



# 2011

## CHONGQING MUNICIPALITY STATE OF THE ENVIRONMENT

Chongqing Environmental Protection Bureau

According to Article 11 of the Environmental Protection Law of the People's Republic of China, "The competent departments of environmental protection administration under the State Council and governments of provinces, autonomous regions and municipalities directly under the Central Government shall regularly issue bulletins on environmental situations." the Chongqing Municipality State of the Environment 2011 is hereby released.

A handwritten signature in black ink, consisting of three characters: '曹' (Cao), '光' (Guang), and '辉' (hui), written in a cursive style.

Cao Guanghui

Director-General  
Chongqing Environmental Protection Bureau  
June 5th, 2012

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## Executive Summary

In the year of 2011, under the guidance of Ministry of Environment and the strong leadership of Chongqing Municipal Party Committee and Chongqing Municipal Government, Chongqing's environmental protection work insisted on the principal of scientific outlook on development, and the idea that the environmental protection work should serve and optimize the economic development, pushed forward both the initiatives of national environmental protection model city and the total emission reduction task, addressed crucial issues including the water environmental conservation issue in the Three Gorges reservoir area and the ambient air pollution prevention & control issue in the city proper, dealt with striking environmental problems that influence the sustainable development and harm the public health, and targeted the assurance of environmental safety, the safeguard of the public environmental rights and improvement of ambient environment quality. Great efforts have been given to the initiative of the national environmental protection model city, the steady progress of total reduction of key pollutants, the enhancement of environmental risk prevention, the effective assurance of environmental safety, and the strengthening of environmental protection capacity building, which finally led to a continuous reduction of key pollutants, a stable environmental quality with some regional significant improvement, and an overall achievement of all annual environmental objectives, although the municipality enjoyed a rapid socio-economic development.



## Initiative of the National Environmental Protection Model City



The Initiative of the National Environmental Protection Model City (Hereinafter “Initiative”) started under the launch meeting for the initiative arrangement organized by the municipal government. In the year of 2011, an “Initiative” mechanism was established and improved which run a holistic operation based on leadership from the party committee, supervision from the People’s Congress and the People’s Political Consultative Conference, guidance from environmental administration, duty performance from the governmental departments, duty compliance from the companies and wide public participation. The municipal government paid great attentions to the “Initiative”, followed by several comments from top leaders, the second “Initiative” leadership meeting organized by Huang Qi Fan, the mayor and the director of the municipal “Initiative” office, 13 meetings of the Municipal Board of Managing Director for “Initiative” issues and speeches given by Deputy Party Secretary Zhang Xuan in the “Initiative” launch meeting.

Director Chen Guang Guo of the Standing Committee of the Municipal People’s Congress made comments and inspections on “Initiative” activities and the deputy director Wang Hong Hua paid a couple of inspections to “Initiative” activities. Chairwoman Xing Yuan Min of the Municipal People’s Politic Consultative Conference held the 48 report meetings for “Initiative” and required the innovation idea contributions from the politic consultative conference. The members of municipal “Initiative” steering group specified working plans and clarified the duties. Under the unremitting efforts, 2520 projects of 2740 projects based on 8 series of “Initiative” projects were completed, which covered optimum development of environmental protection, standard-met ambient air quality, standard-met ambient water quality, infrastructure construction, standard compliance of companies, integrated urban and rural environmental improvement, environmental capacity building and improvement of public’s satisfaction for environment protection. So far, among 26 indicators for “National Environmental Model City”, 22 of them have been met and 4 indicators have been basically met.

The city enjoyed a higher level in terms of environmental quality, infrastructure and environmental management through “Initiative” and is equipped with a group of highlight projects, gaining a wide acceptance and support from the public.

## The Fourth Plenary Meeting of the 3rd Session of Chongqing Municipal Environmental Protection Committee



● Mayor Huang Qi Fan

On Nov 2, 2011, Mr. Huang Qi Fan, the municipal mayor and the director of the municipal “Initiative” steering group and director of Municipal Environmental Protection Committee, presided over the second meeting for “Initiative” steering group and plenary meeting for the municipal environmental protection committee. The Mayor Qi Fan spoke highly of environmental achievements but also required the different departments take “Initiative” as first priority with focus on failure indicators, clear duties, good coordination.

## Dispatching Meeting of “Initiative” Steering Group



● Vice Mayor Ling Yue Ming

On March 17, 2011, Mr Ling Yue Ming, the deputy mayor and the director of “Initiative” steering group office, chaired the second dispatching meeting of “Initiative” where “Chongqing Coordination Mechanism for Environmental Complaints” was reviewed and approved. The deputy mayor Ling Yue Ming stated that, the government has the obligation for the public to access to livable environment and all departments should make use of “Initiative” to solve environmental problems. On the 6th of July, the third dispatching meeting was facilitated again by Mr ling Yue Ming, which reviewed “Chongqing Program on Initiative and other “Initiative” -related documents, instructed the local governments, departments and institutions access to hot issues with focus on the first 6 priorities such as environmental improvement of tributaries, the construction of town-based sewage works and etc.

## Annual Work Meeting of Chongqing Municipal Environmental Protection



On January 20, 2011, the municipal government convened the municipal environmental protection work meeting, which concluded the significant achievements made during the 11th Five-Year Plan period and proposed environmental protection plans for the year 2011:1) formulation of the “12th Five-Year Plan for Environmental Protection” ; 2) further progress of total emission reduction work; 3) a well-conducted “Initiative” ; 4) best solutions to striking environmental problems; 5) implementation of integrated urban and rural environmental protection work and 6) great attentions to the role of public opinion.



# Water Environment

## 【State】

### “Three Main Rivers”

The water quality in the Yangtze, Jialing and Wu rivers (hereinafter “Three Rivers”) has kept stable. The assessment based on 21 indicators shows that, among 24 cross-sections, 5 of them stands Grade II water quality standard, 14 stands Grade III and 5 stands inferior to Grade V, which represents 20.8%, 58.4% and 20.8% respectively, and the ratio of cross-sections meeting Grade II standard is 79.2% (see Chart 1). The comparison with the year 2010 indicates there is no change with the ratio of cross-sections meeting Grade III. Among 15 cross-sections of the Yangtze River, one of them stands Grade II and 14 of them stands III, representing 6.7% and 93.3% respectively. The water quality in the entrance boundary section Zu Tuo and the exit boundary section Pei Shi both stand Grade III standard; the water quality in all cross-sections of the Jialing river stand Grade II; the water quality in all cross-sections in Wu Jiang river stand Grade V (this is caused by high total phosphorus load in the inlet cross-section Wan Mu of Wu Jiang river).

### Tributaries

The assessment based on 21 indicators indicates an improvement of water quality in the tributaries. Among 132 cross-sections of 74 secondary rivers, the percentage for water quality standard Grade I, II, III, IV and V and inferior V is 1.5 %, 38.6%, 39.4%, 12.1% and 5.3% respectively, in which, 79.5% of cross-sections meets Grade III standard and 86.4% meets the functional requirements of waters (see Chart 2). The comparison results with the year of 2010 indicate that the percentage of sections meeting Grade III water quality standard and meeting functional requirement of waters increase by 9.1 and 12.9 points. 38.9 % sections in backwater zone of 36 primary tributaries in the Three Gorges reservoir area (Hereinafter as “Reservoir”) see eutrophication problems, a decrease by 3.3 points, compared with that of 2010.

