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## Executive Summary

In 2012, under the leadership of Chongqing Municipal Government, the guidance and support of Ministry of Environment Protection, the decisions of the Eighteenth Party Congress and the Seventh National Environmental Conference have been implemented and ecological civilization construction have been promoted. Based on environmental protection service, optimal economic development, initiative of the national environmental model city and total emission quantity control as a breakthrough, the water environment conservation quality in the reservoir and air pollution prevention quality in the metropolitan area as the key task, the focus has been given to the striking environmental problems with great impacts on sustainable development and public health. Environmental safety assurance, environmental rights safeguarding and environmental quality improvement have been targeted. Great achievements have been demonstrated by an enhanced supervision capacity, improved environmental infrastructures, full implementation of annual environmental protection objectives, a continuous reduction of key pollutants, the increasing environmental awareness of the whole society and a continuous improvement of environmental quality in the whole city.

## Strategic Cooperation Agreement Signed between Ministry of Environmental Protection and Chongqing Municipal Government



On August 13, 2012, the Minister Zhou Shen Xian and the Mayor Huang Qi Fan signed “A Strategic Cooperation Agreement on Integrated Urban and Rural Environmental Protection Based on Joint Promotions” on behalf of Ministry of Environmental Protection and Chongqing Municipal government respectively. The agreement states that both sides shall develop a deep cooperation in the promotion of integrated urban and rural environmental protection trial and in the construction of the national environmental model city, which aims to offer a consolidate environmental support for a well-off society goal construction of Chongqing municipality as the leading role in western China. Ministry of Environmental Protection shall offer supports through the followings: 1) offering supports for the coordination development of regional development and environmental protection, with specifics in the guidance in EIA and SEA, the construction of three systems for emission reduction and more supports to environmental industry in Chongqing; 2) promoting an integrated urban and rural environmental protection, with specific supports in the construction of the national environmental model city of 9 districts in the metropolitan area, air pollution prevention and control and the construction of integrated urban and rural environmental infrastructures and the comprehensive environmental renovation in the urban and rural areas; 3) enhancing the conservation of ecological environment in the reservoir area, with specifics supports in water environmental conservation, construction of environmental infrastructures in the industrial parks and conservation of biodiversity and management of natural reserves; 4) strengthening the basic environmental capacity building, with focus on environmental supervision, environmental monitoring and environmental information and the construction of Chongqing as a trial city for an united supervision system of ecological environment; 5) offering an innovation environmental economic polices, with specifics on the construction of a diversified environmental financing mechanism, guidance and support to Chognqing in the trial activities of ecological compensation, green credit, green bond and environmental liability insurance

## Initiative of the National Environmental Model City(hereinafter “Initiative”)



In the past 8 years of the “Initiative”, especially in the last 3 years, an accumulative environmental investment totaled to 23.6 billion yuan which covered the construction of 3009 engineering projects and an overall standard satisfaction of 26 performance indicators. Inspection and acceptance group from Ministry of Environmental Protection made the following conclusions based on official acceptance of the “Initiative”: it is characterized by high starting point, strong determination, true measures, good process, good effects, striking focus, unique features, well-documented, detailed and accurate data, excellent performance. Furthermore, all indicators basically meet the appraisal requirements and lead to a further step in terms of development level, environmental quality, infrastructures and environmental management. Minister Zhou Shen Xian made good comments on the “Initiative” and stated that the “Initiative” lead to the great development through the big engineering projects and offer an innovation solution to environmental protection practice.

## The Tenth Chongqing Municipal Environmental Protection Meeting



On Feb 23, 2012, the Tenth Chongqing Municipal Environmental Protection Meeting organized by the municipal government and the mayor Huang Qi Fan attended the meeting and delivered an important message. The meeting was accompanied by the issue of “Decisions on Further Enhancement of Environmental Protection Work” (Document No (2012)4), the presentation of decisions made at the Seventh National Environmental Protection Meeting and the National Provincial Environmental Protection Bureau Directors Meeting, an overall summary of environmental protection work since the Ninth National Environmental Protection Meeting and an arrangement of environmental protection work for the year 2012 and the near future. The mayor Huang Qi Fan highlighted 6 priorities: 1) concentration of the “Initiative” sprint, 2) consistent promotion of energy saving and emission reduction; 3) speedy development of environmental industry; 4) improvement of environmental supervision, management and service; 5) further prevention and control of environmental pollution; 6) quick emergency response of environmental pollution accidents.

## Plenary Meeting of Chongqing Environmental Protection Committee



On Dec 27, 2012, Mr Huang Qi Fan, the mayor and the director of the Municipal Environmental Protection Committee, presided over the plenary meeting for the year 2012. At the meeting, several documents were discussed and approved, followed by “Key Points of Chongqing Environmental Protection Work for the Year”, “Notice on Establishment of Lon-Term Mechanism for Achievements Consolidation of the Initiative and “Operation Principals for “Five Grand Actions” based on Environmental Protection. The mayor Qi Fan spoke highly of achievement of the national acceptance for the “Initiative” in the metropolitan area and urged that the environmental protection work in the following five years should be led by ecological civilization construction and concentrate on the further implementation of “Five Grand Actions”, consolidation of the Initiative” achievements, continuous improvement of environmental protection level and consistent improvement of urban and rural environmental quality.



# 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, 4 of them stands Grade II water quality standard, 15 stands Grade III ,1 stands Grade V and 4 stands worse Grade V, which represents 16.7%, 62.5%, 4.1% and 16.7% respectively, and the ratio of cross-sections meeting Grade II standard is 79.2% (see Figure 1). The comparison with the year 2012 indicates there was no changes with the ratio of cross-sections meeting Grade III. Water quality among 15 cross-sections of the Yangtze river stands Grade III and water quality among 4 cross-sections all stands Grade II, indicating a fairly good level of water quality. The water quality among 5 cross-sections stands Grade V ~ worse V ( mainly contributed by high total P load in the entrance boundary section Wan Mu resulting in a standard-exceeded total P)

### Tributaries

Water quality in the tributaries was fairly good. The assessment based on 21 indicators shows, in 131 cross-sections of 73 tributaries, the ratio meeting water quality Grade I, II, III, IV, V and worse V presents 0.8%, 43.5%, 41.2%, 8.4%, 3.8% and 2.3% respectively, in which, 85.5% of cross-sections met Grade III and 93.9 % met the functional requirements of waters(see Figure 2). The comparison with the year of 2011 indicates the percentage of cross-sections meeting Grade III water quality standard and meeting water functional requirement increased by 6.0 and 7.5 points. 25.5% sections in backwater zone of 36 primary tributaries in the Three Gorges reservoir area saw eutrophication problems, a reduction by 13.9 points compared with that of 2011.

