2011

Report on the State of the Environment in China

Ministry of Environmental Protection of the People's Republic of China

The "2011 Report on the State of the Environment of China" is hereby released in accordance with the *Environmental Protection Law of the People's Republic of China.*

Ministry of Environmental Protection of
the People's Republic of China

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The Central Economic Work Meeting was held in Beijing during December 12-14, 2011. Mr. Hu Jintao, General Secretary of the Central Committee of CPC gave an important speech. The meeting required making more efforts in energy saving and emission reduction. It required that the government should carry out strict target responsibility system and management, improve assessment and examination mechanism and incentive and punishment system, strengthen policy guidance on energy saving and emission reduction, and accelerate the establishment of market mechanism for energy saving and emission reduction. The government should strengthen environmental protection and focus on prevention and control of air, water, heavy metal and agricultural non-point source pollution. The government should adhere to constructive participation in international negotiation and cooperation on climate change.

Xinhua News Agency

The Fourth Plenary Session of the 11th National People's Congress was opened in the Great Hall of the People on March 5, 2011. Premier Wen Jiabao of the State Council made the Report on the Work of the Government. The Report pointed out that we should facilitate conservation of resources and environmental protection and actively address climate change. We should strengthen conservation and management of resources, improve resource ensuring capacity, make more efforts in protection of arable land and the environment, intensify ecological development and development of disaster prevention and reduction system, enhance sustainable development capacity in an all round way.

Xinhua News Agency

In 2011, facing complex and changing international political and economic environment and hard domestic reform and development tasks, the Central Committee of CPC and State Council have united and led the people of all ethnic groups, taken Deng Xiaoping theory and important thought of the "Three Represents" as the guidance; carried out the Outlook on Scientific Development; taken scientific development as the theme and accelerating the transformation of economic development mode as the main line; properly handled the relations among development speed, structure and price; effectively addressed preeminent contradictions and problems; consolidated and expanded our achievements in addressing the impacts of international financial crisis and maintained steady and fast development of national economy. The State Council has printed out and distributed the Suggestions on Strengthening Major Work on Environmental Protection and National 12th Five-Year Plan for Environmental Protection. It held the Seventh National Conference on Environmental Protection. Mr. Li Keqiang, Member of the Standing Committee of CCCPC Political Bureau and Vice Premier of the State Council attended the meeting and gave an important speech, further identifying the objectives, tasks, key activities and policy measures for environmental protection during the "12th Five-Year Plan" period. Environmental protection has more important strategic position, clearer guidelines, more preeminent key tasks and stronger guarantee measures.

1) Further enhancement of the role of environmental protection in facilitating the transformation of economic development mode. According to the arrangement of the central government, Ministry of Environmental Protection (MEP) in cooperation with relevant departments carried out supervision and inspection on the transformation of economic development mode in 14 provinces (autonomous regions or municipalities). MEP has carried strict environmental impact assessment system. It has returned Environmental Impact Statement (EIS), rejected the approval or suspended the review and approval of 44 construction projects with total investment of nearly 250 billion yuan involving "high energy consumption and emissions or resource oriented", low-level redundant construction and with excessive production capacity. MEP has facilitated upgrading of prevention and control of industrial pollution and industrial restructuring, and conducted strict environmental protection check on key industries including rare earth. The rare earth industry added over 2 billion yuan investment in environmental protection. It has carried out strict environmental protection check and follow-up supervision of the listed companies. The accumulated new environmental protection investment of the enterprises applying for public listing reached 9.97 billion yuan in the examination period with completion of 916 pollution control projects. **2) Steady progress in reduction of total discharge of major pollutants.** The State Council has released the *Comprehensive Program on Energy Saving and Emission Reduction during the "12th Five-Year Plan" Period.* It held the Meeting of National Leading Group on Energy Saving and Emission Reduction and National Teleconference on Energy Saving and Emission Reduction, which have made comprehensive arrangements for energy saving and emission reduction during the "12th Five-Year Plan" period. MEP has further studied key issues such as objectives, tasks, achievement approach, guarantee measures, policy system for energy saving and emission reduction during the "12th Five-Year Plan" period. It has carried out successful top-level design for emission reduction policy system. Entrusted by the State Council, MEP has signed target responsibility document with each provincial government, Xinjiang Production and Construction Corps and eight big state-owned corporations on reducing total emission of major pollutants in the "12th Five-Year Plan" period. It has divided the reduction targets down to local governments and major enterprises that

discharge pollutants. MEP has printed out and distributed the *Detailed Rules on Estimate of Reduction of Total Discharge of Major Pollutants in the "12th Five-Year Plan" Period*; carried out large scale training on publicity and implementation in environmental protection institutions across the country; started trial work on performance management of emission reduction; strengthened the development of "three big systems" for emission reduction; and laid a solid foundation for continuous promotion of emission reduction in the "12th Five-Year Plan" period. In 2011, COD and ammonia nitrogen discharge and SO_2 emissions across the country continuously went down. **3) Some release of the preeminent environmental problems such as heavy metal pollution that seriously threaten public health.** The State Council has approved the *12th Five-Year Plan for Comprehensive Prevention and Control of Heavy Metal Pollution* and *Implementation Program for the Control of Heavy Metal Pollution of the Xiangjiang River Basin*. The central government allocated 2.5 billion yuan to support the control of heavy metal pollution of 26 provinces. MEP has conducted special environmental protection campaigns cracking down the enterprises that discharge pollutants against the law and safeguarding public health; made arrangement for national special check on environment management of chemicals and hazardous waste; established and implemented POPs statistic report system, set up the mechanism for standardized management and supervision and examination on hazardous waste. All enterprises across the country with business license for hazardous waste have utilized and disposed over 9 million t such waste. A total of 53 million sets of waste household appliances have been recycled and disposed. MEP has taken the strictest measures to control lead acid battery enterprises and effectively curbed the increasing incidence of blood poisoning accidents caused by lead acid battery enterprises. **4) Continuous enhancement of prevention and control of pollution of key river basins and regions**. The government has issued the *National Plan for Prevention and Control of Groundwater Pollution* and *Plan for Prevention and Control of Water Pollution of the Mid and Lower Reaches of the Yangtze River (2011-2015)*. MEP has conducted strict examination on the implementation of the "11th Five-Year Plan" for Prevention and Control of Water Pollution in Major River Basins. 87% of planned projects have been finished, up by 22.8 percentage points compared with that of the "10th Five-Year Plan" period. The overall surface water quality has kept on turning good. MEP has conducted trial work on protection of ecological environment in lakes with relatively good water quality. The Pearl River delta has actively improved the joint prevention and control mechanism for atmospheric pollution to ensure good environment quality during the World Student Games. **5) Enhancement of rural environment control and ecological conservation.** Up to 2011, 8 billion yuan special fund was arranged for rural environmental protection, benefiting 37.2906 million people. The government has actively prevented and controlled the pollution by agricultural non-point sources with accumulated reduction of inappropriate application of 5.80 million t fertilizers. "China National Committee on 2010 International Year of Biodiversity" has been officially renamed as "China National Committee on Biodiversity Conservation",Vice Premier Li Keqiang served as Chair of the Committee. MEP has launched the National Program on Remote Sensing Investigation and Assessment of Ten-Year Change of Ecological Environment (2000-2010). It has seriously done well management of nature reserves and further standardized the management of demonstration sites on ecological development. More than 1000 areas in 15 provinces across the country have carried out the activities on ecological province, city and county. The second stage of natural forest resources conservation project was officially commenced. In 2011, the whole country had afforested 6.138 million ha of land, up by 3.9%. A total of another 0.33

million ha wetland was subject to protection. **6) Nuclear and radiation environmental safety under control**. All in-service nuclear facilities have been under safe operation and the quality of all nuclear facilities under construction has been under effective control. The amount of nuclear facilities and projects employing nuclear technologies across the country has been under continuous rise. The overall radiation environment quality has remained good. MEP immediately carried out the emergency response program after the Fukushima nuclear accident in Japan, closely tracked and studied the progress of the accident, actively conducted nationwide radiation environment monitoring and took effective measures. **7) Continuous progress in policy, laws & regulations, science and technology, monitoring, publicity and education activities**. The State Council has released and implemented the *Regulations on Management of the Taihu Lake Basin* and *Regulations on Safety Management of Radioactive Waste*. It has supported the amendment of *Environmental Protection Law*. The Major Special Research Project on Prevention and Control of Water Pollution has basically met the target of "controlling the sources for emission reduction" of the current stage. It carried out the first comprehensive national investigation on environmental pollution and public health. The project on developing the National Key Laboratory on Environmental Criteria and Risk Assessment was approved. Environmental Risk and Damage Appraisal & Assessment Center and Technical Center for Appraisal of Environmental Pollution Damage have been established to facilitate the appraisal and assessment of environmental pollution damage of the trail areas. The Three-Year Action Plan for Management of the Quality of Environmental Monitoring has been successfully implemented. The first trial on examination on county ecoenvironment quality and trial monitoring on biodiversity in national key ecological function areas have been carried out. Environmental protection authority held the first national drill on environment emergency response monitoring. Centering on the Chinese theme of "Building ecological civilization, sharing green future" on World Environment Day, MEP carefully organized a series activities in the publicity week. It has successfully held the Exhibition on Environmental Protection Achievements of the "11th Five-Year Plan" Period & the 12th CIEPEC. Vice Premier Li Keqiang visited the exhibition and spoke highly of the environmental protection achievements during the "11th Five-Year Plan" period. MEP has developed the publicity film of *Exploring New Path to Environmental Protection with Chinese Characteristics*, broadcasting it in the big screen at Tian'anmen Square. **8) Enhancement of environmental protection system and mechanism as well as capacity building**. Monitoring, law enforcement, capacity building in environmental supervision and development of nuclear safety supervision institutions and workforce have been further enhanced. The central government has allocated nearly 1.1 billion yuan budget for construction of the buildings used for monitoring and law enforcement activities, arranged 414 million yuan fund for environment supervision capacity building, and supported the standardization of over 930 environment supervision institutions at county (district) level in the central and western parts of China.

In 2011, environmental protection institutions across the country implemented the decisions and arrangements of the central government on environmental protection and made active progress in all activities on environmental protection. The overall environment quality of the country kept stable with good beginning of environmental protection cause for the "12th Five-Year Plan" period.

Reduction of Total Discharge of Major Pollutants

Basic Objectives

The targets of reducing total discharge of major pollutants during the "12th Five-Year Plan" period are 8% reduction of COD and SO_2 and 10% reduction of ammonia nitrogen and NO_x compared with that of 2010. In 2011, the target of reducing total discharge of major pollutants is 1.5% reduction respectively of the above four major pollutants compared with that of 2010.

Reduction of Major Pollutants*

In 2011, the total COD discharge was 24.999 million t, down by 2.04% compared with that of last year. The total ammonia nitrogen discharge was 2.604 million t, down by 1.52% compared with that of last year. The total SO_2 emission reached 22.179 million t, down by 2.21% compared with that of last year. The total NO_x emission was 24.043 million t, up by 5.73%. Among them, COD discharge from agricultural sources was 11.856 million t, down by 1.52%. The ammonia nitrogen discharge was 0.826 million t, down by 0.41% compared with that of last year.

Major Measures

In 2011, environmental protection authority seriously implemented the spirits of the meeting of national leading group on energy saving and emission reduction and national teleconference on energy saving and emission reduction; studied major issues such as objectives, tasks, achievement approach, guarantee measures and policy system on emission reduction during the "12th Five-Year Plan" period and made successful top-level design for the policy on emission reduction. **Focusing on emission reduction by industrial restructuring.** A total of 3.46 million kW of small thermal power generating units and 7000 m^2 of iron & steel sintering machine have been phased out. 7.1 million t of outdated paper making productivity, 2.3 billion m of outdated productivity of printing and dyeing, 42 million t of outdated productivity of cement have been phased out; and some heavy metal enterprises involving lead have been banned. **Promoting emission reduction by pollution control projects.** 11 million t of daily capacity in urban sewage treatment was newly added. A total of 68 million kW installed capacity of generating units with desulphurization facilities has been constructed and put into operation. 93 sintering machines with total sintering area of 15800 m^2 have been installed with fume desulph urization facilities. A total of 5171 livestock & fowl breeding farms at certain scale and breeding zones have improved the waste water and solid waste treatment and disposal facilities. **Keeping on emission reduction by management**. The automatic on-line monitoring system finished construction in the end of the "11th Five-Year Plan" period has fully played its role. Over 95% thermal power generating units had installed and operated desulphurization facilities. The desulphurization facilities of 56 thermal power generating units with total installed capacity of 23.7 million kW have eliminated the flue gas bypass. The comprehensive desulphurization efficiency of thermal power industry has gone up from 68.7% to 73.2%. The national Stage IV emission standard for light-duty gasoline vehicles has been implemented across the country since July 1, 2011. As a result, individual vehicle emission level goes down by 30% compared with the national Stage III emission standard. In

* The statistic range for major pollutants includes industrial sources, domestic sources, agricultural sources and collective pollution control facilities beginning from the 2011 Report on the State of the Environment in China. The statistic range of total amount of major pollutants in the Report on the State of the Environment in China of 2010 and before only includes industrial sources and domestic sources. Relevant adjustment has been made for the 2010 data involved in 2011 Report on the State of the Environment in China.

2011, a total of 910,000 vehicles (including the vehicles under compulsory registration cancellation but excluding motorbike and low-speed trucks) had been phased out across the country. Some cities like Beijing, Shanghai and Guangzhou have implemented the Stage IV vehicle fuel standard ahead of the schedule.

The 7th National Conference on Environmental Protection

The 7th National Conference on Environmental Protection was held in Beijing from Dec. 20 to Dec. 21, 2011. Member of the Standing Committee of the CPC Political Bureau, Vice Premier of the State Council Li Keqiang attended the meeting and made an important speech. Li emphasized the importance of environment as a kind of resource for development and a sound environment was in itself scarce resources. He called on environmental staff to fully implement the gist of the central economic work meeting and keep to the guideline that environment will be protected along with development and development will be boosted in parallel with environmental protection, as required by development theme for the 12th Five-Year Plan. Environmental protection will serve as a vital instrument to maintain steady economic growth and transform the mode of economic development. We will give priority to prominent environmental problems harming public health and encourage reform and innovation in all fields and links of environmental protection in order to explore a new path to environmental protection that is cost-effective, with low emission and sustainability. Only this will ensure the economic, social and environmental benefits are all achieved and facilitate fast and stable economic development and harmony and progress of the society.

Li Keqiang fully recognized the remarkable achievement of environmental work in the 11th Five-Year Plan period. He noted that the central government had made a series of new important arrangements which made great difference on the perception and practice of environmental protection. Investment in environmental protection and the effort to build capacity intensified enormously and environmental protection began to exert its influence as a means to optimize economic growth. Marked progress has been made in pollution prevention and control and reduction of major pollutants. In a word, the 11th Five-Year Plan period witnessed a growing environmental awareness of the whole society. It was in the past five years that we made the biggest environmental investment and the most strenuous effort in environmental improvement. It was also in the past five years that the fields of environmental protection continued to expand. Li also pointed out that lack of resources and limited environmental capacity had become the new basic characteristics of China's national condition. What lies behind environmental problems is usually excessive consumption of resources. Enhancing environmental protection will accelerate the transformation of economic development mode through reversed transmission. It is the fundamental approach to promoting ecological civilization and fervent wish of the people and is conducive to us to participate in international cooperation and competition.

The pursuit of common growth of environmental protection and economic development means that we will incorporate environmental protection into every aspect of socioeconomic development and speed up to build a resource-efficient and eco-friendly national economic system. This requires us to achieve "four combinations". First, we will combine optimizing industrial structure with energy conservation and emission reduction so as to reduce pollution at source. Second, we will combine corporate efficiency improvement with environmental protection by launching a large scale of environmental technical reforms among corporations and raising environmental bars of new corporations. Third, we will combine expansion of domestic consumption with the development of environmental industry by driving the growth of industries engaged in environmental equipment, special management, engineering design, construction and operation and expanding new scope for economic growth. Fourth, we will combine the distribution of productivity with the requirement of environmental protection, implement differentiated industrial policies to prevent shift of pollution.

Basic environmental quality is public goods and public service that must be guaranteed by the government. We will do concrete work to solve prominent environmental problems affecting scientific development and public health according to the fervent wish of the people. First, we will try our best to solve old environmental problems and prevent the generation of new problems and strengthen control of water, air and soil pollution. Second, we will take account of both rural and urban problems and promote environmental improvement step by step, enhance prevention and control of non-point pollution and environmental improvement in rural areas. Third, we will always put prevention in the first place and respond to various problems promptly in a bid to remove hidden trouble of pollution and properly handle any emergencies.

We should treat environmental protection as a great undertaking crucial to the transformation of economic development mode and improvement of people's well being, pay more attention to leadership and accomplish various tasks in success through concerted efforts. Most importantly, we should overcome difficulties with innovative ideas and improve institutions and mechanisms favoring resource conservation and environmental protection. We will implement target responsibility for environmental protection strictly, improve economic policies and advance reform and innovation, strengthen administration by environmental laws and the supporting role of science and technology and mobilize all citizens to participate in environmental protection.

Entrusted by the State Council, MEP Minister Zhou Shengxian made concluding remarks at the meeting. He stated that during the meeting the participants had seriously studied and discussed the important speech by Vice Premier Li Keqiang and Opinions of the State Council on Strengthening Key Tasks on Environmental Protection (hereinafter referred to as Opinions). They agreed that Vice Premier Li Keqiang, considering the overall situation of socioeconomic development from a strategic point of view, had expounded the significance and urgency of strengthening environmental protection in the new era with prospective and strategic thought and in a pragmatic style. He analyzed the prominent problems and deep-seated contradictions in current environmental situation and identified that environmental protection and economic development should go hand in hand and active effort will be made to explore a new path to environmental protection featuring low cost, good benefit, low emissions and sustainability. We will take earnest steps to solve notorious environmental problems affecting scientific development and public health and strive for new development of environmental cause in an all-round way. The remarks took stock of the whole picture and assumed profound conception. The highlights, proper measures, strong evocation and pertinence have all made it significant to guide the scientific development of environmental cause at present and in the future. Environmental departments at all levels should study the spirit of Vice Premier's speech carefully, maintain the principle of synchronous advance of environmental protection and economic development and actively explore a new path to environmental protection. We will do solid work to solve prominent environmental problems harming scientific development and public health and open up a new situation for environmental protection.

Deputy Secretary General of the State Council Ding Xuedong chaired the meeting and made three points on how to implement the gist of the 7th national conference on environmental protection. First, prompt actions are needed to convey and implement the gist of the meeting. Local authorities should waste no time making arrangement based on their reality to ensure the gist and the Opinions are well learned, understood and implemented. They should seek consensus, strengthen sense of responsibility and urgency and put environmental protection in a more important strategic position. Second, we will clarify responsibilities and targets. We will identify targets and tasks, improve supporting policies and advance various work according to the requirement of the conference and the Opinion. Responsibility system will be strengthened by disintegrating tasks and delegating them to grassroot level so that these tasks will be implemented level by level and we will try to make progress year on year and ensure the environmental targets of the 12th Five-Year Plan will be achieved as expected. Third, we will pay more attention to supervision and inspection. MEP will work with Ministry of Supervision to inspect the implementation of the gist of the 7th National Conference on Environmental Protection and the Opinion of the State Council and report the results to the people's government of the same level.

Staff from NDRC, Ministry of Finance, the people's government of Jiangsu Province, Hubei Province and Chongqing Municipality presented their practice and experience in strengthening environmental protection at the meeting. Entrusted by the State Council, MEP Minister Zhou Shengxian signed target responsibility letter on pollution reduction in the 12th Five-Year Plan period with principals responsible for environmental protection of all provinces (autonomous regions and municipalities), Xinjiang Production & Construction Corps and managers from some state-owned enterprises. Participants of the meeting also included environmental supervisors from all provinces (autonomous regions and municipalities), Xinjiang Production & Construction Corps and cities specifically designated in the state plan, heads from related departments of the State Council, some state-owned enterprises, and those from reform and development, finance and environmental protection departments at provincial (autonomous region and municipality) levels. Leaders from CPC Central Committee, NPC, CPPCC, the PLA and armed police were also invited to the meeting.

Water Environment

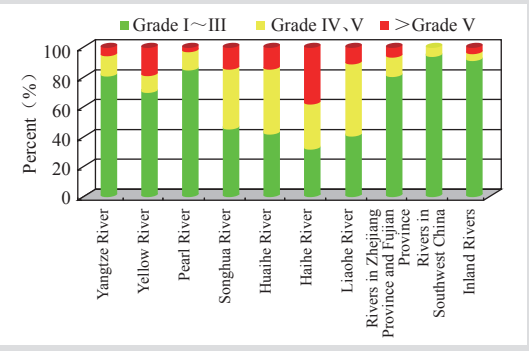
General Situation

In 2011, the surface water across the country was under slight pollution*. The lake (reservoir) eutrophication problem was still preeminent.

Rivers

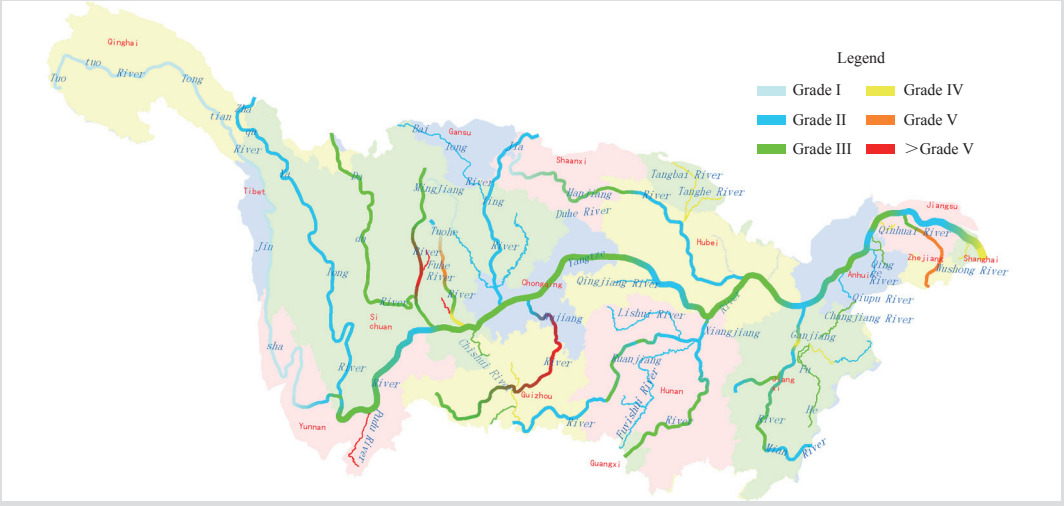
In the 469 river sections of ten big water systems such as the Yangtze River, Yellow River, Pearl River, Songhua River, Huaihe River, Haihe River, Liaohe River, rivers in Zhejiang Province and Fujian Province, rivers in southwestern part of China and inland rivers under national monitoring program, 61.0% met Grade I~III national surface water quality standard, 25.3% met Grade IV~V standard and 13.7% failed to meet Grade V standard. The main pollution indicators were COD, BOD_5 and total phosphorus (TP).

The Yangtze River Waters The overall water quality of the Yangtze River was good. In 94 water sections under national monitoring program, 80.9% met Grade I~III water quality standard, 13.8% met Grade IV~V standard and 5.3% failed to meet Grade V standard.



Percent of different quality of the 10 big waters in 2011

The overall quality of the mainstream of the Yangtze River was excellent. In 32 water sections under national monitoring program, 96.9% met Grade I~III standard and 3.1% met Grade IV standard. There was no obvious change of the water quality compared with that of last year.

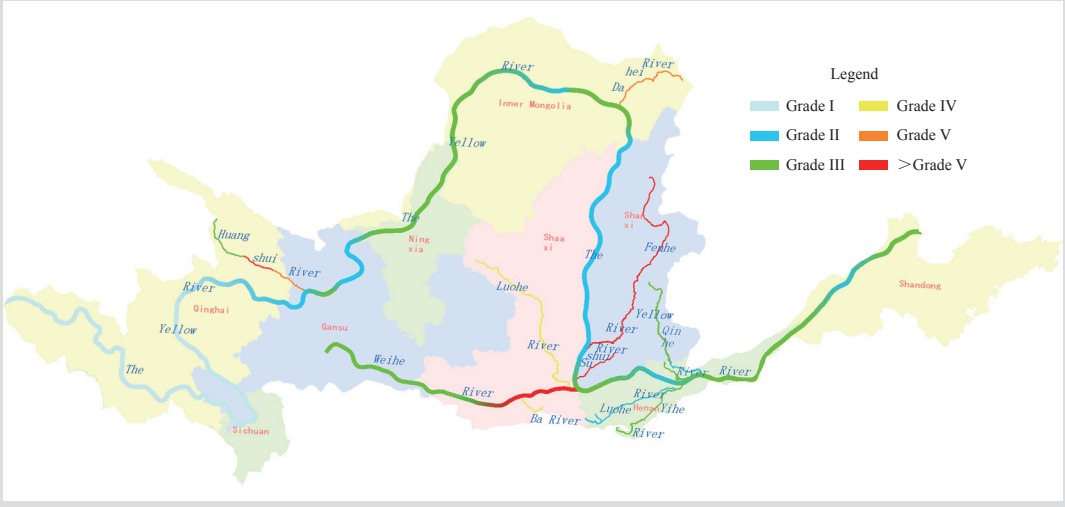


Water quality of the Yangtze River waters in 2011

* The surface water quality assessment indicators are adjusted to 21 items as of the release of the Report on the State of the Environment of this year. Adjustment has been made for relevant 2010 data.

The overall quality of the tributaries of the Yangtze River was under slight pollution. The main pollutants were TP, ammonia nitrogen and BOD_5. In 62 water sections under national monitoring program, 72.6% met Grade I~III water quality standard, 19.3% met Grade IV~V standard and 8.1% failed to meet Grade V standard. There was no obvious change of water quality compared with that of last year. Among them, Yalong River, Hanjiang River and Jialing River enjoyed excellent water quality. Dadu River, Yuanjiang River, Xiangjiang River and Ganjiang River had good quality. Minjiang River and Tuojiang River were under slight pollution, and Wujiang River was under heavy pollution.

The water quality of trans-province-boundary river sections was good. Among 19 river sections under national monitoring program, 78.9% met Grade I~III water quality standard, 15.8% met Grade IV standard and 5.3% failed to meet Grade V standard. Compared with that of last year, there was 11.1 percentage points reduction of the river sections meeting Grade I~III standard, while the proportion of the sections failing to meet Grade V standard remained the same. The transboundary (Guizhou-Chongqing) river sections of Wujiang River in Tongrem of Guizhou Province were under heavy pollution with total phosphorus (TP) as the major pollutant.



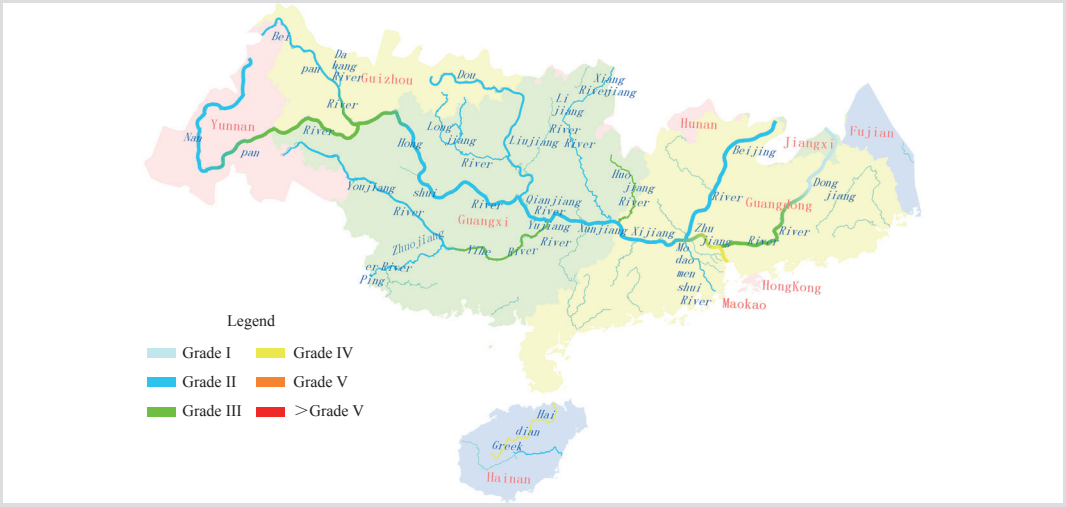
Water quality of the Yellow River waters in 2011

The Yellow River Waters In general, the Yellow River waters were under slight pollution. The major pollutants included ammonia nitrogen, COD and BOD_5. In 43 water sections under national monitoring program, 69.8% met Grade I~III water quality standard, 11.6% met Grade IV~V standard and 18.6% failed to meet Grade V standard.

The overall water quality of the mainstream of the Yellow River was excellent. All the 21 river sections under national monitoring program met Grade I~III standard. There was no obvious change of water quality compared with that of last year.

The overall water quality of the tributaries of the Yellow River was under intermediate pollution. The main pollution indicators were ammonia nitrogen, COD and petroleum. Among the 22 water sections under national monitoring program, 40.9% met Grade I~III standard, 22.7% met Grade IV~V standard and 36.4% failed to meet Grade V standard. There was no obvious change of water quality compared with that of last year. The Qinhe River and Luohe River had excellent water quality. Yihe River and Yiluo River had good water quality. The Huangshui River and Beiluo River were under slight pollution. Dahei River was under intermediate pollution. The rest tributaries of the Yellow River were under heavy pollution. Among them, Taiyuan section, Linfen section and Yuncheng section of the Fenhe River; Yuncheng section of the Sushui River and Xi'an section and Weinan section of the Weihe River were under heavy pollution.

The trans-province boundary river sections were under intermediate pollution. The main pollution indicators were TP, ammonia nitrogen and permanganate value. Among the 11 sections under national monitoring program, 63.6% met Grade I~III water quality standard, 9.1% met Grade V standard and 27.3% failed to meet Grade V standard. There was no obvious change of water quality compared with that of last year.