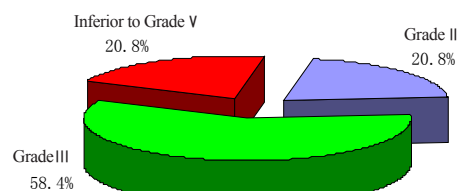


Chart 1 Water Quality Distribution along Three Main Rivers 2011

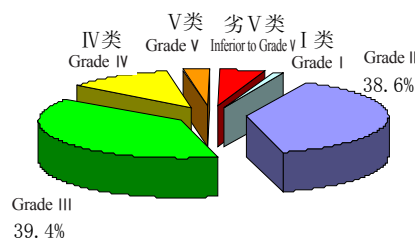


Chart 2 Water Quality Assessment Results of Secondary Rivers

### Drinking Water Sources

In general, the water quality in the centralized drinking water sources is fairly good, in which the water quality in 53 urban centralized drinking water sources meets standard by 100% while the water quality in 1014 rural centralized drinking water sources meets the standard by 89.0%.

### Discharge of Pollutants

A total of 957 million t waste water was discharged, in which 340 million t was from industrial effluent, 615 million t was from urban domestic sewage and 1.40 million t was from the centralized pollution treatment facilities. The total waste water quality saw a discharge quantity of 416800 t COD, in which 58000 t was from industrial effluent, 230800 t was from urban domestic sewage; 620 t was from centralized pollution treatment facilities and 127400 t was from agricultural sewage. The total waste water quality saw a discharge quantity of 55000 t of ammonia-nitrogen, in which 3200 t was from industrial effluent, 38100 t was from municipal sewage, 160 t was from the centralized pollution treatment facilities and 13600 t was from agricultural source.

## 【Measures and Actions】

The first priority was given to the construction of the centralized treatment facilities for sewage and garbage. So far, more than 200 sewage works and more than 51 garbage treatment plants have been constructed, achieving an increase by 4 points and 3 points compared with that of the year of 2010, with a treatment rate of 87.0% for sewage and 97.0 % for garbage .The water quality in “Three Rivers” generally keeps Grade II (with phosphorous exclusive) and the water quality in the Reservoir tends to be better. The water quality in the urban centralized drinking water source is 100% standard-met for continuous 4 years. The second priority was given to promote an integrated solution to tributaries pollution. Based on the principal of “ interception of pollution

sources and standard meeting of water quality” , an implementation plan of one-to-one river solutions for 21 key tributaries was formulated based on a series of support solutions followed by “Dual Objectives” appraisal system and “River Section Leader” responsibility system, “ Department Lead” responsibility, which effectively links the coordination in the upstream and downstream, improves the efficiency in pollution treatment project management and funding. More than 5 billion Yuan has been invested to finalize about 5000 pollution treatment projects for integrated solutions to the tributaries, achieving a dramatic improvement of water quality. The ratio of cross-section meeting the functional requirements of waters approaches to 86.4% and the former fouling rivers become a good place for the public’ s entertainment

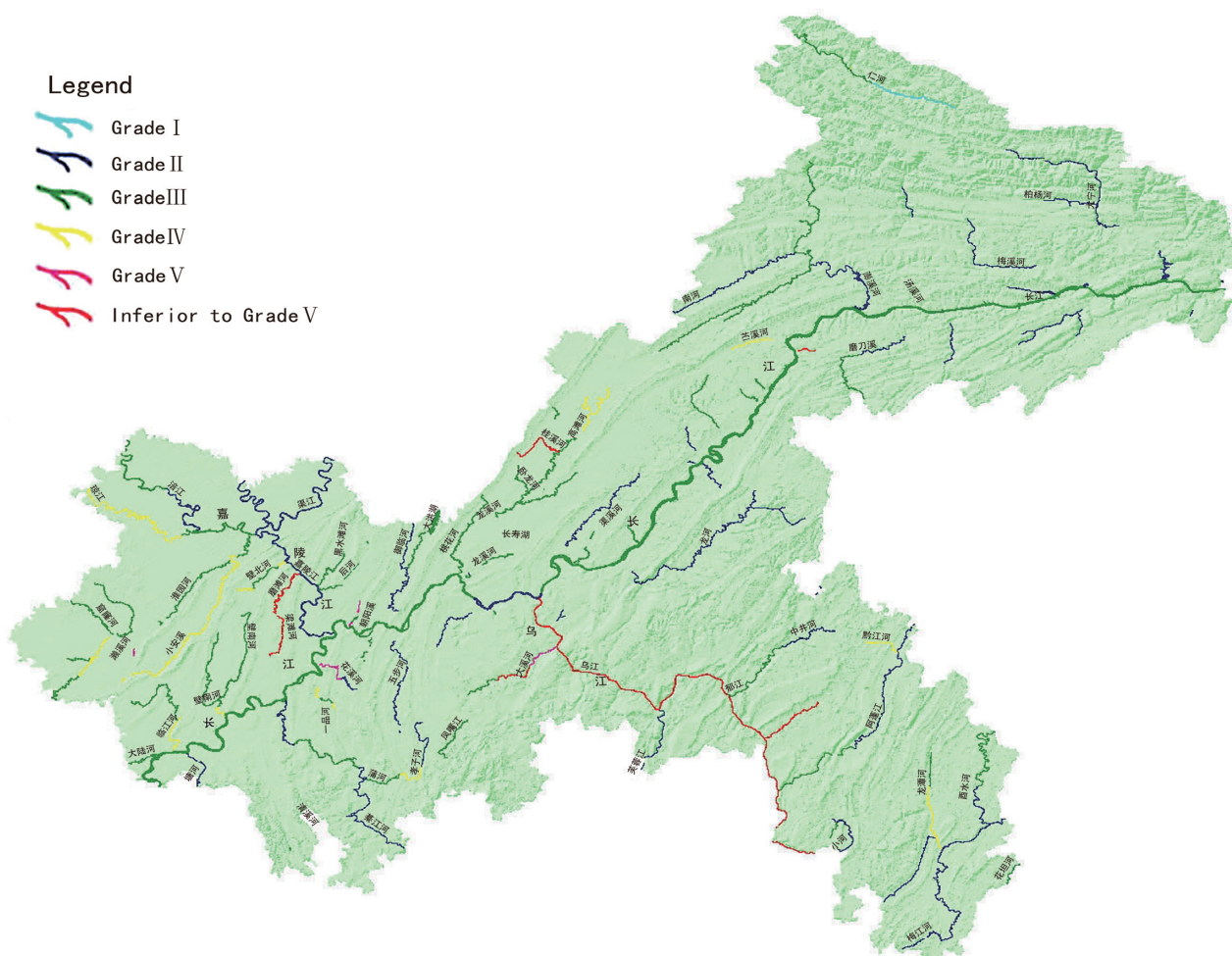


Chart 3 Water Quality Grades of Rivers in Chongqing 2011

# Atmospheric Environment

## 【State】

### Ambient Air Quality

In the urban districts, the days with good ambient air quality amount to 324 days, achieving a ratio of 88.8% and an increase of 13 days compared with that of 2010 (see Chart 4). The average daily concentration of inhalable particulate matters, SO<sub>2</sub> and NO<sub>2</sub> is respectively 0.093 mg/m<sup>3</sup>, 0.038 mg/m<sup>3</sup> and 0.032 mg/m<sup>3</sup> and all of them meets the national Class II air quality standard. The comparison results with the year 2010 indicate a drop of 8.8%, 20.8% and 18.0% respectively for the average annual concentration of the inhalable particulate matters, SO<sub>2</sub> and NO<sub>2</sub> (see Chart 5)

The ambient air quality in the 36 districts and counties meets the national Class II air quality standard, an increase by 16 compared with the year of 2010. The concentration of key air pollutants for districts and counties is shown in Table 1.