### Drinking Water Sources

Water quality in the centralized drinking water sources was fairly good. The water quality in 53 urban centralized drinking water sources met the standard by 100% and the

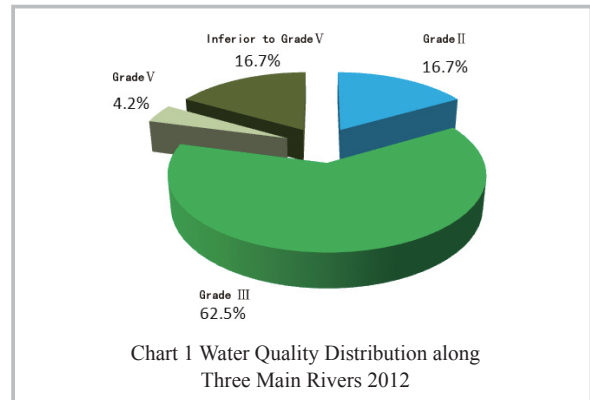


Chart 1 Water Quality Distribution along Three Main Rivers 2012

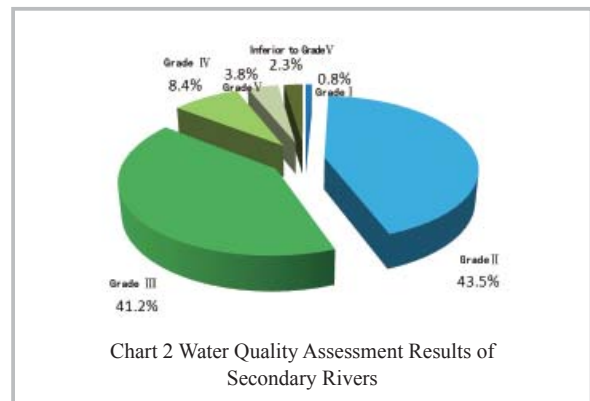


Chart 2 Water Quality Assessment Results of Secondary Rivers

key indicators of the water quality in 990 rural centralized drinking water sources met the requirements basically .

### Discharge Quality of Pollutants

A total of 1.324 billion t waste water was discharged, in which 306 million t was from industries, 1.017 billion t was from domestic source and 1.4 million t was from the centralized pollution treatment facilities. The total waste water saw a discharge quality of 402800 t, in which 49200 t was from industries, 229400 t was from domestic source, 600 t was from the centralized pollution treatment facilities and 123600 t was from farming activities. The total waste water saw a discharge quantity of 53400 t of ammonia-nitrogen, followed by 3000 t from industries, 37200 t from domestic source, 100 t from the centralized pollution treatment facilities and 13000 t from farming activities.

## Measures and Actions

The first measure was given to the construction of the centralized treatment facilities for sewage and garbage. So far, an accumulated 380 sewage works and 52 garbage treatment plants have been completed, resulting in 88% treatment rate and an increase by 1 point for sewage and 98% treatment rate and an increase by 1 point for garbage based on comparison with that of the year 2010. Domestic sewage plants and garbage plants are available in all counties and treatment facilities for sewage and garbage are available in all streets and towns of the metropolitan area. The second measure was given to promote an integrated solutions to pollution of tributaries. Some systems intended to promote projects and water quality improvement were implemented followed by “Dual Objective” assessment system, “River Section Leader” responsibility system and “Department-led” responsibility, covering 14 tributaries in the metropolitan area and 7 tributaries in the Three Gorges reservoir area, resulted in a significant improvement of water quality of tributaries. The third measure was given to preservation

of drinking water sources. According to “Notice on Strengthening Preservation of Centralized Drinking Water Sources” (Document No 2012, 79), some specific measures were implemented followed by the management improvement of drinking water sources, the replacement of 3200 non-standard preservation signs, 380 non-standard warning signs, 430 preservation publicity slogans, completion of renovation of 100 outfalls along the river and ban of outfalls for industrial effluent and domestic sewage in the first and second preservation areas. The fourth measure was given to cleanup of 188000 t floating materials in the rivers and 80000 t garbage in the water-level-fluctuation zone. The goal of “Normalization of Clean Rivers and Banks with Zero Safety Accidents” was achieved basically. The fifth measure was the issue of “Chongqing Implementation Plans on Construction and Operation Management of Sewage Treatment Facilities in the Three Gorges Reservoir Area” by the municipal government, resulted in a long term operational management mechanism and a standard operational management for sewage treatment facilities.

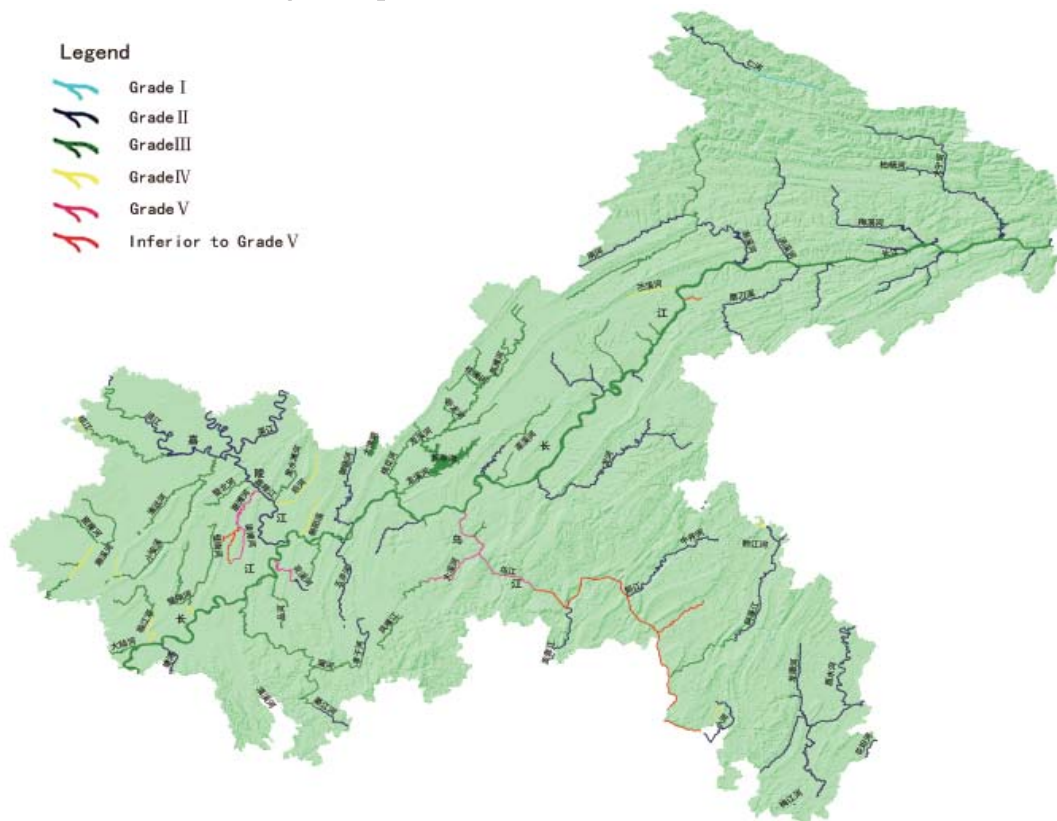


Chart 3 Water Quality Grades of Rivers in Chongqing 2012

# Atmospheric Environment

## State

### Air Quality

In the metropolitan area, 324 days enjoyed good air quality with a ratio of 92.9%, and an increase of 16 days based on the year 2011. (Figure 4). The annual average concentration of PM<sub>10</sub>, SO<sub>2</sub> and NO<sub>2</sub> in the air was 0.090mg/m<sup>3</sup>, 0.037mg/m<sup>3</sup> and 0.035mg/m<sup>3</sup> respectively and all of them met Grade II national ambient air quality standard. The comparison with the year 2011 indicates a drop of 3.2% and 2.6% for the concentration of PM<sub>10</sub> and SO<sub>2</sub> and a up of 9.4% for the concentration of NO<sub>2</sub>. (see Figure 5).