Water quality of the Pearl River waters in 2011

The Pearl River Waters The overall water quality of the Pearl River waters was good. Among 33 sections under national monitoring program, 84.8% met Grade I~III standard, 12.2% met Grade IV~V standard and 3.0% failed to meet Grade V standard.

In general, the water quality of the mainstream of the Pearl River was good. Among the 15 sections under national monitoring program, 86.7% met Grade I~III standard and 13.3% met Grade IV standard. There was no obvious change of water quality compared with that of last year. Guangzhou section of the Pearl River was under slight pollution and the main pollution indicators were petroleum and ammonia nitrogen.

The overall water quality of tributaries of the Pearl River was excellent. Among the 14 sections under national monitoring program, 92.9% met Grade I~III standard and 7.1% failed to meet Grade V standard. There was no obvious change of water quality compared with that of last year. The Shenzhen River was under serious pollution. The main pollution indicators were ammonia nitrogen, TP and BOD_5.

In rivers of Hainan Province, two river sections of the Wanquan River under national monitoring program met Grade II water quality standard; while two such river sections of

Water quality of the Songhua River waters in 2011

the Haidian Creek met Grade IV water quality standard. The main pollution indicator was petroleum. There was no obvious change of water quality compared with that of last year.

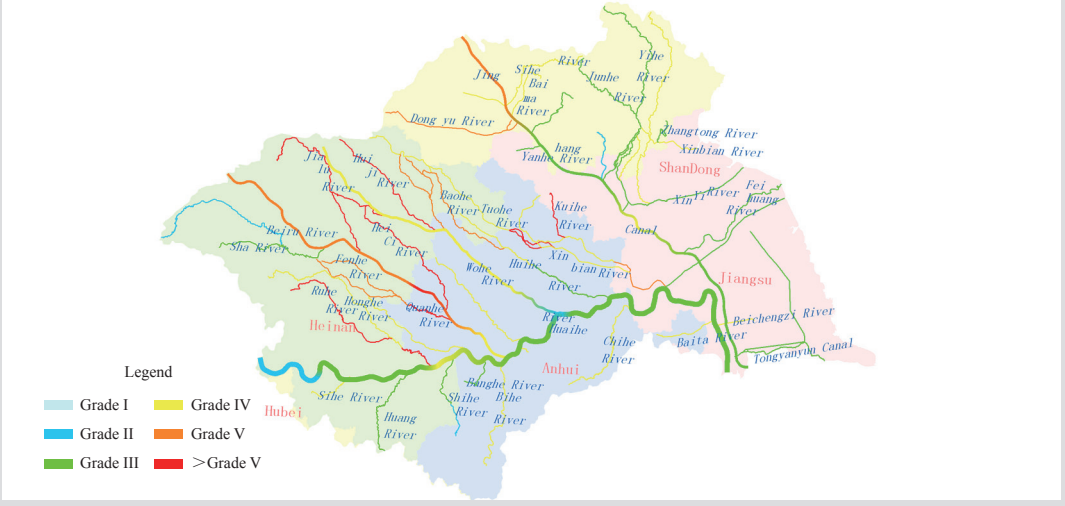
The water quality of trans-province boundary river sections was excellent. Among the 7 river sections under national monitoring program, 57.1% met Grade II standard and 42.9% met Grade III standard. There was no obvious change of water quality compared with that of last year.

The Songhua River Waters The waters of the Songhua River were under slight pollution. The main pollution indicators were permanganate value, TP and BOD_5. Among 42 sections under national monitoring program, 45.2% met Grade I~III water quality standard, 40.5% met Grade IV~V standard and 14.3% failed to meet Grade V standard.

In general, the mainstream of the Songhua River was under slight pollution. The main pollution indicators were COD, TP and ammonia nitrogen. Among the 11 sections under national monitoring program, 72.7% met Grade III standard and 27.3% met Grade IV standard. There was no obvious change of water quality compared with that of last year.

In general, the tributaries of the Songhua River were under intermediate pollution. The main pollution indicators were permanganate value, ammonia nitrogen and BOD_5. In 14 sections under national monitoring program, 42.9% met Grade I~III standard, 28.5% met Grade IV~V standard and 28.6% failed to meet Grade V standard. There was no obvious change of water quality compared with that of last year.

The trans-province boundary sections were under slight pollution. The main pollution indicators were TP, permanganate value and ammonia nitrogen. Among the 6 under national monitoring program, 66.7% met Grade I~III standard and 33.3% met Grade IV standard. Compared with that of last year, the proportion of sections meeting Grade I~III standard remained the same, while the proportion of the sections failing to meet Grade V standard went down by 33.3 percentage points with evident improvement of water quality.



Water quality of the Huaihe River waters in 2011

The Huaihe River Waters The waters of the Huaihe River were under slight pollution. The main pollution indicators were COD, TP and BOD_5. Among 86 water sections under national monitoring program, 41.9% met Grade I~III water quality standard, 43.0% met Grade IV~V standard and 15.1% failed to meet Grade V standard.

In general, the mainstream of the Huaihe River was excellent. Among the 14 sections under national monitoring program, 92.9% met Grade I~III standard and 7.1% met Grade IV standard. There was no obvious change of water quality compared with that of last year.

The tributaries of the Huaihe River were under intermediate pollution. The main pollutants were COD, BOD_5 and TP. Among 54 water sections under national monitoring program, 29.6% met Grade I~III standard, 48.2% met Grade IV~V standard and 22.2% failed to meet Grade V standard. There was no obvious change of water quality compared with that of last year.

In general, all the rivers in Shandong Province were under slight pollution. The main pollution indicators were COD, TP and petroleum. In 18 water sections under national monitoring program, 38.9% met Grade III standard, 55.5%

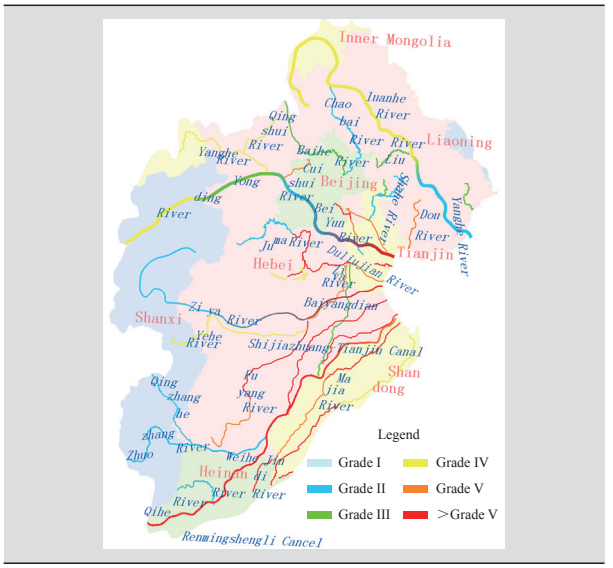
met Grade IV~V standard and 5.6% failed to meet Grade V standard. Compared with that of last year, the proportion of sections meeting Grade I~III standard went up by 27.8 percentage points and the proportion of the sections failing to meet Grade V standard remained the same, indicating evident improvement of water quality.

The trans-province boundary river sections were under intermediate pollution. The main pollutants were COD, TP and BOD_5. In 32 sections under national monitoring program, 34.4% met Grade I~III standard, 43.7% met Grade IV~V standard and 21.9% failed to meet Grade V standard. The proportion of sections meeting Grade I~III standard went up by 9.4 percentage points, while the proportion of sections failing to meet Grade V standard went down by 3.1 percentage points compared with that of last year, indicating some improvement of the water quality.

The Haihe River Waters The Haihe River waters were under intermediate pollution. The main pollutants were COD, BOD_5 and total phosphorus. Among 63 sections under national monitoring program, 31.7% met Grade I~III standard, 30.2% met Grade IV~V standard and 38.1% failed to meet Grade V standard.

In the two sections of the mainstream of the Haihe River under national monitoring program, one section met Grade V standard and the other failed to meet Grade IV standard. The main pollutants were TP, COD and ammonia nitrogen. The water quality of Sanchakou section has improved from worse than Grade V to Grade IV compared with that of last year.

Other major rivers of the Haihe River basin were under intermediate pollution in general. The main pollutants were COD, BOD_5 and petroleum. Among the 61 river sections



Water quality of the Haihe River waters in 2011

under national monitoring program, 32.8% met Grade I~III standard, 29.5% met Grade IV~V standard and 37.7% failed to meet Grade V standard. There was no obvious change of water quality compared with that of last year. Among them, the Yongding River had excellent water quality. The Luanhe and Linhe River had good water quality. The Zhangweixin River was under intermediate pollution; while the Dasha River, Ziyaxin River, Tuhai River, North Canal and Majia River were under heavy pollution.

Trans-province boundary river sections were under intermediate pollution in general. The main pollutants were COD, BOD_5 and ammonia nitrogen. In 16 water sections

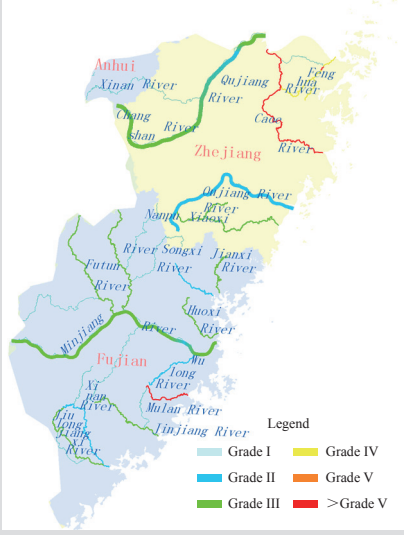
Water quality of the Liaohe River waters in 2011

under national monitoring program, 43.8% met Grade I~III standard, 18.7% met Grade IV~V standard and 37.5% failed to meet Grade V standard. There was no obvious change of water quality compared with that of last year.

The Liaohe River Waters In general, the Liaohe River waters were under slight pollution. The main pollutants were BOD_5, petroleum and ammonia nitrogen. Among 37 river sections under national monitoring program, 40.5% met Grade I~III standard, 48.7% met Grade IV~V standard and the rest 10.8% failed to meet Grade V standard.

In general, the mainstream of the Liaohe River was under slight pollution. The main pollution indicators included BOD_5, petroleum and COD. Among 13 river sections under national monitoring program, 38.4% met Grade I~III standard and the rest 61.6% met Grade IV~V standard. The proportion of sections meeting Grade I~III standard went up by 7.7 percentage points; while the proportion of sections failing to meet Grade V standard went down by 15.4 percentage points compared with that of last year, indicating evident improvement of the water quality. Among them, the Laoha River and Dongliao River had good water quality. The Liaohe River had slight pollution. The Xiliao River was under intermediate pollution.

Among the three rivers sections of the tributaries of the Liaohe River under national monitoring program, one section met Grade IV standard, one met Grade V standard and the last failed to meet Grade V standard. The main pollutants were ammonia nitrogen, TP and COD. The water quality of Tongjiangkou section has turned from inferior to Grade V last year to Grade V in 2011.



Water quality of rivers in Zhejiang Province and Fujian Province in 2011

In general, both the mainstream and tributaries of the Liaohe River were under slight pollution. The main pollution indicators were ammonia nitrogen, BOD_5 and petroleum. Among 12 river sections under national monitoring program, 25.0% met Grade II standard, 50.0% met Grade IV~V standard and the rest 25.0% failed to meet Grade V standard. The Shenyang section of Hunhe River and Anshan section of Taizi River were under heavy pollution. In general, the water quality of the Daliao River and its tributaries has shifted from heavy pollution last year to intermediate pollution this year with some improvement of the water quality.

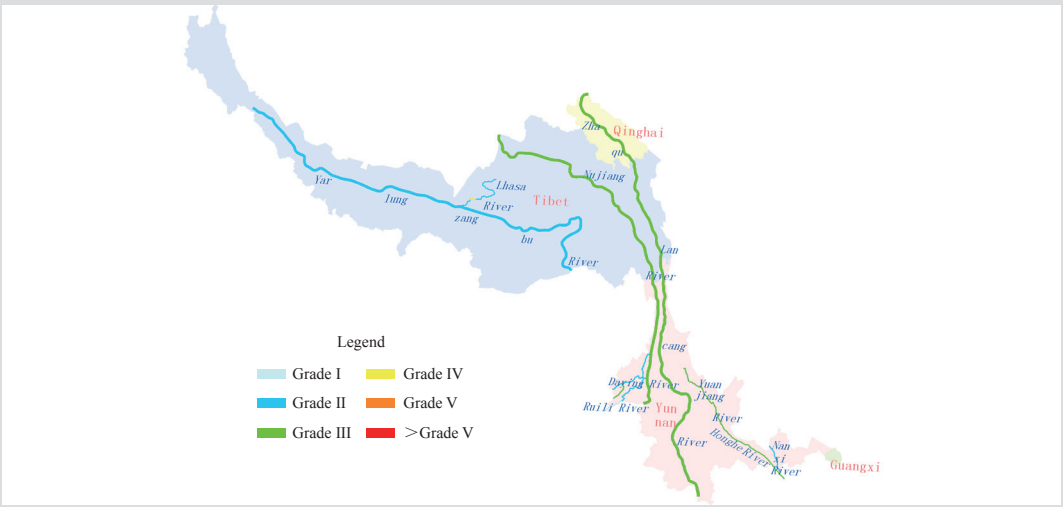
Among the three river sections of Daling River under national monitoring program, one section met Grade II standard, the rest two sections met Grade IV standard. The main pollution indicators were ammonia nitrogen, TP and permanganate value. There was no obvious change of water quality compared with that of last year.

Among the three trans-province boundary sections of the Liaohe River waters, 1 section met Grade II standard, the rest 2 met Grade IV standard. The water quality of Fudedian river section of Liaohe River in Tieling, Liaoning Province, which is the border areas of Jilin Province, Inner Mongolia and Liaoning Province has improved from worse than Grade V last year to Grade IV.

Rivers in Zhejiang Province and Fujian Province The overall water quality was good. Among 31 sections under national monitoring program, 80.6% met Grade I~III standard, 12.9% met Grade IV standard and 6.5% failed to meet Grade V standard.

In general, the rivers in Zhejiang Province were under slight pollution. The main pollutants were petroleum, BOD_5 and COD. Among 13 sections under national monitoring program, 61.5% met Grade I~III standard, 30.8% met Grade IV standard and 7.7% failed to meet Grade V standard. There was no obvious change of the water quality compared with that of last year.

The overall water quality of the rivers in Fujian Province was excellent. Among 18 sections under national monitoring program, 94.4% met Grade I~III standard and 5.6% failed to meet Grade V standard. There was no obvious change of the water quality compared with that of last year.



Water quality of rivers in Southwest China in 2011

Rivers in Southwest China The overall water quality was good. Among the 17 sections under national monitoring program, 94.1% and 5.9% met Grade I~III and Grade IV standard respectively.

The overall water quality of the rivers in Tibet was good. Among the 6 sections under national monitoring program, 83.3% and 16.7% met Grade II and Grade IV standard respectively. There was no obvious change of the water quality compared with that of last year.

The overall water quality of the rivers in Yunnan Province was excellent. Among the 11 river sections under national monitoring program, 36.4% and 63.6% met Grade II and Grade III standard respectively. The proportion of Grade I~III sections went up by 18.2 percentage points and the proportion of sections failing to meet Grade V standard went down by 18.2 percentage points compared with that of last year, the water quality had evident improvement.

Inland Rivers The overall water quality of inland rivers was excellent. Among 23 sections under national monitoring program, 91.4% met Grade I~III standard, 4.3% met Grade IV standard and the rest 4.3% failed to meet Grade V standard. The proportion of Grade I~III sections went up by 9.3 percentage points and the proportion of sections failing to meet Grade V standard went down by 2.8 percentage points compared with that of last year. The water quality of inland rivers had some improvement.

Water quality of inland rivers in China in 2011

Lakes （Reservoirs）

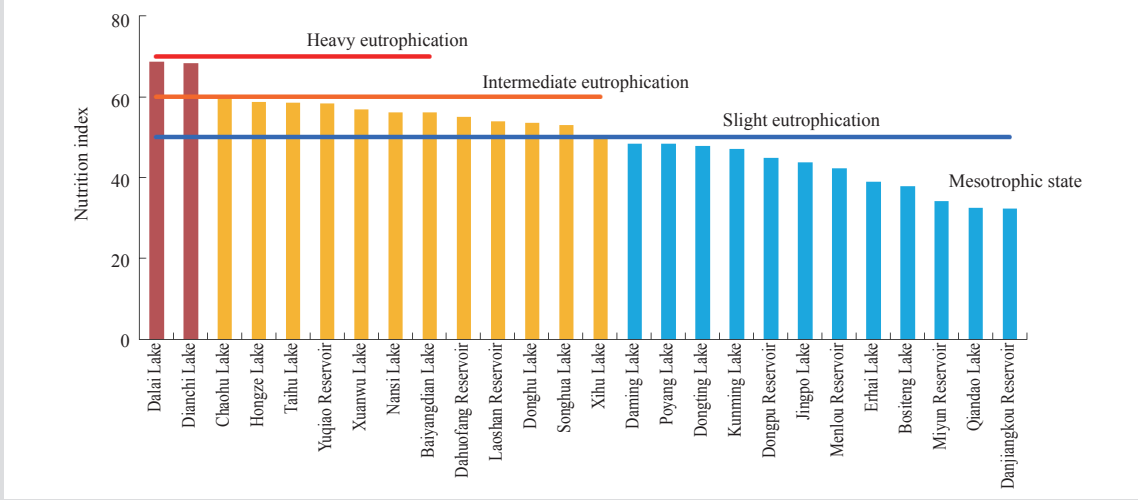
In 2011, among the 26 major lakes (reservoirs) under national monitoring program, 42.3% met Grade I~III standard, 50.0% met Grade IV~V standard and 7.7% failed to meet Grade V standard. The main pollution indicators were TP and COD (total nitrogen is not included in water quality assessment).

46.2% of the above 26 lakes (reservoirs) was under mesotrophic state, 46.1% was under slight eutrophication and 7.7% was under intermediate eutrophication. Compared with that of last year, the water quality of Dianchi Lake had turned from heavy eutrophication into intermediate eutrophication; the water quality of Baiyangdian Lake had turned from intermediate eutrophication into slight eutrophication. The Poyang Lake, Dongting Lake and Daming Lake had turned from slight eutrophication into mesotrophic state. Yuqiao Reservoir, Dahuofang Reservoir and Songhua Lake had turned from mesotrophic state into slight eutrophication. There was no obvious change of the nutrition status of other lakes (reservoirs).

Water quality of major lakes in 2011

Type of lakes (reservoirs)	Ⅰ	Ⅱ	Ⅲ	Ⅳ	Ⅴ	> Ⅴ	Main pollutants
The three lakes*	0	0	0	1	1	1	TP, COD
Big freshwater lakes	0	0	1	4	3	1	
Urban lakes	0	0	2	3	0	0	
Big reservoirs	1	4	3	1	0	0	

* The three lakes refer to the Taihu Lake, Dianchi Lake and Chaohu Lake

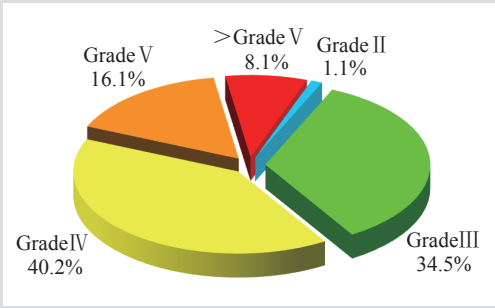


Nutrition index of major lakes and reservoirs in 2011

Taihe Lake In general the water quality of the Taihu Lake met Grade IV standard. The main pollutants were TP and COD. The water quality of the Taihu Lake had no obvious change compared with that of last year. The water in the western part near the bank met Grade V standard. The Wuli Lake, Meiliang Lake, water areas in the eastern part and central part of Taihu Lake met Grade IV standard.

In general, the Taihu Lake was under slight eutrophication. There was no obvious change of nutrient status compared with that of last year. Among them, Wuli Lake, Meiliang Lake, the central part and eastern part waters near the bank were under slight eutrophication; while the western part waters of the lake near the bank was under intermediate eutrophication.

In general, all rivers flowing into the Taihu Lake was under slight pollution. The main pollution indicators were ammonia nitrogen, COD and BOD_5. Among 87 sections under national monitoring program, 35.6% met Grade I~III standard, 56.3% met Grade IV~V standard and the rest 8.1% failed to meet Grade V standard. The water quality of these rivers had no obvious change compared with that of last year.

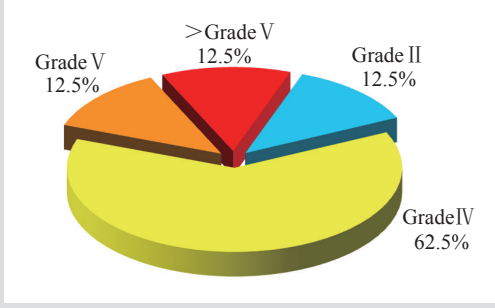


Water quality of rivers flowing into the Taihu Lake in 2011

Dianchi Lake In general the water quality of the Dianchi Lake failed to meet Grade V standard. The main pollutants were COD and TP. The water quality had no obvious change compared with that of last year. Among them, both the Caohai Lake and Waihai Lake failed to meet Grade V standard.

In general, the Dianchi Lake was under intermediate eutrophication. The nutrient status has improved to slight eutrophication from heavy eutrophication in last year. Among them, both the Caohai Lake and Waihai Lake were under intermediate eutrophication.

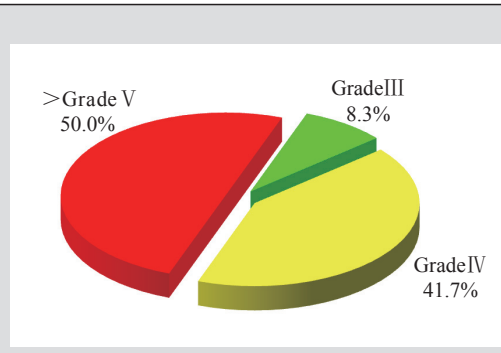
In general, all rivers flowing into the Dianchi Lake were under slight pollution. The main pollutants were COD, TP and BOD_5. Among 8 river sections under national monitoring program, 12.5% met Grade II standard, 75.0% met Grade IV~V standard and the rest 12.5% failed to meet Grade V standard. The proportion of Grade I~III sections went down by 12.5 percentage points and the proportion of sections failing to meet Grade V standard went down by 37.5 percentage points compared with that of last year, indicating evident improvement of water quality.



Water quality of rivers flowing into the Dianchi Lake in 2011

Chaohu Lake The overall water quality of the Chaohu Lake met Grade V standard. The main pollution indicators were TP, petroleum and COD. The overall water quality of the Chaohu Lake shifted from Grade IV last year to Grade V with some degradation. Among them, the eastern half of the lake met Grade IV standard while the western half of the lake met Grade V standard.

The Chaohu Lake was under slight eutrophication. There was no obvious change of nutrient status compared with that of last year. Among them, the eastern half of the lake was under slight eutrophication while the western half under intermediate eutrophication.



Water quality of rivers flowing into the Chaohu Lake in 2011

In general, all rivers flowing into the Chaohu Lake were under heavy pollution. The main pollutants were petroleum, TP and ammonia nitrogen. Among the 12 sections under national monitoring program, 8.3% met Grade III standard,

41.7% met Grade IV standard and 50.0% failed to meet Grade V standard. The percent of Grade I~III sections decreased by 25.0 percentage points, while the proportion of sections failing to meet Grade V standard kept the same compared with that of last year, indicating evident degradation of water quality.

Other big freshwater lakes Among the other 9 large freshwater lakes except the "three lakes" under monitoring program, the Dalai Lake failed to meet Grade V standard. Hongze Lake, Nansi Lake and Baiyangdian Lake met Grade V standard. The Bositeng Lake, Dongting Lake, Jingpo Lake and Poyang Lake had Grade IV water quality, while Erhai Lake had Grade III water quality. The main pollution indicators were COD, TP and ammonia nitrogen. The water quality of Baiyangdian Lake improved from worse than Grade V last year to Grade V. The water quality of Poyang Lake improved from Grade V to Grade IV. The water quality of Jingpo Lake was shifted from Grade III last year to Grade IV, indicating some degradation. There was no obvious change of water quality in other large freshwater lakes.

The Dalai Lake was under intermediate eutrophication. Hongze Lake, Nansi Lake and Baiyangdian Lake were under slight eutrophication. The Poyang Lake, Jingpo Lake, Dongting Lake, Bositeng Lake and Erhai Lake were under mesotrophic status.

Urban Lakes Among the 5 urban lakes under monitoring program, the Donghu Lake (Wuhan), Xuanwu Lake (Nanjing) and Kunming Lake (Beijing) met Grade IV water quality standard. Xihu Lake (Hangzhou) and Daming Lake (Jinan) met Grade III standard. The main pollutants were TP and BOD_5. The water quality of the Kunming Lake was shifted from Grade III last year to Grade IV with some degradation. There was no obvious change of water quality of the other 4 urban lakes.

The Xuanwu Lake, Donghu Lake and Xihu Lake were under slight eutrophication. The Daming Lake and Kunming Lake were under mesotrophic status.

Large Reservoirs Among the 9 large reservoirs under monitoring, Qiandao Lake (Zhejiang) met Grade I water quality standard; Danjiangkou Reservoir (Hubei and Henan), Miyun Reservoir (Beijing), Menlou Reservoir (Shandong) and Daguofang Reservoir (Liaoning) met Grade II water quality standard. Yuqiao Reservoir (Tianjin), Laoshan Reservoir (Shandong) and Dongpu Reservoir (Anhui) met Grade III water quality standard. The Songhua Lake (Jilin) met Grade IV standard. Compared with that of last year, the water quality of Dahuofang Reservoir was improved from Grade III to Grade II standard. There was no obvious change of water quality of the other reservoirs.

Yuqiao Reservoir, Dahuofang Reservoir, Laoshan Reservoir and Songhua Reservoir were under slight eutrophication; while Dongpu Reservoir, Menlou Reservoir, Miyun Reservoir, Qiandao Reservoir and Danjiangkou Reservoir were under mesotrophic status.

Key Water Conservancy Projects

The Three Gorges Reservoir All the 4 water sections under national monitoring program met Grade III water quality standard.

Waters along the eastern line of South-North Water Diversion Project In general, the waters along the eastern line of South-North Water Diversion Project were under slight pollution. The main pollution indicators were COD, TP and petroleum. Among the 10 water sections under national monitoring program, 60.0% met Grade III standard, 30.0% met Grade IV~V standard and 10.0% failed to meet Grade V standard. The water quality of Huaisihekou section of Liyun River and Qunleqiao section of Chengguo River had shifted from Grade IV last year to Grade III with some improvement.

Water quality of major centralized drinking water sources of Major Cities on Environmental Protection

In 2011, a total of 389 centralized drinking water sources of 113 Major Cities on Environmental Protection were monitored; 238 of them were surface water sources and the rest 151 were groundwater sources. The annual water intaking amount of those Major Cities on Environmental Protection was 22.73 billion t serving 163 million people. 20.6 billion t of them met water quality standard, accounting for 90.6%; while 2.13 billion t of them failed to meet the quality standard, accounting for 9.4%.

Inland Fishery Waters

In 2011, national fishery ecological environment monitoring network monitored 18 items such as water quality, sediment and organisms of 120 important fishery waters of the Bohai Sea, Yellow Sea, East China Sea, South China Sea, Heilong River basin, Yellow River basin, Yangtze River basin and Pearl River basin and other major regions and 43 national protected areas for aquatic species resources with total monitoring areas reaching 19.207 million ha. The monitoring data shows that the overall ecological environment of fishery waters of China remained stable. Some fishery waters were still subject to relatively heavy pollution. The main pollutants were nitrogen, phosphorus, petroleum and copper.

The main pollution indicators of important fishery waters of rivers were TP, non-ionic ammonia, permanganate value

and copper. Some fishery waters of the Yellow River basin, Yangtze River basin and Heilong River basin had relatively heavy TP pollution. Some fishery waters of the Yellow River basin and Heilong River basin had relatively heavy pollution of non-ionic ammonia. Some fishery waters of the Heilong River basin and Yellow River basin had relatively heavy pollution of permanganate value. Some fishery waters of the Yellow River basin and Yangtze River basin were subject to relatively heavy copper pollution. The waters with TP, non-ionic ammonia and copper concentrations going beyond standard had some increase compared with that of last year. The area of fishery waters with permanganate value, volatile phenol, petroleum and cadmium concentration going beyond the standard had decrease at different degree.

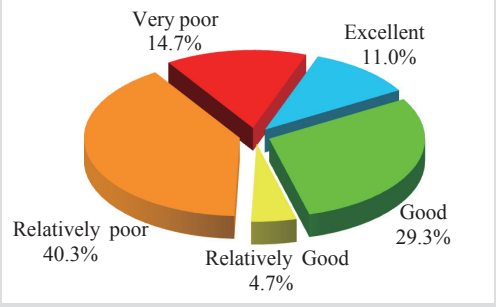
The main pollutants in important fishery waters of lakes (reservoirs) were total nitrogen (TN), TP, permanganate value and petroleum. Among them, the TP and total nitrogen concentrations went beyond the standard by relatively big margin. Compared with that of last year, the areas with total nitrogen and copper concentration going beyond the water quality standard had some increase; whereas the areas with TP, permanganate value, petroleum and volatile phenol concentration going beyond the standard had decrease at different degrees.

The main pollutants of some areas of national (freshwater) aquatic species protected areas were TN, TP and permanganate value.

Groundwater

In 2011, 200 cities across the country conducted monitoring on groundwater quality with a total of 4727 monitoring sites. 45.0% of the monitoring sites had excellent-good-relatively good water quality; while the rest 55.0% monitoring sites had poor-very poor water quality.

Among them, 4282 monitoring sites had continuous monitoring data. Compared with that of last year, 17.4% monitoring sites had better water quality, 67.4% monitoring sites had stable water quality and the rest 15.2% monitoring sites had degraded water quality.