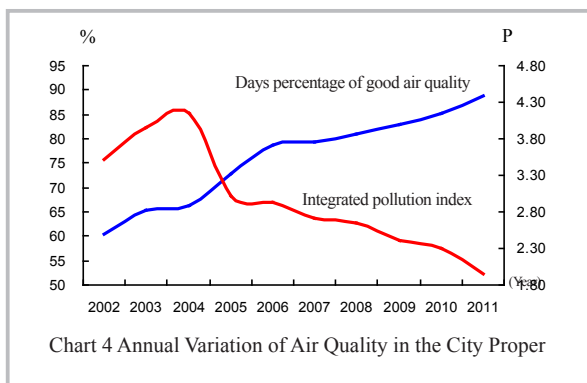


Chart 4 Annual Variation of Air Quality in the City Proper

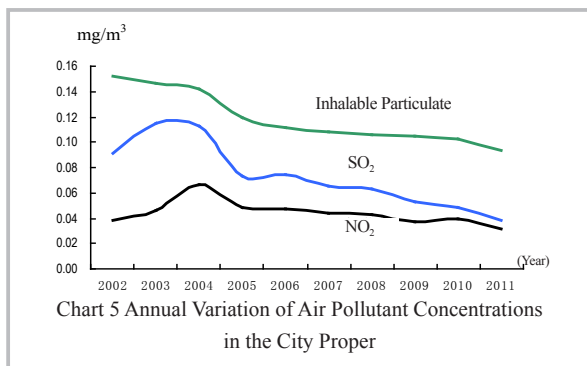


Chart 5 Annual Variation of Air Pollutant Concentrations in the City Proper

### Acid Rain

The frequency of acid rain is 54.5%, with the pH value range between 3.15~8.23 and the average pH value of 4.58. Compared with the year of 2010, the frequency increases by 7.2% while the average pH value decrease by 0.30 points, in which the acid rain frequency in acid rain control area is 64.6%, with the pH value range between 3.15~8.23 and the average pH value of 4.45. The comparison results with 2010 indicate a 8.1% increase of acid rain frequency and 0.34 point drop of the average pH value for precipitation. The acid rain frequency in non acid rain control area is 40.1%, with the pH value range between 3.24~8.15 and the average pH value of 4.74. The comparison results with 2010 indicate a 4.9 % increase of acid rain frequency and 0.22 point drop of the average pH value for precipitation.

Table 1. Concentrations of Major Pollutants in Ambient Air in Districts & Counties (mg/m<sup>3</sup>)

District/County	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	District/County	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
*Wan Zhou	0.080	0.026	0.043	*Tong nan	0.087	0.032	0.019
*Fu Ling	0.082	0.055	0.044	*Tong Liang	0.055	0.050	0.031
*Yu Zhong	0.095	0.039	0.036	*Da Zu	0.065	0.029	0.017
*Da Du Kou	0.096	0.033	0.031	*Rong Chang	0.089	0.039	0.036
*Jiang Bei	0.091	0.036	0.034	*Bi Shan	0.069	0.055	0.046
*Sha Ping Ba	0.100	0.039	0.036	*Liang Ping	0.083	0.022	0.022
*Jiu Long Po	0.091	0.041	0.029	*Cheng Kou	0.059	0.050	0.021
*Nan An	0.092	0.042	0.031	Feng Du	0.105	0.040	0.043
*Bei Bei	0.085	0.036	0.016	*Dian Jiang	0.099	0.022	0.032
Wan Sheng	0.081	0.093	0.032	*Wu Long	0.082	0.041	0.028
*Shuang Qiao	0.079	0.051	0.027	*Zhong County	0.086	0.033	0.036
*Yu Bei	0.086	0.035	0.032	Kai County	0.124	0.020	0.035
*Ba Nan	0.088	0.040	0.037	*Yun Yang	0.074	0.015	0.029
*Qian Jiang	0.092	0.050	0.033	Feng Jie	0.102	0.024	0.031
*Chang Shou	0.085	0.056	0.022	*Wu Shan	0.095	0.021	0.031
*Jiang Jin	0.081	0.059	0.042	*Wu Xi	0.098	0.008	0.015
*He Chuan	0.080	0.058	0.039	*Shi Zhu	0.086	0.028	0.025
*Yong Chuan	0.088	0.046	0.046	*Xiu Shan	0.065	0.046	0.015
Nan Chuan	0.076	0.079	0.037	*You Yang	0.078	0.026	0.026
*New North Zone	0.098	0.034	0.030	*Peng Shui	0.086	0.058	0.023
*Qi Jiang	0.074	0.054	0.027				

Notes:

1. National standard grade II: the annual average daily concentration of SO<sub>2</sub> ≤ 0.06 mg/m<sup>3</sup>, NO<sub>2</sub> ≤ 0.08 mg/m<sup>3</sup>, PM<sub>10</sub> ≤ 0.10 mg/m<sup>3</sup>.
2. The districts & counties marked with a \* in front met the national ambient air quality standard grade II.

## Emissions of Pollutants

A total of 586900 t SO<sub>2</sub> emission was generated in the whole municipality, in which 526300 t was from industrials and 60600 t was from domestics and others. A total of 402600 t NO<sub>x</sub> emission was generated, in which 293800 t was from industrials, 104000 t was from motor vehicles and 4800 t was from domestics and others. A total quantity of 168200 t dust emissions was generated, 165700 t was from industrials, and 2500 t was from domestics and others.

## 【Measures and Actions】

Firstly, total emission quality reduction was implemented followed a series of activities, such as, 6 SO<sub>2</sub>-based emission reduction projects, shut-down of a total of 250 megawatts small coal-fired power generators, elimination of a total of 4.46 million t low cement production capacity, resulting in a reduction of 49000 t SO<sub>2</sub> and 11000 t NO<sub>x</sub>.

Secondly, establishment of non-coal areas were extended, which includes non coal districts in the built-up areas of Jiang Bei, Bei Bei, YuBei and New North Zone, 17 non-coal residential districts and non-coal area of 237 km<sup>2</sup> in the urban districts; in the outskirts, it covers 23 non-coal residential districts, 18 non-coal communities and an area of 159 km<sup>2</sup>. By the end of 2011, the accumulated non-coal communities amounted to 636 covering an area of 639 km<sup>2</sup>.

Thirdly, dust pollution control was enhanced, followed by the establishment of a joint dust pollution prevention

and control mechanism, improvement of 7.25 million square meters of roadway and footway, construction of 36 demonstration roads, improvement of 526 alleyways, initiative of 40 dust control demonstration streets/27 dust control demonstration construction sites and closure of 38 quarries in 4 mountains, enhancement of early warning and emergency response, implementation of “Chongqing Early Warning and Contingency Plan for Air Pollution in the Urban Area,” announcement of 4 III level early warnings in the whole year and 6 regional early warnings, strengthening of artificial intervention.

Fourthly, enhance the motor vehicle pollution prevention and control, which includes the routine test and the environmental labeling system concerning 668112 vehicles being tested. The routine environmental test for vehicles in the urban districts reaches 90.54% and an accumulated environmental labeling amounts to 687872, in which, 81944 is yellow and 605928 is green. A joint street inspection with police for 49823 vehicles covers 36858 petrol vehicles, 12965 diesel vehicles and 4016 notices for deadline rectification. A special action on black smoke vehicles was carried out which covered 1524 vehicles tested and 136 complaints on black smoke vehicles; About 62000 vehicles were telemetered. Energy saving and new energy motor vehicles were promoted, which included the operation of 415 energy saving and new energy vehicles, the operation of 105 CNG stations(60 stations for the urban districts and 45 for other districts and counties) and the use of CNG for all taxis and buses.