The ambient air quality in the 40 districts/counties and economic development zone met Grade II national standard, a rise of 4 compared with that of the year 2011. The concentration of key air pollutants in the mentioned 40 districts /counties is shown in Table 1.

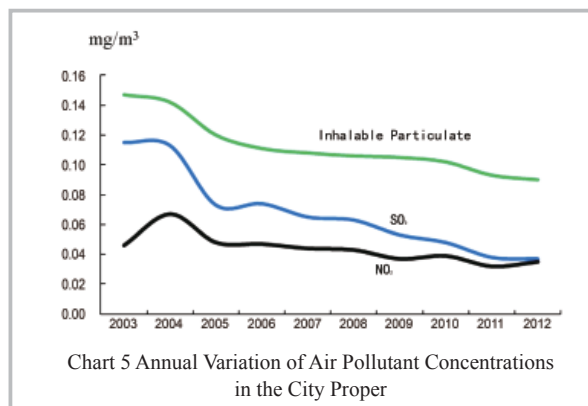
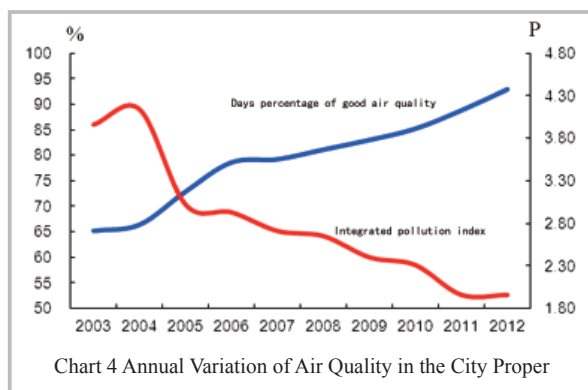


Table 1、Concentration of Key Air Pollutants in 40 Districts/ Counties and Economic Development Zone (mg/m<sup>3</sup>)

districts	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	区县	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>
WanZhou	0.082	0.023	0.044	Rong Chang	0.085	0.032	0.033
Qian Jiang	0.082	0.037	0.019	Bi Shan	0.085	0.041	0.044
Huling	0.078	0.055	0.042	Liang Ping	0.077	0.019	0.020
YuZhong	0.092	0.038	0.041	Cheng Kou	0.054	0.047	0.020
DaDu Kou	0.085	0.039	0.038	Feng Du	0.094	0.049	0.052
Jiang Bei	0.092	0.034	0.031	Dian Jiang	0.096	0.019	0.028
ShaPingBa	0.097	0.032	0.040	Wu Long	0.071	0.030	0.026
JiuLong Po	0.096	0.042	0.034	Zhong Xian	0.090	0.033	0.037
Nanan	0.086	0.043	0.030	Kai Xian	0.097	0.019	0.037
Bei Bei	0.082	0.032	0.029	YunYang	0.075	0.013	0.031
YU Bei	0.088	0.031	0.035	Feng Jie	0.092	0.016	0.028
BaNan	0.085	0.043	0.042	Wu Shan	0.081	0.016	0.024
Chang Shou	0.099	0.044	0.030	Wu Xi	0.089	0.010	0.024
JiangJin	0.083	0.046	0.042	Shi Zhu	0.070	0.030	0.026
HeChuan	0.085	0.048	0.039	Xiu Shan	0.050	0.038	0.014
Yong Chuan	0.090	0.044	0.051	You Yang	0.066	0.020	0.024
Na Chuan	0.067	0.056	0.032	Peng Shui	0.078	0.037	0.023
Qi Jiang	0.066	0.052	0.024	BeiBuXinQu	0.089	0.030	0.037
Da Zu	0.067	0.025	0.013	*WanSheng Sheng	0.084	0.086	0.034
TongNan county	0.070	0.027	0.021	ShuangQiao	0.072	0.037	0.027
TongLiang	0.056	0.039	0.033				

Notes: 1. Grade II national standard (GB3095-1996) : the annual average of SO<sub>2</sub> ≤ 0.06 mg/m<sup>3</sup>, the annual average of NO<sub>2</sub> ≤ 0.08 mg/m<sup>3</sup>, the annual average of PM<sub>10</sub> ≤ 0.1 mg/m<sup>3</sup>

2. \* means the district or county failed to meet Grade II national ambient air quality standard.



### Acid Rain

The frequency of acid rain was 52.9, with the pH value range between 2.79~8.32 and the average pH value of 4.71. Compared with that of the year 2011, the frequency decreased by 1.6% while the average pH value increased by 0.13, in which the acid rain frequency in acid rain control area was 65.7%, with the pH value range between 2.79~8.07, and the average pH value of 4.57. The comparison results with the year 2011 indicate a 1.1% rise of acid rain frequency and 0.12 rise of average pH value for precipitation. The acid rain frequency in non acid rain control area is 33.9%, with the pH value range between 3.57~8.32 for precipitation and the average pH value of 5.14, a 6.2% drop for acid rain frequency and a rise of 0.40 for precipitation, based on the comparison with that of the year 2011.

### Emission of Pollutants

A total of 564800 t SO<sub>2</sub> emissions was generated in the whole municipality, in which 509800 t was from industrials and 55000 t was from domestics and others. A total of 382700 t NO<sub>x</sub> emissions was generated, in which 272100 t was from industrials, 106100 t was from motor vehicles and 4500 t was from domestics and others. A total of 182300 t dust emissions was generated, in which 166100 t was from industrials, 9100 t was from domestics and others and 7000 t was from motor vehicles.

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## Measure and Actions

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The first measure was given to expansion of Coal-Burning Pollution Control, Non-Coal Area and Little-Coal Area. In 2012, an accumulated 634 non-coal communities are available in the metropolitan area with an area of 592.71 square kilometers in which 348.63 square kilometers are located in Sha Ping Ba, Da Du Kou and Nanan districts. By the year of 2012, accumulated 950 non-coal communities are available in the whole city with an area of 1061.71 square kilometers.

The second measure was given to the enhancement of trail dust pollution control. An establishment of trail dust pollution control was demonstrated with 29 trial construction sites and 30 trial streets. According to

“Working Plans on Trail Dust Pollution Control in the Metropolitan Area”, special inspections were given to construction sites, slag trucks, slag landfill sites and stone docks along the river banks followed by monitoring on all construction sites, media exposure of violations, inclusion of violations in credit rating assessment, a joint law enforcement action for trail dust control in spring and winter and the clearly-banned fire works area in Chinese New Year. An early warning on ambient air quality launched in the 6 districts of the metropolitan area with a total of 11 times. “Blue Sky Action” and artificial rainfall have been continued.