Groundwater quality in 2011

A total of 176 cities had continuous monitoring data. Compared with that of last year, 65.9% of the above cites had same groundwater quality; the proportion of the cities with better or worse water quality was similar. The cities with better water quality were mainly in the provinces (autonomous regions) such as Sichuan, Guizhou, Tibet, Inner Mongolia and Guangdong. The cities with degraded water quality were mainly in the provinces such as Gansu, Qinghai, Zhejiang, Fujian, Jiangxi, Hubei, Hunan and Yunnan.

Discharge amount of major pollutants in waste water

In 2011, the total discharge of waste water across the country was 65.21 billion t. The total COD discharge was 24.999 million t, down by 2.04% compared with that last year. The total ammonia nitrogen discharge was 2.604 million t, down by 1.52% compared with that last year.

The discharged COD and ammonia nitrogen in waste water in 2011

COD (10,000 t)					Ammonia nitrogen (10,000 t)				
Total	Industrial source	Domestic source	Agriculture source	Collective treatment facilities	Total	Industrial source	Domestic source	Agriculture source	Collective treatment facilities
2499. 9	355. 5	938. 2	1186. 1	20. 1	260. 4	28. 2	147. 6	82. 6	2. 0

Measures and Actions

【The First National Census on Water】 The State Council decided to conduct The First National Census on Water during 2010~2012 in order to implement the Outlook on Scientific Development and comprehensively understand the development of water resources. The targets of this national census include rivers, lakes, water projects, water institutions and major water users in the society within the territory of China. The national census has the following six components: 1) basic situation of rivers and lakes; 2) basic situation of water resource projects; 3) investigation on water use by economic and social activities; 4) control and protection of rivers and lakes; 5) soil and water conservation; 6) capacity building of water resource industry. The national census is divided into the following four stages, 2010 is the early preparation stage. 2011 is the investigation and registration stage. The first 6 months of 2012 is the period filling out and submitting the census questionnaire. The second six months of 2012 will the stage releasing the findings. The State Council established the Leading Group on the First National Census on Water. The office of the Leading Group is in Ministry of Water Resources, which undertakes routine work of the Leading Group and is specifically in charge of guidance, supervision and check on the census activities. Activities such as inventory registration, record development and site investigations were conducted in 2011.

【Prevention and control of heavy metal pollution】 The State Council approved the "12th Five-Year Plan" for Comprehensive Prevention and Control of Heavy Metal Pollution (hereinafter referred to as the Plan) on February 9, 2011. According to the requirements of the *Circular of the General Office of the State Council on Transfer of the Guidance of the Departments Including Ministry of Environmental Protection for Strengthening Prevention and Control of Heavy Metal Pollution* and *Written Reply of the State Council on the "12th Five-Year Plan" for Comprehensive Prevention and Control of Heavy Metal Pollution,* MEP has made arrangements for the implementation of all tasks specified in the Plan and actively facilitated the implementation of the Plan. MEP has guided each province to develop the provincial plan for prevention and control of heavy metal pollution and such pla n of key regions. It has developed the 2011 implementation program and identified the objectives and tasks of each province on prevention and control of heavy metal pollution during the "12th Five-Year Plan" period. It has facilitated the development of the methods on examining the implementation of the Plan and relevant detailed rules, dividing and carrying out the tasks specified in the Plan, comprehensively conducted collective control of heavy metal pollution focusing on the investigation and pollution control of lead acid battery industry, and strengthened the prevention and control of pollution of lead acid battery industry. Environmental protection authority has made more efforts in environment law enforcement, properly handled sudden environmental pollution accidents involving heavy metals, and ensured immediate rights and interests of the public. It has made more investment, and accelerated the promotion of the implementation of the projects on prevention and control of heavy metal pollution.

【Progress of the implementation of the Major Special Research Project on Prevention and Control of Water Pollution】 In 2011, centering on the theme, main line and new requirements, the Major Special Research Project on Prevention and Control of Water Pollution (hereinafter referred to as Special Project on Water Pollution) under the leadership of the leading group of Special Project on Water Pollution has given full play of the advantage of the government-oriented system with coordination and innovation and facilitated industrial structural adjustment with the help of research, development and integration of technologies; demonstration projects and application of research findings. It has driven the pollution control process of some regions and enterprises and made remarkable achievements. It has played an active role in accelerating the transformation of economic development mode. First, it has made breakthrough in key technologies on energy saving and emission reduction of typical industries in river basins. It has made breakthrough in key pollution control technologies of key industries such as petrochemical and metallurgy. In addition, it has built a group of demonstration projects on clean production and circular use of water in some river basins including the Songhua River Basin. Second, it has developed and integrated a set of technologies that improve water quality of lake-oriented rivers and restore the ecology of river basin. The project has provided strong technical support to ecological development of 94 km^2 riparian buffer strip of 70 km steep bank area of eastern part of Erhai Lake and 742.4 km^2 riparian buffer strip of the Taihu Lake basin. The 150 km^2 demonstration site in the Tiaoxi Small River Basin in Taihu Lake Basin has achieved comprehensive demonstration role with over 30% reduction of COD, nitrogen and phosphorus load in the area. As a result, clear water flows into rivers in the small river basin. Third, it has made breakthough in a group of key technologies that recycle and reuse waste water and utilization of multi-sources of water. It has also made breakthough in key technology of waste water reuse including the dual membrane process; integrated a set of technologies for utilization of non-

conventional water sources and developed typical reused water safety guarantee technical system employed in cities and ecological communities. It has carried out large scale demonstration work in regions including Tianjin. Fourth, it has developed a national technical platform for monitoring and early warning on the safety of drinking water. It has primarily developed the national technical platform for monitoring, early warning and emergency response to the quality of urban water supply covering over 900 Chinese and international cases on treatment of water pollution accidents, including urban water supply emergency treatment method for over 100 kinds of toxic and hazardous pollutants. The project has developed the water quality information management system for urban water supply covering more than 30 major cities with trial application in cities like Jinan. Fifth, it has developed a number of key technologies for monitoring and early warning. The three-level zoning management system has been established in 8 river basins including the Songhua River basin and comprehensively applied in the plan of major river basins for prevention and control of water pollution. Taking the Taihu Lake and the Three Gorges Reservoir area as demonstration river basins, the project has conducted demonstration work on the application of the platform assessing water environment risks and presenting early warning. It has put forward the method on assessing water pollutant control technologies of key industrial pollution industries and chosen the best pollution control technologies of typical industries in key river basins. Sixth, it has cultivated a number of strategic emerging industries. The province has successfully developed the ship based algae-water separation and treatment equipment with large-scale production capacity. It has established technical assessment system for environmental technologies of environment monitoring instruments; the technological system involving 18 technical requirements for testing of monitoring instruments, institutional framework for "access" of modern water environment monitoring equipment. It has developed a group of water quality monitoring equipment and materials with independent intellectual property right and competitive force in world market, which has developed scale production line and achieved 200 million yuan new added value.

【The most strictest water resource management system】 In 2011, CCCPC and the State Council released the Decision on Accelerating the Reform and Development of Water Resources, which takes strict water resource management as a strategic measure for accelerating the transformation of economic development mode. It requires the establishment of the "three red lines", namely, the control of development and utilization of water resources, control of water efficiency and control of pollution in water function areas. It also requires the establishment of four systems, that is, control of total amount of water use, control of water efficiency, limit of pollution discharge in water function areas, water management responsibility and examination. The State Council issued the Suggestions on Implementation of the Strictest Management System for Water Resources on January 12, 2012, which makes comprehensive arrangement and specific plan for the implementation of the Strictest water resource management system at national level. Ministry of Water Resources and competent department at all levels have attached great importance to it, actively carried out the most stringent water resource management system and done the following activities: 1) Establish the target system for the most stringent water resource management. Considering water resource carrying capacity and environment carrying capacity of river basins, current water use amount and future economic and social development demand, water authority has identified the control targets (red lines) for water resource management at river basin level for 2015, 2020 and 2030. 2) Carry out trial work on the most stringent water resource management. The province, cities and river basins with appropriate foundation have been chosen for trial work. 3) Comprehensively strengthen all water resource management activities. Water resource authority started allocation of water resources of important rivers and has set up the Ministry of Water Resources Leading Group on Allocation of Water Resources in order to strengthen water efficiency management. It has finished the compilation of the "12th Five-Year Plan for Development of Water Conservation Society". It has strengthened the management and control of pollution discharge in water function areas; reexamined and identified the monitoring sections in trans-boundary buffer zones; further strengthened supervision and management of outlets and development of the program on the control of total pollution discharge at different stages. 4) Strengthen capacity building in monitoring of water resources. It has developed the *Implementation Program for National Capacity Building Projects in Monitoring of Water Resources* and comprehensively strengthened building the capacity in monitoring and control of water withdrawal, water function areas and trans-province-boundary water resources.

【Water function zoning】 The State Council approved the National Water Function Zoning of Important Rivers and Lakes (2011-2030) (hereinafter referred to as the Zoning) on December 28, 2011. There were 2888 Grade I water function areas in major rivers and lakes across the country with zoning length of 177977 km and zoning area of 43333 km^2; 2738 Grade II water function areas with zoning length of 72018 km and zoning area of 6792 km^2. There was a total of 4493 Grade I~II water function areas (no double counting for development and utilization zones), The water quality of

81% water function areas is targeted at Grade III or above. The Zoning serves as an important base for development, utilization and conservation of water resources, prevention and control of water pollution and comprehensive control of water environment and also an important support to comprehensive implementation of the strictest water resource management system and establishment of pollution red line of water function areas.

【Progress in prevention and control of groundwater pollution】 Working for 8 years, MEP and national departments such as NDRC, Ministry of Finance, Ministry of Land and Resources, Ministry of Housing and Urban-Rural Development and Ministry of Water Resources jointly finished the development of *National Plan for Prevention and Control of Groundwater Pollution (2011-2020),* which was officially approved by the State Council on October 10, 2011. National Plan for Prevention and Control of Groundwater Pollution for the first time presents overall arrangements for prevention and control of groundwater pollution across the country, It is an important base for prevention and control of groundwater pollution in the next period. MEP and national departments such as Ministry of Land and Resources, Ministry of Water Resources and Ministry of Finance issued the *Circular on National Investigation and Assessment of Environmental Status of Groundwater*. Targeting six kinds of key pollution sources such as hazardous waste dumping sites, landfill facilities, mining areas, petrochemical production and sale areas, recycled water irrigation areas and industrial parks as well as six types of typical areas such as cities with serious surface water pollution, areas with serious pollution of drinking water sources, typical cities clusters, large irrigation areas, scaled livestock farming areas and karst areas, the Circular puts forward investigation and assessment program and plans to carry out investigation and assessment by regions and pollution sources. The investigations and assessment of typical regions include four investigation items such as basic attributes, management status, water quality and risk sources as well as four assessment items such as comprehensive assessment of groundwater pollution, assessment of groundwater performances on prevention of pollution, risk assessment and assessment on remedy, prevention and control program.

【Progress of ecoenvironment protection of lakes】 Relevant authority has further enhanced investigation and assessment on ecological security of lakes and reservoirs. Based on ecosafety investigation and assessment of 12 major lakes (reservoirs) including the Taihu Lake, Dianchi Lake, Chaohu Lake, Dongting Lake, Hongze Lake, Poyang Lake, Three Gorges Reservoir, Danjiangkou Reservoir, Xiaolangdi Reservoir, Fuxian Lake, Liangzi Lake and Wuliangsuhai Lake, relevant authority has further studied the ecological security assessment indicator system for lakes and reservoirs. It has conducted trial work on protection of lake eco environment and developed good lake protection mechanism. The government supported ecoenvironment protection of 8 lakes (reservoirs) such as Fuxian Lake and Erhai Lake in Yunnan Province, Liangzi Lake in Hubei Province, Nansi Lake in Shandong Province, Wabu Lake in Anhui Province, Dahuofang Reservoir in Liaoning Province, Songhua Lake in Jilin Province and Bositeng Lake in Xinjiang.

【Monitoring on water quality of rural collective water supply projects】 In 2011, relevant authority kept on organizing the monitoring of water quality of rural collective water supplies across the country in terms of health with the financial support of the project on improving water supply and toilet in rural areas under national key project public health service program. The water quality of 48976 water supply projects of 1968 counties (districts, cities) in 30 provinces (autonomous regions, municipalities; Shanghai has achieved integrated water supply for urban and rural areas) and Xinjiang Production and Construction Corps was monitored in the whole year. The project covered 230.01 million people with collection and analysis of 196608 effective water samples. There was evident increase of the amount of counties, monitoring projects and involved population.

Municipal Infrastructure Construction

Urban parks and greening work By the end of 2011, the greening area in urban built areas had covered 1.719 million ha, and the green coverage grew from 38.6% in 2010 to 39.4%. Green area in built districts occupied 1.546 million ha and the ratio of green space increased from 34.5% of the previous year to 35.5%. The urban parks and green areas totaled 482,000 ha across the country, and the per capita area of parks and green areas was 11.8 m^2, up by 0.6 m^2 compared with that of 2010.

City appearances and environmental sanitation In 2011, 6.32 billion m^2 of road surface was swept and 160 million t domestic refuse and 20 million t feces were cleared up and transported away. There were 683 environmental friendly domestic garbage disposal plants with innocuous treatment capacity reaching 411,000 t/d and treatment rate at 79.9%. There were 120,000 public toilets and 109,000 environmental sanitation vehicles.

National 12th Five–Year Plan for Environmental Protection

The State Council issued National 12th Five-Year Plan for Environmental Protection in December 2011, which identified four strategic tasks including total pollution control, environmental quality improvement, risk control and balanced development. According to the Plan, total discharges of major pollutants will drop remarkably by 2015 with 8% reduction of COD and SO_2 emissions based on the level of 2010 respectively and 10% reduction of NH_3-N and NO_x respectively. Environmental security of urban and rural drinking water source areas will be effectively protected and dramatic improvement will be made in water quality. Surface water sections under station monitoring program with water quality inferior to Grade V should account for less than 15% of the total and the proportion of state monitored sections with water quality better than Grade III among the seven major water systems should reach 60%. 80% cities above prefecture level will have air quality at or above Grade II standard. Heavy metal pollution will be put under effective control and the effort to prevent and control pollution from persistent organic pollutants, hazardous chemicals and hazardous waste will achieve effective result. Development and operation of basic environmental infrastructure in cities and rural areas will be elevated to a higher level. We will get the deteriorating trend of ecosystem reversed and step up capacity for supervising nuclear and radiation safety in order to further improve nuclear and radiation safety level. The environmental supervision system will be refined. The Plan features the following six aspects. First, it strives for improving the level of ecological civilization by focusing on the theme of scientific development and the central task of transforming economic development mode. Second, it continues to expand the area of environmental protection and strengthen capacity building for environmental protection. Third, it deepens total pollution reduction as a key instrument to drive the transformation of economic development mode. Fourth, it calls for hard work to solve notorious environmental problems affecting people's well being and put environmental quality improvement in a more important position. Fifth, it stresses differentiated environmental management policy and improvement of strategic environmental protection system. Sixth, it strengthens the supporting role of policies and advances the establishment of enduring effect mechanism for environmental protection.

Prevention and Control of Industrial Pollution

MEP launched environmental inspection on key industries including leather, rare earth, iron & steel, citric acid, monosodium glutamate and starch, announced companies compliant with environmental requirement, and worked with other departments to place restriction on export, borrowing loans and financing of companies failed to meet environmental requirement. MEP organized local departments to carry out environmental check on rare earth companies and prompted over 300 companies in the line to add 2 billion yuan of environmental investment. 15 companies were announced so that commercial and industrial departments might adjust export quota and mandatory plan for production accordingly. This has facilitated health development of the industry and safeguarded national strategic interest.

Multiple measures were taken to promote clean production of key enterprises. Starting from five major industries for prevention and control of heavy metal pollution and seven industries with overcapacity, MEP strengthened clean production audit and assessment and acceptance. In 2011, MEP issued two bulletins on key enterprises practicing clean production, making public the information of 4,692 companies nationwide that passed clean production audit and acceptance. It has organized clean production audit, assessment and acceptance of key enterprises in all provinces (autonomous regions and municipalities) and carried out information documentation, summarization and analysis. Effort was made to compile and release *Communication on Clean Production Audit and Acceptance of Key Enterprises in 2010*. It also helped Environmental Protection and Resources Conservation Committee and Commission of Legislative Affairs, NPC to amend the *Law of People's Republic of China on the Promotion of Clean Production.*

Environmental Publicity and Education

Centering closely on environmental protection and serving the whole picture of environmental protection, the work of environmental publicity and education in 2011 was conducted with motivations and moved steadily forward, with new achievements in guiding public opinions, mobilizing public participation, promoting newspaper/magazine reform, organizing publicity events, and prospering the environmental culture. Favorable opinions and social environment were built for furthering a historic transformation in environmental protection, improving the level of ecological civilization, and exploring new path to environmental protection.

Comprehensive deployment of countrywide environmental publicity and education and orderly advancement of restructuring of China Environmental News A document, the *National Action Outline for Environmental Publicity and Education (2011-2015)*, issued for the first time by six departments, including MEP, the Publicity Department of the CPC Central Committee, the Central Office for Cultural Development, the Ministry of Education, the Central Committee of the Communist Youth League of China, and the All-China Women's Federation, provided the basis for environmental publicity and education activities through interdepartmental collaboration. The achievements made and lessons learned in environmental publicity and education since the 11th Five-year Period were summarized and shared and the work for 2012 was deployed at the Working Meeting for National Environmental Publicity and Education. The task of reorganizing and incorporating China Environmental Science Press was successfully completed and reform of MEP-affiliated newspapers and magazines was initiated. A study, *Greater Emphasis on the Important Roles of Environmental Protection in Transformation of Economic Development Modes*, was finished in cooperation with Chinese Public Administration Society.

Strengthening press publicity and continued improvement of public opinion guiding capability and level Centering on the big picture and focusing on the aim of actively guiding public opinions, the work of environmental news reporting in 2011 included proactive planning of news reports in important time slots, especially during the two national environmental conferences. Ad hoc reporting of nuclear power-related news was organized with great care and public concerns on hot environmental issues were promptly responded to. The series "Tell the Truth" interviews were earnestly carried out. Reporting and submission of public opinions and popular feelings continued to be perfected. Through 2011, arrangements were made for the press to cover 147 major meetings and other events of MEP; organization and coordination were made for mainstream, business, and web-based media to take part in coverage for 39 times; and 132 press releases were published. Incomplete statistics suggest that MEP press releases were published (aired) a total of 1842 pieces (times) by 16 central, mainstream media, including the People's Daily (83 pieces), Xinhua News Agency (293 pieces/times), and CCTV (870 items/times).

Creating new forms of environmental publicity and education and boosting environmental culture A series of Publicity Week events was held centering on the Chinese theme of "an ecological civilization by all and a green future for all" for the World Environment Day. Extensive impact was generated on the community through a variety of well planned and organized events, such as the Exhibition on Environmental Protection Achievements during the "11th Five-year Plan" Period and 2011 China International Environmental Protection Exhibition & Conference and the inception meeting for the 1000 Environment-Friendly Youth Ambassador Action Program. *Exploring New Path to Environmental Protection in China*, a promotional film in celebration of the successful opening of the 7th National Conference on Environmental Protection, was played on large screens round the clock at the Tiananmen Square. "Environmental Protection for the People, Green Leap Forward", a special environmental protection-themed feature, was staged during when the Conference was in session. Great support was given to the publicity and promotion of environmental protection-themed films, such as *The River Guard, The Yellow-River Woman, Green Storm, and The Vanished Village*.

Marine Environment

General Situation

All Sea Areas

The comprehensive assessment findings of indicators such as inorganic nitrogen, active phosphate, COD and petroleum in marine water of all seas show that the overall quality of marine water under the administration of China was relatively good in 2011. The marine water areas meeting Grade I marine water quality standard accounted for 95% of total marine areas under the administration of China.

Coastal Sea Areas

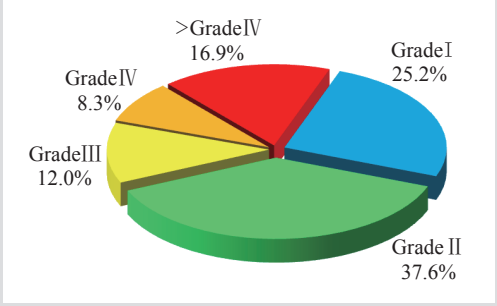
In 2011, the overall quality of coastal marine waters of China was not bad*.

All monitoring sites in coastal sea areas represent the area of 281,012 km^2. Among them, 64,809 km^2 met Grade I marine water quality standard, 120,739 km^2 met Grade II standard, 39,127 km^2 met Grade III standard, 18,008 km^2 met Grade IV standard and 38,329 km^2 failed to meet Grade IV standard.

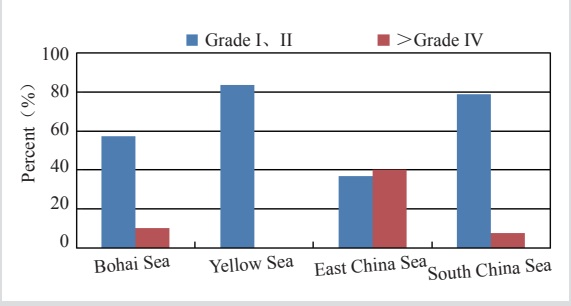
Among all monitoring sites, 62.8% met Grade I~II marine water quality standard, up by 0.3 percentage point compared with that of last year; 20.3% met Grade III~IV standard, up by 1.6 percentage points; 16.9% failed to meet Grade IV standard, down by 1.9 percentage points compared with that of last year. The main pollutants were inorganic nitrogen and active phosphate.

Among the four large seas, the coastal marine water of the Yellow Sea was good; the coastal marine water of the South China Sea was not bad. The quality of coastal marine water of the Bohai Sea and East China Sea was poor. Among the 9 important bays, the Yellow River estuary and Beibu Bay had good water quality. Jiaozhou Bay and Liaodong Bay had poor water quality; while the Bohai Bay, Yangtze River estuary, Hangzhou Bay, Minjiang River estuary and Pearl River estuary had very poor water quality.

The Bohai Sea The coastal sea water quality of the Bohai Sea was poor. The main pollution indicators were inorganic nitrogen, lead and petroleum. 16.3% of the monitoring sites met Grade I national marine water quality standard, down by 12.3 percentage points compared with that of last year; 40.8% met Grade II standard, up by 14.3 percentage points compared with that of last year; 18.4% met Grade III standard, down by

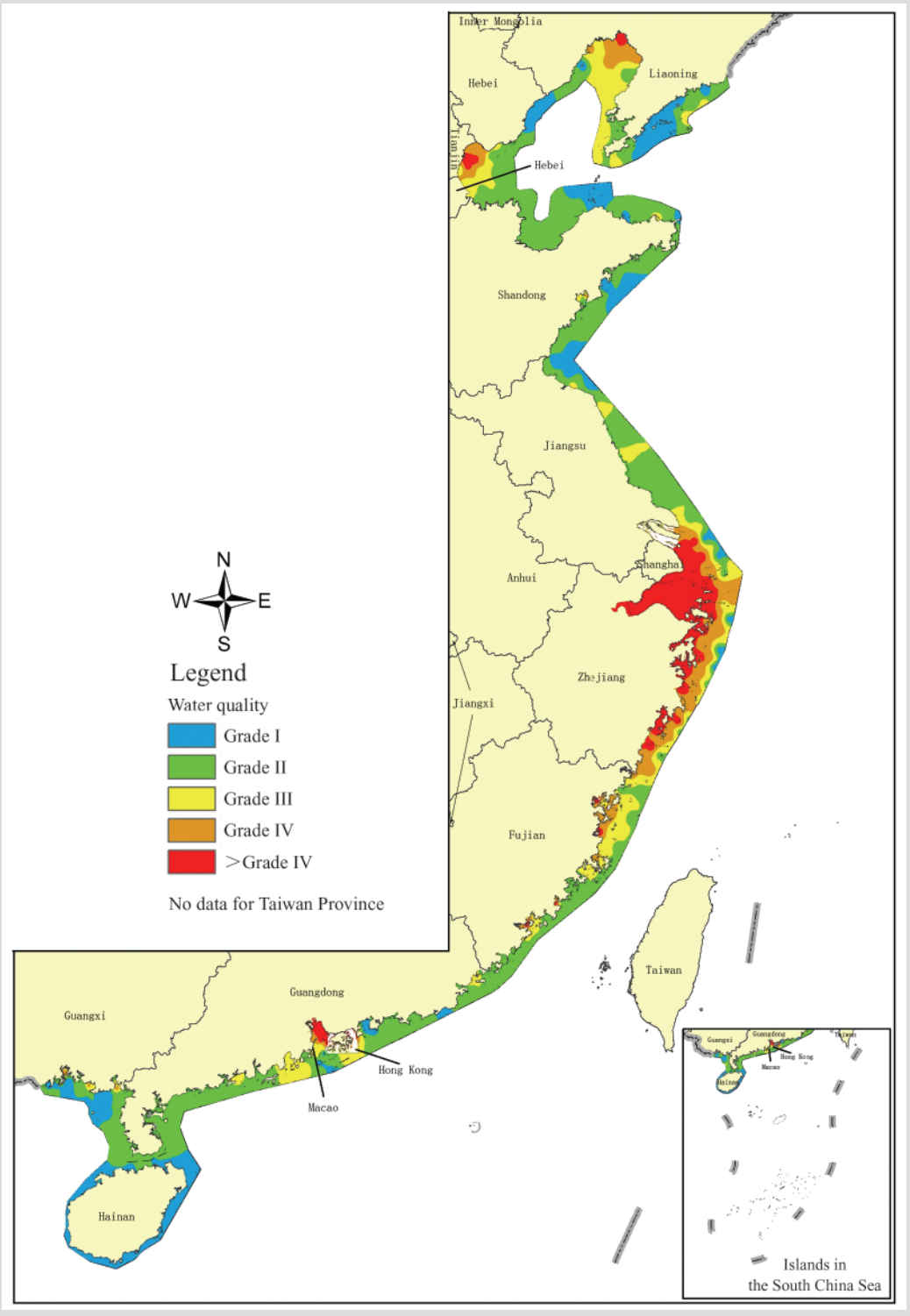


Water quality of coastal sea areas in 2011



Water quality of the coastal waters of four seas in 2011

* The indicators assessing the quality of coastal sea waters have changed to 28 items since the Report on the State of the Environment this year with corresponding adjustment of relevant 2010 data.



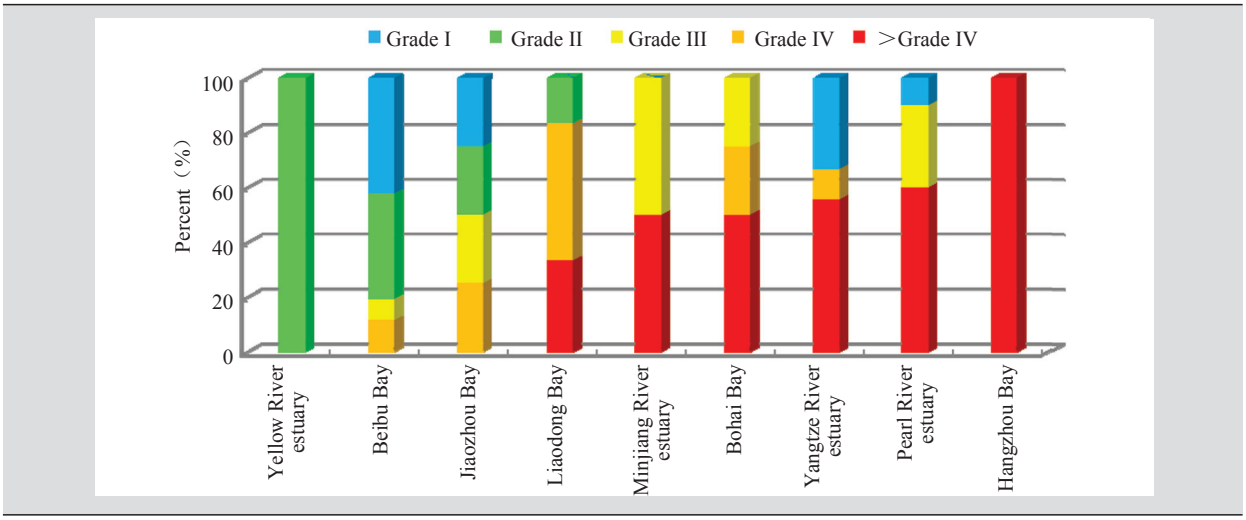
Water quality of coastal sea waters of China in 2011

2.0 percentage points; 14.3% met Grade IV standard, up by 4.1 percentage points; 10.2% failed to meet Grade IV standard, down by 4.1 percentage points compared with that of last year.

The Yellow Sea The coastal sea water quality of the Yellow Sea was good. The main pollutants were inorganic nitrogen, pH and petroleum. 33.3% monitoring sites met Grade I standard, up by 1.8 percentage points compared with that of last year; 50.0% met Grade II standard, down by 5.6 percentage points compared with that of last year; 14.8% met Grade III standard, up by 7.5 percentage points; 1.9% met Grade IV standard, down by 1.8 percentage points compared with that of last year. There was no Grade IV marine water, down by 1.9 percentage points.

The East China Sea The coastal sea water quality of the East China Sea was poor. The main pollution indicators were inorganic nitrogen and active phosphate. 7.4% of the monitoring sites met Grade I standard, up by 7.4 percentage points compared with that of last year. 29.5% met Grade II standard, down by 3.1 percentage points compared with that of last year; 8.4% met Grade III standard, down by 8.5 percentage points; 14.7% met Grade IV standard, up by 8.4 percentage points; 40.0% failed to meet Grade IV standard, down by 4.2 percentage points compared with that of last year.

The South China Sea The coastal sea water quality of the South China Sea was not bad. The main pollutant was inorganic nitrogen. 41.7% monitoring sites met Grade I national marine water quality standard, down by 5.3 percentage points compared with that of last year. 36.9% met Grade II standard, up by 2.9 percentage points. 10.7% met Grade III standard, down by 2.3 percentage points. 2.9% met Grade IV standard, up by 2.9 percentage points. 7.8% failed to meet Grade IV standard, up by 1.8 percentage points compared with that of last year.