# Acoustic Environment

## 【State】

The urban district enjoys a stable acoustic environmental quality. The average noise value for regional environment was 54.0db, with a 96.0 % standard-met rate of grid noise. The average value for traffic noise was 68.0 db and 28.6% main lines of communication exceeded 70.0 db. The sound equivalent level for daytime in I~IV Type urban functional zones ranged between 49.9db, 52.3db, 53.0db and 63.4db, with 97.7% hourly standard-met in Type 2 functional zone and 100% hourly standard-met in other types functional zones. The sound equivalent

level for nighttime in I~IV Type urban functional zones ranged between 44.4db, 46.1db, 49.4db and 59.3db, with an hourly standard-met rate of 58.3%, 74.4%, 100% and 12.5%. A variation of the acoustic environmental quality in the urban district was shown in Chart 6 and Chart 7.

The average environmental noise value in district and counties was 53.5db, with a 95.3% standard-met rate of grid noise. The average value of road traffic noise is 65.8db and the length ratio of main communication lines over 70.0 db is 7.1%. The sound equivalent level for daytime in I~IV Type urban functional zones ranged



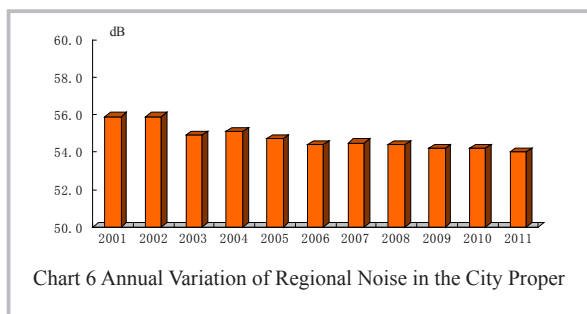


Chart 6 Annual Variation of Regional Noise in the City Proper

between 49.6db, 52.0db, 55.4db and 59.5 db, with an hourly standard-met rate of 91.9 % , 99.2%, 99.0% and 100%. The sound equivalent level for nighttime in I~IV Type urban functional zones ranged between 41.5db, 44.3db, 47.9db and 51.5 db, with an hourly standard-met rate of 66.9 % , 88.2%, 92.3% and 70.9%. A variation of the acoustic environmental quality in the district and counties was shown in Table 2.

### 【Measures and Actions】

Firstly, an integrated management of noise was strengthened which covered the formulation of “Implementation Program on Quiet Action in the Urban District of Chongqing (2011-2013)” and “Live-Based Adaptability Assessment Rules for Real Estate Projects” and noise management for industrials, construction sites, transportation and society. Secondly, industrial noise pollution prevention and control was intensified through the rectification of 14 noise polluters, resettlement of 2 noise polluters. Thirdly, special rectification actions were given to noise pollution from construction sites and transportation, noise pollution during the national entrance examination to the university and noise from 90 entertainment places. Fourthly, noise pollution control for motor vehicles was conducted, which included the adjustment of beep ban areas in the urban districts and correction of 19000 beep cases of motor vehicles. Fifthly, noise minimization projects were conducted, which included the improvement of 2.55 million square meters roadway, trial of low noise CSS pavement, the construction of, noise protection screens for 5909 meters of 22 road section, replacement of 650 old buses and renovation of acoustical insulation windows of 620000 square meters. Sixthly, the establishment of noise pollution control zone and quiet residential area were carried on. There are 63 new quiet residential areas available. Environmental noise pollution control zone amounts to 183.7 km<sup>2</sup> (135.8 km<sup>2</sup> for the urban districts) and achieving 91.0% coverage.

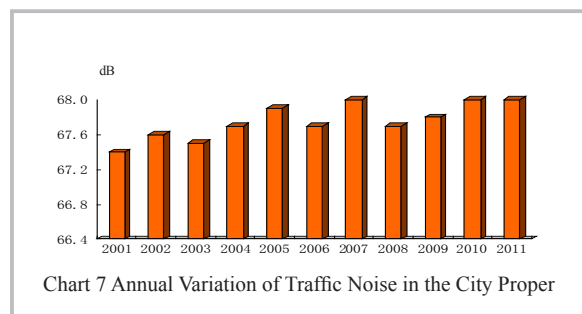


Chart 7 Annual Variation of Traffic Noise in the City Proper

Table 2. Environmental Noise in Districts &amp; Counties (dB)

District/County	Regional noise	Traffic noise	District/County	Regional noise	Traffic noise
Wan Zhou	51.7	65.5	Rong Chang	55.3	65.3
Fu Ling	55.0	67.5	Bi Shan	52.0	66.2
Yu Zhong	55.7	67.9	Liang Ping	53.8	64.1
Da Du Kou	52.4	66.9	Cheng Kou	51.2	68.4
Jiang Bei	55.4	67.3	Feng Du	53.8	66.0
Sha Ping Ba	51.7	66.9	Dian Jiang	53.1	65.5
Jiu Long Po	54.7	66.7	Wu Long	55.2	67.8
Nan An	54.2	65.3	Zhong County	54.6	66.4
Bei Bei	55.0	64.8	Kai County	55.8	67.4
Wan Sheng	53.2	65.7	Yun Yang	52.3	63.7
Shuang Qiao	54.9	61.7	Feng Jie	55.9	67.8
Yu Bei	54.1	67.1	Wu Shan	53.7	66.1
Ba Nan	55.3	64.7	Wu Xi	54.7	63.6
Chang Shou	50.7	66.3	Qi Jiang	51.6	62.7
Qian Jiang	53.6	66.6	Shi Zhu	55.5	66.2
Tong Nan	54.9	67.6	Xiu Shan	52.6	63.6
Tong Liang	54.3	64.8	You Yang	59.2	67.2
Da Zu	54.4	64.3	Peng Shui	52.4	66.9
Jiang Jin	53.7	65.7	Yong Chuan	54.2	67.8
He Chuan	54.6	66.6	Nan Chuan	56.4	66.7
New North Zone	53.0	67.8			

## Solid Wastes and Hazardous Wastes

### 【State】

The generated industrial solid wastes amount was 32.9918 million t, in which 25.8492 million t was comprehensively utilized (including utilization wastes of 246300 t stored in previous years), 5.1828 million t was disposed (including the disposal quantity of 23000 t stored in previous years), 1.9876 million t was stored and 241500 t was discarded, with a disposal & utilization rate of 92.7%. The amount of hazardous wastes reached 465000 t, 56400 t was comprehensively utilized, 436100 t was disposed and 5100 t was stored.

43 municipal solid waste treatment plants for the whole city have been constructed, with a daily capacity of 13200 t. And 4.73 million t municipal wastes were treated for decontamination, with a treatment rate of 81.0%.