The third measure was given to the enhancement of motor vehicle emission prevention and control. In 2012, the registered vehicle population reached 38.6 million units, in which 16.0 million units are automobiles and 2.26 million units are motorcycles, up 13.0% to that of 2011. NO<sub>x</sub> emission from motor vehicles equated to 106000 t, a rise of 2.1% compared with that of the year 2011. In 2012, strengthened effective measures were given to the routine test and environmental labeling of vehicles as well as the elimination of old vehicles. The whole year saw a total of 73300 motor vehicles for test, a ratio of 91.4% (including test-free vehicles at this year) for environmental test, with an accumulated environmental labels of 94700 (66600 labels are yellow-colored, and 88000 labels are green-colored). A total of 36800 old vehicles were eliminated in the whole city. Road-on test for vehicles and the deadline rectification for over emission standard vehicles was facilitated with 47000 petrol vehicles tested (91.8% passed) and 15550 diesel vehicles (81.9% passed) and 5385 notices for deadline rectification. A special action on black smoke vehicles was jointly conducted with a total of 10100 inspected units involving the metropolitan area and 4 affected areas of the “Initiative” (He Chuan, Jiang Jin, Bi Shan and Changshou) in 2012. Vehicles demonstration with energy saving and new energy promoted, covering 531 electric buses, 25 taxis, 320 state-financed cars and 700 private cars, together with a completed construction of 100 AC charge stakes and 2 standard charge stations of 10 million investment.



# Acoustic Environment

## State

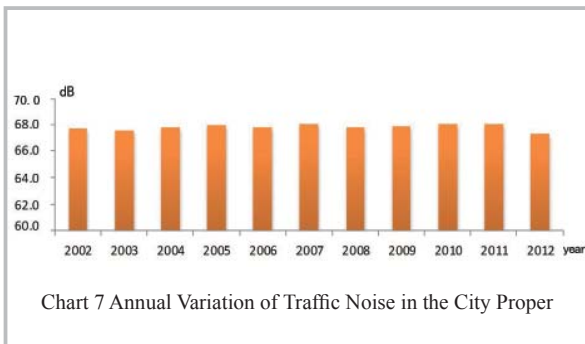
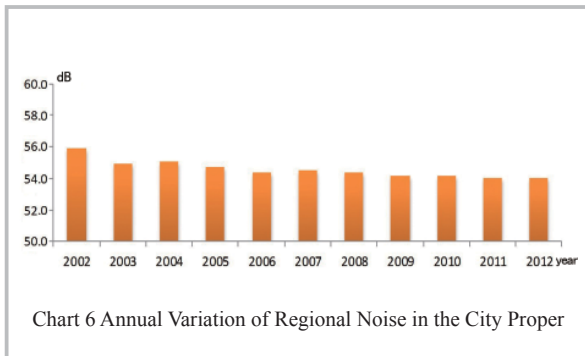
The metropolitan area saw the same acoustic environmental quality as the year 2011, with the average noise value for 54.0 db (fairly good by quality) and 96% standard-met rate of grid noise. The average value for traffic noise was 67.2 db (fairly good by quality), a drop of 0.8db compared with that of the year 2011. The equivalent sound level for daytime in type 1~4 functional zones ranged 50.6 db, 52.0db, 52.9db and 62.2db while the equivalent sound level for night time ranged between 45.2db, 45.6db, 47.5db and 57.9db. A variation of the acoustic environmental quality in the metropolitan area is shown in Figure 6 and Figure 7.

The average environmental noise values in districts/counties and economic development zones was 53.2db (fairly good by quality), with a drop of 0.3 db based on the year 2011 and 94.4% standard-met rate of grid noise. The average value of road traffic noise was 66.0 db (fairly good by quality), a rise of

0.2 db based on the year 2011, while the length ratio of main communication lines over 70 db was 6.0%. The equivalent sound level for daytime in type 1~4 functional zones ranged between 49.8db, 51.5db, 55.4d and 59.0db while 41.5db, 44.1db, 48.3db and 51.0db were observed for night time. A monitoring results for regional environmental noise and traffic noise in the districts/counties and economic zones is shown in Table 2.

Table 2 Monitoring Results for Regional Environmental Noise and Traffic Noise in the Districts/Counties and Economic Development Zones(db)

District	Regional environmental noise	Traffic noise	Counties	Regional environmental noise	Traffic noise
Wan Zhou	51.8	66.9	Yong Chang	55.5	64.1
Qian Jiang	52.6	63.4	Bi Shan	52.1	65.3
Huling	54.6	67.1	Liang Ping	54.1	64.4
Yu Zhong	56.9	68.7	Cheng Kou	49.2	65.5
DaDuKou	52.2	66.9	Feng Du	53.5	67.0
Jiang Bei	55.3	67.2	Dian Jiang	53.0	65.5
Sha Ping Ba	53.0	66.9	Wu Long	55.7	67.1
JiuLong Po	54.7	66.5	ZhognXian	50.7	64.4
Nanan	54.3	67.2	Kai Xian	54.8	67.5
Bei Bei	54.6	66.1	Yu Yang	52.1	63.2
Yu Bei	54.1	67.1	Feng Jie	54.6	67.1
BaNan	54.4	65.3	Wu Shan	54.6	67.8
Chang Shou	49.9	66.0	Wu Xi	54.5	63.5
Jiang Jin	53.0	65.5	Shi Zhu	54.9	65.5
He Chuan	54.5	66.0	You Shan	53.7	65.1
Yong Chuan	54.1	67.7	You yang	58.7	68.5
Nan Chuan	54.8	67.3	Peng shui	53.8	67.4
Qi Jiang	53.3	65.2	BeiBuXin Qu	52.1	68.0
Da Zu	53.8	65.0	Wan Shen	53.9	65.9
Tong Nan	54.5	67.3	Shuang Qiao	53.5	62.8
Tongliang	54.4	64.4			



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## Measures and Action

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Firstly, an integrated noise management was strengthened and the amended “Chongqing Measures on Noise Pollution Prevention and Control” furthered the noise management for construction sites, traffic and society life; secondly, industrial noise pollution prevention and control was intensified through the rectification of 4 noise polluters, resettlement of 7 noise polluters; thirdly, special rectification actions were given to noise

pollution from construction sites and traffics with the beep ban extension to 201 roads in the metropolitan area; fourthly, construction of noise protection barriers were constructed in the metropolitan area with an additional 979 m in 9 road sections; fifthly, a special action was conducted during the national entrance examination to the universities; sixthly, 15 quiet residential areas were newly-constructed with an accumulated 198 areas. The newly-constructed area meeting acoustic standard amounted to 114 square kilometers, resulting in a total of 968 square kilometers and a coverage of 85.2%.

## Solid Wastes and hazardous Wastes

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### State

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The generated industrial solid wastes amounted to 31.1489 million t in which 25.6902 million t was comprehensively utilized (including utilized wastes of 316200 t stored in the previous years) 4.7538 million t was disposed (including the disposal quantity of 2000 t stored in the previous years), 974500 t was stored and 46900 t was discarded, with a utilization rate of 96.8%. The amount of hazardous wastes reached 490300 t, in which 371800 t was comprehensively utilized, 118000 t was disposed and 500 t was stored.

