jointly issued the China's Strategy for Plant Conservation (CSPC). Centered on the 16 specific targets of the Global Strategy for Plant Conservation (GSPC), the CSPC evaluates the status of China's implementation of these targets and existing problems and identifies actions to be taken in the future. The CSPC has been published by the Guangdong Science and Technology Press. For further information on progress towards the GSPC, please refer to China's Third National Report on Implementation of the Convention on Biological Diversity.

II. Progress Towards the Programme of Work on Protected Areas

| Objectives/Targets | Highlights of Actions Taken |
|---|---------------------------------------|
| 1.1. To establish and strengthen national and regional systems of protected areas integrated into a global network as a contribution to globally agreed goals | See Point 3, Section 2.3, Chapter II. |

| Objectives/Targets | Highlights of Actions Taken |
|--|--|
| <p>By 2010 terrestrially and 2012 in the marine area, a global network of comprehensive, representative and effectively managed national and regional protected area system is established as a contribution to (i) the goal of the Strategic Plan of the Convention and the World Summit on Sustainable Development of achieving a significant reduction in the rate of biodiversity loss by 2010; (ii) the Millennium Development Goals – particularly Goal 7 on ensuring environmental sustainability; and (iii) the Global Strategy for Plant Conservation</p> | |
| <p>1.2. To integrate protected areas into broader land- and seascapes and sectors so as to maintain ecological structure and function</p> | <p>See information on plans for nature reserves in Subsection 2.1.2, Chapter II.</p> |
| <p>By 2015, all protected areas and protected area systems are integrated into the wider land- and seascape, and relevant sectors, by applying the ecosystem approach and taking into account ecological connectivity and the concept of ecological networks</p> | |

| Objectives/Targets | Highlights of Actions Taken |
|---|--|
| <p>1.3. To establish and strengthen regional networks, transboundary protected areas (TBPAs) and collaboration between neighboring protected areas across national boundaries</p> | <p>(1) In 1994, China, Russia and Mongolia signed the Agreement on Common Nature Reserves among China, Mongolia and Russia. A great number of activities concerning survey and monitoring, environmental education and experience exchange were conducted jointly by the three nations over the years.</p> |
| <p>To establish and strengthen by 2010/2012 transboundary protected areas, other forms of collaboration between neighbouring protected areas across national boundaries and regional networks, to enhance the conservation of biological diversity, implement the ecosystem approach, and improve international cooperation</p> | <p>(2) In 2006, a special intergovernmental working group for transboundary nature reserves and biodiversity conservation was established by China and Russia and two meetings were convened by the working group. Except for the Agreement on Xingkai Lake Nature Reserve between the People's Republic of China and the Russian Federation, a series of other agreements were signed between Sanjiang Nature Reserve, Honghe Nature Reserve and Bacha Dao Nature Reserve in Heilongjiang and Bostak Nature Reserve, Bolshehekstsirskiy Nature Reserve, Khinganskiy Nature Reserve and Bolonski Nature Reserve in Russia to promote active collaboration.</p> <p>(3) In recent years, China established cooperation with Myanmar, Vietnam and Laos and launched a number of projects such as the Greater Mekong Subregion Biodiversity Corridors Initiative. Substantive progress was made in aspects including cooperation on protected areas, staff training, border fire control and transboundary protection of Asian elephants, etc.</p> |
| <p>1.4. To substantially improve site-based protected area planning and management</p> | <p>(1) The Standards for Appraisal of National Nature Reserves formulated in 1999 sets down indicators for the planning and management of</p> |

| Objectives/Targets | Highlights of Actions Taken |
|---|--|
| <p>All protected areas to have effective management in existence by 2012, using participatory and science-based site planning processes that incorporate clear biodiversity objectives, targets, management strategies and monitoring programs, drawing upon existing methodologies and a long-term management plan with active stakeholder involvement</p> | <p>national nature reserves.</p> <p>(2) The Score Table for Management Evaluation of National Nature Reserves issued in 2002 lists 20 evaluation indicators in terms of management basis and management progress to guide the management evaluation of nature reserves.</p> <p>(3) The Master Plan for National Nature Reserves issued in 2002 was supposed to guide the preparation and implementation of the overall plan for national nature reserves.</p> |
| <p>1.5. To prevent and mitigate the negative impacts of key threats to protected areas</p> | <p>See Section 3.15, Chapter III.</p> |
| <p>By 2008, effective mechanisms for identifying and preventing, and/or mitigating the negative impacts of key threats to protected areas are in place</p> | |
| <p>2.1. To promote equity and benefit-sharing</p> | <p>The Regulation on Nature Reserves stipulates that the expenditure for the establishment and management of natural reserves shall be arranged by governments at all levels; the state shall integrate the development plan of natural reserves into the national economic and social development plan by implementing economic and technical policies and measures in consistent with the development of natural reserves; the development and management of natural reserves shall take into account local economic development and improving working and living conditions of local communities.</p> |
| <p>Establish by 2008 mechanisms for the equitable sharing of both costs and benefits arising from the establishment and management of protected areas</p> | |