### 【Measures and Actions】

Firstly, manifest system for hazardous wastes (medical wastes) and sludge transfer was strictly enforced together with a strict approval and management of hazardous business license. Secondly, a rectification work was given to pollution from lead-acid battery sector. Thirdly, disposal projects for leachate, sludge and fly ash were strengthened. Fourthly, qualitative environmental risk assessment for the contaminated sites of allocated 31 polluters was completed

as well as the quantitative assessment of 14 contaminated sites and restoration of 10 contaminated sites. Fifthly, the construction of centralized solid and hazardous wastes treatment facilities was promoted, followed by the operation of Changshou treatment sites for general industrial solid wastes, the trial operation recovery of hazardous wastes treatment sites in the urban district, trial operation of Wan Zhou medical wastes treatment sites, construction of the centralized medical wastes treatment facilities in Qian Jiang and Huling, a full improvement of slag disposal pit for electrolytic manganese companies and tailings of manganese mines in You Shan county started. Sixthly, management on dioxin and other organics was developed, which included the first local standard for ELISA in China, statistics reporting system of POPs, installation of high efficiency precipitation facilities and ODS statistic and investigation of 210 companies in the 6 key sectors. Seventhly, pollution prevention and control of restaurant refuse started and the expanded Hei Shi Zi restaurant refuse treatment site began to operate. In the year of 2011, a total 231000 t restaurant refuse were collected and treated. Eighthly, floating garbage clearance in the Reservoir was carried on. About 180000 t floating garbage in the Reservoir and 55000 t in the hydro-fluctuation belt of the Reservoir were removed, achieving the goal of “Clean Water, Green Bank and Zero Accident:

## Radiation Environment

### 【State】

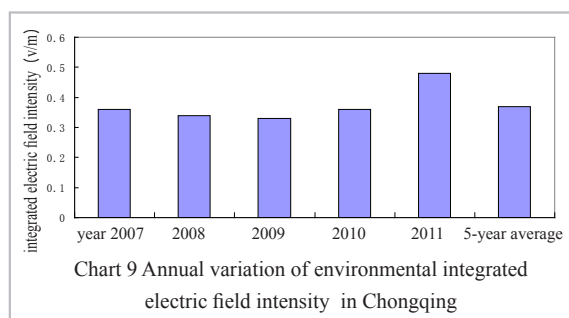
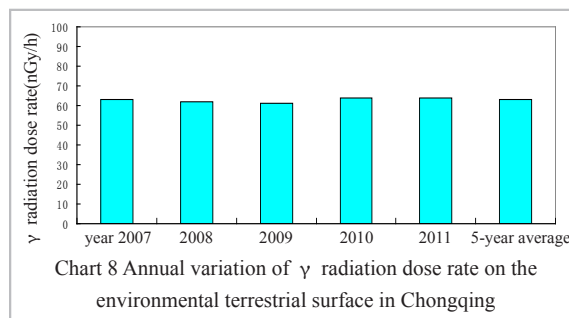
The radiation environmental quality was fairly good. The average value of  $\gamma$  radiation dose rate on the environmental terrestrial surface in the urban district was 64.0 nGy/h (deducting the respond values of cosmic rays) (see Chart 8). The ambient electromagnetic radiation level in the urban district was low followed by 0.48v/m for the average value of environmental integrated electric field intensity (see Chart 9), 1.74 v/m for the average value of power frequency electric field intensity. The

average electric field intensity of power frequency was 23.98 Nanoteslas which was in normal range. Radiation indicators from the soil and “Three River” and drinking water for the whole city were within normal range.

There were 125 radiation application units with 1612 in-use radiation sources; 271 units with 22727 in-use electromagnetic radiation equipments which includes 293 transformer stations with more than 110 volts, 842 lines of electric transmission, and 20918 sets for communication base stations, radars and navigation.

## 【Measures and Actions】

The key measures and actions were followed by: 1) a strict enforcement of EIA and “Three Simultaneous” system for radiation projects. EIA for more than 145 construction projects have been approved in which 105 projects have been finally accepted; 333 transfer cases were approved and 100% radiators in “Initiative” area has radiation safety license; 2) regulation of key radiation source management, a site inspection was given to 54 key radiation sources, which collected 91 old radiation sources and 12.3 kg radiation wastes from 46 units and processed 275 complaints from the public; 3) improvement of monitoring capacity building for radiation environment, including the construction of 4 on-line monitoring stations for radiation environment, 26 land-based radiation monitoring sites, 12 water-based monitoring sites and 19 soil-based monitoring sites and 26 electro-magnetic radiation monitoring sites.



## Landscaping

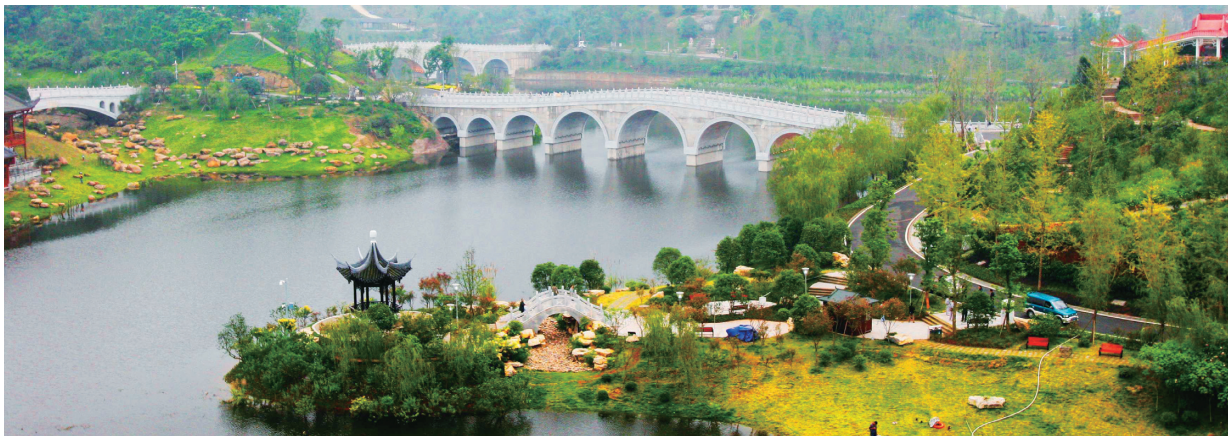
### 【State】

In the built-up area of municipality, there were an area of 49536 ha for landscaping space, 23754 ha for park green space, with a landscaping coverage of 53403 ha and a total of 386 city parks (an area of 11210 ha). The green ratio was 40.3%, the green space ratio was 37.2%, with a public green space of 17.01 m<sup>2</sup> per capita.

In the built-up area of the urban district, there were an area of 24827 ha for landscaping space, 11654 ha for park green space, with a landscaping coverage of 26700 ha and an area of 5403 ha for city parks. The green ratio was 38.7%, the green space ratio was 35.9%, with a public green space of 17.79 m<sup>2</sup> per capita.