52 municipal solid waste treatment plants in the whole city have been constructed, with a designed capacity of 13700 t/day. 5.22 million t municipal domestic wastes were hazard-free treated by a rate of 86.0%.

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### Measures and Actions

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Firstly, transfer approval system for solid wastes and manifest system for hazardous wastes was strictly enforced together with a stringent business license approval and supervision. Secondly, the construction of centralized solid wastes treatment facilities was promoted, followed by the operation of Chang Shou and Qian Jiang treatment facilities for medical wastes, the completion and acceptance of environmental protection for the centralized

industrial solid waste treatment site in Chang Shou Industrial Park, the promotion of Chang Shou hazardous wastes treatment site, acceptance of environmental protection for hazardous wastes treatment sites in the metropolitan area and medical wastes treatment sites in WanZhou. Thirdly, an investigation trial was completed for POPs inventory and environmental situation for manufacturing chemicals and supervision for hazardous chemicals and environmental situation of toxic chemical imports and exports was carried out. Fourthly, disposal capacity building for domestic wastes was upgraded, indicated by the completion and operation of Feng Shen incinerator as well as the completion and operation projects in terms of leachate from garbage treatment, sludge treatment and fly ash disposal from incinerators. Fifthly, the qualitative assessment for environmental risk of 19 contaminated sites due to the resettlement of polluters and the land remediation for 6 contaminated sites was finalized accompanied by remediation technology researches on contaminated sites. Sixthly, the rectification work for the left-over slag sites for heavy metals was fully started with the formulation of rectification plans for 11 slag sites. Seventhly, further efforts were given to the rectification of lead storage battery sector, waste plastic utilization sector and fumaric acids manufacturers using phthalic anhydride effluent.

## Radiation Environment

### State

The radiation environmental quality was fairly good. The average value of  $\gamma$  radiation dose rate on the environmental terrestrial surface was 66.6nGy/h (deducting response value of cosmic rays) (see Figure 8). The ambient electromagnetic radiation level in the metropolitan area was low and the radiation indicators from the soil, Chongqing section of "Three Rivers" and tap water in the most metropolitan area.

There were 118 radiation application institutions with 1630 in-use radiation sources, 270 institutions with 37295 in-use electromagnetic radiation equipments which include 321 transformer stations with more than 110 KV, 920 lines of electric transmission and 35381 sets for communications, radars and base stations.

### Measures and Actions

The key measures and actions were followed by: 1) strict enforcement of EIA and "Three Simultaneous System" for radiation-based projects. EIA for more than 183 construction projects have been approved, in which 137

projects have been finally accepted, 329 cases for transfer approval and transform record were processed; 2) an improved regulation on radiation safety permit with a total of 87 permits issued and a rate of 100%; 3) an enhanced regulation on key radiation source management, including a routine inspection to 37 municipal key polluters, the issue of 36 deadline rectification notices, take-over of 77 old radiation sources and 2.07 kg radiation wastes and removal of potential radiations; 4) successful implementation of radiation environmental monitoring work, covering monitoring of  $\gamma$  radiation dose rate, radon concentration, cumulative dose of  $\gamma$  radiation (11 of them is nationally-controlled sites), electromagnetic radiation (2 of them is the nationally-controlled sites) for 26 terrestrial radiation monitoring sites, sampling and analysis of 19 soil monitoring sites (6 of them is the nationally-controlled sites), sampling and analysis of 12 water samples in the upstream and downstream of the Yangtze in the metropolitan area and reservoir area (4 of them is nationally-controlled) and analysis of one water sample for drinking water sources.

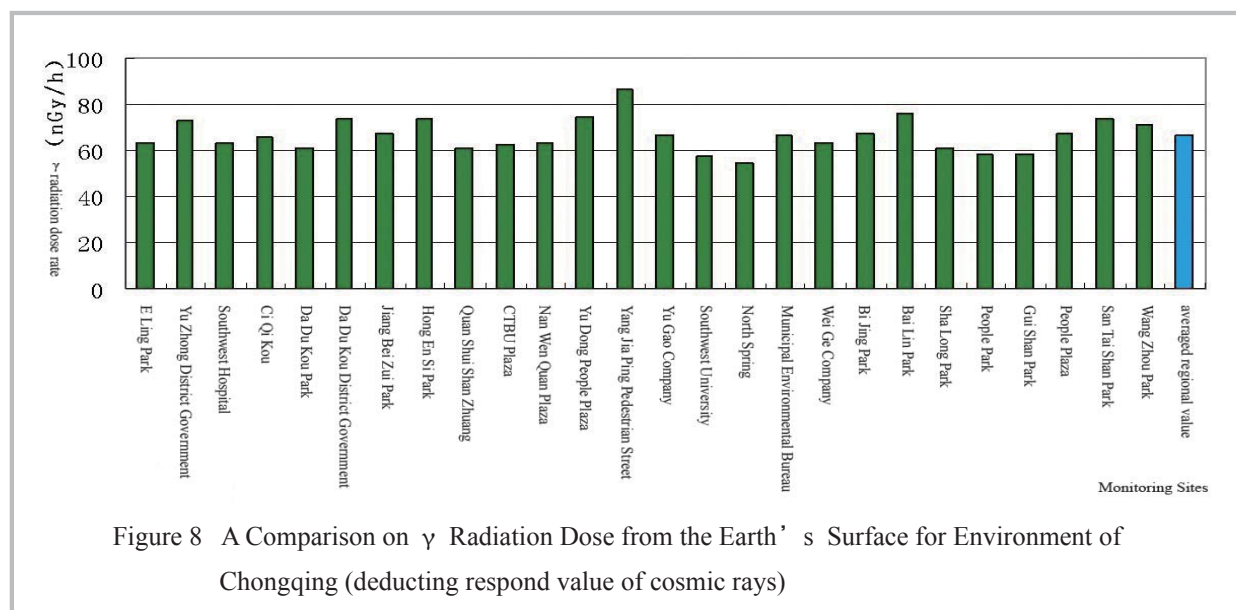


Figure 8 A Comparison on  $\gamma$  Radiation Dose from the Earth's Surface for Environment of Chongqing (deducting response value of cosmic rays)

## Landscaping

### State

In the built-up area of the municipality, there is an area of 52199 ha for landscaping space, 24488 ha for park green space, with a landscaping coverage of 57122 ha. The green coverage rate is 41.1% and the gree space rate is 37.6%, with a public green space of 17.1 m<sup>2</sup> per capita.

In the build-up area of the metropolitan , there is area of 26244 ha for landscaping space,11968 ha for park green space, with a landscaping coverage of 29041 ha. The green coverage rate in the metropolitan is 40.1%, with a public green space of 17.79 m<sup>2</sup> per capita( temporary residents included).