| Objectives/Targets | Highlights of Actions Taken |
|--|---|
| 2.2. To enhance and secure involvement of indigenous and local communities and relevant stakeholders | See Part I. Participation of ethnic minorities and local communities in biodiversity conservation, Annex III. |
| Full and effective participation by 2008, of indigenous and local communities, in full respect of their rights and recognition of their responsibilities, consistent with national law and applicable international obligations, and the participation of relevant stakeholders, in the management of existing, and the establishment and management of new, protected areas | |
| 3.1. To provide an enabling policy, institutional and socio-economic environment for protected areas | (1) The targets set in the National Program for Nature Reserve Development (1996-2010), which was issued in 1997, have been basically achieved. |

| Objectives/Targets | Highlights of Actions Taken |
|--|--|
| <p>By 2008 review and revise policies as appropriate, including use of social and economic valuation and incentives, to provide a supportive enabling environment for more effective establishment and management of protected areas and protected areas systems</p> | <p>The National Plan for Nature Reserve Development under preparation now will later be submitted to the State Council for examination and approval and then integrated into the five-year plan for national economic and social development by stages.</p> <p>(2) The National Plan for Wildlife Conservation and Nature Reserve Establishment formulated in 2000 offered special support for establishment of nature reserves. By 2006, a total of 2.6 billion yuan was dedicated to these projects.</p> <p>(3) The National Plan for Wetlands Conservation Project (2002-2030) was adopted by the State Council in 2003. The National Implementation Plan for Wetlands Conservation Projects(2005-2010) under implementation now sets the target to establish 222 wetland nature reserves.</p> <p>(4) Fujian Province adopted a series of preferential policies such as relocating residents in nature reserves, improving working and living conditions for residents in nature reserves and strengthening construction of nature reserves to comprehensively address conservation and development issues.</p> |
| <p>3.2. To build capacity for the planning, establishment and management of protected areas</p> | <p>The Chinese government successively promulgated and implemented the National Program for Nature Reserve Development</p> |

| Objectives/Targets | Highlights of Actions Taken |
|--|--|
| <p>By 2010, comprehensive capacity building programs and initiatives are implemented to develop knowledge and skills at individual, community and institutional levels, and raise professional standards</p> | <p>(1996-2010) and the National Plan for Forestry Nature Reserve Development, which have greatly promoted the management level of nature reserves.</p> <p>With aid from international organizations such as GEF and WWF, the Chinese government successively carried out the projects of Nature Reserve Management in China and Wetland Biodiversity Conservation and Sustainable Use in China, the Sustainable Forestry Development Program, etc. Through implementation of these projects and programs, the capacity building of nature reserves was greatly enhanced.</p> |
| <p>3.3. To develop, apply and transfer appropriate technologies for protected areas</p> | <p>(1) Nature reserve authorities like environmental protection, forestry and agricultural departments used multiple ways such as training</p> |

| Objectives/Targets | Highlights of Actions Taken |
|---|--|
| <p>By 2010 the development, validation, and transfer of appropriate technologies and innovative approaches for the effective management of protected areas is substantially improved, taking into account decisions of the Conference of the Parties on technology transfer and cooperation</p> | <p>and meetings to promote and improve technologies and innovative methods for the effective management of nature reserves and boost experience and technology exchange.</p> <p>(2) The projects of Nature Reserve Management in China and Wetland Biodiversity Conservation and Sustainable Use in China, the Sustainable Forestry Development Program and other projects were implemented under the support of GEF and the Chinese government. These projects have significantly strengthened the institutional capacities of the government, the provinces where these projects are located and the nature reserves involved. Advanced international natural conservation concepts and methodologies were applied where appropriate.</p> <p>(3) Through cooperation among institutions of higher learning, research institutes and NGOs like WWF and TNC, species monitoring, investigation on biological resources and other projects concerning the giant panda and other species were carried out in nature reserves. The surveying and monitoring level of nature reserves was increased.</p> |
| <p>3.4. To ensure financial sustainability of protected areas and national and regional systems of protected areas</p> | <p>In 1998, the Special Fund for Capacity Building of National Nature Reserves was established by the Ministry of Finance. By 2007, investment in the capacity building of nature</p> |