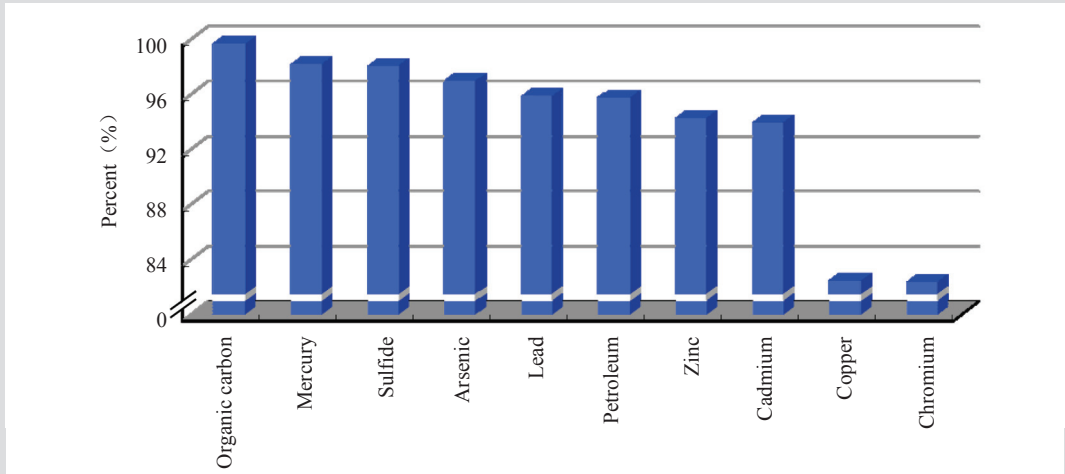


Water quality of important estuaries and bays in 2011

Important Bays In the nine important bays, the Yellow River estuary and Beibu Bay had good water quality with over 80% marine monitoring sites meeting Grade I~II standard. The marine water of Jiaozhou Bay and Liaodong Bay had poor quality. 50.0% of the monitoring sites of Jiaozhou Bay met Grade III~IV standard without any site failing to meet Grade IV standard. 33.3% of the monitoring sites of Liaodong Bay failed to meet Grade IV standard. The Bohai Bay, Yangtze River estuary, Hangzhou Bay, Minjiang River estuary and Pearl River estuary had extremely poor water quality with over 40% marine monitoring sites respectively failing to meet Grade IV standard.

Marine Sediments

In 2011, China carried out environment monitoring on marine sediments in 514 monitoring sites in sea areas under its jurisdiction with monitoring items including petroleum, heavy metals, arsenic, sulfide and organic carbons. The monitoring results show that the overall sediment quality of coastal sea areas was good, the copper and chromium concentrations of 83% of the monitoring sites met Grade I marine sediment quality standard. The other indicators of over 94% monitoring sites met Grade I marine sediment quality standard. The concentrations of sediment of waters outside coastal marine areas were good. Only



Percent of monitoring sites meeting Grade Ⅰ marine sediment quality standard for each kind of pollutant in 2011

few monitoring sites had lead and copper concentrations going beyond Grade I marine sediment quality standard.

Land-based Pollutants

Sea-oriented Rivers In 2011, among the 194 sections of sea-oriented rivers under monitoring, 44.9% met Grade I~IIIwater quality standard, 27.8% met Grade IV~V standard and 27.3% failed to meet Grade V standard.

The total amount of major pollutants flowing into seas through 194 river sections was 3.759 million t of permanganate value, 0.64 million t of ammonia nitrogen, 45,000 t of petroleum and 0.263 million t of total phosphorus.

Direct discharge sources In 2011, the total waste water

Water quality of the monitoring sections of sea-oriented rivers in 2011

Seas	Amount of sections					
	Ⅰ	Ⅱ	Ⅲ	Ⅳ	Ⅴ	> Ⅴ
Bohai Sea	0	2	9	6	5	24
Yellow Sea	1	1	22	14	4	15
East China Sea	0	3	8	5	4	5
South China Sea	0	17	24	14	2	9

Total amount of each kind of pollutant from sea-oriented rivers in 2011

Seas	Permanganate value (10,000 t)	Ammonia nitrogen (10,000 t)	Petroleum (10,000 t)	TP (10,000 t)
Bohai Sea	5. 5	1. 2	0. 04	0. 13
Yellow Sea	24. 1	3. 2	0. 22	0. 56
East China Sea	247. 0	44. 3	2. 83	22. 27
South China Sea	99. 4	15. 3	1. 46	3. 35

discharge from 432 direct outlets of industrial source, domestic source and comprehensive source with daily capacity larger than 100 t was 4.74 billion t. The total discharge was 0.21 million t for COD, 907 t for petroleum, 20200 t for ammonia nitrogen and 3047 t for total phosphorus.

Marine Fishery

The main pollutants of spawning sites, feeding sites and migrating passages of important marine fish, lobster, shellfish and algae as well as marine nature reserves were inorganic nitrogen, active phosphate and petroleum. Some fishery waters of the East China Sea and Pearl River estuary had relatively heavy pollution of inorganic nitrogen and active phosphate. The Bohai Sea and Pearl River estuary suffered from relatively heavy petroleum pollution. The areas with the concentrations of inorganic nitrogen, active phosphate, petroleum and COD going beyond the standard had some reductions compared with that of last year. The areas with petroleum concentration going beyond the standard had evident reduction. However, the areas with concentrations of copper, zinc and mercury had some increase.

The main pollution indicators of major marine farm areas were inorganic nitrogen and active phosphate. Some aquaculture waters in the South China Sea had relatively heavy pollution of inorganic nitrogen. Some aquaculture waters in the Yellow Sea and South China Sea were subject to relatively heavy pollution by active phosphate. The areas with the concentrations of inorganic nitrogen, active phosphate and COD had some reduction compared with that of last year.

The main pollution indicators of sediments of important marine fishery waters were petroleum and copper. Some fishery waters of the South China Sea had relatively heavy petroleum pollution; and some fishery waters of the East China Sea and Pearl River estuary were subject to relatively heavy copper pollution.

The main pollutants of some zones of national (marine) protected areas for aquatic species resources were inorganic nitrogen and active phosphate.

Pollution discharge from various direct sources in 2011

Pollution source	Waste water (100 million t)	COD (10000 t)	Petroleum (t)	Ammonia nitrogen (10000 t)	TP(t)
Industry	12. 88	2. 4	127	0. 09	56
Domestic	6. 19	2. 9	172	0. 37	544
Total	28. 3	15. 7	608	1. 56	2447

Amount of major pollutants directly discharged into the four seas in 2011

Seas	Waste water (100 million t)	COD (10000 t)	Ammonia nitrogen (10000 t)	Petroleum (t)	TP(t)
Bohai Sea	1. 66	1. 0	0. 1	59. 0	134. 1
Yellow Sea	9. 09	4. 3	0. 4	58. 0	640. 1
East China Sea	27. 02	12. 3	1. 1	537. 6	1273. 9
South China Sea	9. 58	3. 5	0. 4	252. 6	999. 4

Measures and Actions

【Organization of the development of the "12th Five-Year" Plan for Prevention and Control of the Pollution of Coastal Sea Areas】 In order to facilitate the improvement of marine environment quality and ensure sustainable development of coastal regions, MEP and national departments such as NDRC and State Oceanic Administration have continuously facilitated the development of the first national plan for prevention and control of marine pollution —*The "12th Five-Year Plan for Prevention and Control of Pollution of Coastal Sea Areas*" (hereinafter referred to as the Plan) in 2011. They jointly issued the Circular on Printing Out and

Distribution of the Outline for the *Development of "12th Five-Year Plan for Prevention and Control of Pollution of Different Coastal Sea Areas* in July of 2011, which requires that each province (autonomous region, municipality) in coastal regions and the departments involving in the development of the Plan should focus on the improvement of water quality of coastal sea areas, identify specific objectives of the Plan in a scientific way, determine the strategy and tasks for prevention and control of pollution of key regions, organize key projects and identify the main responsibility body, and successfully finish the development work. According to the arrangement of developing the Plan, the compilation of the first draft of Technical Report of the Plan of coastal provinces (autonomous region, municipality), the Plan of four seas as well as the Master Plan has been finished by the end of 2011, which are under further revision and improvement.

Environmental Monitoring

In 2011, the national environmental monitoring system performed surveillance and monitoring of environmental quality, pollution sources and environmental emergency response, gathering more than 200 million monitoring data and providing up-to-date information on national environmental quality.

Environmental monitoring capacity By the end of 2011, there had been 2,587 environmental monitoring institutions nationwide including one environmental monitoring station at national level, 36 provincial monitoring stations, 339 stations at prefecture level and 2,211 at county level. A total of 54,698 people worked for environmental monitoring. Environmental monitoring office area covered 1890,983 m^2 and there were 1697,951 environmental monitoring instruments.

Environmental quality monitoring There were 10,984 surface water sections under monitoring nationwide including 759 sections monitored by national network. 950 automatic monitoring stations were in operation including 149 national automatic water quality motoring stations. There were 4,346 air points under monitoring across China and 2,100 automatic air quality monitoring stations in operation including 661 stations at national level. The environmental monitoring system carried out environmental quality monitoring, assessment and examination at 452 counties within key national ecological function zones. It guided environmental protection performance policy supported by transfer payment of central budget. Special monitoring on heavy metal was launched at 277 sections under national monitoring program in 14 provinces (autonomous regions and municipalities) which helped to identify serious environmental problems and hidden risks promptly.

Surveillance and monitoring of pollution sources Surveillance and monitoring on 4,226 wastewater discharging enterprises under national monitoring program, 3,943 waste gas emission enterprises under national monitoring program and 2,955 sewage treatment plants was carried out once a quarter. Special monitoring on heavy metal discharge was carried out on 1,395 wastewater discharging enterprises under national monitoring program, 109 waste gas emission enterprises under national monitoring program and 2,765 sewage treatment plants and 462 companies were supervised and monitored on lead pollution. Key pollution sources were supervised timely to ensure up-to-standard discharge.

Management of environmental monitoring MEP issued the *12th Five-Year Plan for National Environmental Monitoring* and *Opinions on Strengthening Environmental Monitoring of Heavy Metal Pollution* and organized 49 training courses on environmental monitoring technology and management, turning out 5,908 technical staff from environmental monitoring stations at provincial level or key environmental protection cities. Solid work was carried out to implement three-year action plan for quality management of environmental monitoring. 91.6% of the monitoring staff in the front line of monitoring were certified, 98.6% of environmental monitoring institutions at provincial level or in key environmental protection cities passed metrology accreditation and 97.9% of the main analyzers of environmental monitoring labs in use were up to standard.

National Environmental Emergency Response and Management

In 2011, MEP strengthened environmental emergency response in an all-round way, actively prevented and properly handled environmental accidents and worked hard to safeguard public health and national environmental safety in order to promote economic sustainable development and social stability and harmony.

Properly handling environmental emergencies In 2011, MEP directly commanded and handled 106 environmental accidents, reducing 32% compared with that of 2010. Among them, there were 12 severe accidents, 11 major accidents and 83 ordinary accidents. In terms of time distribution, 22 accidents took place in the first quarter, 37 in the second quarter, 30 in the third quarter and 17 in the fourth quarter. Divided by causes, 51 accidents resulted from production safety incidents, 15 caused by traffic accidents, 20 by pollution discharged by enterprises, 6 by natural disasters and 14 by other factors. In terms of types of pollution, there were 39 water pollution accidents, 52 air pollution accidents, 2 soil pollution accidents, 4 marine pollution accidents and 9 accidents of other pollution. While stressing proper management of environmental emergencies, MEP also focused on investigation and determination of responsibilities and analysis of post accident management. For all severe and sensitive environmental accidents, it guided and urged local governments to look into the causes, introduced regional ban of construction projects in some areas and punished 95 people held responsible. Some offenders were transferred to judicial departments. MEP ordered related organizations to implement rectification measures, selected typical accidents for case study and carried out evaluation and estimation of pollution damage.

Strengthening handling of environmental complaints In 2011, MEP received 25,610 phone calls or inquiries through environmental hot line "010-12369" and internet. It handled 15,624 complaints, accepted 1,281 cases and settled down 1,280. Among them, 11 severe environmental accidents, 4 mass accidents and 15 environmental sensitive accidents were all processed promptly by confirming information, guiding and supervising response operation. As a result, these cases were properly handled and the authority met the requirement that every complaint must be handled, violations must be investigated, and every case must be settled or given a reply.

Great breakthrough in environmental risk management In 2011, MEP completed examination of environmental risks and chemicals in key industries and companies, finding out the basic information on environmental risks of 42,510 companies under 35 groups, 10 branches and 3 categories of industries ranging from petroleum processing, coking to chemical raw materials & chemical product manufacturing and pharmaceutical. The effort led to the establishment of a databank. MEP explored and identified methods for evaluating over 200 substances with environmental risks and regional and companies and made an overall assessment on the level of environmental risks of 43,510 companies in key industries and environmental risks of 31 provinces (autonomous regions and municipalities) across China. It launched a large scale examination on risk control from land-based oil spill in coastal areas and inspected 1,239 companies in 11 provinces (autonomous regions and municipalities) on their oil prospecting, refining, storage and transportation activities and wharves. The inspection helped to understand the land-based oil spill risks of companies along the coast, discovered hidden safety troubles and identified countermeasures. These companies were urged to rectify their problems. In the meantime, MEP advanced environmental emergency response management for tailing ponds, drinking water source areas and chemical industrial parks in order to make major breakthroughs in preventing and dispelling environmental risks at source.

Remarkable improvement of environmental emergency response management capability In 2011, MEP made much effort in basic work including improving contingency plan, environmental emergency management system and mechanism and legal system development. It also paid attention to program development for environmental emergency, reserve of emergency response materials and standardization of emergency response capabilities in key areas. It actively promoted development of rescue team and emergency response command platform and carried out professional training and international exchanges. EPBs at all levels continued to standardize emergency response management and their capability improved notably.

Environmental Protection Scientific and Technological Advances

Active promotion of environmental science and technology innovation The *12th Five-Year Plan for National Environmental Scientific and Technological Development* was published in 2011. 49 special public-welfare scientific and technological research projects for environmental protection were approved. Environmental science and technology were positively promoted at various angles by national scientific and technological plans and programs, such as the National Key Technology R&D Program and the National Major Scientific Instrument and Equipment Development Project. A wealth of major achievements was made. In the assessment and appraisal for the State Environmental Protection Science and Technology Awards, 5 projects were granted first awards, 19 projects granted second awards, and 27 projects granted third awards. Two recommended projects were granted second State Scientific and Technological Progress Awards. The Key National Laboratory on Environmental Benchmark and Risk Assessment, the first key national laboratory prepared and built by the environmental protection community, was approved by the Ministry of Science and Technology as a project. Six key national environmental protection laboratories were accepted and approved for construction. Shooting and production of "*Care the Environment even When Growing Vegetables*", a science popularization film for rural areas, and compilation and writing of *Q&A for Nuclear Incident Prevention and Protection in Nuclear Power Plants*, one of 7 science popularization books, were completed.

Quicker perfection of environmental protection standards system MEP published a total of 73 national environmental protection standards in 2011, including 13 national pollutants discharge standards/limits. The *Emission Standard of Air Pollutants for Thermal Power Plants* was intended to provide major support for accomplishment of the 12th Five-year pollutants and emissions reduction targets. The *Emission Standards of Pollutants from Rare Earths Industry* would play an important role in controlling in disordered development of the rare earths industry and protecting China's justified trading rights and interests. The *Guideline for Air Quality Assessment in Passenger Vehicles* would effectively direct air pollution prevention and control inside passenger vehicles and enable technical advance in automobile manufacturing. In the year, open solicitation for input was made for 105 standards and 9 standard interpretation documents were published. After publication, the *Ambient Air Quality Standard – Second Draft for Open Solicitation* received extensive attention and favorable feedback. Basically, the preparations for its official release had been completed in 2011. This year also saw MEP putting on record 15 local pollutants discharge standards and making public, for the first time ever, information about the putting on record of local environment quality standards and pollutants discharge standards.

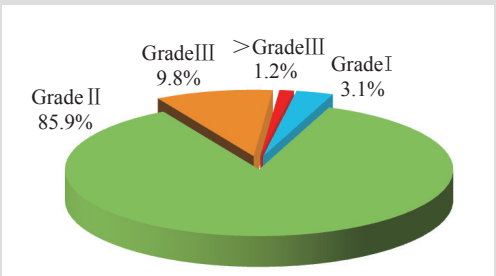
Atmospheric Environment

General Situation

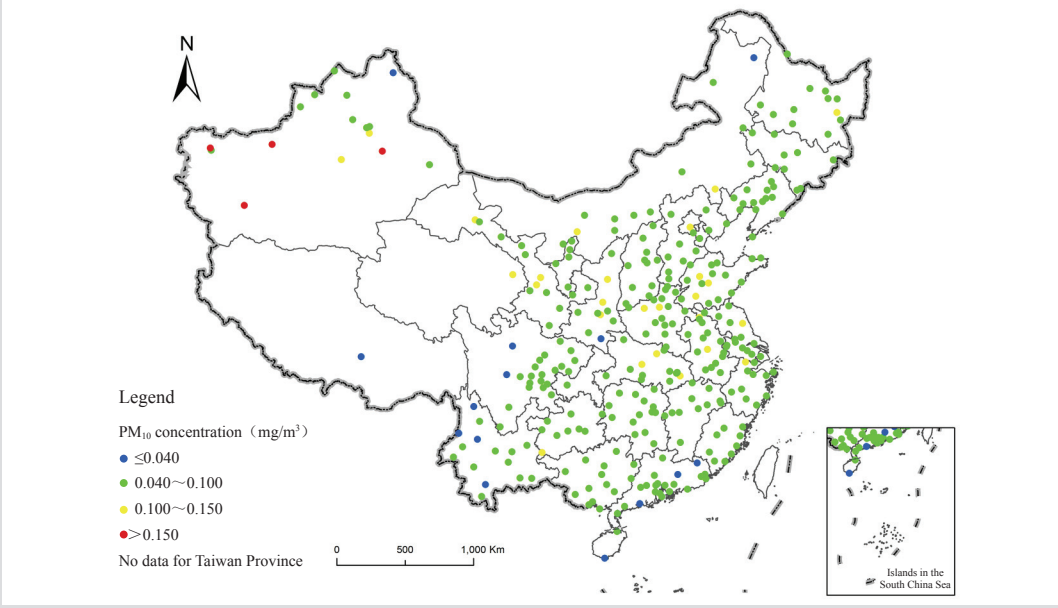
The overall urban ambient air quality of the country was stable* and there was no obvious change of the distribution areas of acid rain.

Air Quality

Cities at or above prefecture level In 2011, among 325 cities at or above prefecture level (including the capitals of some prefectures and leagues as well as cities directly under provincial administration), 89.0% of them met Grade II national air quality standard, the rest 11.0% cities failed to meet the national air quality standard.



Urban air quality of cities at or above prefecture level in 2011



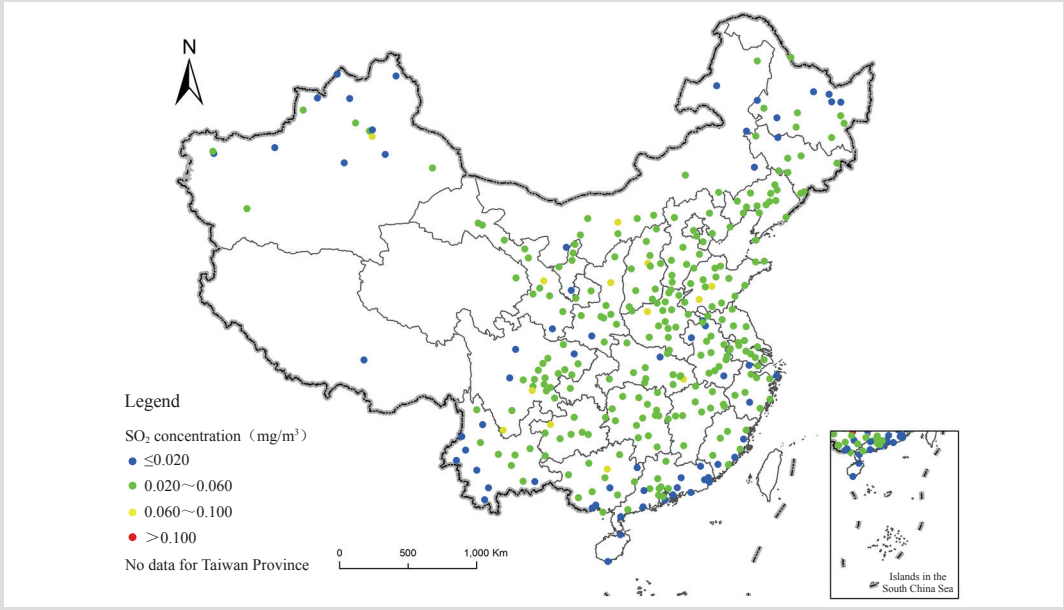
The annual average concentration of PM_{10} in cities at or above prefecture level in 2011

* The assessment of air quality of the current Report is based on Ambient Air Quality Standard (GB3095-1996). The assessment indicators are PM_{10}, SO_2 and NO_2.

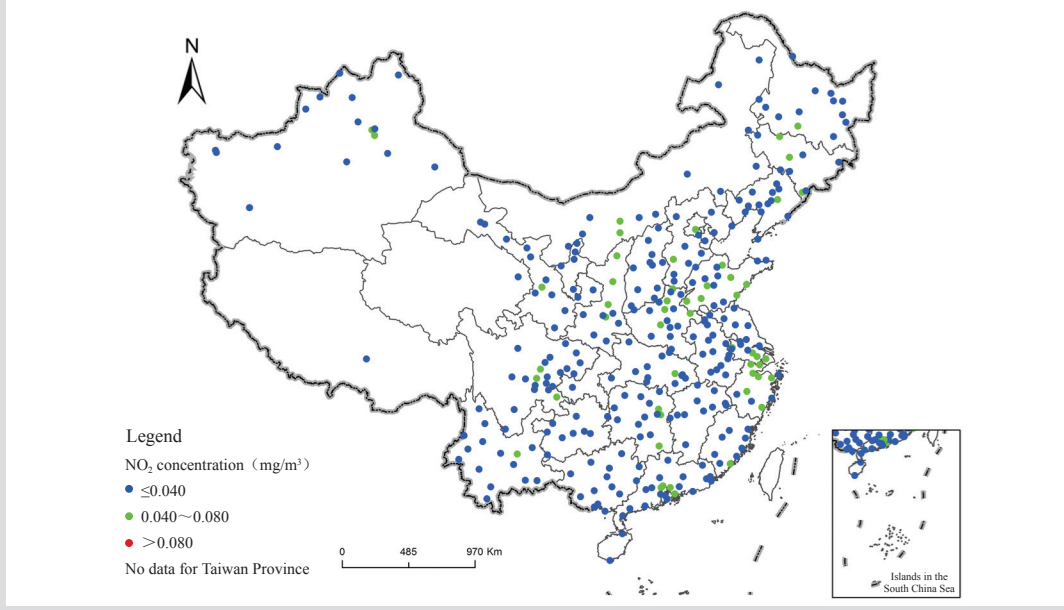
In 2011, the annual average concentration of PM_{10} in ambient air of 90.8% cities at or above prefecture level met or was superior to Grade II national air quality standard. The annual average concentration of PM_{10} of 1.2% cities failed to meet Grade III standard. The annual average of PM_{10} concentration was 0.025~0.352 mg/m^3, mainly ranging from 0.060 mg/m^3 to 0.100 mg/m^3.

In 2011, the annual average of SO_2 concentration in ambient air of 96.0% cities at or above prefecture level met or was superior to Grade II national air quality standard. The rest 4% met Grade III standard. The annual average of SO_2 was 0.003~0.084 mg/m^3. The SO_2 of most of ciries ranged from 0.020 mg/m^3 to 0.060 mg/m^3.

In 2011, the annual average of NO_2 in ambient air of cities

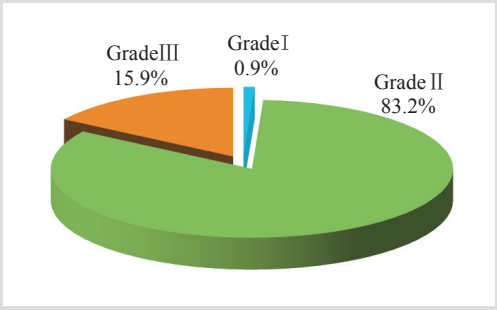


The annual average concentration of SO_2 in cities at or above prefecture level in 2011

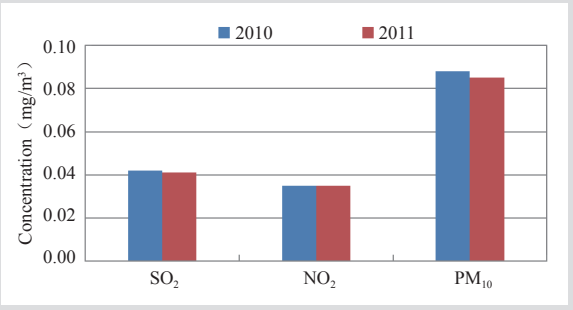


The annual average concentration of NO_2 in cities at or above prefecture level in 2011

at or above prefecture level met Grade II national air quality standard. Among them, 84.0% met Grade I standard. The annual average of NO_2 was 0.004~0.068 mg/m^3. The NO_2 of most of cities ranged from 0.015 mg/m^3 to 0.040 mg/m^3.



Air quality of Major Cities on Environmental Protection in 2011



Annual change of air pollutant concentration of major cities on environmental protection

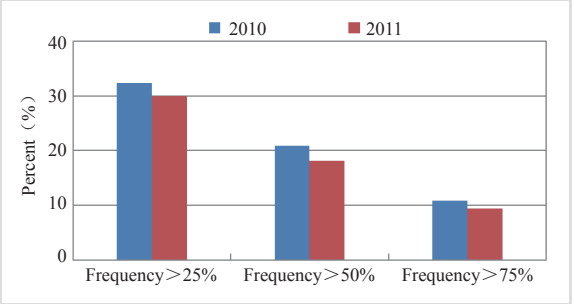
Major Cities on Environmental Protection In 2011, among the 113 major cities on environmental protection, 84.1% met Grade II national air quality standard. The percent of cities meeting national air quality standard went up by 10.6 percentage points compared with that of last year.

In 2011, the annual concentration of SO_2, NO_2 and PM_{10} of major cities on environmental protection was 0.041mg/m^3, 0.035 mg/m^3 and 0.085 mg/m^3 respectively. The annual SO_2 and PM_{10} concentration went down by 2.4% and 3.4% respectively compared with that of last year. The annual NO_2 concentration remained the same.

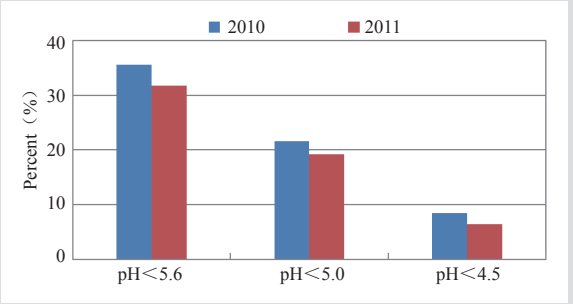
Acid Rain

Acid rain frequency In 2011, among the 468 cities (counties) under monitoring, 227 cities (counties) had acid rain, accounting for 48.5%; 140 cities had acid rain frequency over 25%, taking up 29.9%; 44 had acid rain frequency over 75%, taking up 9.4%.

Precipitation pH Value In 2011, 31.8% of the cities (counties) had the annual average of precipitation pH value less than 5.6 (acid rain), 19.2% of the cities (counties) had the annual average of precipitation pH value less than 5.0 (relatively heavy acid rain) and 6.4% of the cities (counties) had the annual average of precipitation pH value less than 4.5 (heavy acid rain). The proportion of the cities (counties) with acid rain, relatively heavy acid rain and heavy acid rain went down by 3.8 percentage points, 2.4 percentage points and 2.1 percentage points respectively compared with that of last year.