### Measures and Actions

The measures and actions were followed by construction of urban landscaping with focus on streets, joints, city gardens and communities, innovated landscaping management and maintenance, strengthened law enforcement for landscaping, launch of building the landscaping model, regulation improvement of parks, organization of the 20th spring flower show, the third lotus flow show and the 16th chrysanthemum show .

## Forest and Grassland

### State

The municipality has an area of 4.3282 million ha forestland , an area of 3.4712 million ha forest, a forest coverage of 42.1% and a total standing stock volume of 190 million m<sup>3</sup>.

The municipality has an area of 2.155 million ha natural grassland, accounting for 26.2% of the total municipal area in which grassland use area is 1.842 million ha.

The municipal has a soil erosion area of 4000 square kilometers, accounting for 48.6% of the total municipal area. The average soil erosion modulus is 3642t/km<sup>2</sup>/y and the total erosion quantity is 146 million t/y.

### Measures and Actions

The year saw a steady progress of integrated urban and rural landscaping. The achievements have been shown by the forest construction of 4.034 million mu,( the newly-planted 2.888 million mu and renovated 1.146 million mu). By the end of the year 2012, an accumulated forestation of 22.12 million mu was completed with the availability of 80 municipal level forest parks and 25 national level parks.

An accumulated fund of 2.216 billion yuan was invested in conservation of water and soil, resulted in control of soil erosion area of 1675 square kilometers.



## Arable and Agro-Ecology

### State

The environmental quality in high grade farm products bases is fairly good. In 2012, 17 demonstration counties for standardization agricultural activities were newly-constructed, which lead to an area of 9.70 million mu. About 263 products were newly-certified for green food product standard, which accumulated to 2870, up by 5% compared with that of the year 2011.

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 significant. There were 15.243 million pig herds and 20.50 million sold from the farm, 1.305 million cattle herds and 549000 sold from the farm, 1.811 million goat herds and 2.124 million sold from the farm, 130 million poultry herds and 2.2 million sold from the farm, 16.148 million rabbit herds and 41.16 million sold from the farm.

A total of 960000 t chemical fertilizers was consumed in 2012 (nitrogen fertilizer was 502000 t, phosphorous was 182000 t, potassic fertilizer was 56000 t and synthetic fertilizer was 21400 t) with a fertilizer application of 411 kg/ha, while farm membrane and pesticide were consumed by 41000t and 19000 t respectively.

174 land rectification for database management were involved in the countryside of the whole city, with a n area of 44700 ha and an estimated investment of 840 million yuan, resulting in a predicated new cultivation land area of 5000 ha.. 188 land rectification projects

( included the transferred project from the last year) in the countryside was checked and accepted, with an area of 48000 ha and a new cultivation land area of 8600 ha. In the accepted projects, 182 of them was related to the balance between land possession and land supplement, resulting in additional cultivation land of 8000ha.

### Measures and Action

Methane gas was greatly developed. The whole saw new methane gas users of 100000 farmer' s households, with an accumulated households of 1.53 million, accounting for 59.7%. A continuous promotion was given to the construction of rural cleaner scheme which included 10 new trial villages, construction of countryside, clean homeland and clean public facilities. A survey on 8 invasive species such as alternanthera philoxeroide and mikania micrantha was organized since an area of 479000 ha was attacked by the invasive species. The "2011 Chongqing Prevention Plan on Invasive Species" was formulated. A destruction was given to 13000 ha for alternanthera philoxeroid, 14000 ha for mikania micrantha , 24000 ha for water hyacinth and 100 ha for eupatorium adenophorum. A survey was also offered to wild origins and wild orchid for database establishment. Great efforts were also given to the prevention and control of agricultural non-point source, implementation of an stricter protection system for cultivated land and construction of 120 mu high standard capital farmland.

## Nature Reserves and Biodiversity

### State

The whole municipality has a total of 58 nature reserves, with an area of 8755 square kilometers, accounting for 10.6% of the total municipal area, in which, 6 are the national level nature reserves and 9 are the municipal level nature reserves.

There are 36 famous scenic spots with an area of 4972.01 square kilometers, in which, 7 are the national level scenic spots and 29 are the municipal level scenic spots.

There are 5890 species for wild vascular plants(comparison from the updated international

species resources database and partial adjustment system) followed by China-owned 498 species, endangered 59 plants, threatened 355 plants, 180 species listed in “Convention on International Trade in Endangered Plants and Animals”, 9 species listed in the national Grade I plant conservation, 46 species listed in the national Grade II conservation plants. There are 866 vertebrates and 4368 invertebrates, in which, 206 species are specially-owned in China, 8 species are in the list of the national Grade I conservation species and 16 species are in the list of the national Grade II conservation species, 27 species are in the IUCN red list for global endangered wild animals. More than 500 large-sized fungi are also available.

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### Measures and Actions

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The main measures and actions were followed by the implementation of “Chongqing Strategy and Action Plan on Biodiversity Conservation”, local conservation improvement of biodiversity in nature reserves, a baseline investigation on scope, boundary and function area verification of nature reserves in the whole city, updating of basic data and information for nature reserves, the enhanced review and supervision on the development activities related to nature reserves, a fund input of 30.20 million yuan for ecological capacity building of nature reserves, distribution of “Opinions on Enhancement of Nature Reserves Management in Forestry System” and “Implementation Plan on Conservation and Rescue Scheme for Small Species Populations”.

## Climate and Natural Disasters

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### State

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#### Climate

The year 2012 saw an annual average temperature of 17.1, 0.4°C lower than that of the normal year, the first consecutive year with lower-than normal temperature since 2001. The average precipitation in 2012 recorded 1069mm, close to the normal years. The average sunlight hours amounted to 947 hours, 20% less than historic average. There were less droughts and low temperature days with storms and high temperature close to the normal year and more frequency of consecutive rainy days. Climate-based disasters were moderate, less heavy than that in 2011.

#### Natural Disasters

In 2012, the city frequently suffered from rainstorm and flood, wind and hail, landslides, rock slide, drought and insect pests. The statistics indicates the affected people of 7.8983 million,

the death(missing) of 36, the resettled people of 54700, the suffered cropland of 4.0595 ha (no gains in the 45.17 ha) and the collapsed houses of 37400 and the resulted direct economic loss of 5.6 billion yuan.

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### Measures and Actions

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The measures and actions included 58 periodic editions for climate analysis with the weather change, 21 times artificial intervention on weather, arrangement of 104 rockets, operation of 590 rocket bombs and transmission of short messages related to “Blue Sky Action”, which made good contributions to the completion of the blue sky objectives.

About 499 million yuan financial aid was offered to the victims, combined with 56400 bedquilts, 4700 tents and 3000 cotton overcoats 3000. The belief cover about 2.90 million person-times and rebuilding of 35900 collapsed farmer houses

## Special Topics

### Total Emission Reduction of Key Pollutants

The basic principals in controlling total emission reduction of key pollutants are characterized by environmental resources allocation by price, environmental quality as the driver of total emission reduction and three systems (legal system, institutional system and mechanism) of total emission reduction. The great efforts were given to closure of small paper mills and small cement plants, implementation denitrification projects of cement plants, construction of sewer pipes and town-based sewage plants, pollution control of livestock farming, NO<sub>x</sub> emission reduction for motor vehicles. A total of 1181 emission reduction projects have been finalized. The national check results indicate emissions of SO<sub>2</sub>, NO<sub>x</sub>, COD and ammonia nitrogen decreased by 3.77%、4.96%、3.35% and 2.98% respectively compared with that of the year 2011.