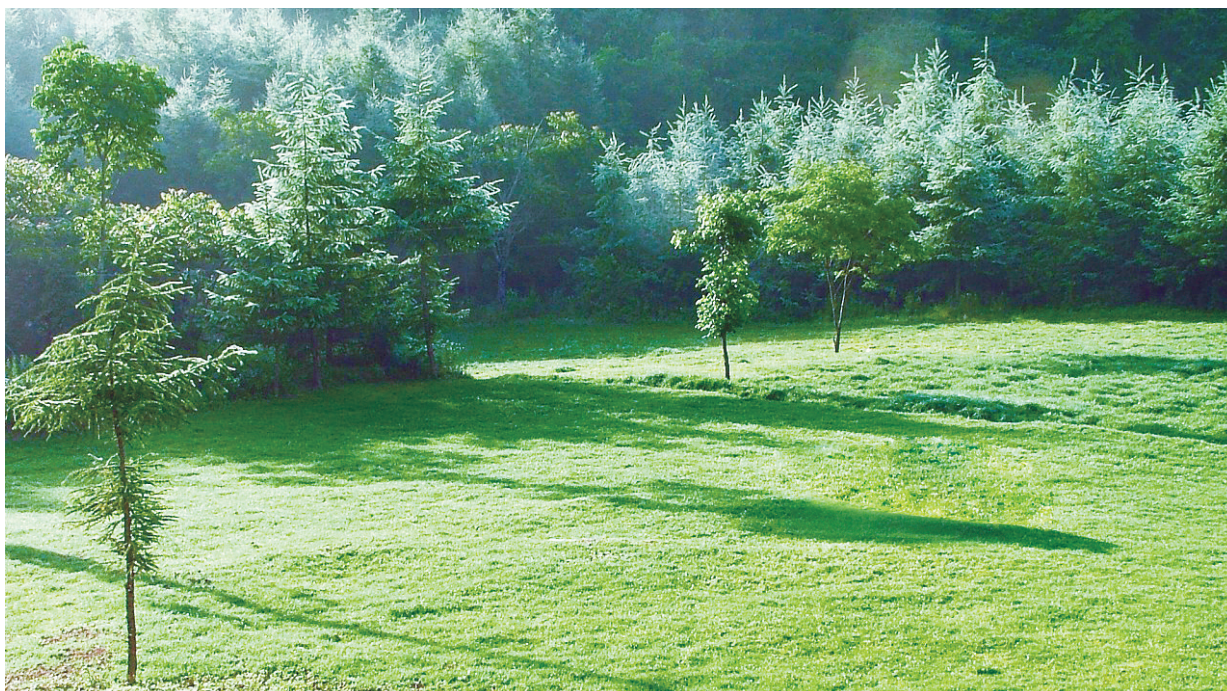
### 【Measures and Actions】

The 8th China (Chongqing) International Garden Expo was held. Construction of urban landscape and the national garden city in the urban district was promoted, followed by urban competitive gardens, a group of big urban parks, a group of community parks and a group of urban main line. Based on the construction of urban garden city, construction of landscape was strengthened in the outskirt districts and counties with a wide participation of the society.





## Forest and Grassland



### 【State】

The municipality has an area of 4.079 million ha forestland, an area of 3.214 million ha forest, a forest coverage rate of 39% and a total standing stock volume of 146 million m<sup>3</sup>.

The municipality has an area of 2.155 million ha natural grassland, accounting for 26.2% of total municipal area, in which available grassland area was 1.842 million ha. The municipality has a soil erosion area of 40 000 km<sup>2</sup>, accounting for 48.6% of the total municipal area. The average soil erosion modulus was 3 642 t/km<sup>2</sup>/y and the total erosion quantity was 146 million t/y.

### 【Measures and Actions】

The forest schemes were implemented with great efforts. In 2011, 5.108 million mu was used for forest scheme construction, in which 3.299 million mu was newly-planted, 1.809 million mu was renovated. By the end of the year 2011, a forestation of 18.08 million mu was completed by forest scheme, 730000 mu forest scheme was completed and 78 forest parks(25 of them are the national level park) was constructed. The area of forest park amounts to 2.835million mu. By the end of the year, the area for the seeding accumulated to 88000 ha, in which 70000 ha was for man-made seeding and 18000 ha was for refined seeding. Efforts also were given to resume growth of grassland and ecological monitoring. The whole year saw an accumulated investment of 3.384 billion yuan for soil and water conservation and an area control of 3175 km<sup>2</sup> for soil erosion. “Greening The Yangtze, Chongqing Action ” inspired the campaign of the society for greening the Yangtze and contributed to 2.30 million mu forestation along the river.

## Arable Land and Agro-ecology

### 【State】

The environmental quality in high grade farm products base is fairly good. In 2011, another 16 demonstration counties for standardization agricultural activities were newly constructed which led to an area 9.70 million mu for standardization agricultural demonstration. A total of 361 products got the certification for product standard which accumulates 2714 products, up by 8.3% compared with that of the last year.

The environmental quality of arable land is generally good but there is a great challenge from agricultural non-point pollution sources. The pollution load from large-scaled livestock farms is great. There were 15.406 million hogs on hand, 20.209 million sold from the farm, 1.245million cattle on hand, 519000 cattle sold from the farm, 1.767 million goats on hand and 2.026 million goats sold from the farm, 116.275 million poultry on hand and 208.634 million sold from the farm. 15.291 million rabbits on hand and 38.701 million sold from the farm. COD load from livestock excrement amounted to 127400 t. The whole city totally consumed nitrogen fertilizer of 502000 t, phosphorous fertilizer of 182000 t, farm membrane of 39000 t and pesticide of 20000 t.

The whole city has an arable area of 22400 km<sup>2</sup>, in which 19100 km<sup>2</sup> is capital farmland.

### 【Measures and Actions】

Methane gas is greatly developed. The whole year saw new methane gas users of 155000 farmer' s households, with accumulated households of 1.4851 million, accounting for 42.4% of the fitted households. A continuous promotion was given to the construction of agricultural cleaner scheme which includes 10 new trial villages, construction of clean countryside, clean homeland and clean public facilities. A survey on 8 invasive species such as alternanthera philoxeroides and mikania micrantha, was conducted, which indicates that an area of 596000 ha was impacted by invasive species and the formulation of "Chongqing 2011 Plan on Prevention and Control of Invasive Species". More than 88000 ha for alternanthera philoxeroides, 100 ha for amplexicaulis gigas spix and 900 ha for water hyacinth and 80 ha eupatorium adenophorum have been prevented. A survey on was also offered to wild orchid which provided an information database. Great efforts have been given to the prevention and control of non-point sources from agricultural activities. Other measures include a strict protection system for cultivated land, a continuous promotion of capital farmland trial zone, construction of "38110" scheme, implementation of 928000 mu capital farmland arrangement and land reclamation of 1.28 million mu.

## Nature Reserves and Biodiversity

### 【State】

The city has a total of 58 nature reserves, with an area of 880000 ha, accounting for 10.3% of the total municipal area, among them, 5 are the national level nature reserves, 20 are the municipal level nature reserves. There are 36 famous scenic spots with an area of 4 967.38 km<sup>2</sup>, accounting for 6.0% of the total municipal area, in which, 6 are the national level scenic spots and 30 are the municipal level scenic spots.

There are 6000 species for wild vascular plant, among them, 48 species are national conservation species, 442 species are specially-owned in China, 11 species are locally-owned in Chongqing, and there are 18 endangered wild plants. There are 866 wild vertebrates and 4368 invertebrates, in which, 206 species are specially-owned in China and 8 species are in the list of national Class I conservation species and 16 species are in the list of national Class II conservation species. 27 species are in the IUCN red list for global endangered wild animals. 100 species of large-sized fungi and 183 species of other microorganisms are also available here.

## 【Measures and Actions】

“Chongqing Municipal Government’s Opinion on Strengthening Conservation of Natural Reserves” was printed and distributed. About 21.18 million Yuan was funded by the central government for capacity building and the required facilities and equipments. The assessment on the quality of the national natural reserves led by the Ministry of Environment was completed. The Jin Yun Mountain, JinFo Mountain, da Ba Mountain and the national rare fish reserves of the Yangtze river (Chongqing) section have been rewarded for excellent performance in

natural conservation. A continuous assessment has been given to ecological quality in 38 districts and counties and Sino-EU Biodiversity Demonstration (Chongqing) Projects have been fully completed. “Chongqing Strategy and Action Plan on Biodiversity” and “Biodiversity Assessment Guidance on EIA of 5 Types of Resources Development” is being implemented. A series of research findings on biodiversity conservation policy mechanism and application models have provided a framework and platform for biodiversity conservation activities in Chongqing.

# Climate and Natural Disasters

## 【State】

### Climate

The year 2011 saw an annual average temperature of 17.7 °C, 0.3°C higher than normal. The annual average temperature made 2011 the 11th consecutive year with higher temperature than normal temperature in history. The average precipitation in 2011 recorded 993.6mm, one tenth less than that of normal years, making it top 3 year with the lowest precipitation since 2001. The annual average sunlight hours amounted to 1270 hours, 6% higher than that of normal years.