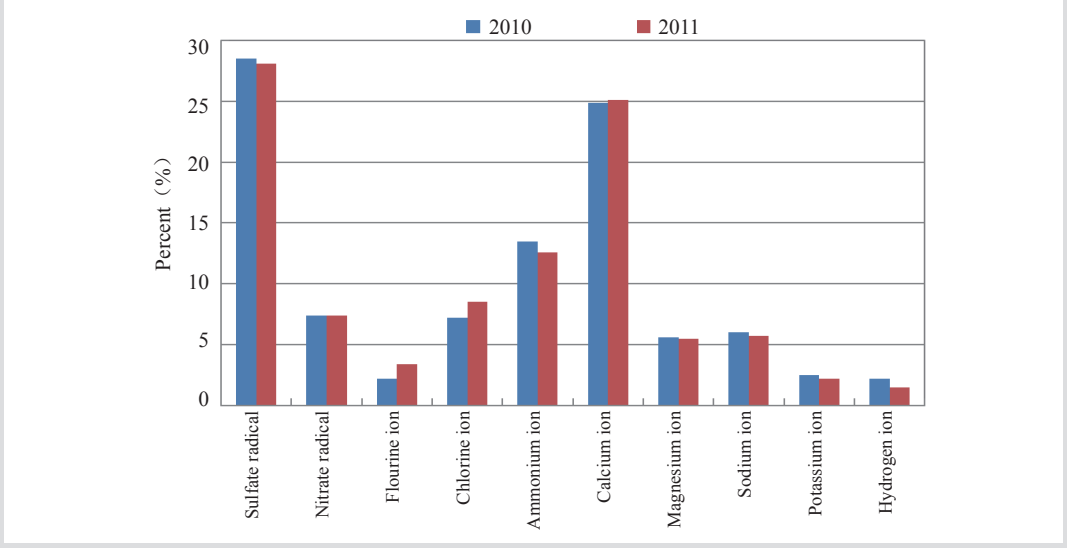
Annual change of percent of cities (counties) with different acid rain frequency



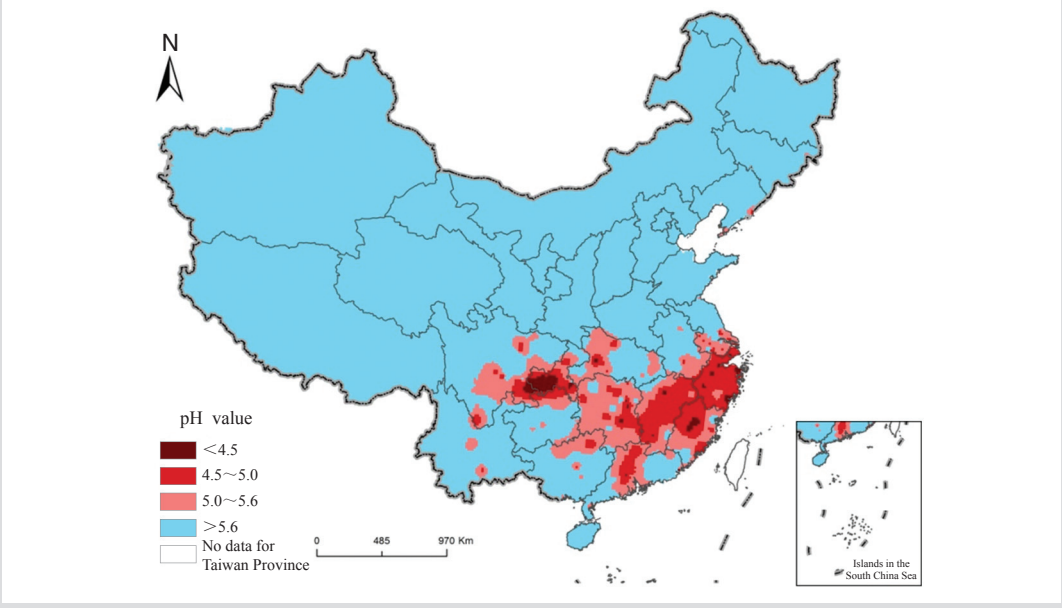
Annual change of percent of cities (counties) with different annual average pH value of precipitation

Chemical Composition In 2011, the main cations in precipitation were calcium and ammonium, accounting for 25.1% and 12.6% of the total ionic equivalent respectively. The main anion was sulfate radical, taking up 28.1% of total ionic equivalent; nitrate radical took up 7.4% of total ionic equivalent. Sulfate was the main acid causing substances.

Acid Rain Distribution In 2011, acid rain areas were mainly in areas along the Yangtze River and areas south to the Yangtze River and the regions east to Qinghai-Tibet Plateau. They mainly included most regions of Zhejiang, Jiangxi, Fujian, Hunan and Chongqing as well as the Yangtze River delta, Pearl River delta, western part of Hubei, southeastern part of Sichuan and northern part of Guangxi. The acid rain area was about 12.9% of total land area.



Annual change of the percent of equivalent concentration of main ions in precipitation



Isograms of annual average pH values of precipitation in China in 2011

Emissions of major pollutants in waste gas

In 2011, the total SO_2 emission of the country was 22.179 million t, down by 2.21% compared with that of last year. The total NO_x emission was 24.043 million t, up by 5.73% compared with that of last year.

Emissions of major pollutants in waste gas in 2011

SO_2 (10,000 t)				NO_x (10,000 t)				
Total amount	Industrial source	Domestic source	Collective	Total amount	Industrial source	Domestic source	Vehicle	Collective
2217.9	2016.5	201.1	0.3	2404.3	1729.5	37.0	637.5	0.3

Measures and Actions

【Organizing the development of the Plan for Prevention and Control of Air Pollution of Major Regions】 Based on the *Circular of the General Office of the State Council on Transfer of the Guidance of Departments Including Ministry of Environmental Protection on Facilitating Joint Prevention and Control of Air Pollution and Improving Regional Air Quality*, MEP has organized the development of the Plan for Prevention and Control of Air Pollution of Major Regions (2011-2015) (hereinafter referred to as the Plan) after site investigation, expert verification and discussions. The Plan has identified 13 major regions, that is, "three regions and 10 urban agglomerations" (Beijing-Tianjin-Hebei, Yangtze River delta, Pearl River delta, central part of Liaoning Province, Shandong Peninsula, Wuhan and its surrounding area, Changsha-Zhuzhou-Xiangtan, Chengdu-Chongqing, west bank of the Taiwan Strait, central and northern parts of Shanxi Province, Guanzhong of Shaanxi Province, Urumqi of Xinjiang, and Lanzhou-Baiyin urban agglomerations). Aiming at improving air quality, it requires taking synergy control of several pollutants as an approach, establishing joint mechanism for prevention and control of regional air pollution and successfully preventing and controlling atmospheric pollution of major regions during the "12th Five-Year Plan" period.

【Successfully finish the task of ensuring good air quality for the Universiade 2011 Shenzhen】 Learning the successful experience of Beijing Olympic Games, Shanghai World Expo and Guangzhou Asian Games in ensuring good air quality, the environmental protection authority facilitated environmental protection cooperation of the Pearl River delta and carried out joint prevention and control measures for regional air pollution. The air pollution index of Shenzhen was less than 30, indicating excellent air quality during the Universiade 2011 period. The environmental protection authority successfully finished the task of ensuring good air quality for the "Green Universiade".

【Promote the prevention and control of vehicle emissions】 1) Relevant authority organized the implementation of Grade IV standard for light-duty gasoline vehicles and emission standard for non-road mobile machines and actively facilitated low sulphur content of vehicle oil. 2) Relevant authority organized the self examination of vehicle environmental protection testing institutions. It organized six groups visiting 9 provinces for site supervision. 3) Relevant authority conducted scientific assessment and active publicity on prevention and control of vehicle emission. It has compiled and released the *Annual Report of China on Prevention and Control of Vehicle Pollution (2011)*. Meanwhile, it coordinated authoritative world transport organizations to develop and release the *Assessment Report on Control Measures for Vehicle Emissions in China*.

【Hold the Seventh International Workshop on Management of Regional Air Quality】 The Seventh International Workshop on Management of Regional Air Quality was held during November 10~11, 2011. At the workshop, relevant experts at home and abroad had in-depth discussions focusing on issues such as relevant policy measures for joint prevention and control of atmospheric pollution of major regions as well as the prevention and control of VOC pollution.

【Trial work on prevention and control of mercury air pollution of coal-fueled power plants】 According to the Circular on *Carrying Out Trial Work on the Control of Mercury Pollutant Emission of Coal-Fueled Power Plants*, relevant authority has actively facilitated the prevention and control of mercury pollution of coal-fueled power plants. A total of 32 coal-fueled generating units in 16 trial power plants of 6 power corporations have been chosen for trial monitoring.

The six big power corporations have finished the installation of mercury monitoring equipment, which began operation.

【Strengthen environmental management of substances that deplete ozone layer】 The Work Flow on *Administrative Review and Approval of Substances Depleting Ozone Layer* was finished and made public in May of 2011. This facilitates clear and standard work flow of review and approval of the production, use, import and export of the substances depleting ozone layer. It practically guarantees the openness, justice and transparency of the review and approval process.

2011 National Work Meeting on Environmental Protection

The 2011 National Work Meeting on Environmental Protection was held in Beijing during January 13-14. Member of the standing committee of the CPC Political Bureau, Vice Premier of the State Council Li Keqiang made an important instruction, fully affirming the great progress made in environmental work in the 11th Five-Year Plan period and making requirement that all colleagues in the environmental field should work hard to solve prominent environmental problems based on promoting scientific development and accelerating transformation of economic development mode, improve the level of ecological civilization, facilitate green development and better address people's new hope for eco environment. MEP Minister Zhou Shengxian attended the meeting. He first conveyed the instruction of Vice Premier Li Keqiang and required all staff to learn the instruction carefully, seriously implement it, actively explore a new path to environmental protection and open up a new situation for environmental work. The 11th Five-Year Plan period was extraordinary in China's development history and it was also a time when environmental cause unfolded. During this period, China took pollution reduction as a binding target of its plan for national economic and social development and met the target. We maintained that environmental protection should serve the interest of the people and concentrate our effort on solving prominent environmental problems harming scientific development and public health. Great changes have taken place from environmental perception to practice, accompanied by steady improvement of environmental quality. As a result, the environmental protection team has withstood test and groundbreaking progress was made in environmental work. Our achievements in the past five years were hard-won and the accumulated experiences were far too valuable. These could be summed up in six aspects. First, we must put environmental protection in the context of overall development of society and economy and approach environmental problems from macro strategic perspective. Second, we must balance the relationship among environmental protection, economic development and social progress with a view to achieving historic transformation of environmental protection. Third, we must solve notorious environmental problems affecting public health to safeguard people's environmental rights and interest. Fourth, environmental economic policies must be developed covering the whole process of reproduction and a combination of different policies should be employed. Fifth, we must promote harmony between man and nature and rehabilitate ecosystems overloaded with pollutants. Sixth, we must mobilize all social forces and develop the broadest possible united front. Zhou highlighted that the year 2011 was the beginning of the 12th Five-Year Plan and we should work hard on ten key tasks. First, we should make careful preparation for the 7th National Conference on Environmental Protection. Second, we will improve and release the 12th Five-Year Plan for Environmental Protection. Third, we will speed up the development and implementation of an indicator system and assessment measures for ecological civilization. Fourth, we will take vigorous measures against pollution reduction to win the first battle. Fifth, we will enlarge the role of environmental protection as it may work comprehensively to facilitate the transformation of economic development mode and has a basic function to guarantee and improve people's well being. Sixth, more effort will be made to prevent and control pollution in key river basins, regions and waters. Seventh, we will strengthen supervision of nuclear and radiation safety. Eighth, we will boost environmental protection in rural areas and conservation of nature and ecology. Ninth, solid work is needed in the area of environment policy and legislation, science and technology, publicity and education and international cooperation. Tenth, we will continue to enhance capacity building in environmental monitoring, supervision, emergency response and information management.

Acoustic Environment

General Situation

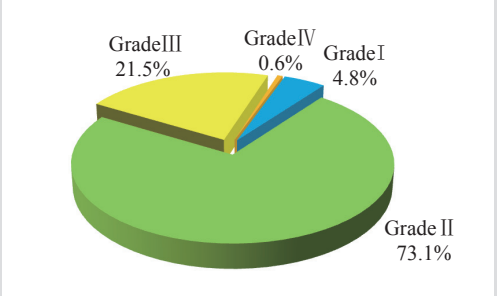
In 2011, 77.9% of the cities across the country saw general area-wide noise level ranging between Grade I and Grade II national standard, while the general area-wide noise level in 76.1% of national major cities tasked with environmental protection was between Grade I and Grade II national standard. The general road traffic noise level in 98.1% of the cities nationwide ranged between Grade I and Grade II national standard, and 99.1% of the national major cities tasked with environmental protection managed to do so. Up to 89.4% of the urban function zones met daytime noise standard, and 66.4% of them met nighttime noise standard. Type 4 function areas suffered from excessive noise pollution at night.

Area-wide noise Among the 316 monitored cities, 4.8% saw the general area-wide noise level at Grade I national standard, 73.1% at Grade II national standard, 21.5% at Grade III national standard, and 0.6% at Grade IV national standard. Compared with the previous year, the percentage of cities with general area-wide noise level meeting Grade I national standard was down by 1.2 percentage points, the percentage of cities meeting Grade II national standard was up by 5.4 percentage points, and the percentages of cities meeting Grade III and Grade IV national standard went down by 3.9 and 0.3 percentage point respectively.

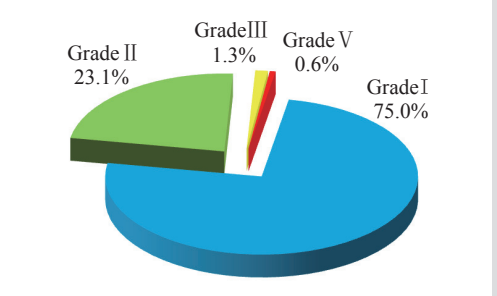
The average area-wide sound equivalent level ranged between 46.8 and 58.0 dB(A) in national major cities tasked with environmental protection. Up to 76.1% of the cities saw the general area-wide noise level at Grade I and Grade II national standard, and 23.9% at Grade III national standard.

Road traffic noise Among the 316 monitored cities, 75.0% of them saw the general road traffic noise level meeting Grade I national standard, 23.1% meeting the Grade II national standard, 1.3% meeting the Grade III national standard, and 0.6% meeting the Grade V national standard. Compared with last year, the percentage of the cities with general road traffic noise level meeting Grade I national standard was up by 7.0 percentage points, the percent of those meeting Grade II national standard was down by 6.2 percentage points, the percent of those meeting Grade III national standard was up by 0.1 percentage point, the percent of those meeting Grade IV national standard was down by 1.2 percentage points, and the percent meeting Grade V national standard went up by 0.3 percentage point.

The average equivalent sound level of the road traffic noise in national major cities tasked with environmental protection ranged between 64.0 and 70.8 dB(A). Among others, 67.2% of those cities had general road traffic noise level meeting Grade I national standard, 31.9% meeting Grade II national standard, and 0.9% meeting Grade III national standard.



General area–wide noise level in urban areas of China in 2011



Road traffic noise level in urban areas of China in 2011

Noise in urban function areas A total of 253 cities had their noise level in their function areas monitored this year. The monitoring amounted to 14,350 site•times throughout the year, half of which was monitored at day and half at night. Up to 6,416 site•times at day met noise standards in the monitored sites, taking up 89.4% of the total. While up to 4,765 site•times at night met noise standards in the monitored sites, taking up 66.4% of the total. In the case of national major cities tasked with environmental protection, 89.2% had noise level meeting noise standard in function areas at day, and 61.8% meeting standard for function areas at night.

In general, the up-to-standard rate of noise was higher at daytime than at night in urban function areas, and higher in Type 3 function areas than in other types of function areas. The nighttime up-to-standard rate in Type 0 and Type 4 function areas was lower than that of other function areas.

Noise in urban function areas across the country in 2011

Type of function areas	Type 0		Type 1		Type 2		Type 3		Type 4	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Up to noise standard site•times	73	58	1448	1143	1944	1649	1357	1212	1594	703
Monitored site•times	124	124	1694	1694	2172	2172	1404	1404	1781	1781
Up-to-standard rate (%)	58. 9	46. 8	85. 5	67. 5	89. 5	75. 9	96. 7	86. 3	89. 5	39. 5

Measures and Actions

【Report on Prevention and Control of Ambient Noise Pollution in China (2011) 】 MEP organized the compilation of the *Report on Prevention and Control of Ambient Noise Pollution in China (2011)*, for the purpose of summarizing the experience in noise control. The report analyzes the ambient noise pollution conditions and change trend of the country during the 11th Five-Year Plan period (2006-2010), summarizes the important measures for prevention and control of noise, and makes a plan for prevention and control of noise during the 12th Five-Year Plan period (2011-2015).

Work on Environmental Satellites

In 2011, the environmental satellite A and satellite B worked in a stable condition, obtaining 640,000 pictures and 89TB data volume and providing 17,000 satellite data to more than 100 organizations for free. The satellites conducted remote sensing monitoring on blue algae and algae blooms in large water bodies such as the three lakes every day and remote sensing monitoring of straw burning every day in summer and autumn. The monitoring program also covered thermal discharges from nuclear power plants including Dayawan Nuclear Power Plant and Tianwan Nuclear Power Plant every two months, and location for planned nuclear power plants. They also completed remote sensing monitoring and on-site inspection of human disturbances in 230 national nature reserves. Remote sensing investigations were made on *Spartina anglica* along the coast of the Beihai Sea, Guangxi, environmental impact assessment supervision of a large oil refining engineering of PetroChina, Co., Ltd, the energy-rich golden triangle bordering Inner Mongolia, Shaanxi, Gansu and Ningxia and rare earth mines in South Jiangxi Province, haze weather in the three cities clusters in Beijing, Tianjin and Hebei, the Yangtze River Delta and the Pearl River Delta, environmental safety of many typical drinking water source areas such as Beijing and Kunming, priority areas for biodiversity protection and cross-border ecological habitats. The program "Remote Sensing Investigation and Assessment of Ten-year Change in National Environment and Ecology (2000-2010)" was kicked off.

Solid Waste

General Situation

The industrial solid wastes generated this year amounted to 3.251406 billion t. A total of 1.997574 billion t industrial solid wastes (including wastes generated in previous years) were comprehensive utilized, accounting for 60.5%.

Generation and utilization of industrial solid wastes in China in 2011

Generated amount (10,000 t)	Comprehensively utilization (10,000 t)	Comprehensive utilization rate (%)
325140. 6	199757. 4	60. 5

Measures and Actions

【Implementation of National Plan for the Construction of Disposal Facilities for Hazardous Wastes and Medical Wastes】 By the end of the year, 36 hazardous waste disposal projects and 246 medical waste disposal projects among the 334 projects identified by the National Plan for the Construction of Disposal Facilities for Hazardous Wastes and Medical Wastes had been put into operation or almost concluded. As a result, the country's centralized hazardous waste disposal capacity reached 1.4125 million t/year, and the medical waste disposal capacity reached 1,454 t/day. As for capacity building, 31 construction projects on radioactive waste repositories were concluded, four of the seven dioxins monitoring centers were already built up and put into operation, two were basically built up, and one under way. One national, 31 provincial, and 67 prefectural solid waste management centers were built up.

【Release of the information on the prevention and control of pollution by solid wastes in large and medium-sized cities】 In 2011, a total of 266 cities in 31 provinces (autonomous regions and municipalities directly under the Central Government) released the information on the prevention and control of environmental pollution by solid waste. The amount of such cities went up by 19 compared with that of the last year.

【Issuance of the hazardous waste business license】 By the end of the year, about 1,500 hazardous waste business licenses had been issued by MEP as well as the environmental protection departments of 31 provinces (autonomous regions and municipalities directly under the Central Government). More than 9 million t hazardous wastes were utilized and disposed by entities with the business license. In 2011, MEP mobilized Local Environmental Protection Supervision Centers to inspect the performances of 30 provinces (autonomous regions and municipalities directly under the Central Government) except Tibet as well as Xinjiang Production and Construction Corps in the prevention and control of pollution by hazardous wastes. About 1,600 major entities handling hazardous wastes were sampled for the check, and 63.7% of them were found to be qualified.

【Examination and approval of the import of wastes】 *Measures on the Administration of the Import of Solid Waste, Regulations on Environmental Management of the Imported Solid Waste used as Raw Materials, Regulations on Environmental Management of Imported Silicon Scraps, and the Circular of Ministry of Environmental Protection, General Administration of Customs and General Administration of Quality Supervision, Inspection and Quarantine on Sharing the Information on the Import Management and Law Enforcement for Import Solid Wastes* were released in 2011. A communication and information sharing mechanism between State and local regions on the management and law enforcement for import solid waste was officially established.

Up to 14,844 solid waste import permits were granted to 2,913 enterprises using imported solid waste as raw materials. Up to 54.12 million t solid waste used as raw materials and 288 waste ships were imported throughout the year. Waste paper, waste plastics, scrap hardware, and scrap iron and steel had the biggest imported amount. Relevant authority kept on the information sharing and joint investigation on trans-boundary movement of waste with relevant countries. It had shared 166 times of such information were in 2011, and the illegal movement of 37 batches of solid waste to China were successfully prevented.

【Export of hazardous waste】 In 2011, MEP handled 18 applications for the export of hazardous wastes. The exported hazardous wastes included electroplating sludge, used batteries, scraps of print circuit board and stripping agents, with total amount at 56,757 t. The importing countries of such waste included Germany, Singapore, Japan, South Korea, Belgium and so on.

【Electronic wastes management】 In 2011, 24 provinces (autonomous regions and municipalities) had their plans for the development of disposal facilities on waste electric appliances and electronic products recorded with MEP. The development of information system on the disposal of waste electric appliances and electronic products was basically finished. Tough environmental supervision was conducted on designated companies engaged in dismantling and disposal of such wastes under the "Old for new" policy for household appliances to ensure environment-friendly dismantling and disposal of the recycled waste household appliances. Between 2009 when the aforementioned policy was introduced and the end of 2011, over 82 million waste and used home appliances were recovered by those designated companies, which had dismantled and disposed over 75 million of them.

【Comprehensive treatment of chromium slag】 Over 4 million t chromium slag had been disposed by the end of 2011 across the country.

2011 Annual General Meeting of China Council for International Cooperation on Environment and Development (CCICED) & CCICED 20th Anniversary Open Forum

The 2011 Annual General Meeting of CCICED & CCICED 20th Anniversary Open Forum was held in Beijing from Nov. 15 to Nov. 17, 2011. Premier Wen Jiabao met with international Council Members and representatives attending the meeting and Vice Premier Li Keqiang attended the opening ceremony and delivered an important speech. MEP Minister Zhou Shengxian was present throughout the meeting and made a special report. Around 260 people participated in the annual meeting and open forum including principals of related departments from the General Office of the State Council, Ministry of Foreign Affairs, NDRC, Ministry of Finance, MEP, Ministry of Commerce, Environmental Protection and Resources Conservation Committee, National People's Congress, Chinese and International Members of the Council, Task Force Chairs, special guests, experts and observers. This event propelled China to follow the path of green development resolutely in post-financial crisis period, publicized the measures China has taken to protect the environment and the achievements made and introduced international concepts on green transformation and green development. It concluded with policy recommendations of CCICED to the Chinese government. Completing the planned tasks in success, the annual meeting and the open forum reviewed CCICED's experience of the past 20 years, especially the past five years in its fourth phase and laid a foundation for the establishment of the Fifth Phase of CCICED.

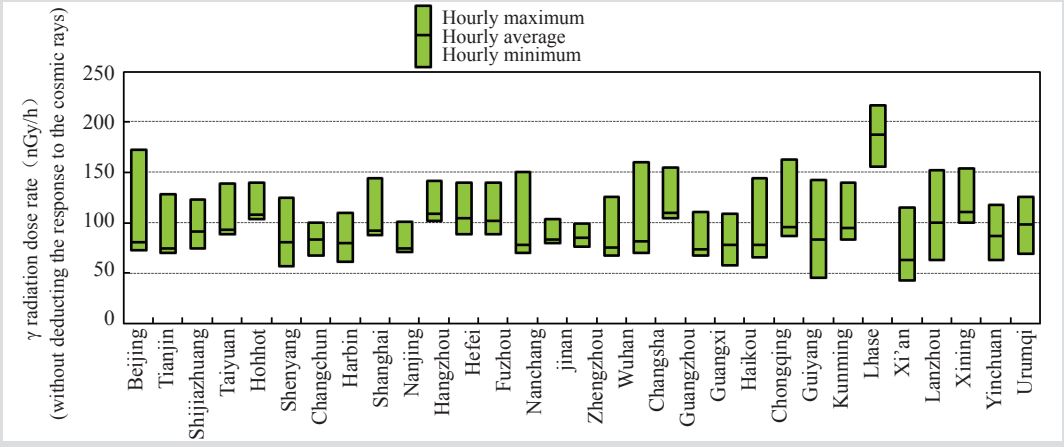
Focusing on the theme of green transformation of economic development mode, CCICED carried out policy research in close connection with the needs of the Chinese government. The policy recommendations they proposed were more targeted and up to date. It completed five policy research projects including Research on the Development Mechanism and Policy Innovation of China's Green Economy, Low Carbon Industrialization Strategy in China, Trade, Investment and Environment, Practices and Innovation of Green Supply Chain and Mercury Management in China. It proposed that we should take green development as strategic target by following the basic pathway of implementing green economy and employing the basic means of low carbon industrialization. The new requirement of international trade and investment will work reversely to push China to take up concepts and policy recommendations on green transformation of economic development mode.

Radiation Environment

General Situation

The overall radiation environmental quality was good in the country in 2011. The environmental ionizing radiation level remained stable with no obvious changes in the environmental ionizing radiation level in the vicinity of nuclear facilities and projects using nuclear technologies. The environmental electromagnetic radiation level was good at large. The environmental electromagnetic radiation level around electromagnetic radiation facilities had no obvious change. The radiation monitoring data showed that the Fukushima nuclear incident did not have adverse impacts on China's environment and public health.

Environment Ionizing Radiation The environment γ radiation dose rate in cities at or above prefectural level, the activity concentration of gross α and gross β in aerosol and air precipitum in provincial capital cities and municipalities directly under the Central Government, and the activity concentration of airborne tritium in provincial capital cities and municipalities were within the normal range. The activity concentration of radionuclides in 70 surface water monitoring sections of the seven major waters (the Yangtze River, Yellow River, Pearl River, Songhua River, Huaihe River, Haihe River and Liaohe River), rivers in Zhejiang and Fujian Provinces, and rivers in Southwest China and inland rivers under national monitoring program as well as 15 major lakes (reservoirs) under national monitoring program had no obvious change compared with the monitoring data of previous years. Among others, the activity concentration of natural radionuclides was similar to that monitored during the national survey on natural radioactivity levels between 1983 and 1990. The activity concentration of gross α and gross β in 12 monitored drinking water sources were lower than the limits specified in *Standards for Drinking Water Quality (GB5749-2006)*. The activity concentration of artificial radionuclides Sr-90 and Cs-137 in 10 seawater monitoring sites under the national monitoring program of coastal sea waters were within the limits specified in the *Sea Water Quality Standard (GB3097-1997)*. The activity concentration of radionuclides in soil of provincial capital cities, municipalities directly under the Central Government and some cities at prefecture level did not change much compared with monitoring data of previous years. Among them, the activity concentration of natural radionuclides was similar to that monitored during the national survey on natural radioactivity level between 1983 and 1990.



The environment γ radiation dose rate in the radiation environment automatic monitoring stations of provincial capital cities and municipalities directly under the Central Government in 2011

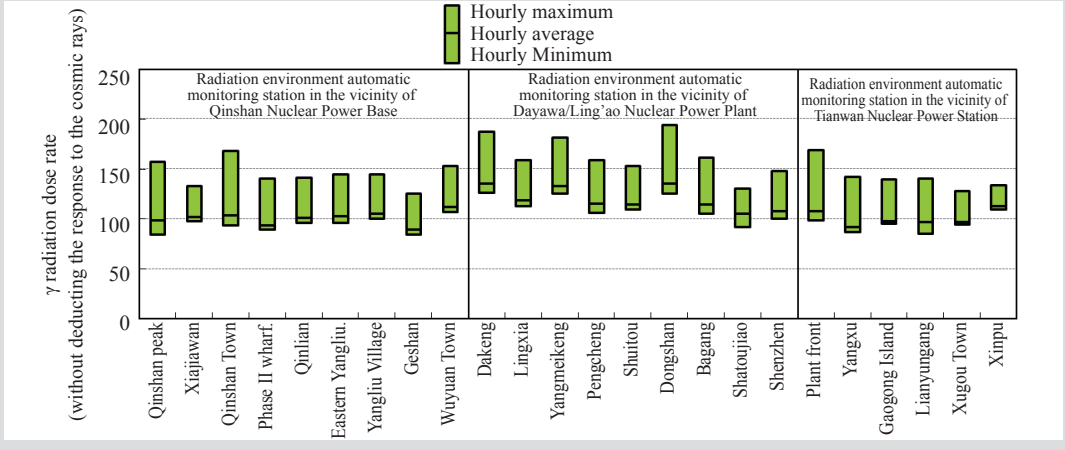
Environment ionizing radiation in the vicinity of in-service nuclear power plants The annual average γ radiation dose rate (without deducting the response to the cosmic rays) in the vicinity of the nuclear power plants in Qinshan Nuclear Power Base in Zhejiang Province, Dayawan/Ling'ao Nuclear Power Plant in Guangdong Province and Tianwan Nuclear Power Plant in Jiangsu Province recorded 101.0 nGy/h, 123.8 nGy/h and 100.9nGy/h respectively, within the fluctuation of natural baseline level, according to the monitoring results of the real-time consecutive monitoring systems at the radiation environment automatic monitoring stations. In the air, rainwater, surface water and some organism samples taken from key residential communities near Qinshan Nuclear Power Base, the activity concentration of tritium was higher than those before the Base was put into use, so did the tritium activity concentration in coastal seawater near the outlets of Guangdong Dayawan/Ling'ao Nuclear Power Plant and Tianwan Nuclear Power Plant. However, the added doses exposed to the public were far lower than the limits in the national standards. There was no obvious change of the activity concentration of radionuclides other than tritium in the environment media in the vicinity of in-service power plants compared with the historical average.

Environment ionizing radiation in the vicinity of other reactors In the vicinity of scientific research facilities of institutions such as China Institute of Atomic Energy (CIAE), Institute of Nuclear and New Energy Technology of Tsinghua University, Nuclear Power Institute of China and Northwest Institute of Nuclear Technology in Shaanxi Province, the γ radiation dose rate, and activity concentration of radionuclide in samples of aerosol, air precipitum, surface water, soil and organism did not have obvious change compared with the monitoring results of previous years. The activity concentration of gross α and gross β in drinking groundwater were lower than the limit specified in the *Standards for Drinking Water Quality (GB5749-2006)*.

Environment ionizing radiation in the vicinity of nuclear fuel cycle facilities and waste disposal facilities The γ radiation dose rate was within the normal range in the vicinity of nuclear fuel cycle facilities like Lanzhou Uranium Enrichment Co., Ltd., Shaanxi Uranium Enrichment Company, Baotou Nuclear Fuel Element Plant, Jianzhong Nuclear Fuel Element Co., Ltd., and 404 Limited Company of CNNC, as well as Northwest Disposal Site for Low- and Medium-level Radioactive Solid Wastes, Beilong Disposal Site for Low- and Medium-level Radioactive Solid Wastes. Rising activity concentration of radionuclides due to production, processing, storage, treatment and transportation activities of these companies was not observed in environment media.

Environment ionizing radiation in the vicinity of uranium mines, metallurgical plants and associated radioactive mines The activity concentration of radon in the ambient air, the activity concentration of gross α and gross β in the aerosol and air precipitum, and of the radionuclides including Uranium and Radium-226 in ground water and biological samples in vicinity of uranium mines and smelting facilities saw no abnormal situation. However, the mining, metallurgical and processing activities in some associated radioactive mines including Baiyun'ebo Mine had some impacts on local environment.