| Objectives/Targets | Highlights of Actions Taken |
|---|--|
| <p>By 2008, sufficient financial, technical and other resources to meet the costs to effectively implement and manage national and regional systems of protected areas are secured, including both from national and international sources, particularly to support the needs of developing countries and countries with economies in transition and small island developing States</p> | <p>reserves in terms of management and conservation, scientific research and publicity and education amounted to 340 million yuan.</p> <p>In 2001, the National Wildlife Conservation and Nature Reserve Construction Project was launched. By 2006, investment in this project totaled 2.6 billion yuan. Fund allocated for the Natural Forest Resources Conservation Project launched in 1999 also supported the personnel resettlement, social security for working staff, ranger subsidy and forest protection (by closing off afforested mountains) of nature reserves covered by the Project. The Subsidy for Management and Protection of National Key Noncommercial Forests established in 2003 granted special fund to national nature reserves and local nature reserves with key ecological functions each year. The National Implementation Plan for Wetlands Conservation Project (2005-2010) adopted by the State Council in 2005 is under implementation now. The Plan sets the target to establish 222 wetland nature reserves.</p> <p>Local governments also dedicated a large amount of fund to nature reserves. For instance, Guangdong Province planned to allocate over 300 million yuan for nature reserve establishment from 2000 to 2009 to mainly invest in already established and newly planned national and provincial nature reserves; Fujian Province employed preferential policies such as increasing standards for ecological compensation and making more investment in infrastructure construction for forestry nature reserves above the provincial level to reinforce the construction and management of nature reserves.</p> |
| <p>3.5. To strengthen communication, education and public awareness</p> | <p>The Chinese government encouraged and required nature reserves to make extensive</p> |

| Objectives/Targets | Highlights of Actions Taken |
|--|--|
| <p>By 2008 public awareness, understanding and appreciation of the importance and benefits of protected areas is significantly increased</p> | <p>publicity and education efforts to enhance the public awareness of the significance and benefit of nature reserves.</p> <p>(1) The central and local governments organized various forms of publicity activities on the International Day for Biological Diversity, the World Environment Day and other celebrations each year to introduce the significance of nature reserves.</p> <p>(2) The Fund for National Wildlife Conservation and Nature Reserve Construction Project, the Special Fund for Capacity Building of National Nature Reserves and other funds also covered expenses on facilities construction and capacity building for publicity and education.</p> |
| <p>4.1. To develop and adopt minimum standards and best practices for national and regional protected area systems</p> | <p>The Ministry of Environmental Protection is developing the Standards for Establishment of National Nature Reserves to lay down specific requirements and specifications on the construction and management of national nature reserves.</p> |
| <p>By 2008, standards, criteria, and best practices for planning, selecting, establishing, managing and governance of national and regional systems of protected areas are developed and adopted</p> | |
| <p>4.2. To evaluate and improve the effectiveness of protected areas management</p> | <p>(1) The Measures for Supervision and Inspection of National Nature Reserves issued in 2006 stipulates contents and ways for supervision</p> |

| Objectives/Targets | Highlights of Actions Taken |
|---|--|
| <p>By 2010, frameworks for monitoring, evaluating and reporting protected areas management effectiveness at sites, national and regional systems, and transboundary protected area levels adopted and implemented by Parties</p> | <p>and inspection of nature reserves.</p> <p>(2) The Score Table for Management Evaluation of National Nature Reserves was developed and updated. The Ministry of Environmental Protection, together with 6 other ministries and commissions under the State Council jointly conducted evaluations on the management of nature reserves in 8 provinces and cities to standardize nature reserve management. It is planned that evaluation of all national nature reserves will be completed by 2012.</p> <p>(3) Industrial standards such as the Technical Criterion for Construction of Management and Conservation Infrastructures of Nature Reserves and the Technical Criterion for Effective Management Evaluation of Nature Reserves were formulated.</p> <p>(4) A series of special legal inspections on nature reserves were conducted to prevent irrational development and construction activities from causing adverse impact on and damage to nature reserves.</p> |
| <p>4.3. To assess and monitor protected area status and trends</p> | <p>See Point 2, Section 2.3, Chapter II.</p> |
| <p>By 2010, national and regional systems are established to enable effective monitoring of protected-area coverage, status and trends at national, regional and global scales, and to assist in evaluating progress in meeting global biodiversity targets</p> | |

| Objectives/Targets | Highlights of Actions Taken |
|---|--|
| 4.4 To ensure that scientific knowledge contributes to the establishment and improvement of the management of protected areas networks | Since 1949, China has conducted extensive survey, research and cataloguing related to biological resources and accumulated plentiful data and knowledge about biological diversity. This has provided the groundwork for establishment of the nature reserve network and improvement of nature reserve management. |
| Scientific knowledge relevant to protected areas is further developed as a contribution to their establishment, effectiveness, and management | |