### Natural Disasters

Natural disasters in 2011 was characterized by variety, wide range and significant damage, frequently regional rainstorm, transboundary flood, low temperature and rainy weather, with a heavy loss from waterlog and drought. The statistics data indicates that all types of disasters resulted in 11.857 million people suffering, 43 deaths or missing, and 400400 emergency transfer of people, 765410 ha area of crops suffering, 113320 ha area with no gains, also it was recorded 22500 damaged houses, 171400 collapsed houses, leading to a direct economic loss of 7.34 billion Yuan.

## 【Measures and Actions】

Measures and actions were followed by making good time use of artificial influence on weather to actively carry out 46 times actions, in order to serve the fight against drought / hail suppression, improvement of air quality, increase of water storage in the Reservoir, and forest fire prevention & extinction. For artificial influence on weather, this year saw 488 operations of total 3020 pieces of rockets, 915 times antiaircraft gun work of total 38202 pieces of artificial precipitation balls, and 15 flights of artificial precipitation airplane of total 39.5 hours. About 317 million Yuan financial aid was offered to around 2 million people suffering from the natural disasters together with other contributions, such as 23800 cotton padded quilts, 1000 tents, 77573 cotton padded coats and rebuilding of 27900 collapsed rural buildings.



## Special Topics

### Total Discharge Reduction of Key Pollutants

In 2011, the administrations followed the principal of “Clarification of Responsibilities, Strict Control of Increased Pollution Quantity, Instruction of Policy, Adjustment of Structure, Support by Project and Assurance of Supervision” for total discharge reduction of key pollutants, further defined the responsibilities of pollution reduction for relevant departments. The formulation of “Total Discharge Reduction Plan for 12th Five-Year Period” and its implementation opinions promoted total pollutant discharge reduction work. Compared with the last year, the year 2011 saw a drop of SO<sub>2</sub> by 3.6%, COD by 2.2% and NH<sub>3</sub> by 1.6 but a up of NO<sub>x</sub> by 5.3%. The performance of 4 reduction indicators is better than the average national level.

### Construction of Environmental Legal System

In 2011, “Chongqing Regulations on Water Pollution Prevention and Control in the Reservoir and its Watershed” was approved by the 25th meeting of the third session of the Standing Committee of NPC, came into effect on 1st of October 2011. The Municipal Environmental Protection Bureau formulated “Chongqing Stipulation on Environment-Based Administrative Sanction Procedures(trial)” and Chongqing Discretion Standard on Environment-Based Administrative Sanction(trial)” and issued “Administration Reconsideration Rules of Chongqing Environmental Protection Bureau”. Environmental tribunals were set up in Wan Zhou district court and Yu Bei district court (Yu Gao Document No: 【2011】 364). The trial work of centralized process of environmental cases and environmental public interest litigation has made good achievements.

### Environmental Risk Prevention and Environmental Emergency Response

“Chongqing Training Program for Environmental Emergency Response Team”, Chongqing Contingency Plan for Environmental Emergency Response Team” and “Chongqing 12th Five-Year Plan Outline for Environmental Emergency Response” were formulated. Database of key Risk Sources Management System for Registration and Investigation was developed. A visualized command system for risk sources is available in Chongqing Environmental Protection Bureau. 2 systems for environmental prevention and emergency response with three levels characterized by the municipal-district/county-industrial park as well as industrial park-companies-facilities was well-organized. Emergence response drill was performed at 39 districts and counties. “2011 Environmental Emergency Response Drill for Production Accidents of Chemical Industrial Park” was jointed organized by the Municipal Environmental Protection Bureau and Wan Zhou District Government.” Environmental law enforcement inspections involving 18000 persons/times were given to the 6173 key polluters/times, identifying 280 potential environmental risks, in which 262 were rectified, with a rectification rate of 93.6%. No severe and unexpected environmental accident was available in the whole year and the number of the general and unexpected environmental accidents declined by 5 cases, down by 21.7% compared with that of 2010.

## Participation of Integrated Policy—Making and Optimization of Economic Development

“Implementation Measures of Limited Regional Approval for Environmental Protection in Chongqing” was formulated, “Environmental Access System for Chongqing Industrial Projects” was amended and guidance on EIA for arrangement of electroplating park was introduced. Strategic environmental assessment on ChengYu economic zone and EIA on the 12th Five-Year Plan for industrials and communication was conducted. Active participations are also involved in the funding and feasibility study on significant projects. A postponed acceptance or no approval notice was given to about 10 projects such as 1.2 million t coking project of Qi Jiang. A policy of “Old Replacement by New, Small Replacement by Large” is strictly followed to promote the adjustment of industrial structure and optimum economic development mode.

## Prevention and Control of heavy Metals

The municipal government distributed “A Notice on Further Strengthening Heavy Metal Pollution Prevention and Control” and held a meeting on heavy metal pollution prevention and control, where 10 rectification requirements were proposed for heavy metal polluters. A special rectification was further developed. Firstly, a rectification was given to key sectors, followed by a full production stop of 18 electrolytic manganese manufactures and 37 manganese mines, site sealing of 16 manganese slag pit according to the standard, closure of 83 manganese processing companies. Secondly, monitoring and assessment were conducted, followed by a full monitoring and assessment on food pollution state in 6 key controlled areas, health risk of vulnerable people nearby 38 key heavy metal polluters and 15 key heavy metal polluters. Thirdly, environmental liability assurance was conducted among 11 key heavy metal polluters. Fourthly, historical pollution from heavy metal waste residues was evaluated and disposal work for historic residues was launched.

## Connected Rural Environmental Improvement

A connected rural environmental improvement was demonstrated among 221 administrative villages of 9 districts, which was extended to 198 administrative villages of 14 districts and counties such as wan Zhou and Huling. The Municipal Environmental Protection Bureau Hosted the national field work meeting on the connected rural environmental improvement sponsored by the Ministry of Environment. There are 5 national level eco-towns, 1 municipal level eco-district, 5 municipal level eco-towns, and 12 municipal level eco-villages.

### Special Environmental Protection Actions

A steering group has been organized by 13 municipal government departments, including the Municipal Environmental Protection Bureau, the Municipal Development and Reform Commission, the Municipal Economic and Information Commission, for inspecting and punishing violating companies and safeguarding the public's health. The key work is to inspect the heavy metal polluters, with special focus on lead storage battery manufacturers, develop an integrated environmental control to "Manganese Triangle Zone" and supervises the key discharge reduction polluters and further develop the special environmental protection actions. In 2011, more than 30000 persons/times on law enforcement were dispatched, inspecting 15804 companies/times, processing 293 violations. Based on the inspection, 29 violating electroplating companies were shut down and more than one hundred production line of violating electroplating were destroyed, while 19 lead storage battery manufacturers and lead recycle companies were closed or destroyed and 10 lead storage battery manufacturers and lead recycle companies were forced to stop production for rectification.

### Institutional Capacity Building Within Environmental Administration System

In 2011, a three level environmental monitoring network including the municipal, district/county and towns have further improved. The Municipal Environmental Protection Bureau set up branches in economic development zone in Chang Shou and Liang Jiang New Area with additional staff of 11. Environmental institutions were set up in Wan Zhou and Shuang Qiao, environmental tourist bureau were set up in Wan Sheng economic development zone. Environment promotion information institutions were set up in 17 district and counties, and environmental education and promotion center was set up in 9 district and counties. Environmental protection offices were set up in 643 towns and street committees. The establishment of township-based environmental institutions are paid attentions by the central organization committee and the Ministry of Environment.