### Construction of Environmental Legal System

The amended “Chongqing Noise Prevention and Control Measures” and “Chongqing Dust Pollution Prevention and Control Measures” were enacted together with the formulation of “Chongqing Integrated Air Emission Standard” (DB 50/418-2012) and “Key Water Pollutants Discharge Standard in Chongqing Chemical Industrial Park” (DB 50/457-2012). Other activities included the promotion of law-based administration for environmental protection, liability system in administrative enforcement of law, the regulation and strengthening of administrative enforcement of environmental law and the enhancement of administrative review. A trial on centralized process of legal cases related to environmental protection and environmental pollution damage assessment has been promoted.

### Management of Environmental Emergency Response

“2012 Chongqing Training Program on Environmental Emergency Response Team” and “Chongqing 12th Five-Year Plan on Capacity Building of Environmental Emergency Response” were formulated. Environmental contingency command system in the municipal environmental bureau and 9 districts in the metropolitan area were upgraded. A joint contingency mechanism was signed among the municipal/local environmental administrations, police bureaus and the fire control departments. The Municipal Environmental Bureau signed Framework Agreement on Shared Responsibilities for Environmental Pollution and Emergency in HuJiang Watershed” with Tong Nan county of Chongqing and XuLing city of Sichuan province. The research titled “A Contingency Plan on Sudden Transboundary Water Pollution” was finalized. Other activities included the availability of 1134 contingency plans, the practices of environmental emergency response by 38 districts/counties, a joint practice of 2012 environmental emergency response between the municipal environmental protection bureau and Qian Jiang district government, “2012 Chongqing Integrated Practice on Accidents and Disasters” attended by the municipal environmental emergency response team. About 3307 law enforcement officers were dispatched to inspect the relevant companies, tailing storehouse and oil depots with potential environmental risks along the rivers/reservoirs. There were 25 general sudden environmental accidents with no significant environmental accidents.

## Management of EIA

A mechanism that enables environmental administration to be involved in an integrated policy-decision has been further improved through the formulated “Decisions on Further Strengthening of Environmental Protection” ( Document No 2012(4)) and the amended “ Regulation on Environmental Access Conditions of Industrial Projects in Chongqing” . SEA was promoted with great efforts . SEA was conducted 19 plans of “12th Five-Year Plan” based on “the 12th Five-Year Plan on Electronic Information Manufacturing Industry” and 72 special plans based on “Detailed Plan on New Northern Zone” , “You Yang Industrial Park Plan” and “Development and Utilization Plan of Long He Watershed , which demonstrated its role in optimizing economic development.. Optimization of EIA for projects were also followed with a total of 5617 projects, a total of 530.5 billion yuan investment, offering good contribution to the construction of economy and the society. Furthermore, a stringent environmental access system was adopted to assure double win of economic development and environmental protection, with no approval or delayed approval 100 projects and an involvement of 10.0 billion yuan investment.

## Prevention and Control of Heavy Metal Pollution

An overall training in prevention and control of heavy metal pollution was conducted together with the formulation of “2012 Annual Implementation Plan on prevention and Control of Heavy Metal and Pollution” and the edition of “Integrated Prevention and Control Brochure for Heavy Metals” .

The other related activities included a stringent restriction on new industrial projects with heavy metal pollution in the Chongqing metropolitan section of the Yangtze and Jialing river, a continuous special rectification action on heavy metal pollution involving in law enforcement officers of 12000 person-times and closure or production transfer of 110 companies(workshops), the rectification completion of 14000 t heavy metal slag remained in HuLing and risk assessment of 11 heavy metal slag sites remained in Qi Jiang, Shi Zhu, Wu Long and Xiu Shan. The health risk assessment of in the key control areas for heavy metal pollution was carried out continuously to effectively prevent the public from heavy metal pollution .

## Rural Environmental Improvement

The rural environment has been greatly improved by the demonstrated project of the clustered environmental rectification (covering an accumulated 428 administrative villages of 19 districts/counties such as Wan Zhou and HuLing), extension of demonstration projects to 196 administrative villages in Ban Nan, Chang Shou and other 16 districts/ counties , and the establishment of one national level eco-town , two municipal level eco-counties, 4 municipal level eco-towns and 30 municipal level eco-villages.



## Special Environmental Protection Action

In 2012, a steering group consisting of 14 municipal departments led by the Municipal Environmental Bureau, the Municipal Development and Reform Commission, the Municipal Economic and Information Commission and the Municipal Supervision Bureau was set up to take special action on violation rectification of polluters and assurance of the public health. The priority inspections of special environmental protection actions in which 26000 person-times law enforcement officers, 163 violations and 11300 companies were involved, was given to heavy metal polluters, hazardous wastes generation or disposal companies and key polluters. Relevant environmental information of 115 heavy metal polluters, 137 town-based sewage plants and effluent treatment plants in industrial parks was open to the public. No heavy metal pollution accident occurred for the whole year.

## Institutional Capacity Building within Environmental Administration System

In 2012, the environmental supervision and management capacity was further improved through the operation of newly-established local environmental protection branches in Liang Jiang new zone, Changshou economic development zone, Wan Sheng, SuangQiang as well as the environmental offices in villages (streets) of New Northern Zone, Cheng Kou. Chongqing Environmental Emergency and Accident Investigation Center was also set up, located together with Chongqing Environmental Supervision General Group. The municipal capacity building of environmental communication and education and environmental information took the lead in passing the national acceptance for standardization while 9 districts in the metropolitan area passed the municipal acceptance. The authorized staff number within the municipal environmental protection system extended to 3224 with over one thousand staff engaged in environmental supervision and environmental monitoring.

## Image Construction of Environmental Team

Image construction of environmental team in 2012 was followed by 1) good achievement in local party building characterized by oriented contact mechanism among the party branches and among districts/counties, training courses for party cadres, construction of "Five Goods" local party branch. an award from the municipal party committee for local party branch and a nationally-awarded good environmental service window, 2) a further consolidation of staff team characterized by 37 training courses with 1700 person-times, basic coverage of staff training, the actual competition of environmental supervision, 10 competitions on EIA and normalization of staff quality improvement through competition, 3) a further improvement of team working style characterized by a sound supervision system for environmental engineering projects, an improved face-to face guidance mechanism to the local branches, an enhanced entire work arrangement, minimization of documents and telemessages and meetings, 4) a well-improved punishment and prevention system characterized by incorruptible evaluation of 20 systems, review of the main 47 functions and powers based on 8 environmental protection system, investigation of 131 incorruptible risks, proposal of 156 prevention measures and clean-up of 96 systems.