Annex III Information to be Submitted by Parties through National Report as Required by COP 8 Decisions

I. Participation of ethnic minorities and local communities in biodiversity conservation (Decision VIII/5)

1. Related requirements in national laws and regulations

The Law on Regional National Autonomy requires the implementation of the system of regional national autonomy. This system embodies the state's full respect for and guarantee of the right of ethnic minorities to administer their internal affairs and its adherence to the principle of equality, unity and common prosperity for all ethnic groups.

The Environmental Impact Assessment Law underlines the role of the public in environmental protection and sustainable use by placing such practices as encouraging public participation and seeking public opinions into legal provisions. The Interim Procedures for Public Involvement in Environmental Impact Assessment provides detailed requirements on the scope, procedure, organization and other aspects of public involvement in environmental impact assessment.

2. Concrete measures

The Chinese government has established the hearing system, the publication system and the public involvement system specified in the Environmental Impact Assessment Law to reinforce capacity building for ethnic minorities and local communities and create opportunities for local communities to fully and effectively participate in decision-making and policy planning.

First, various forms of promotion and education activities were organized to enhance the ecological and environmental protection awareness of local residents and communities and actively involve them in biodiversity conservation.

Second, the government respected the rights and interests of ethnic minorities and local communities and their traditional lifestyles which are beneficial to the conservation and sustainable use of biodiversity and encouraged local communities to participate in activities in consistency with the targets of the Convention on Biological Diversity.

Third, the government considered it necessary to involve the public in the environmental impact assessment on construction projects related to biodiversity conservation to fully listen to the suggestions of local residents and communities and find

out their opinions on the projects. The needs of local residents and communities were taken into full account during the planning and capacity building of nature reserves.

Fourth, a community-based nature reserve management system was established to effectively protect and reasonably use natural resources within the communities. Various forms of support were also provided to local communities for their economic development so that the improvement of their working and living conditions may facilitate biodiversity conservation.

II. Conservation of deep seabed ecosystems and species (Decision VIII/21)

Started between late 1970s and mid-1980s, China's deep-sea activities were mainly use for polymetallic nodules resources in the deep seabed. In March 1991, the Preparatory Commission for the International Seabed Authority (ISA) approved the application submitted by the China Ocean Mineral Resources Research and Development Association (COMRA) on behalf of the Chinese government for register of mining areas of "polymetallic nodules". An "exploration area" covering 150,000 km² of the seabed in the CC Zone of northeast Pacific was allocated to China. In accordance with the United Nations Convention on the Law of the Sea (UNCLOS), China finally kept 75,000 km² of "contract area" for polymetallic nodules exploration. Since 1998, China began to prospect for cobalt-rich crust resources in western and central Pacific seamounts. In 2005, China started its first international survey, during which explorations for polymetallic sulfide resources in the hydrothermal venting sites of mid-ocean ridges were conducted.

During polymetallic nodules explorations in the deep seabed, the Chinese government attached great importance to the conservation of deep seabed ecosystems and biodiversity. As a Contracting Party to the UNCLOS, the Chinese government supported the work of the ISA and took care to protect deep-sea environment during its exploration for seabed resources. From 1995 to 2005, the COMRA carried out the Natural Variability of Baseline Study (NaVaBa) Program. A series of biological, chemical, hydrological and geological baseline explorations were conducted at different layers in the east and west districts of China's exploration area in eastern Pacific and a set of systematic data on the biological, chemical, physical and geological environmental baselines in China's exploration area was obtained. This Program was of great significance to clarifying the range of natural changes of baselines, differentiating impacts of natural change and non-natural perturbation on marine ecosystems, precisely determining the impact of non-natural perturbation on ecosystems, defining parameters for environmental impact

assessment on potential deep-sea mining and formulating regulations on deep-sea environmental protection.

III. Implementation of integrated marine and coastal area management (Decision VIII/22)

See Section 3.4, Chapter III.

IV. Environmental impact assessment (Decision VIII/28)

See Section 3.15, Chapter III.