Environment electromagnetic radiation in the vicinity of electromagnetic radiation sources The environment electromagnetic radiation was generally within sound level. The electromagnetic radiation levels in environmentally sensitive sites around the antennas of mobile communication



The environment γ radiation dose rates (without deducting the response to the cosmic rays) at the radiation environment automatic monitoring stations in the vicinity of in–service nuclear power plants in 2011

stations were lower than the limits specified by *Regulations for Electromagnetic Radiation Protection (GB8702-88)* for public exposure. The power frequency field strength and magnetic induction intensity in the environmentally sensitive sites near the power transmission lines and transformers under monitoring program were lower than the power frequency evaluation standard for residential areas and the all-weather public exposure limits specified in the *Technical Specifications for Environmental Impact Assessment of Electromagnetic Radiation by the 500kV Ultra-high Pressure Power Transmission and Transformation Projects (JH/T24-1998)*.

Environment ionizing radiation after the Fukushima nuclear accident in Japan In the aftermath of Fukushima nuclear accident, MEP organized the radiation environment monitoring agencies across the country to monitor the environmentγradiation dose rate, and the activity concentration of radionuclides in the samples of air, land subsidence, drinking water of source areas, surface water, sea water in coastal regions, topsoil, leaf vegetables, milk and marine bioindicators across the country since March 12. Among others, the real-time consecutive monitoring data of γ radiation dose rate was within local natural baseline level in automatic radiation environment monitoring stations of provincial capital cities, municipalities directly under the Central Government, some prefectural-level cities, and in-service nuclear power plants. On March 25, the artificial radionuclides iodine-131 released by the nuclear accident was monitored in the aerosol samples of some cities in Northeast China. On March 26, MEP made public relevant information. The artificial radionuclides iodine-131, Cs-137 and Cs-134 were monitored in several kinds of environment media in the country after that, but with traceable activity concentration. No artificial radionuclides from this accident had been observed since the end of April. According to continuous monitoring results nationwide, the accumulated effective dose of the nuclear accident to an individual in China was less than one ten thousandth of the effective dose exposed to the same individual by the natural baseline radiation in a year. Therefore, the accident did not have adverse impact on the environment and the public health.

Emergency monitoring was conducted in the seawaters within China's jurisdiction on the radioactivity of marine environment soon after the Fukushima nuclear accident. The monitoring results indicated no abnormal situation in the radioactive level of seawaters and marine organisms within China's jurisdiction and the ambientγradiation dose rate of the ocean.

Measures and Actions

【Nuclear and radiation safety supervision】 In 2011, relevant authority finished emergency response to Fukushima nuclear accident and developed the *12th Five-Year Plan for Nuclear Safety and Prevention and Control of Radioactive Pollution and 2020 Vision*. Headed by MEP (NNSA) as the leading organization, three ministries and commissions jointly concluded the comprehensive safety check on civil nuclear facilities across the country. A total of 15 in-service nuclear power generating units kept good safety records; 26 under-construction nuclear power generation units were under good quality control; all research reactors were under safe operation without any major operational accident. Relevant authority had standardized the management of civil nuclear safety equipment and strengthened supervision on imported nuclear safety equipment. Employing national radiation safety supervision system for nuclear technologies, it has strengthened supervision and management of radioactive sources. It has amended technical standards to prevent the hazards of electromagnetic radiation. It has enhanced the management of the operation of radioactive waste disposal sites and decommissioning of previous nuclear facilities. Specific actions were conducted for the prevention and control of radioactive pollution by uranium mines and metallurgical plants.

【Radiation environment monitoring】 The management of the operation of national radiation environment monitoring network was strengthened. With smooth operation throughout the year, the network has finished all monitoring tasks. It has completed the examination on the performance of the nuclear and radiation safety regulation projects between 2009 and 2010. It has kept on the evaluation of the radiation environment monitoring capacity and assessed the capacity of five provincial radiation monitoring centers. It has actively facilitated the construction of 100 radiation environment automatic monitoring stations/sites, all of them had finished installation and commissioning and been in trial operation. The national platform for the management and application of radiation environment monitoring data was officially put into use, achieving the fast exchange and sharing of monitoring information.

The 2nd Meeting of National Leading Group on Environment and Health

MEP and Ministry of Health jointly held the 2nd meeting of national leading group on environment and health on December 27, 2011.

The meeting deliberated and adopted the *National Communication Mechanism on Environment and Health Information*, list of candidates for national consulting committee on environment and health and the key task of national leading group on environment and health in the 12th Five-Year Plan period. The meeting affirmed the achievement China has made in the field of environment and health in the 11th Five-Year Plan period. The announcement of *National Action Plan on Environment and Health (2007-2015)* (hereinafter referred to as Action Plan) marked that the concept on environment and health has integrated into social economic development. The national leading group on environment and health and the coordination mechanism established under the framework of the Action Plan demonstrated that all departments stuck to the principle that put people in the first place and were resolute to work with concerted effort to tackle prominent environmental problems harming people's health. Particularly, the beginning of national special investigation on environment and health in key areas and comprehensive prevention and control of cancer in the Huaihe River basin will provide strong support for the government to gather information on environment and health as soon as possible and develop targeted countermeasures.

As the meeting pointed out, in the beginning of the 12th Five-Year Plan period, the government issued *The 12th Five-Year Plan for the Development of National Economy and Social Progress, Opinions of the State Council on Strengthening Key Tasks of Environmental Protection, The 12th Five-Year Plan on Environmental Protection and Work Plan on Environment and Health for the 12th Five-Year Plan Period.* These documents and the 7th National Congress on Environmental Protection have further reinforced our sense of overall situation, sense of anxiety, awareness of risks and responsibility. Environment and health has become a major economic and social problem concerning people's welfare and scientific development. Strengthening work on environment and health is a practical and urgent task before us.

The meeting highlighted the need to focus on the following tasks in the 12th Five-Year Plan period in order to fully implement the target and requirement of the *Action Plan*. First, we should further improve the management system and mechanism on environment and health, take effective measures at the level of legislation, policy-making and implementation and promote exchanges and sharing of resources and information among departments. Second, we will improve the capability of controlling environmental and health risks and establish a risk assessment system on environment and health targeting heavy metal, hazardous waste, persistent organic pollutants and hazardous chemicals. Third, we will take overall consideration when making plans on environment and health work in the urban and rural areas and identify key areas according to the difference between rural and urban areas. Fourth, we will strive to make new breakthroughs in key areas, understand the impact of major environmental pollutants on human health through investigation on environment and health in specific regions of China and improve some standards, measures on monitoring, evaluation and warning in response to environmental pollution problems causing strong public concerns such as $PM_{2.5}$. Fifth, we will provide more financial support to environment and health work to bolster comprehensive monitoring and capacity building in risk management and emergency response. Sixth, we will elevate the level of scientific decision making on environment and health and for major decisions and tasks involving environment and health, we must ensure decisions will not be made without investigation and research, scientific review or collective discussion. Seventh, effort will be made to carry out extensive publicity and education on environment and health, create a good social atmosphere and promote all social members to take part in it.

Major Developments in Environmental Economic Policies

China continued to accelerate development and implementation of a range of environmental economic policies in an effort to promote energy conservation, emissions reduction, and environmental protection and push forward adjustment of industrial structure through effective use of economic means in 2011. The results were positive.

Continued pursuit of the green credit policy In 2011, MEP continued to furnish China Banking Regulatory Commission (CBRC) and the People's Bank of China (PBoC) with environmental information from 2010, such as information relating to environmentally delinquent enterprises, environmental impact assessment, and environmental protection acceptance of completed construction projects. The *Green Credit Guidelines* issued by CBRC detailed rules on how financial institutions in the banking sector should carry out green credit. Using environmental information as important reference for decisions on credit examination and approval and post-loan monitoring, financial institutions cut off the chains of funds at the very source of a large number of polluting enterprises. **Positive progress in environmental pollution liability (EPL) insurance**: 1) EPL insurance-related policies and legal regimes were expanded and perfected. Legislations or policies introduced by the State Council, such as The *Regulations on Management of the Taihu Lake River Basin*, the *Comprehensive Work Plan for Energy Conservation and Emissions Reduction during the 12th Five-Year Plan Period*, the *Opinions of the State Council on Strengthening Priority Tasks in Environmental Protection*, and the *National 12th Five-Year Plan for Environmental Protection*, included provisions on EPL insurance. 2) Formulation of technical specifications for EPL insurance moved forward in good order. Following the measures for environmental risk rating of chlor-alkali enterprises, MEP published the *Technical Guidelines for Environmental Risk Assessment – Measures for Environmental Risk Rating of Sulfuric Acid Enterprises (for Trial Implementation), Several Opinions on Carrying out the Work of Appraisal and Assessment of Environmental Pollution Damages*, and *Recommended Measures for the Calculation of Sums for Environmental Pollution Damages (Edition I)*. 3) Local application of pilot programs of EPL insurance was further advanced. EPL insurance was piloted in a total of 13 provinces in 2011 including Sichuan, Hebei, and Inner Mongolia. **Continued formulation and perfection of comprehensive lists for environmental protection** As required in the *Opinions of the State Council on Strengthening Priority Tasks in Environmental Protection*, MEP continued to work with industry associations in formulating comprehensive lists for environmental protection. The *Comprehensive Lists for Environmental Economic Policies (2011)* included 514 "Heavy-polluting, High-environmental Risk" products and heavy-polluting processes, 42 environment-friendly processes, and 15 major types of environmental protection equipment for emissions reduction. The list provided the basis in terms of environmental protection for the Ministry of Finance (MoF), the National Development and Reform Commission (NDRC), the Ministry of Commerce (MoC), CBRC, and the State Administration of Work Safety (SAWS) in developing policies relating to export rebate, processing trade, tax preferences, safety supervision, and credit monitoring. Incomplete statistics show that nearly 300 kinds of "Heavy-polluting, High-environmental Risk" products had been disqualified for export rebates and prohibited from entering processing trade by the end of 2011. This is a good example of the importance of environmental protection in optimizing economic growth. **Continued and more investments from central budget in environmental protection** Implementation of fiscal policies including "Rewards in Place of Subsidies", "Rewards in Furtherance of Harnessing", and "Rewards in Furtherance of Prevention" continued to deepen. MoF and MEP have jointly circulated the *Guiding Opinions on Strengthening Management of Special Funds from the Central Budget for Environmental Protection in Rural Areas*, a move that furthered the policy of "Rewards in Furtherance of Environmental Harnessing" and pushed forward regional environmental betterment in rural areas. Both ministries also jointly issued the *Measures for Management of Pilots for the Protection of Ecological Environment of Lakes* to explore and establish excellent ecological lake protection mechanisms. The *Measures for Management of Funds for Appraisals of and Rewards for Prevention and Control of Water Pollution in Three Rivers* (the Huaihe River, Haihe River and Liaohe River), the *Three Lakes* (Taihu Lake, Chaohu Lake and Dianchi Lake), and Songhua River published by MoF prescribed a link between the allocation of rewards and the results of water pollution prevention and control performance assessment and of total emission control on main pollutants in major river basins and explored new, results-oriented ways of fund allocation. **Positive progress in paid use of emission rights and emission trading system** Piloting of paid use of emission rights and emission trading was actively promoted in provinces and the power industry. A total of 10 provinces (autonomous regions and municipalities directly under the Central Government), including Jiangsu, Zhejiang, Tianjin, Hubei, Hunan, Shanxi, Inner Mongolia, Chongqing, Shaanxi, and Hebei, were listed as national pilot province for emission trading. Regulations and policies

were developed by local governments and fees for paid use of emission rights were collected on a full scope. **Steady progress in the policies and institutional development for and piloting of ecological environment compensation** The *Measures for Transfer Payments in Key National Ecological Reserves* issued by MoF set up transfer payments in key national ecological reserves under balanced transfer payments from the central budget and served to improve the basic public service capabilities of local governments where key national ecological reserves were located. Progress in the institutional development for grassland ecological compensation was rapid and the central budget raised the standard of ecological compensations for peasants and herdsmen and expanded the compensation scope. By joint issuance of an official document, MoF and MEP kicked off Xin'an River basin water environment compensation pilot program, China's first interprovincial ecological compensation pilot program in river basin supported by special funds from the central budget. Weihe River basin ecological compensation pilot program, jointly implemented by Shaanxi and Gansu provincial governments, was the first interprovincial initiative on river basin ecological compensation launched by Chinese provincial governments that had considered the need for comprehensive harnessing of a specific river basin. River basin pollution indemnification and ecological compensation pilot programs were implemented further in Hebei, Henan, Jiangsu, Shandong, Liaoning, and Shaanxi and preliminary outcomes had been achieved in comprehensive harnessing of river basins. **Continued furtherance of economic policies conducive to rural environmental management** Prevention and control of non-point source pollution from agriculture were strengthened using subsidies. The price of electricity for domestic use or agricultural irrigation was applied to power and water supply under rural safe drinking water projects so as to push forward normal operation of rural safe drinking water projects. Agricultural clean production was incorporated in the scope of support by special funds for agricultural ecological environment protection in an effort to develop stable sources of funds for agricultural and rural energy conservation and emissions reduction. **Strict environmental audit of listed companies** Environmental protection departments at all levels made a comprehensive examination of the environmental activities of enterprises, enhanced information release and post monitoring, interdicted environmentally delinquent enterprises seeking public listing and financing, and urged them to earnestly solve environmental issues. Accumulated investments of 9.97 billion yuan was added in environmental protection in 2011 by the 88 companies seeking public listing during their audits, which submitted applications to MEP for pre-listing environmental audits. As part of the post monitoring of listed companies involving heavy metal in 2011, 566 affiliates of 80 listed companies involving heavy metal were inspected on site.

Nature and Ecology

General Situation

Nature reserves There had been 2,640 different kinds of nature reserves at different levels throughout the country (excluding those in Hong Kong SAR, Macao SAR and Taiwan) by the end of 2011. Those nature reserves covered about 149.71 million ha, including around 143.33 million ha of terrestrial area, accounting for 14.9% of the national land area. There were 335 national nature reserves with total area of 93.15 million ha.

Wetland Protection In 2011, 42 wetland protection projects were conducted across the country with the increase of 0.33 million ha of wetland protection areas. A total of 23,000 ha wetlands were restored. There were four new pilot projects aiming at wetlands of international importance and 68 new pilot projects aiming at national wetland parks. Up the end of 2011, there had been 41 wetlands of international importance covering an area of 3.71 million ha, and the total area of wetland demonstration sites recorded 3.49 million ha.

Biodiversity As one of the 12 countries with the richest biodiversity in the world, China boasts terrestrial ecosystems including forest, shrub, meadow, grassland, deserts and wetland, as well as marine ecosystems including the Yellow Sea, East China Sea, South China Sea and Kuroshio Basins. China has 34,792 species of higher plants, including 2,572 species of Bryophytes, 2,273 species of Pteridophyta, 244 species of Gymnosperms, and 29,703 species of Angiosperms, as well as almost all woody plant species in temperate zone. China also boasts about 7,516 species of vertebrate animals, including 562 species of mammals, 1,269 species of birds, 403 species of reptiles, 346 species of amphibians and 4,936 species of fish. A total of 420 species of rare and endangered wild animals were in the list of wildlife under special state protection. Hundreds of species such as Giant panda, crested ibis, golden monkey, South China tiger, and Chinese Alligator are native species in China. The identified fungis amounted to above 10,000 species.

Invasion of alien species According to the latest statistics, about 500 alien species had invaded in China. At least 29 species have caused serious hazards in China in the past 10 years, up by 2~3 species year by year on the average. Primary estimate indicates the direct or indirect loss of the alien invasive species is up to 119.88 billion yuan every year.

Measures and Actions

【Comprehensive management of national nature reserves】 MEP has printed out and distributed the *Circular on Serious Implementation of the 'Circular of the State Council General Office on Successful Management of Nature Reserves Management'*. It has organized the examination on national nature reserves and put forward recommendations to the State Council on the review and approval of new and re-delineated nature reserves. With the approval of the State Council, 16 new national nature reserves have been established and six national nature reserves had adjusted their scope. It has organized the application for and screening of the projects employing 2011 special fund for capacity building in national nature reserves. The Central Government has allocated 150 million yuan to finance the capacity building of 69 national nature reserves. MEP in cooperation with the Ministry of Land and Resources, Ministry of Water Resources, Ministry of Agriculture, State Forestry Administration, Chinese Academy of Sciences and State Oceanic Administration evaluated the management of 59 national nature reserves in five provinces (autonomous region or municipality) such as Chongqing Municipality, Sichuan Province, Yunnan Province, Tibet Autonomous Region and Guizhou Province. The environment satellite A was applied for remote sensing of human activities in 230 national nature reserves followed by field inspection. Relevant authority has organized basic investigation and evaluation of nature reserves across the country. It carried out such investigations in eight provinces (autonomous region) such as Liaoning Province, Jilin Province, Hubei Province, Hunan Province, Henan Province, Guangdong Province, Guangxi Autonomous Region and Hainan Province. It has strengthened the supervision and management on the development activities involving nature reserves. In addition, it has organized the fifth meeting of the China-Russia Working Group on Transboundary Protected

Areas and Biodiversity Conservation.

【China National Biodiversity Conservation Strategy and Action Plan (2011-2030)】 China National Committee for Biodiversity Conservation was established in June, 2011 upon the approval of the State Council, with Vice Premier Li Keqiang as the Chairman and the leading officials of 25 national departments as the members. As a long-term mechanism for biodiversity conservation, the national committee makes overall plan and coordinates the biodiversity conservation activities throughout the country and guides China Action for United Nations Decade on Biodiversity (2011-2020). In 2011, to promote the implementation of the China National Biodiversity Conservation Strategy and Action Plan (2011-2030), a background survey on the baseline of biological species resource of the biodiversity conservation priority areas, demonstration on conservation and restoration of biodiversity and poverty alleviation as well as investigation and supervision on import and export of biological species resources were conducted in Yunnan Province, Guizhou Province and Guangxi Autonomous Region. The development of germplasm resource bank for central and eastern parts of China was launched.

【Nature and ecology conservation】 MEP coordinated with Ministry of Finance to increase the transfer payment to national major ecological function zones. The pilot projects on the evaluation and supervision of national major ecological function areas were conducted in the mountainous region of central Hainan Province and in Tsinling Mountains of Shaanxi Province. More effort has been made to evaluate, oversee, and publicize the effectiveness of the transfer payment from the Central Government to ecological compensation efforts. Pilot projects were carried out on the examination of 88 county-city ecological function zones. Local governments receiving ecological compensation were urged to strengthen and implement their ecological conservation responsibilities. More efforts have been made to maintain the four major ecosystem functions including conservation of water sources, conservation of water and soil, wind-shielding and sand fixation, and biodiversity. Moreover, MEP in cooperation with NDRC and Ministry of Finance has strengthened comprehensive conservation and management of national major ecological function zones. Working with relevant national departments, it has developed the Suggestions on Strengthening Environmental Protection and Administration of National Major Ecological Function Zones. It has enhanced the assessment of regional ecological functions across the country; launched the Project on Remote Sensing and Assessment of Ten-Year (2000-2010) Change of Ecological Environment of the Country and prepared the project on evaluation and supervision on the ecosystem functions of disaster-prone regions. It has strengthened ecological conservation in the process of resource development; held training courses on mine-site ecological restoration and conservation; organized the study and development of relevant standards for ecological restoration for resource development; released the *Suggestions on Strengthening Ecological Conservation and Restoration of Rare Earth Mines* and primarily understood current status of ecological damages and conservation in the development of rare earth resources. MEP and National Tourism Administration have released the *Standards for the Administration of National Eco-tourism Demonstration Areas*. After joint assessment, they have granted one site with the title of National Demonstration Site for Eco-tourism. It has assessed the health of river basin ecosystems, further improved the evaluation indicator system and deepened the trial assessment activities.

【Protection of agricultural wild plants】 In 2011, Ministry of Agriculture organized a comprehensive and systematic investigation on wild plants including wild paddies, wild tea trees, wild ramee and wild citrus in 24 provinces and municipalities. Global Positioning System (GPS) was applied to position 1,326 distribution sites, and 1,078 samples (times) of agricultural wild plants were sampled for emergency rescue purposes. The investigation identified three new distribution sites of wild paddies and two new varieties of wild ramee. A batch of wild rice and wild soybean were selected for the genetic biodiversity studies. Wild rice and wild ramee species were chosen for the study projects on the multi-site identification and evaluation of superior characters such as disease resistance and heavy-metal resistance. Ministry of Agriculture also organized the people from provincial agricultural environmental protection department who are engaged in the in-situ conservation of agricultural wild plants to inspect the construction project on the in-situ conservation sites of agricultural wild plants undertaken by nine provinces and municipalities including Anhui Province, Chongqing Municipality and Hunan Province during 2006~2008 and evaluated the conservation effects.

【Prevention and control of alien invasive species】 In 2011, Ministry of Agriculture focused on general survey on and collective elimination of 10 major alien invasive species such as *Mikania micrantha, Flaveria bidentis, Solidgo Canadensis, Alternanthera philoxeroides (Mart.) Griseb, Water Hyacinth, Ambrosia artemisiifolia, and Pomacea canaliculata.* It has developed and released six sectoral technical standards for the monitoring of alien invasive species. It has mobilized a total of 3.34 million people at all levels throughout the year to prevent and control the invasion of alien species in over 900,000 ha of area, with the overall control effect over 75%. The campaign resulted in direct

economic benefits at 400 million yuan as well as 4.5 billion yuan of indirect economic benefits.

【Enhancement and release of aquatic species】 In 2011, Ministry of Agriculture worked with 16 provinces (autonomous regions and municipalities directly under the Central Government) to organize 17 aquatic species release activities. Local authorities organized over 1,700 various kinds of activities on the release of enhanced aquatic species with total investment at 840 million yuan and release of 29.6 billion fries of important aquatic species, including 15.08 billion marine economic species, 14.5 billion freshwater economic species, and over 18 million rare and endangered species. The marine economic species mainly included Penaeus chinensis, Penaeus (Marsupenaeus) japonicus Bate, penaeus (Fenneropenaeus) Penicillatus Alcock, Penaeus monodon, seajelly, Portunus trituberculatus, Paralichthys olivaceus, pagrosomus major, Sparus macrocephlus, Sphyraenus, Lutjanidae, and Pseudosciaena crocea. The freshwater economic species were mainly silver carp, bighead carp (Aristichthys nobilis), black carp, grass carp, carp, bastard carp, Parabramis pekinensis, Culter alburnus, Eriocheir sinensis, and Plagiognathops microlepis. The rare and endangered wild aquatic species mainly included Chinese sturgeon, Amur sturgeon, Kaluga sturgeon, Myxocyprinus asiaticus, sea turtles, Andrias and Gymnocypris przewalskii.

【Conservation of aquatic germplasm resources】 The *Provisional Measures on the Management of Aquatic Germplasm Resources Conservation Areas* was enacted in 2011. It identifies the establishment requirements, approval procedures, competent department, regulation authorities and major functions of aquatic germplasm resources conservation area, specifies the activities prohibited or restricted within the conservation area, and further improves EIA procedures for construction projects in the conservation area. According to the Provisional Measures, the national committee for appraisal of aquatic germplasm resources that involves experts from several national departments has been established. It has reviewed and made public the fifth batch of 62 national conservation areas; and reviewed and made public 282 national conservation areas in five groups.

【Fish moratorium and close seasons】 The marine fish moratorium during summer was further improved. In 2011, all

National Drill on Environmental Emergency Monitoring in 2011

MEP organized national drill on environmental emergency monitoring on August 16, 2011. 31 provincial capitals nationwide carried out the operation. The drill was set in a scenario where a tank car carrying certain chemicals turned over accidentally on the highway, leading to chemical spill. The spill flew into a river near the highway and polluted the water. The lower reaches of the river were concentrated drinking water source area.

This drill involved 100 environmental monitoring stations, over 3000 monitoring staff, 100 plus vehicles for environmental emergency response monitoring, 30 something emergency response command vehicles, more than 1000 sets of portable instruments and 100 odd lab apparatus. The participating provinces employed a large amount of advanced equipment including heavy metal analyzer, portable gas chromatograph mass spectrometer, inductively coupled plasma-atomic emission spectrometry, ICP-MS and GC-MS. Some sites used advanced auxiliary system for emergency monitoring like remote surveying ship for hydrological parameters and water pollution diffusion model.

Aiming at testing the scientificness of environmental emergency monitoring scheme, promptness of emergency response, data accuracy and feasibility of report, the drill designed two categories of blind sample, organic matter and heavy metal. Its purpose was to examine and improve the ability of all participants in emergency monitoring of water environment. All the drill participants responded to emergency **promptly** and **efficiently**. Local EPAs gave clear directives and the monitoring departments acted promptly to respond to emergency with proper measures. The monitoring scheme was **well-conceived** and **science-based** featuring specific monitoring targets, standardized site distribution, rational choice of monitoring items, correct sampling method, reasonable frequencies, effective analyzing methods, proper assessment standard and methodology, appropriate measures on quality guarantee and quality control and complete work plans. The monitoring data were **relatively accurate** with the accuracy rate of heavy metal blind sample and organic matter blind sample by laboratory quantitative analysis being 88.9% and 82.6%. The monitoring report was **complete** and **feasible**. Suggestions on countermeasures were proposed based on monitoring results and assessment of environmental protection level, providing scientific basis for making decisions on emergency response.

the gill net fishing boats in the Yellow Sea, Bohai Sea and East China Sea waters were subject to fish moratorium. The spell of fish moratorium for gill-net fishing boats were the same as that for fish trawlers, lasting between two months and a half to three months and a half. During the marine fish moratorium period, nearly 150,000 marine fishing boats in the above said three seas were not allowed to fish with boats docking in ports, fishing nets sealed, fishing certificates kept in custody, and fishermen ashore. There was no large-scale violation and violent confrontation during the period, basically achieving the administrative target of maintaining safety during fish moratorium.

The implementation of the first closed season in the Pearl River was successful. The close season system for the Pearl River covered nearly 200 counties of 37 cities (automatic prefectures) in the river basin, including those in Guangdong Province, Guangxi Autonomous Region, Yunnan Province, Guizhou Province, Hunan Province and Jiangxi Province involving a total of 28,367 fishing boats and 114,426 fishermen. Since the introduction of the close season, the year-on-year average density of fish fry went up by 23.2% in May, and the year-on-year catch per boat went up by 20%~30%. In 2011, the total output of aquatic products in the six provinces and autonomous region along the Pearl River went up by 4.0%, and the year-on-year per capita net income of fishermen there went up by 13.2% compared with that of last year.

With extensive supports of local governments at all levels, fishery administrations, fishermen and all walks of life along the river, the close season system in Yangtze River has obtained remarkable achievement over the past decade and played an important role in areas such as protection of resources and environment, expansion of social influence, training of the fishery administrative workforce and making innovation in conservation systems. The close season system had been extended to 11 provinces and municipality along the Yangtze River, covering 50,000 fishing boats and 180,000 fishermen.

2011 Guiyang Meeting on Ecological Civilization

Guiyang Meeting on Ecological Civilization was held in 2011, and the first experience sharing workshop and exhibition on the achievement of ecological civilization development was also held concurrently.

Demonstrating the achievement of building ecological civilization Following the requirement of building ecological civilization put forward at the 17th CPC Congress, MEP approved 18 areas including Zhangjiagang in two groups in 2008 and 2009 respectively to carry out pilot work. Local departments took solid steps to perform various tasks in the form of Ecological City (District, County) according to the requirement of building ecological civilization.

Expanding the influence of ecological civilization During the meeting and exhibition, dozens of news media across the country covered the event in an all-round way. Over 40,000 visits were made to the exhibition including leaders at all levels, domestic and international guests and the public.

Further uniting the thought on the development of ecological civilization The meeting pointed out that in the near future, we would meet new requirement of the 12th Five-Year Plan, further enrich and improve the means and contents of piloting ecological civilization and encourage more areas to join the pilot program. The key tasks of developing ecological civilization in the next five years are as follows: we will continue to promote the development of ecological province (city and county), pay attention to pilot work on ecological civilization based on administrative areas, diversify the contents and form of pilot program, improve the guarantee mechanism and systems of the pilot program and enhance experience sharing and publicity. We will expand the coverage of the pilot program. The indicator and standard system will be established to gradually cover all aspects. Accelerated effort is needed to study and introduce an indicator system for demonstration area of ecological civilization and establish a mode for the development of ecological civilization to guide local effort. We will also establish mechanism for experience sharing and make it more diversified so that the experience sharing workshop will become an important platform for pilot areas to exchange and explore methods to advance the initiative.

Fully exchanging experience The pilot areas started several programs including the building of ecological economy, ecological environment, ecological culture and ecological habitat, effectively promoting benign interaction and circle among environmental, economic and social development. Pilot areas fully exchanged their practices and experience, which will undoubtedly play an important role in advancing the development of ecological civilization and improvement of ecological civilization.

Land and Rural Environment Protection

General Situation

Water loss and soil erosion The area suffering from water loss and soil erosion amounted to 3.5692 million km^2, accounting for 37.2% of the total national land area. Among others, 1.6122 million km^2 suffered from water erosion, taking up 16.8% of the national total land area, and 1.957 million km^2 suffered from wind erosion, occupying 20.4% of the total land area.

Rural environmental conditions With rapid development of rural economy and society, the agricultural industrialization process and the urban-rural integration process have been accelerated with big amount of pollutants from rural areas and agricultural sector and daunting situation in rural environment. It is reflected by aggravated domestic pollution in some rural regions, the worsening pollution caused by livestock and poultry breeding farms, and the shift of industrial pollution and urban pollution to the rural areas.