### Image Construction of Environmental Team

Taking the municipal-widely evaluation for the government performance as opportunity, the Municipal Environmental Protection Bureau promoted the image construction within its internal system with good achievements. The specific activities covered: externally, collection of opinions, resolution of long-pending cases, shorter case proceeding time, and open commitment for service improvement to the public; internally, enhancement of discipline, inspection, improvement of personal and service quality. In the evaluation period, about 135 long-pending cases for environmental complaints were sorted out and resolved within a deadline. The feedback from returning visits to the resolved key long-pending cases showed 100% satisfaction from the public. The report from the municipal image improvement office showed that the environmental protection sector enjoyed 94.19% satisfaction from the public with an integrated evaluation of 95.93 points, ranking top 2 among 23 window departments, and 10 specially evaluated departments.

## Environmental Communication and Education

Environmental communication and education made good achievements in 2011. 90.1% of the public is informed with “Initiative” and 83.3% of the public is satisfied with environmental protection. More than 60 “Initiative” topics (columns) are available in 8 types of media. There are 50 special editions and 30000 news release for “Initiative”. 60 periodic editions for “Initiative” was distributed though mobile phone. Official micro-blog programs for “Initiative” are available in both the municipal environmental micro-blog and local environmental micro-blogs, which attracts the attentions from 1.50 million people. A joint ceremony for “6.5 World Environmental Day” and “Initiative” campaign was organized. Active efforts were made to invitation of Chongqing environmental ambassador, 1000 publicity activities for “Initiative”, the publicity organization of “Initiative” access to all types of institutions with a 98% publicity rate, the incorporation of environmental protection into course module into the Party School, an 85 % publicity rate of environmental education in the middle schools and organization of 12 training programs on environmental protection.

## Trading of Key Pollutants Permit

A trial on trading of key pollutants permit was smoothly promoted, with a formed policy framework model. Trading mechanism is operating among SO<sub>2</sub>-emitted companies in the urban districts. The regulated secondary market for the whole city has been established and resulted in a stable trading, which achieved a transition of newly-added pollution for industrial projects from free permit allocation by the government to traded permit. In 2011, a total of 185 pollution trading was conducted, resulting in a turnover of 16.2945 million Yuan, in which 134 pollution trading cases were for COD with a volume of 801 t and a turnover of 8.5202 million Yuan, 51 pollution trading cases were for SO<sub>2</sub> with a volume of 948 t and a turnover of 7.7743 million Yuan.

## Environmental informatization

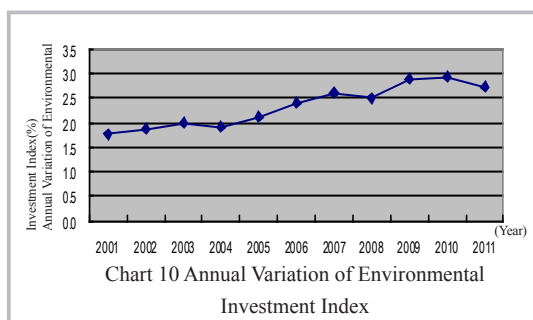
Environmental informatization work started fully in 2011, which includes the launch of the first meeting on environmental informatization work, the implementation of the national capacity building project for environmental information and statistics, informational capacity building project of “Initiative”, construction of 2M special network for environmental protection, information sharing between environmental administration and a digital-based environmental picture.

## International Exchange and Cooperation

International cooperation for environmental protection have made great achievements. For the whole year, about 90 person/times paid visits to Chongqing Environmental Protection Bureau. A group of international cooperation projects were cited for good performance by the Ministry of Environment, such as the World Bank-sponsored ODS Elimination Capacity Building(Chongqing) Project, Sino-EU Biodiversity (Chongqing) Demonstration Projects, Evaluation and Restoration of POPs-Contaminated Sites based on the old Chongqing Tian Yuan Chemical factory and the implementation project of Stockholm Convention. A group of international cooperation projects were completed successfully in this year, followed by Strategy Research on Environmental Management of Contaminated Sites sponsored by the World Bank, Sino- Sweden Demonstration Project on Filter for Hydrocarbon and heavy Metals(a mobile filter for environmental emergency response of oil and organic solvent spill), Chongqing Air Quality Management Strategy Study sponsored by American Energy Fund.

## Environmental Investment

The year 2011 saw an investment of 27.52 billion Yuan for environmental protection, accounting for 2.72% of the total GDP at the same year ( See Chart 10), in which 23.625 billion Yuan was used for municipal sewage treatment works, garbage treatment plants, garden and forestation, gas engineering works, 1.219 billion Yuan was used for industrial pollution control, 202 million Yuan was used for environmental management and scientific research, 2.474 billion Yuan was used for environmental input of “Three Simultaneous” for the newly-constructed projects.



## Environmental Performance Assessment of Top Leaders of Government

Environmental Performance Assessment Steering Group for Top One Leader of the Government conduct assessment t on top leaders of 38 district and counties, New Northern Zone and 36 municipal agencies, in which Hu Ling district, Yu Zhong district, Jiang Bei district, Bei Bei district, Yu Bei district, He chuan district, Nan Chuan district, Bishan county, Wu Long county, Wu Long county, Yun Yang county, Wu Shan county and New Northern Zone was rewarded the first; Wan Zhoug district, Qian Jiang district, DaDukou district, Sha ping ba district, Jiu Long Po district, Nanan district, Ba Nan district, Da Zu district, Rong Chang county, Cheng Kou county, Feng Du county, Zhong county, Liang Ping county, Feng Jie county was rewarded the second. 36 municipal agencies led by the Municipal Development and Reform Commission, the Municipal Economic and Information Commission, the Municipal Environmental Protection Bureau and the Municipal Administration Commission enjoyed good practical performance in this assessment.

## Investigation on the Public Satisfaction Rate about the Environment

The Municipal Environmental Protection Bureau commissioned a specialized investigation organization to conduct an investigation on the public satisfaction rate about environmental protection for the year 2011. The investigation was designed to collect the public's assessment comments on ambient air quality, ambient water quality and sanitation. The investigation results showed that: the environmental satisfaction rate from the public was 83.33% for the whole city and 81.04% for the urban districts and New North Zone. The satisfaction rate in individual district and counties is shown in Table 3.

Table 3: Satisfaction Rate about the Environmental Protection  
in Districts and Counties (%)

District	Integrated Satisfaction Rate	District	Integrated Satisfaction Rate
Wan Zhou	79.16	Tong Liang	85.80
Qian Jiang	85.47	Da Zu	84.61
Fu Ling	78.05	Rong Chang	84.70
Yu Zhong	79.81	Bi Shan	86.31
Da Du Kou	80.66	Liang Ping	83.20
Jiang Bei	80.04	Cheng Kou	91.83
Sha Ping Ba	78.19	Feng Du	84.38
Jiu Long Po	81.54	Dian Jiang	81.82
Nan An	78.08	Wu Long	90.07
Bei Bei	84.67	Zhong County	84.63
Wan Sheng	78.25	Kai County	82.80
Yu Bei	84.96	Yun Yang	87.75
Ba Nan	82.19	Feng Jie	83.61
Chang Shou	75.33	Wu Shan	86.00
Jiang Jin	81.82	Wu Xi	89.74
He Chuan	85.32	Shi Zhu	86.86
Yong Chuan	76.82	Xiu Shan	81.98
Nan Chuan	88.32	You Yang	87.97
Suan Qiao	84.58	Peng Shui	86.02
Qi Jiang	83.57	New North Zone	80.21
Tong Nan	79.00		





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# June 5th World Environment Day **2012**

**World Theme——Green economy : Does it include you ?**

**China Theme——Green consumption : You do it ?**

Chongqing Environmental Protection Bureau

Add: No:252 Qishan Road,Ranjiaba,Yubei District,Chongqing,401147,China

Tel: 86-23-89181950

Fax: 86-23-89181961

Website: <http://www.cepb.gov.cn>