## Environmental Communication and Education

In 2012, based on the opportunities of the “Initiative”, an environmental communication and education system involving all the people was formed. More than 60 “Initiative” topics(columns) were available in 10 types of media. Some organized activities included 70 new release meetings, 200 times media interviews, 800 papers, 70000 environmental news in the media, 80 periodic editions through mobile phone with 5000 messages distributed. About 10 districts and counties such as Bei Bei and Ba Na also send environmental protection message through mobile phone, with a coverage of 10 million person-times. Official micro-blogs of “Chongqing Environmental Protection” website distributed over 11000 message and open 10 direct broadcasts, which attracts 50000 fans. Furthermore, great achievements were displayed by enhanced watchdog on the public’s voice in internet, 200 predicated great and sensitive complaints, the distribution of 1000 brochures, 60000 slogans, 8000 public service advertisements, a joint municipal communication activity for “6.5 World Environmental Day” ceremony, selection of green family, photographing and handwriting competition on “Initiative”, further promotion for environmental protection training in the Party schools and environmental protection education publicity in the primary and secondary schools with a rate of over 85%.

## Charged Use and Trading of Key Pollutant Permit

Charged use and trading of key pollutant permit was steadily carried out in 2012. The reserved pollutant quota from total emission control offered opportunities for the emission of the new projects. A trial on trading of SO<sub>2</sub> quota was launched, covering 78 companies that totally paid 2.2754 million yuan and obtained a permit of 2331.3 t SO<sub>2</sub> emission. The whole year saw a 179 deals of key pollutant, resulted in a total sum of 15.717 million yuan, in which, 122 deals for COD with a total emission trading of 803 t and a sum of 9.3163 million yuan, 57 deals for SO<sub>2</sub> with a total emission quantity of 659 t and a sum of 5.7555 million yuan.

## Environmental Informatization

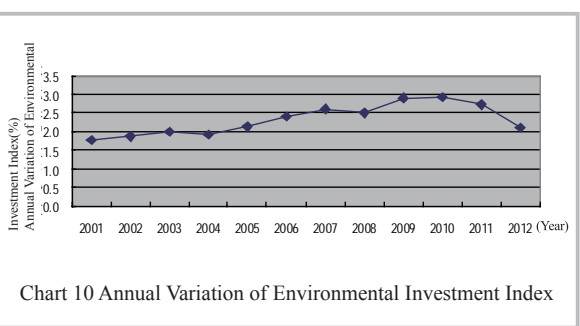
In 2012, the municipal work involved in the national capacity building project for environmental information and statistics was completed and approved. The city has achieved real-time exchange of environmental statistics and on-line monitoring data among the national, provincial and the municipal level. Management information system for EIA “Three Simultaneous” system was applied to process 13000 cases. 12369 environmental emergency response system was intelligently-updated, formed as a emergency support platform “Close to front-line, close to on-site and close to practical situation”

## International Exchange and Cooperation

International cooperation on environmental protection made positive progress, which included the completion of the annual official visiting plan to foreign countries and receptions for foreigner partners, establishment of friendly partnership with environmental institutions of more than ten countries(such as USA, England and France), the succeeded undertaker application of Sino-Nordic environmental cooperation project, the succeeded application of special guarantee fund of 5.0 billion yuan from the state development bank as the whole credit facilities and. One preventative from Chongqing attended the eleventh signature party meeting of the United States on “ The Convention on Biological Diversity”

## Environmental Investment

The year of 2012 enjoyed a total investment of 23.236 billion yuan for environmental protection, accounting for 2.1% of the GDP at the same year(see Figure 9), in which, 17.732 billion yuan was for the construction of urban infrastructures of the municipal sewage plants, garbage treatment plants, landscape and forestation, gas engineering works, 1.263 billion yuan was for pollution control from industrials, 874 million yuan was for environmental management and scientific researches and 3.387 billion yuan was for environmental input of “Three Simultaneous” of newly-constructed projects.



## Environmental Performance Assessment of Top 1 Governor

Environmental Performance Assessment Steering Group for Top 1 Governor conducted the assessment to top 1 governors of all districts/counties, economic development zones, the relevant municipal departments and some state-owned companies, and concluded that the environmental performance of all districts/ counties, New Northern Zone, Wan Sheng Economic Development Zone and other 36 municipal departments and companies were good. Among them, the first prize was awarded to Yu Zhong, DaDuKou, Jiang Bei, ShaPingBa, JiuLongPo, Nanan, Bei Bei, Yu Bei, BaNan, Jiang Jin, He Chuan, NanChuan, Bi Shan, WuLong, KaiXian, YunYang and New Northern Zone and the second prize was awarded to Wan Zhou, HuLing, YongChuan, Cheng Kou, Feng Jie, Wu Shan, Shi Zhu and other 2.

## Investigation on the Public's Satisfaction Rate About Environmental Protection

A professional investigation organization was commissioned to obtain the public's satisfaction about urban environmental protection in 2012 based on the collection data in the 9 fields of ambient air quality, ambient water quality, sanitation and others. The findings indicate the satisfaction rate from the public was 82.9% for the whole municipality and 81.06% for the metropolitan area. The detailed satisfaction rate for individual districts and counties is presented in Table 3.

Table 3 Satisfaction Rate on Environmental Protection from the Public for Individual Districts/Counties and Economic Zones (%)

Districts and Counties	Satisfaction Rate	Districts and Counties	Satisfaction Rate
Wan Zhou	79.58	Tong Liang	77.89
Qian Jiang	80.98	Rong Chang	80.93
Huling	79.39	BiShan	86.85
Yu Zhong	81.01	Liang ping	84.81
DaDu Kou	81.08	ChengKou	86.38
Jiang Bei	80.57	Feng Du	82.92
ShaPing Ba	79.04	Dian Jiang	79.63
Jiu Long Po	78.39	Wu Long	88.34
Nanan	80.32	Zhong Xian	85.78
Bei Bei	82.75	KaiXian	82.53
Yu Bei	84.24	YunYang	87.59
BaNan	82.25	Feng Jie	84.19
Chang Shou	80.01	WuShan	85.08
Jiang jin	80.64	WuXi	85.38
He Chuang	80.09	ShiZhu	84.54
Yong Chuan	80.15	XiuShan	80.02
Nana Chuan	87.24	YouYang	83.86
QiJiang	77.46	PengShui	82.39
Da Zu		New Northern Zone	81.06
(including Shuang	75.86	Wan Shen Economic	
Qiao Economic Zone)		Development Zone	82.28
Tong Nan	80.15		



# June 5th World Environment Day **2013**

World Theme——THINK . EAT . SAVE

China Theme——Breath and Struggle Together

Chongqing Theme——Approach to Environment-Based  
“Five Actions” and Build a Beautiful Landscape City

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# 2012

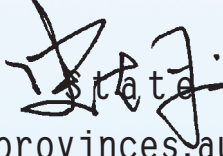
## CHONGQING MUNICIPALITY STATE OF THE ENVIRONMENT



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, governments of the provinces, autonomous regions and municipalities directly

under the Central Government shall regularly issues report on the state of the

environment," the "2012 report on the State of Environment of Chongqing Municipality" is

hereby released.

Shi Daping

Director-General  
Chongqing Environmental Protection Bureau  
May 28th, 2013



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