Measures and Actions

【Integrated treatment of water resources and water and soil erosion】 More money was invested in integrated treatment of water resources and water and soil erosion in 2011, and a total of 3.448 billion yuan of subsidies was arranged by the Central Government to water and soil conservation and ecological improvement projects. More effort have been made in implementing the major projects in the main regions for prevention and control of soil and water erosion, including the upper reaches of Yangtze River, the mid reaches of Yellow River, the rock desertification region in Southwest China, and black soil region in Northeast China. Pilot projects on integrated treatment of water and soil erosion in slope farmland were launched across the country. The integrated treatment of water and soil erosion was finished on 51,000 km^2 of areas and 3,300 small watersheds. More effort was made for comprehensive and integrated treatment of water and soil erosion in slope farmland, and 206,700 ha of slope farmlands were transformed into terraces. Large scale integrated treatment projects have effectively reduced the sediment in rivers, lakes and reservoirs, protected precious water and soil resources and improve the ecological environment and production and living conditions of the people in project areas. The investment portfolio for the plan for short-term integrated treatment of the Tarim River was arranged, and the treatment effort was further carried on. The near-term integrated treatment project in Heihe River Basins was concluded and passed the environmental check. The near-term target for integrated treatment of the Shiyang River Basin was basically achieved, and work was started on speeding up the long-term control effort. The comprehensive plan for rational use of water resources and ecological conservation of Dunhuang Region was launched.

【Water conservation in agriculture】 In 2011, the Central Government appropriated 300 million yuan from capital construction funds to organize the implementation of the demonstration projects on water-efficient dry-farming agricultural bases, focusing on the construction of drought-relief and water saving infrastructure such as rainfall collection cellars (ponds), field paths, and field bridges. Ministry of Agriculture has developed, printed out and distributed the *2011 National Programme on Water Efficient Agriculture,* earmarked 30 million yuan as the special fund for water efficient agricultural technology demonstration projects to demonstrate and extend such technologies in 23 provinces and autonomous regions.

In 2011, the Central Government increased the expenditure in water conservancy infrastructure in farmlands. It invested 5.3 billion yuan in large-scale irrigation regions and 740 million yuan in medium-scale irrigation regions, built supporting facilities for backbone projects or rebuilt backbone projects for water conservancy purposes in 255 large-scale and 74 medium-scale irrigation regions, bring 3.5 billion yuan supporting fund from local government. It is expected that the completion of these projects will generate or restore 237,300 ha of irrigation area, improve 970,000 ha of irrigation area with increase of annual water saving capacity at about 2.4 billion m^3 and increase of grain yield at about 1.9 billion kg.

【Implementation of the safe drinking water projects

in rural areas】 In 2011, a total of 31.1 billion yuan was spent this year in providing access to safe drinking water for 55.6 million rural people and 8.38 million rural teachers and students. During the implementation of the safe drinking water projects, the protection of drinking water sources was enhanced, the quality of source water and tap water was tested and monitored, and the rural residents were instructed to save water, use water in a scientific way and develop good sanitary habits, which has helped improve the water environment in rural areas.

【National campaign on improving urban and rural environmental sanitation】 The national campaign on improving urban and rural environmental sanitation (hereinafter referred to as the campaign) continued in the year 2011 based on past achievements. Local governments at all levels have paid great attention to the campaign, taken it as an important platform for improving urban and rural environmental sanitation and raising the living standard. Focusing on the targets of the campaign and combining the campaigns on developing sanitary and civilization towns and socialist new countryside, they have established the work mechanism of "government in charge of organization, local authority in charge of administration, relevant government departments in joint efforts, and integration of all aspects", and taken strong measures for implementation. Patriotic Health Campaign Committee Office organized eight national departments including Ministry of Health, Ministry of Housing and Urban-Rural Development, MEP, and Ministry of Agriculture to conduct joint inspection on the performance of some provinces between February and March 2011. The results indicated that all tasks under the campaign went on smoothly with milestone achievements. Taking the campaign as an opportunity, local governments have made more investment in the construction of environmental sanitation infrastructure such as garbage treatment, wastewater treatment, renovation of farm produce markets, rural safe drinking water projects and rural sanitary toilets. Based on practical conditions, they have expanded relevant channels to address the preeminent problems that constrain the development of urban-rural environmental sanitation. In 2011, local authorities organized over 100,000 times of all kinds of activities on collective control of environmental sanitation at different scales, the "dirty, disordered and poor" urban and rural environment was substantially improved with improvement of public health and environmental awareness. Some provinces and autonomous regions have developed local regulations and schemes to extend the public services to the countryside and accelerate the integration of urban-rural areas in terms of environmental sanitation management.

【Trial monitoring on rural environmental quality】 In accordance with the Outline of the National Environmental Monitoring Work in 2011 issued by MEP, China National Environmental Monitoring Center organized the nationwide environmental monitoring institutions to continue the trial monitoring of rural environmental quality throughout the country and expanded the monitoring scope based on that of last year. At least nine villages (including the six pilot villages of last year) were selected in each province (autonomous region and municipality directly under the Central Government) and monitored on the air, drinking water sources, rivers (reservoirs) and soil environment in accordance with the 2011 National Program for Trial Monitoring of Rural Environmental Quality. The environmental quality of 364 pilot villages were monitored and evaluated in the whole year.

【Monitoring on rural environmental sanitation】 In 2011, the Central Government offered financial support to 31 provinces (autonomous regions and municipalities directly under the Central Government) and Xinjiang Production and Construction Corps for their efforts in monitoring the rural environmental sanitation conditions, which focused on wastewater, garbage, environmentally sound disposal of feces, soil hygiene, and prevention and control of disease vectors in the countryside. A total of 14,000 monitoring sites in 700 counties across the country were established. Field investigations were conducted on the operation and management of landfill facilities and wastewater treatment plants. Soil samples were collected from field and tested in the laboratory, the ascarid egg, lead and cadmium levels in soil were determined and analyzed.

【Rural toilet improvement project under national major public health service program】 In 2011, 3.47 million rural households had finished the construction of environment-friendly sanitary toilets under the rural toilet improvement project. The implementation of national project has mobilized the initiative of local governments and rural residents to improve their toilets, accelerated the pace of toilet improvement and decontamination, and made active contributions to the achievement of the targets set out by the 11th Five-Year Plan for this respect. The project has effectively prevented and reduced diseases, remarkably improve the outlook of rural environment, facilitated rural people to develop hygienic behaviors and habit, and promote rural cultural and ethical progress and development of socialist new countryside. The project was popular among the rural people with increasing overall benefits.

【National Plan for Protection of Soil Environment (2011-2015)】 According to the arrangements of the State Council and the requirements of the Circular on Printing Out and Distribution of the Overall Preparedness Plan for Specific Plans to be Adopted by the State Council during the 12th

Five-Year Plan Period, MEP together with NDRC, Ministry of Land and Resources and Ministry of Agriculture jointly organized the development of *National Plan for Protection of Soil Environment (2011-2015)*, which identifies the general thought, key tasks, major projects and guarantee measures for soil environment protection during the 12th Five-Year Plan period. Relevant authority will give priority to protecting the soil environment of farmland and centralized drinking water source areas, strengthen control of the source of soil pollutants, strictly control the environmental risks causing possible soil contamination, carry out remediation and restoration of contaminated soil, and lays a solid foundation for soil environment regulation.

【Comprehensive control of rural environment】 MEP held the National Conference on Rural Environmental Protection, developed, printed out and distributed the *Suggestions on Further Strengthening Rural Environmental Protection Work*, which identifies the general idea, key targets, major tasks and policy measures for rural environmental protection work during the 12th Five-Year Plan period, and answers the questions of "what to do" and "how to do" the environmental protection work in the countryside for the next few years. More money was spent in offering the financial rewards as an incentive to control contiguous pollution in rural areas, and the effort in the control of contiguous rural environmental pollution was facilitated. There were nine new model provinces (autonomous regions) engaged in the projects on the control of contiguous pollution this year, based on the eight local model regions in the previous year. MEP and Ministry of Finance signed the Agreement on the Demonstration Projects on Control of Rural Contiguous Pollution with the people's government of each of the nine new model regions, identifying the project area, targets and tasks and achievements of the project. In 2011, the Central Government earmarked 4 billion yuan as the special fund for rural environmental protection to support the control of rural contiguous pollution in each region. Among them, 3.6 billion yuan were invested to support the projects on control of rural contiguous pollution in the 17 demonstration provinces (autonomous regions and municipalities directly under the Central Government). As a result, a considerable number of most direct and practical rural environmental problems with immediate public interests have been addressed.

【Rural clean-up project】 In 2011, Ministry of Agriculture carried out clean-up projects in the countryside of 22 provinces, autonomous regions, municipalities directly under the Central Government, and cities under separate plan of the State Council, including Beijing, Tianjin Municipality, Hebei Province, Liaoning Province, Anhui Province, Jiangxi Province, Shandong Province, Henan Province, Hubei Province, Hunan Province, Chongqing Municipality, Sichuan Province, Guizhou Province, Yunnan Province, Ningxia Province, and Dalian City. Up to the end of 2011, there had been over 1,400 model villages for rural clean-up projects. In these model or demonstration villages, the application of chemical fertilizers and pesticides went down by over 20%, over 80% of the stalks and more than 90% of the domestic wastewater was recycled as resources, over 90% of the farmland residues were collected, and over 90% of the human and livestock feces were recycled. In general, these model villages have basically achieved environmentally sound agricultural production, good recycle and reuse of agricultural waste and clean living environment in the countryside.

【Rural biogas project】 In 2011, the Central Government allocated 4.3 billion yuan to support the construction of biogas ponds for 1.44 million households, 572 large- and medium-scale biogas projects, 4,215 small-scale biogas projects and 13,847 biogas service centers. In the meantime, the Central Government raised the subsidy for rural household biogas ponds to 1,300 yuan/household in East China, 1,600 yuan/household in Central China and 2,000 yuan/household in West China.

Special Campaign on Rectifying Illegal Polluters and Safeguarding Public Health

In 2011, MEP, NDRC and seven other state departments carried out special campaign on rectifying illegal polluters and safeguarding public health from time to time, focusing on prominent environmental problems harming public health and sustainable development. Paying high attention to it, local governments at all levels gave priority to environmental improvement of lead acid battery industry and launched large scale overhaul. The campaign involved more than 2.7 million person-times nationwide and made over 1.07 million examinations of companies, discovering and dealing with 10,000 odd environmental violations and blacklisting 2,016 cases. The effort effectively contained the surging momentum of lead-tainted blood accident caused by lead acid battery industry and pushed upgrade of the industry for sustainable development. Supervision on key sectors such as thermal fire and sewage treatment continued to be strengthened. Strict investigation of environmental infringement has consolidated the achievement of pollution reduction in the 11th Five-Year Plan period.

Environmental departments have drawn bitter lessons from lead-tainted blood accidents and dealt illegal lead acid battery enterprises a crippling blow. They investigated 1,962 companies, shut down 736 operators and ordered 565 companies to suspend production for rectification and phased out 284 companies according the requirements of the special campaign. The large scale campaign eliminated 52% of lead acid battery companies with backward equipment and causing serious pollution and raised the average size of companies by 58%. A large group of companies moved out of densely populated areas. Though only 16% of the companies maintained normal operation, their production capacity has exceeded the total volume of 2010, reaching 190 million volt ampere hour. A column -Information disclosure on environmental improvement of key sectors- was set on the website of MEP, guiding local government to publicize related information in July and November respectively, which effectively promoted comprehensive improvement of the industry.

Investigation of heavy metal pollution in key sectors continued to deepen. Environmental inspection teams examined 12,137 companies in the key sectors including 1,962 lead acid battery companies, 3,470 heavy non-ferrous metal mining, dressing and smelting companies, 241 companies engaged in chemical raw material and products, 583 in the leather industry, 3,636 in galvanization sector, 152 hazardous waste operators and 2,093 other related companies. EPAs in 26 provinces (autonomous regions and municipalities) withdrew the approval power of environmental impact assessment on construction projects related to lead acid battery. In Henan Province and Guizhou Province, they specified all construction projects involving heavy metal must be approved by provincial EPB, so that environmental threshold of heavy metal projects was strictly controlled. All provinces (autonomous regions and municipalities) have completed preparation of local plans on prevention and control of heavy metal pollution in the 12th Five-Year Plan period according to instruction of the State Council.

Supervision of key pollution control and pollution reduction enterprises continued to be strengthened. Inspectors checked 3,104 sewage treatment plants of different kinds. MEP made public the list of 334 sewage treatment plants whose discharges exceeded standard. Law enforcement inspection was launched on 518 million kW thermal power units of 21 electric power corporations.

Environmental International Cooperation

In 2011, environmental international cooperation followed the guidance of scientific development and ecological civilization and correctly mastered the overall situation home and abroad. By deepening and expanding international cooperation, introducing advanced international environmental concepts, mechanism and successful practices, the international cooperation work achieved outstanding results and played a unique role in the exploration of a new path to environmental protection.

Environmental international cooperation has become an increasingly important part of high-level political activity. As an important part of national diplomatic arrangement, environmental international cooperation enriched the outcome of state diplomatic activities, demonstrating the growing significance of environmental work. State leaders including President Hu Jintao, Premier Wen Jiabao and Vice Premier Wang Qishan attended 14 diplomatic activities related to environmental cooperation. Ministerial leaders made 11 visits to other countries and participated in 118 related activities. MEP received 34 visiting delegations led by Vice Ministers or officials of higher ranking and sent 1,555 person-times in 451 groups to visit other countries. It signed or renewed 17 cooperation documents with 12 countries or organizations.

Environmental international cooperation played positive and unique role in promoting continued development of environmental cause. MEP Minister Zhou Shengxian made a special report on green economy on his first visit to UNEP, which was highly commended by UNEP and diplomatic officials of other countries. The 2011 Annual General Meeting of China Council for International Cooperation on Environment and Development (CCICED) & 20th Anniversary Open Forum was held in success. The event gave full play to the role of CCICED as a special platform, bridge and window to the outside world and earned a high opinion from all parties in China and foreign countries. The 6th Meeting of Environmental Protection Sub-committee of the Committee of China-Russia Primer Ministers' Regular Meeting was held successfully. Environmental cooperation between China and Russia grew more pragmatic and has become a major part of bilateral strategic partnership. The outcome of the 13th Tripartite Environment Ministers Meeting among China, Japan and Korea (TEMM) was highly recognized by the 14th TEMM and tripartite environmental cooperation continued to deepen. China and Kazakhstan signed *Agreement on Water Quality Protection of Transboundary Rivers* and *Agreement on Environmental Cooperation between China and Kazakhstan*. The official establishment of China-Kazakhstan environmental cooperation committee marked bilateral environmental cooperation entered a new stage of substantial cooperation with enduring effect mechanism and institutions. Excellent work was done to deal with cooperation in emergency response to Fukushima nuclear accident. MEP Vice Minister Li Ganjie chaired the 5th Review Meeting of *Convention on Nuclear Safety*, attended the 4th Senior Officials Meeting on Nuclear Safety Supervision among China, Japan and Korea and signed an initiative of tripartite cooperation on nuclear safety. The inauguration of China-ASEAN Environmental Cooperation Center made environmental cooperation a highlight of overall China-ASEAN strategic cooperation.

Chemicals Management

Preparation of plans MEP has completed *The 12th Five-Year Plan for Prevention and Control of Pollution from Persistent Organic Pollutants in Major Industries* (draft for countersigning) and *The 12th Five-Year Plan for Prevention and Control of Environmental Risks of Chemicals* (draft for comment). It guided local departments to prepare provincial plan for prevention and control of pollution from POPs and submit it to MEP for file.

Institutional development The *Measures of Registration for Environmental Management of Hazardous Chemicals* (Draft for Ratification) was completed. MEP published the *List of Toxic Chemicals Severely Restricted by China for Import and Export (2012)* in cooperation with the General Administration of Customs, released the *Technical Requirements on New Chemical Substances Application, Registration, and Labeling*, annulled the *Notice on the Procedures for Chemical Substances that Had Been Produced and Used in China Before the Measures for Environmental Management of New Chemical Substances Takes Effect to Be Listed in the List of Chemical Substances that Have Been Produced in or Imported into the Territories of China*, organized the drafting of policy documents on strengthening environmental protection at chemical industrial parks/zones, and strengthened lab management and released the *Lab Management Measures for Chemicals Testing Good*.

Chemicals Examination and Approval In 2011 MEP approved a total of 72 new chemical substance registration certificates and 4567 summary application, reporting, and registration certificates and notified 73 applications for filing of scientific research. A total of 291 registration certificates for environmental management of toxic chemical import and 2974 applications for release notifications for environmental management of imports (exports) were examined and approved. The prior informed consent procedure was executed in strict accordance with the *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade* and 138 export notices from the EU and UK were replied.

Pollution Prevention/Control for Persistent Organic Pollutants (POPs) Total implementation of the *Guiding Opinions on Strengthening Dioxin Pollution Prevention and Control* was pursued. Task breakdowns were printed and circulated and installation of high-efficiency de-dusting facilities in key industries for dioxin emission was inspected. POPs data collection and reporting were adopted and efforts were made to set up a preliminary permanent mechanism for POPs pollution prevention/control.

Mercury Pollution Prevention/Control MEP issued the "*Notice on Strengthening the Mercury Pollution Control Measures for Calcium Carbide Process-Based PVC and Related Industries*" and organized and launched a countrywide survey and assessment of the current state of discharge sources for mercury pollution.

Forest

General Situation

Forest Resources According to the findings of the Seventh National Investigation on Forest Resources (2004-2008), the forest area in China was 195.4522 million ha with forest coverage of 20.36%. The total growing stock volume was 14.913 billion m^3, and forest stock was 13.721 billion m^3. China ranks the fifth in the world in terms of forest area, the sixth in terms of forest growing stock volume and the first in terms of the area of artificial forests.

Forest Biological Disasters In 2011, Up to 11.68 million ha of forests suffered from major biological disasters including 8.45 million ha by pests, 1.2 million ha by plant diseases and 2.03 million ha suffering from rats (hares). A total of 160,000 ha forests suffered from hazardous plants.

Forest Fire In 2011, there were 5550 forest fires across the country, involving 27000 ha forests and 91 casualties, down by 28%, 41% and 16% respectively compared with that of last year. The above three figures went down for the third consecutive year.

Measures and Actions

【Conservation of forest resources】 The development of plan at province level for protection and utilization of forest land has been basically finished, and development and implementation of county-level plan for protection and use of forest land enjoyed steady progress. Relevant authority has released the Measures on the Quota Management of Appropriated and Requisite Woodlands; amended the Regulations on Registration of Ownership of Forest and Forest Land and standardized the management of forest land employed by foreign funds. It has issued the Measures on Management of Carry-over of Logging Quota of Commercial Forests. It has conducted Inspection and Law Enforcement Supervision Year for Timber Transportation, developed the Implementation Program for Examination and Evaluation of Forest Growth Indicators and started trial work on sustainable operation of forests in 200 organizations at county level. It has conducted inspection on law enforcement and special monitoring in 559 county-level organizations and checked for the first time the establishment and implementation of target responsibility system for protection and development of forest resources in 80 counties.

【Prevention of forest pests】 In 2011, the State Forestry Administration held the National Meeting on Prevention and Control of Forest Pests, and made comprehensive arrangements for major work on prevention and control of forest pests across the country during the "12th Five-Year Plan" period and beyond. It has printed out and distributed the Suggestions of State Forestry Administration on Further Strengthening Prevention and Control of Forest Pests, which puts forward the measures for further prevention and control of forest pests. State Forestry Administration (SFA) and NDRC have jointly printed out and distributed the National Development Plan for Prevention and Control of Forest Pests (2011-2020), which identifies the general idea, objectives and tasks for prevention and control of forest pests in the next 10 years. According to the policy of "prevention first, scientific control, supervision according to law and enhancing responsibility", SFA has taken various kinds of measures to prevent and control forest pests in 8.67 million ha. As a result, forest pests of over 20 million ha in accumulation have been prevented and controlled; the disaster rate of major forest pests has been controlled under 5.1‰ with no-hazard prevention and control rate at 82%, measurement and report accuracy at 84% and quarantine rate of seed & seedling bases at 96%. Major forest pests such as *Monochamusalternatus, Hlyphantria cunea (Drury), rats (hares), Mikania micrantha and tree* and bush borers have been under effective control.

【Control of forest fire】 In 2011, the State Council held a special teleconference. Vice Premier Hui Liangyu made arrangements in person for prevention of forest fire. Each province, autonomous region and municipality firmly carried out the chief executive accountability system for forest fire. Jiangxi Province and Fujian Province have conducted "one-vote negation system" for the prevention of forest fire and strengthened organization and leadership in an all round way. The State Forest Fire Prevention Command has released the

Suggestions on Strengthening Management of Fire Sources, sent over 20 work groups to each province (autonomous region or municipality) to supervise the prevention and control of forest fire. The State Forest Fire Prevention Command and The Headquarters of General Staff of the People's Liberation Army have jointly studied the Measures for Strengthening Prevention of Forest Fire near Important Facilities. It has extended the experience of Jilin Province that has no major forest fires over the past 30 years. It has conducted activities such as publicity week and large-scale check on hidden risks. A national demonstration system for early warning of forest fire risks has been primarily established, and nearly 600 forest fire monitoring stations have been in on-line operation. It has implemented the National Mid and Long-Term Plan for Prevention of Forest Fire. With 1.2 billion yuan budget in place, the State launched 183 construction projects. The input in areas such as flight service for forest conservation and material reserves reached 380 million yuan from the central budget. A total of over 140 aeroplanes have been rented for fighting of forest fires in the whole year with the flight protection scope expanding to 17 provinces, autonomous regions and municipalities. In addition, the establishment of helicopter detachment of armed police forest troops was under smooth progress.

Implementation of International Environment Conventions

Convention on Biological Diversity In March 2011, MEP organized two coordinators meeting on the implementation of *Convention on Biological Diversity*, which reviewed *Assignment for Implementing China Strategy and Action Plan on Biodiversity Protection (2011-2030)* and promoted the concrete work. In May 2011, the implementing organization of international environmental convention hosted a workshop on updating national strategy and action plan of Asian region in Xi' an, Shaanxi Province. The organization attended three international conferences related to *Convention on Biological Diversity* including the first meeting of intergovernmental committee of Nagoya Protocol, the 7th working group meeting on article 8 (j) and related articles of CBD and the 15th Meeting of Subsidiary Body on Scientific, Technical and Technological Advice.

Convention on Nuclear Safety From April 4 to April 14, 2011, the 5th Review Meeting of the *Convention on Nuclear Safety* was held at International Atomic Energy Agency (IAEA). The meeting held group discussions on the country report of signatory parties, side event on Fukushima nuclear accident and open ended working group meeting, worked out summary report and chairperson report and issued a statement on Fukushima nuclear accident. The meeting also decided to hold a special meeting on Fukushima nuclear accident in Vienna in August 2012. China was the chair country of the review meeting. Its delegation made statements on country report and answered questions. Its performance was unanimously applauded. China completed convention implementation task in success.

Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management To better prepare for the 4th review meeting of signatory parties to *Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management* to be held in Austria in May 2012, China completed the second country report (Chinese and English editions) and submitted it to IAEA in October as scheduled.

Grassland

General Situation

Grassland Resource Grassland covers nearly 400 million ha across the country, accounting for 41.7% of the total land area and representing the largest terrestrial ecosystem and barrier to ecological safety. There are 337 million ha grassland in 13 pasturing provinces (autonomous regions) such as Inner Mongolia Autonomous Region, Xinjiang Uyghur Autonomous Region, Qinghai, Tibet Autonomous Region, Sichuan, Gansu, Yunnan, Ningxia, Hebei, Shanxi, Heilongjiang, Jilin and Liaoning, taking up 85.8% of the total grassland area of the country. Grassland in the rest provinces occupies 56 million ha, accounting for 14.2% of the total grassland area.

Grassland Productivity The growth of grassland vegetation across China was quite good in 2011. The output of fresh grass in natural grassland totaled 1002.48 million t, up 2.68% against that of 2010. The yield amounted to 313.2201 million t hay with livestock carrying capacity of 246.1993 million sheep unit, up by 2.53% compared with that of the previous year. Among the 23 key provinces (autonomous regions and municipalities), output of fresh grass reached 930.4329 million t, accounting for 92.81% of the total production in China, equivalent to 291.051 million t hay with livestock carrying capacity being 228.7738 million sheep unit.

Grassland Disasters In 2011, there were 83 grassland fires across China, affecting 17,473.5 ha grassland. No casualty and loss of livestock were reported. Compared with 2010, occurrence of fires reduced by 26 while affected grassland area increased by 12,315.1 ha. Both of the fire frequency and losses were low compared with historical records. 38.724 million ha grassland, or 10% of the total grassland in the country, were plagued by rats, similar to that of last year. A total of 17.658 million ha grassland suffered from insect pest, accounting for 4.4% of the total, down by 2.3% compared with that of 2010.

Measures and Actions

【Incentive and subsidy policy for ecological protection of grassland】 In 2011, the central government earmarked 13.6 billion yuan financial fund for the implementation of the incentive and subsidy policy for ecological protection of grassland in Inner Mongolia, Xinjiang, Gansu, Qinghai, Ningxia, Tibet, Yunnan, Sichuan and Xinjiang Production & Construction Corps. Based on the basic principle that the target, tasks, responsibility and funds must be designated to each province and every household should be provided with tasks, subsidies, service guidance, supervision and management and archives, local governments implemented such policies as subsidy for grazing prohibition, forage-livestock balance and subsidy for means of production. By the end of 2011, grazing prohibition had been introduced to 80.667 million ha grassland nationwide, forage-livestock balance had been promoted across 170.667 million ha and 1.987 million households benefited from subsidies for means of production. All financial funds from the central government have been appropriated to provincial level and successively distributed to herd households after review and village notification. The subsidy and incentive policies benefited 10.5674 million herd households.

【Projects on protection and development of grassland】 In 2011, the central government invested 2 billion yuan to support the project of returning grazing land to grassland in Inner Mongolia, Sichuan, Gansu, Ningxia, Tibet, Qinghai, Xinjiang, Guizhou, Yunnan and Xinjiang Production & Construction Corps, which helped to build 4.504 million ha grassland fence, reseed 1.459 million ha seriously degraded grassland, establish 47,000 ha artificial herbage land and construct sheds for livestock raising for 62,000 households. Sand-source control project in Beijing, Inner Mongolia, Shanxi and Hebei Province continued with an investment of 256

million yuan of central budget. The project resulted in treatment of 91,000 ha grassland, construction of 1.16 million m^2 livestock sheds and provision of 8330 sets of forage processing machines for herdsmen. A total of 1.7 billion yuan central funds were used in the settlement project for nomadic people in Inner Mongolia, Sichuan, Tibet, Yunnan, Gansu, Qinghai, Xinjiang and Xinjiang Production and Construction Corps and helped 68,000 households settle down. The pilot project on treatment of stony desertification of karst region was implemented in Hubei, Hunan, Guangxi, Chongqing, Sichuan, Yunnan and Guizhou, which helped to treat 18,600 ha grassland, construct 388,000 m^2 livestock sheds and 96,000 cubic meters of silos and purchase 4,010 sets of fodder machines.

【Strengthening supervision of grassland law enforcement】 In 2011, 17,245 cases various kinds of grassland violations took place with 16,508 cases being put on file, accounting for 95.7% of the total. These cases damaged 12,117.1 ha grassland and led to trading or illegal transfer of 4,842.3 ha grassland. Compared with 2010, grassland delinquencies went down by 15.7% and the proportion of filed cases increased by 0.5 percentage point. The area of destroyed grassland was reduced by 3,449.6 ha, down by 22.2%.

Reform of Environmental Statistical System and Dynamic Update and Investigation of Census on Pollution Sources in the 12th Five–Year Plan Period

The *General Work Plan for Energy Conservation and Pollutant Discharge Reduction for the 12th Five-Year Plan Period of the State Council* specified that pollution reduction statistical system should be improved by strengthening counting of NH_3-N and NO_x discharges and establishing an indicator system for discharges from agricultural sources and vehicles. MEP worked actively to promote reform in environmental statistics and system innovation. The environmental statistical system in the 12th Five-Year Plan period embodies the requirement of fewer indicators, authentic data and refined system. First, we will make the statistical indicator system as accurate as possible focusing on the key tasks of pollution reduction and environmental protection in the 12th Five-Year Plan period. Second, we will highlight the restriction on data quality to ensure the data are true. Third, scientific design is needed for the statistic report and the statistic indicator should be as simple as possible. Fourth, we will combine past practice of statistics with innovation to make the statistical work lasting. The environmental statistical indicator system will be established by levels and categories. First, the environmental statistical indictors will be classified as indicators for annual report and quarterly report and express indicator according to the frequency of statistical investigation. Second, by content, the indicators for annual report will be divided into five categories including industrial sources, agricultural sources, domestic sources (inclusive of vehicles), concentrated pollution control facilities and environmental management. Third, by the characteristics of statistical indicators, the indicators fall into four categories, namely basic indicators, record indicators, pollution control indicators and pollutants indicators. Supporting management system for environmental statistics and regulations are all in the process of formulation.

The first national census on pollution sources carried out in 2007 helped to find out the discharges of various pollutants across the country, making up the defect of regular environmental statistics and investigations and presenting opportunities for establishing a science-based and efficient environmental statistical system. To make full use of the census data and realize sound connection between census data and statistical data, MEP created work method by carrying out a two-year dynamic update and investigation of pollution sources from 2010 to 2011, so that environmental statistics and dynamic update will proceed in parallel. Over the past two years, it not only conducted regular environmental statistics on over 100,000 industrial companies every year, but also completed investigation of nearly 300,000 polluters through questionnaires. The success of dynamic update and investigation of pollution sources enabled smooth connection with regular environmental statistics and created new system and methodology for environmental statistics. It identified the base of total pollution reduction in the 12th Five-Year Plan period and laid a solid foundation for establishing an environmental statistic system in the new phase.

Climate and Natural Disasters

Climate Conditions

It was warm and dry in 2011. The climate was normal throughout the year without large scale serious drought or floods on river basin dimension. The major grain production areas received adequate sunlight, warmth and rainfall, but frequent regional meteorological disasters occurred at different stages. There was strikingly less precipitation across China and distinct difference among seasons. The average temperature was a little higher than historical records with big fluctuation of aim temperature.

Temperature Distribution The average temperate in China in 2011 posted 9.5℃, 0.5℃ higher than that of normal years, making it the 15th warmest year since 1997, but the temperature was 0.2℃ lower than that of 2010. The temperature was a bit lower in winter and kept high in spring, summer and autumn. Temperature changed dramatically from January to March. It was exceptionally cold in January with average temperature hit the lowest in the past 34 years. It became much warmer in February all over China but soon dropped considerably in March. Warm weather persisted from April to November. In terms of spatial distribution, temperature in most of the country was close to normal years with only the southwest of Hainan had lower temperature by 1-2℃ and the northwest of Heilongjiang, central and western part of Qinghai, the eastern part and part of southwest of Xinjiang and west Tibet had higher temperature by 1-2℃.

Precipitation Distribution In 2011, the annual average precipitation in China was 556.8 mm, 9.1% less than that of normal years and 18% less than that of 2010. It marked the least precipitation since 1951. Winter, spring and summer saw a little precipitation continuously and only autumn had plenty of rain. The time when rain belt moved to the North advanced largely in flood season and the rainy season in the middle and lower reaches of the Yangtze River and that of North China started earlier than previous years. The annual precipitation of the Yangtze River basin recorded the least in 33 years, less than 1,000 mm for the first time since 1979. However, the plum rain season in the middle and lower reaches of the Yangtze River started early with more precipitation and stronger intensity. Annual precipitation in the Huaihe River basin and the Pearl River basin was less and both were the least since 2005. The Songhua River basin and Liaohe River basin also saw less rainfall and the reduction was evident compared with that of 2010. In contrast, the Yellow River basin and North China had more precipitation. Beijing, in particular, experienced 25% more rainfall than ever, exceeding 700 mm for the first time in 13 years. A thundering much rainfall visited West China in autumn, representing the most in 36 years. There were fewer typhoons in the year and the landfall of the first one was earlier than before. The number of on-land typhoons was close to that of normal years with relatively weak intensity.

Natural Disasters

Meteorological Disasters

——Droughts were serious in certain phases but overall situation was slight across China. From October 1, 2010 to Feb. 9, 2011, precipitation in most of North China, north of Huanghuai and Jianghuai area was short of 50 mm, 50%-80% less than that of normal years in general, and in some areas the difference was even bigger than 80%. The major winter wheat production areas (Hebei, Shanxi, Henan, Shandong, Anhui and Jiangsu) suffered from the scarcest rainfall since 1971, which was the most serious drought continuing from autumn to winter in 41 years. From January to May, precipitation in the middle and lower reaches of the Yangtze River reduced remarkably. Jianghuai, Jianghan and the central and northern part of Jiangnan witnessed 50%-80% less of rainfall. The average precipitation in Hubei, Hunan, Jiangxi, Anhui and Jiangsu was 260.9 mm, 51% less than that of the same period in previous years, marking the least of corresponding period since 1951. There were 105 days without rain accumulatively in above five provinces on average, which was the most in 60 years. The gravity and long duration of little rainfall fueled fast development of drought, leading to drought in 95% of the area in the middle and lower reaches

of the Yangtze River and some regions experienced the most serious meteorological drought in 60 years. From late June to late September, Hunan, Guizhou, Chongqing, the eastern part of Yunnan and the northern part of Guangxi had less than 300 mm precipitation, about 50%-70% of that in the same period of previous years. Among them, the central and western part of Hunan and most of Guizhou had only 20%-50% of average rainfall compared with that of previous years. Precipitation of Guizhou posted the least in past 61 years and that of Hunan made a record in recent 33 years. Moreover, the higher-than-ever temperature in August and September, especially the lasting heat in August, has accelerated loss of soil moisture. High temperature and little rain caused serious drought going on from summer to autumn in Hunan, Guizhou, Chongqing, Yunnan and Guangxi.

——**No rainstorms or floods affecting the whole river basin, but there were heavy precipitations at certain phases.** In 2011, rainstorms and flood and waterlogging affected 6.86 million ha. The affected area was much smaller than the average between 1990 and 2010 and also far smaller than that of 2010. Though rainstorms and floods did not do much damage, the year saw strong features of heavy precipitation in phases. In June, the middle and lower reaches of the Yangtze River went through 5 episodes of heavy rainfall with precipitation from 200 mm to 400 mm in general. Precipitation in southern Anhui, the north of Jiangxi, northeast of Hubei and northwest of Zhejiang reached 400 mm -700 mm, even exceeding 800 mm in some area. The average precipitation in the middle and lower reaches of the Yangtze River numbered 247.9 mm, 61% higher than that of the same period of previous years, posting the biggest amount of the same period in 56 years. From June to August, some big and medium sized cities were hit by torrential rains. Beijing, Wuhan, Changsha, Hangzhou, Chengdu, Nanjing, Shanghai and Shenzhen saw rainfalls in strong intensity within short period of time, leading to urban waterlog and seriously affecting the functioning of cities. From the afternoon to evening on June 23, Beijing was struck by a torrential rain. The one hour precipitation of Moshikou community, Shijingshan District reached 128.9 mm, the biggest since the establishment of the weather station. Chengdu was hit by a heavy rainstorm on July 3, which received 215.8 mm precipitation within four hours. A rainstorm took place in Nanjing on July 18, the precipitation at Xuanwu Lake reached 225.8 mm in 24 hours and the one-hour precipitation was as much as 94.8 mm. Early and middle September observed excessive rainfall in West China and Huanghuai area. The autumn rain affected a large area featuring long duration, strong intensity and notably low temperature in some places. In Henan and Shandong, continuous rainfall days have broken historical records. The average precipitation in West China (Shaanxi, Gansu, Ningxia and Chongqing) amounted to 175 mm from September 1 to November 15, 53% more than that of the same period of previous years. It registered the maximum in 36 years and exhibited such characteristics as large amount of rainfall, long duration and specific to certain period. Affected by both typhoon and cold air, South China experienced continued heavy rainfall from September 29 to October 9. The average precipitation of the whole Guangxi region hit 196.8 mm, 3.8 times as much as that of the same period in previous years, also the maximum since 1951. Hainan Province witnessed 511.5 mm precipitation on average, the second most compared with historical record. From October 12 to October 14, the joint influence of upper-level trough and cold air led to a heavy rainfall weather process in the middle and eastern part of South China and part of areas south of the lower reaches of the Yangtze River. 351 weather stations in Guangdong Province observed precipitation between 100 mm and 250 mm. North of Xinjiang region had more precipitation by 78.6% than that of the same period of normal years in the winter from 2010 to 2011, which was second to that of the previous winter. Since the beginning of the spring, severe temperature fluctuation occurred in Xinjiang. It soon got warm in some places whereas in Shihezi, Tacheng, Yili and Urumqi, snowmelt flood occurred.

——**Early occurrence of high temperature and more days of high temperature in South China with extreme heat in part of the country.** In 2011, there were 10.6 days with high temperature (daily maximum temperature ≥35℃) on the average across China, 3.6 days more than that of normal years. It ranked the second since 1961, only after that of 2010. Most areas of South China had more days with high temperature than normal years, of which the central and southern part the south of the lower reaches of the Yangtze River, central and the northern part of South China, east of Sichuan, Chongqing, east of Guizhou and the southeast of Xinjiang had 10-20 more days with high temperature and in part of Sichuan and Chongqing, the extra hot days numbered 20 plus. On May 8, heat swept a wide range of areas along the Yangtze River and the hot weather emerged earlier than before. The number of hot days in South China averaged 18.6, 7.1 days more than the historical average, ranking the fourth of the same period since 1961. Between June 7 and June 8, hot weather dominated a large part of China, including the east and south of North China, Huanghuai, Jianghuai, Jianghan, the central and south of Shaanxi and Chongqing. In Henan, Anhui and Hubei Province, maximum temperature in some places even recorded 40℃ plus, and in part of Henan and Hubei, it hit or broke the record since local weather stations were established. From August 8 to August 23, hot weather

persisted in a large area of South China, 82 weather stations reported extremely high temperature, among which 16 stations observed a record high.

——**The amount of tropical cyclone was much fewer with weak overall intensity, resulting in less damage.** In 2011, disasters caused by tropical cyclones were less severe compared with that of 2010. There were 21 tropical cyclones (maximum wind force near the tropical cyclone center≥8) in northwest Pacific and the South China Sea, 6 fewer than that of previous years. Among them 7 cyclones landed China, close to the number of cyclones landed in previous years. The first cyclone landed earlier than before while the landing time of the last one was near that of the previous years. June witnessed frequent landing of tropical cyclones, accounting for 43% of the total. The cyclones landed in scattered places and most followed a path to the northwest. Among the 7 tropical cyclones landed in China, there were 3 tropical storms, 2 severe tropical storms and 2 typhoons. The overall intensity was weak. The severe typhoon Nesat affected 8.352 million people in Hainan, Guangxi and Guangdong, leading to direct economic loss of 10.12 billion yuan. The tropical cyclones affecting China in 2011 claimed 28 deaths (including those missing) and caused direct economic losses of 23.7 billion yuan. Both the deaths and direct economic losses were much lower than the average level of 1990~2010. The deaths ranked the second least since 1990.

——**South China was afflicted by cryogenic freezing rain and snow disasters in the beginning of 2011 and Guizhou encountered low temperature and continuous rain in early spring.** Cryogenic freezing disasters and snow disasters were normal and relatively minor in 2011. In January, South China encountered 4 episodes of strong cryogenic freezing rain and snow weather process. The entire weather processes lasted long with big fluctuation of temperature. Cryogenic rain and snow came thick and fast, but ended very quickly. The rain and snow between Jan. 16 and January 21 were strong and involved a large part of the area. The central and northern part of Jiangnan had more than 10 days with snow cover and the maximum depth exceeded 10 cm. Freezing rain occurred in most of Guizhou, the west and south of Hunan, the central part of Jiangxi, the northeast of Yunnan, the northeast of Guangxi, the southeast of Chongqing and part of Sichuan and Fujian and the rain lasted 3 to 10 days in a large part of Guizhou, the west and south of Hunan Province. Some places in western and southern Guizhou even experienced more than 10 days of freezing rain. Continuous heavy snow hit southern Tibet during February 14~18. Precipitation in Nielamu, Pulan and Pali measured 58.9 mm, 31.8 mm and 26.1 mm respectively. The maximum depth of snow cover in Nielamu reached 65 cm, the fifth in February since the establishment of weather station in 1972 and the 11th on a yearly basis. From early March to early April, Guizhou, Guangxi and Hunan suffered cold and rainy weather frequently caused by 4 cryogenic rain events. Low temperature days in Guizhou, Guangxi and Hunan averaged 22 (daily mean temperature ≤12℃), the most in the past 15 years and rainy days totaled 23, the most in recent 11 years. In 2011, cryogenic freezing and snow disasters in China affected 4.447 million ha farmland, close to the average between 1990 and 2010 and led to direct economic loss at 28.99 billion yuan, less than the average between 1990 and 2010.

——**Less severe convection weather, but the intensity was strong in some areas, bringing about serious disasters.** In 2011, the country saw 30 days with severe convection weather on average, fewer than that of the historical average, ranking the third least since 1961. Strong wind and hail disasters damaged 3.309 million ha farmland nationwide and resulted in direct economic losses of 31.55 billion yuan. Compared with the average of 1990~2010, the affected area has reduced notably and direct economic losses were mild. But in some areas, severe convection caused serious disasters.

——**Less sandstorms in North China in the spring with late appearance and less impacts.** In the spring of 2011, North China had 1.7 days of sandstorms on the average, 3.9 days less than that of the same period of the previous years, ranking the third fewest since 1961. There were 8 sandstorms, a big reduction compared with that of the same period of pervious years (19.2 sand storms). The first sandstorm struck on March 12, which was the latest since 2001. The overall impacts of sandstorms were light. However, the sandstorm taking place from April 28 to April 30 affected 11 provinces (autonomous regions and municipalities), the largest scope in 2011.

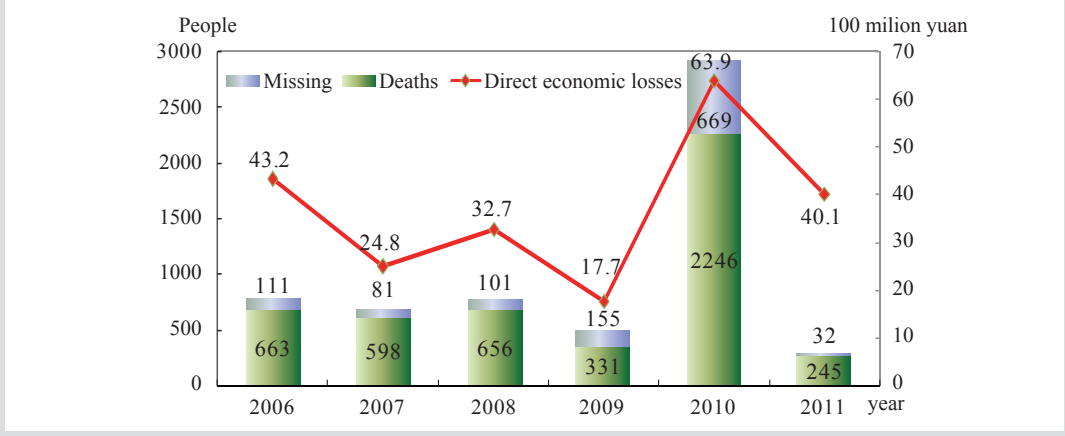
——**Frequent foggy and hazy days in the central and eastern parts of China in autumn.** The year 2011 saw fewer foggy days across China, but foggy and hazy weather came frequently in central and eastern part of the country in autumn, making a big impact on traffic. In 2011, most area in central and eastern China had over 10 foggy days. Among them, the west of Inner Mongolia, Gansu, Ningxia, the southwest of Sichuan, the south of Yunnan, the majority of Fujian and the south of Anhui experienced 10-50 foggy days and certain places even encountered over 50 days of foggy weather. From September to December, widespread fog occurred 15 times in central and eastern China, which was characterized by frequent occurrence, long duration and covering large areas.

Geological Disasters In 2011, 15664 various kinds of geological disasters struck across Cvvhina including 11490 landslides, 2319 cases of collapse, 1380 Mud-rock flow, 360 cases of Ground collapse, 86 cases of ground fissure and 29 cases of land subsidence. 119 geological disasters afflicted

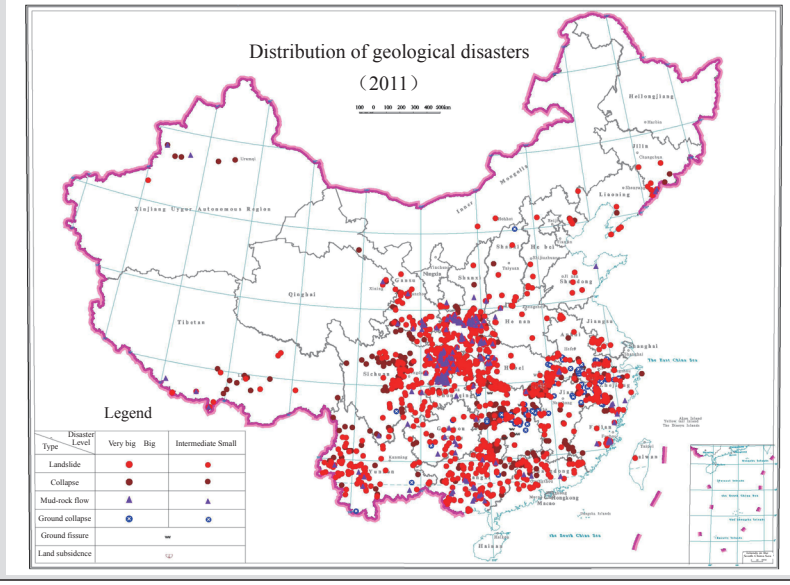
casualties, a total of 245 people were killed, 32 missing and 138 injured. The direct economic losses totaled 4.01 billion yuan. Compared with 2010, occurrence of geological disasters, the number of people killed or lost and direct economic losses went down by 48.9%, 90.5% and 37.2% respectively. The geological disasters mainly concentrated on central and western China, part of the Southwest, part of South China and some areas in East China.

Seismic Disasters The mainland of China suffered 17 earthquakes with magnitude 5.0 or above and 15 seismic disasters in 2011, which involved 1.84 million people on Mainland China. 32 deaths and 506 injured. The disasters affected 54,092 km^2 and destroyed 1712,008 m^2 structures including 1251,726 m^2 of serious damage, 8842,710 m^2 of medium damage and 6737,283 m^2 of slight damage. The direct economic losses amounted to 6.011 billion yuan.

Oceanic Disasters In 2011, the entire sea area experienced 55 red tides, covering 6,076 km^2 accumulatively. The frequency and affected area in total posted the lowest in past 5 years. Red tide occurred most frequently in the East China Sea, totaling 23 times whereas the accumulative affected area was the largest in the Yellow Sea, registering 4,242 km^2. Green tide occurred twice in the coastal waters of the Yellow Sea and South China Sea respectively. The maximum distribution and coverage area of Enteromorpha prolifera in coastal waters of the Yellow Sea were respectively 26,400 km^2 and 560 km^2.



Deaths, missing and direct economic losses caused by geological disasters in 2011



Distribution of geological disasters in 2011

The largest distribution area of Enteromorpha prolifera in the South China Sea appeared near Shen'ao Town, Nan'ao Island, covering an area of 0.07 km^2.

The 2011 monitoring results of seawater intrusion and soil salinization at coastal area indicated that the coastal plain of the Bohai Sea remained to suffer the most serious consequence of seawater intrusion and soil salinization. The Yellow Sea, the East China Sea and part of the South China Sea also saw a worsening trend of seawater intrusion and soil salinization. On-site monitoring and space and satellite remote sensing monitoring of costal erosion at key coastal sections revealed that erosion of sandy coast and mud flat coast was serious. The eroded area was expanding and some places even saw an accelerating trend of erosion.

Losses caused by seismic disasters in the mainland of China in 2011

Time		Place	M	Casualties			Destroyed structures (sq. m.)				Direct economic losses (10,000 yuan)
M/Day	H/Min			death	badly injury	slightly injured	destruction	serious	moderate	slight	
Jan. 19	12:07	Border between Anqing City and Huaining County, Anhui Province	4.8	0	0	0	5048	52827	215857	694881	23235.1
Mar. 10	12:58	Yingjiang County, Yunnan Province	5.8	25	134	180	842056	508499	3239110	1453012	238480
Mar. 24	21:55	Myanmar	7.2	0	3	9	0	0	457461	782744	33760
Apr. 10	17:02	Luhuo County, Sichuan Province	5.3	0	1	3	7517	0	248787	17174	17858
Jun. 8	9:53	Tuokexun County, Xinjiang	5.3	0	0	7	21336	116676	202801	260388	9225.17
Jun. 20	18:16	Tengchong County, Yunnan	5.2	0	3	3	51483	709	837518	46027	27840
Jun. 26	15:48	Nangqian County, Qinghai	5.2	0	0	0	14701	0	262698	0	6502.81
Jul. 25	3:05	Qinghe County, Xinjiang	5.2	0	0	0	0	26478	111666	298983	3330
Aug. 9	19:50	Border between Tengchong County and Longyang District, Yunnan Province	5.2	0	2	4	60170	835	480697	37960	14990
Aug. 11	18:06	Border between Atushi City and Jiashi County, Xinjiang	5.8	0	4	17	83563	98280	356194	182677	18322.19
Sep. 5	23:27	Yutian County, Xinjiang	5.5	0	0	0	964	2336	4686	8214	291.77
Sep. 18	20:40	Sikkim, India	6.8	7	4	132	508226	19149	1172108	89306	133365
Oct. 16	21:44	Jinghe County, Xinjiang	5.0	0	0	0	1779	12841	29072	60578	1185.05
Nov. 1	8:21	Border between Nileke County and Gongliu County, Xinjiang	6.0	0	0	0	109851	401860	1174220	2597240	67846
Dec. 1	20:48	Shache County, Xinjiang	5.2	0	0	0	5314	11236	49835	208099	4859
Total				32	151	355	1712008	1251726	8842710	6737283	601090.09

* The survey of simple buildings in rural areas affected by seismic disasters classifies buildings into three categories, destroyed (including seriously damaged), damaged (including moderate damage and slight damage) and basically intact.

Measures and Actions

【Prevention and control of geological disasters】 China invested 8.857 billion yuan for the prevention and control of geological disasters in 2011. It successfully forecasted 403 geological disasters, avoiding 34456 casualties and 718 million yuan direct economic losses. The national land and resource departments across the country worked actively to facilitate emergency response drill against geological disasters. Altogether 2550 drills were held involving 546,000

people. Effort was made to publicize prevention and control of geological disasters and raise public awareness in disaster prevention and reduction through promotional activities like Earth Day on April 22 and National Disaster Prevention and Reduction Day on May 12.

【Establishment of the Emergency Response and Management Office for Geological Disasters and Technical Guidance Center for Emergency Response to Geological Disasters】 Approved by the central government, Ministry of Land and Resources (MLR) founded Emergency Response and Management Office for Geological Disasters and Technical Guidance Center for Emergency Response to Geological Disasters on April 12, 2011. The Technology Guidance Center for Emergency Response to Geological Disasters provides support to MLR to perform the responsibility of emergency response and management of national geological disasters. It is responsible for investigation of emergency response of major national geological disasters, technical guidance for monitoring, early warning and handling of emergency response, organization and coordination as well as related researches and providing technical guidance for dealing with major national geological disasters.

【Release of the *Decision of the State Council on Strengthening Prevention and Control of Geological Disasters*】 The *Decision of the State Council on Strengthening Prevention and Control of Geological Disasters* (hereinafter refereed to as the Decision) was issued on June 13, 2011. According to the directive, prevention and control of geological disasters must adhere to territorial management and level-to-level reporting, identify the major responsibility of local governments for prevention and control of geological disasters and ensure the effort is led by government, undertaken by related departments through coordination and participated in by the whole society. We will stick to the principle that the culprit of the disaster should be responsible for disaster control. For hidden trouble of geological disasters caused by project construction, organizations that are liable for disaster prevention must be clarified so as to ensure that solid work is done to prevent and control disasters. We must take account of all factors when making plans and employ comprehensive methods to control disasters. While strengthening prevention and control of geological disasters, we must push ahead with prevention and control of other disasters like mountain torrents and ecosystem management. The Decision made it clear that during the 12th Five-Year Plan period, investigation of disasters in key areas for prevention and control of geological disasters must be completed to get a general picture of hidden troubles of geological disasters. Disaster control projects or resettlement programs should be basically completed in Three Gorges Reservoir area, quake-hit areas of Wenchuan and Yushu, places with major hidden troubles in areas prone to geological disasters. For other places with hidden trouble, we will leverage the power of experts and the masses for monitoring and early warning to ensure disasters promptly monitored and effectively handled. By 2020, China will establish a complete system for investigation and assessment of geological disasters, monitoring and early warning system, prevention and control system and emergency response system. This will help to eliminate the threat of hidden trouble of super geological disasters and slash casualties and property losses resulted from disasters.

【Establishment of earthquake monitoring, prevention and emergency response system】 The function of earthquake monitoring network has improved and it takes only 2 minutes to complete automatic quick report of domestic earthquake. Major progress was made in key technology research of quick report of earthquake intensity and early warning. The emergency response service of earthquake network has provided over 40 emergency response products, delivering prompt service for earthquake forecast, emergency assistance and government decision making. Earthquake fortification of urban and rural construction and major projects has further strengthened and the requirements on earthquake fortification for 5,400 major projects were defined according to law. Three fourths of the reinforcement projects for buildings in middle schools and primary schools were completed and nearly a million earthquake resistant dwellings were newly built for rural households. The earthquake resistant houses built in Xinjiang have withstood a number of strong earthquakes and achieved zero death. 19 national education bases for popularization of earthquake prevention and disaster reduction were established and popularization education was also extensively carried out by making use of Disaster Prevention and Reduction Day and publicity week of science popularization. The emergency assistance forces at all levels expanded rapidly and 39 professional earthquake rescue teams at provincial level have been established. The armed police forces created 33 emergency rescue teams and the combat capability was basically built up. China successfully completed two international assistance operations in New Zealand and Japan and effectively dealt with over 30 earthquake accidents in Xinjiang, Yunnan and other places. Innovation was made in acquisition of disaster information and a linkage mechanism was established with such news media as sina.com and qq.com to release disaster information. In 2011, the total investment in seismic science and technology topped 200 million yuan. The effort has brought about a parade of accomplishments. For instance, China seismo-electromagnetic satellite program was included in the 12th Five-Year Plan on China Civil Aerospace Industry Development as one of

the first batch of inception projects. The white book *Great Challenges Facing China's Earthquake Disaster Reduction* was released and the exploration of seismic science and environmental observation (Himalayas Program) also unfolded. *Measures on Management of Reservoir Earthquake Monitoring* was issued. Other documents released included 4 national standards such as on-site work after earthquake and evaluation of indirect economic losses of earthquake disasters and 5 industrial standards like classification and code of earthquake observation items and testing procedures for earthquake rescue equipment. These documents served as rules for technical work on earthquake.

【Fighting drought and searching for water to solve drinking water problem for 2.6 million people】 To actively cope with the drought in part of North China, MLR mobilized nearly 10,000 technical staff and builders from more than 20 organizations within the system and pooled more than 1,000 pieces of geophysical prospecting and drilling equipment. They spent more than 70 days accomplishing drilling footage of 333,000 m in accumulation and making 2,227 wells. As a result, over 2.2 million people got access to drinking water and 33,300 ha farmland was irrigated. In part of Sichuan and Tibet which were severely stricken by Kaschin-Beck diseases, in areas of Ningnan where water was badly needed and in karst mountain area of Southwest China, effort was made on 688 exploration-production wells to provide drinking water for 400,000 people.

【Monitoring and early warning of meteorological disasters and information release】 In 2011, China Meteorological Administration made new progress in dealing with major meteorological disasters and related public emergencies, developing and improving various contingency plans, establishing and improving work mechanism on meteorological disaster prevention and strengthening the building of meteorological disaster prevention system. The public meteorological service satisfaction index was 85.7 and that for urban meteorological service and rural meteorological service was respectively 83.9 and 87.3. In 2011, China Meteorological Administration performed 305 important tasks to guarantee meteorological conditions, and it received 1130 reports on major emergencies. Emergency response to meteorological disasters was initiated 16 times with 56 days of response operations accumulatively. These moves ensured meteorological services for emergency response in flood season were provided in an orderly manner. The administration established a work mechanism to cope with the nuclear accident of Fukushima, Japan and work out emergency response process. In view of the fact that drought did more harm than flood and the drought occurred in the middle and lower reaches of the Yangtze River and Southwest China, meteorological departments at all levels watched the development of drought and rainfall regime closely, strengthened real-time monitoring of drought and report the latest development of drought to governments at all levels and departments concerned. Trans-regional artificial precipitation operations were carried out actively using planes, rockets and cannons, which effectively added rainfall resources and eased drought. The state departments in charge of emergency response management, broadcasting and communications bolstered the construction of green channel for releasing meteorological disaster warnings. The first meteorological channel for emergency response opened in Guangdong, followed by other meteorological services through new media like micro-blogging. This further expanded the channels for releasing warnings against severe weather and meteorological service coverage. A platform for meteorological forecasting and warning was established which gradually covered a wide range of media, such as radio broadcasting, television, newspaper, electronic display screen, telephone, text message, network, warning system and marine warning radio station. Over 1 billion person-times have received meteorological service every day across the country. China weather channel has been connected by 279 cities (including prefectures) of 30 provinces (autonomous regions and municipalities), covering 61.958 million users of digital television. Around 640 million calls were made for weather telephone service. Since the launch of www. weather.com.cn, the maximum daily page views have exceeded 20 million pages. Subscribers of short message (multimedia message) on weather service totaled 130 million across China, accounting for 16.6% of the total (about 770 million). 7 broadcasting stations on marine meteorology have been set up. The coverage of meteorological disaster warning in rural areas has expanded dramatically with 30 million subscribers of weather services through short messages, nearly 100,000 loudspeakers and 70,000 electronic display screens in villages. Rural weather service stations numbered nearly 40,000, covering 68% towns and townships in China. The meteorological department earnestly implemented the requirement of *National Contingency Plan on Meteorological Disasters* and strengthened technical cooperation, information sharing and emergency response interconnection with other departments. Intensified cooperation among departments has formed synergy for prevention and reduction of meteorological disasters.

【Prevention and reduction of flood and drought】 In 2011, State leaders including President Hu Jintao, Premier Wen Jiabao and Vice Premier Hui Liangyu paid high attention to the development of floods, droughts and disasters, making important instructions at critical moment of flood control and drought relief, convening special meetings to make arrangement and heading to disaster areas in person for

inspection and guidance. Office of State Flood Control and Drought Relief Headquarters sent 10 inspection teams for pre-flood season examination. All the river basin authorities and departments have also carried out flood control and drought relief inspection within their systems. The year saw invocation of 14 emergency response operations mandated by the headquarters, over 80 orders for emergency arrangement and dispatches and 150 plus dispatches of supervision teams, work teams and expert teams to the forefront of disaster areas to guide local effort in fighting flood and reducing drought. Office of State Flood Control and Drought Relief Headquarters directed related department to move 8.38 million people away from the dangerous area according to the need of emergency response to flood and drought disasters, rescued 980,000 people trapped in floods and solved drought-induced drinking water problem for 20.55 million people. In 2011, Office of State Flood Control and Drought Relief Headquarters worked with Ministry of Finance for prompt allocation of 8.068 billion yuan to support local flood control and drought relief. In addition, the central government also set aside 2.4 billion yuan for equipment purchase by county-based drought control teams, 2.8 billion yuan for non-structural measures to control floods at county level and 17 million yuan for emergency management of water diversion from the Yellow River to Hebei Province. 200 million yuan were newly added as special reserve for drought control supplies, which was zero before and 100 million yuan was newly added as national reserve for flood control supplies. 11 new national warehouses for flood and drought control supplies were established, bringing the total number of national warehouses to 26.

Note: The national data involved in the report does not include that of Taiwan Province, Hong Kong SAR and Macao SAR except data on administrative zoning, territory and earthquake disasters.

Participating Agencies for Compilation of 2011 Report

Leading agency
Ministry of Environmental Protection
Contributing agencies
National Development and Reform Commission
The Ministry of Land and Resources
The Ministry of Housing and Urban–Rural Development
The Ministry of Water Resources
The Ministry of Agriculture
The Ministry of Health
National Bureau of Statistics
State Forestry Administration
China Meteorological Administration
China Seismological Bureau
State Oceanic Administration