THE STATE OF
CHINA'S CITIES
2012/2013

IEAS

UN HABITAT
FOR A BETTER URBAN FUTURE

FOREIGN LANGUAGES PRESS

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CHINA'S CITIES
2012/2013

国际欧亚科学院中国科学中心
The China Science Center of International Eurasian Academy of Seiences

中国市长协会
China Association of Mayors

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Jiang Zhenghua

Executive Chairman, International Eurasian Academy of Sciences
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Urbanization is the inevitable trend of social and economic development, the momentum to promote further development and also an important symbol of the modernization of the country.

Since the reform and opening-up starting from 1978, China's urban residents increased by more than 500 million. Such a large scale rural-urban population movement was unprecedented, which not only changed the destiny of millions of Chinese peasants, but also became an important driving force of the rapid economic development.

In 2011, the urbanization rate in China exceeded 50% for the first time, which indicated the historical transformation of the social structure. From now on, China will be faced with big challenge in terms of overall planning for the urban and rural development, transformation of dual economic structure, realization of population migration from rural to urban areas, reasonable utilization of natural resources, enhancement of environmental protection, optimization of urban spatial layout, improvement of urban industrial structure, crossing the middle-income trap and promoting social equality and justice, etc.

Currently, China is at the new stage of rapid development. Globally, this kind of large-scale and high-speed urbanization is no parallel in history and, there is no experience we can directly apply in China as how to use the positive role of urbanization to its greatest advantages, eradicate or decrease its negative impacts and establish the urbanization pattern in conformity with the actual situations of China. China needs to define her own road map.

The Twelfth Five-Year Plan of China proposes that new ways shall be explored for the coordinated development of industrialization, urbanization and agricultural modernization with priorities focused on nurturing agriculture with industry, supporting rural areas with urban areas, bringing into full play the radiating and leading role of industrialization and urbanization for the increase of income for farmers, and strengthening the rural infrastructure and public service systems. China will rely on rapid and sustainable economic growth to create the opportunities for development and employment to the utmost, ensure the basic welfare and security for the public and the equal opportunities and impartial participation in the whole development process by the public of different social status and different social groups, and provide prospective vision and guidance to the economic and social transformation at appropriate time.

With the active support of the UN-Habitat, we compile the *English version of The State of China's Cities 2012/2013*. It will serve as an international platform to introduce and comment the urban development of China for the information of world countries. The presentation of the state, cases and data analysis of urban development in China will help the international community to share the experience and lessons, understand the urban-rural development blueprint of China more fully and objectively, and jointly seek a better and more harmonious future for the healthy development of urbanization.

I would like to strongly recommend *The State of China's Cities 2012/2013* to the readers around the world, the decision-makers of the cities, various social institutions and organizations of different fields and all our friends with their concerns over China's urban development.

August, 2012

Qiu Baoxing

Vice Minister
Ministry of Housing and Urban-rural Development
The People's Republic of China

The first English report of *The State of China's Cities 2012/2013*, as a collection of contributions from the China Science Center of International Eurasian Academy of Sciences, the China Association of Mayors and UN-Habitat released in two years ago, has received wide acclaim in the international community. The scheduled publication of this biennial report serves not only as an obligation but also an opportunity for China to provide a window for the international community to learn about urban development in China and a platform to facilitate the exchange between China and the international community.

The State of China's Cities 2012/2013 has been completed and is ready to be released. The first report made a brief and comprehensive introduction to China's urbanization, housing, environment and infrastructure, social development and urban services, urban planning and management in the past 60 years after the New China was founded. The report enabled the international community to have a general understanding of the state of urban development in China. Starting from the second version, focuses of the report will go beyond the presentation of biennial urban development through official statistics, charts and pictures to further highlight special features of urbanization with Chinese characteristics and address interested issues such as implications of "special Chinese features," and innovations, challenges and countermeasures China has undertaken in its urbanization process. In my opinion, after over half a century of uneven development and through continuous practices and lessons learned, China has entered a new path of sustainable urbanization with its characteristics such as integration and coordination of urban and rural areas, interactive development between industries and cities, saving and intensive use of natural resources, ecological and livable environment, and harmonious development. Although there is much to be done to address numerous contradictions and problems ahead, clear direction and goals have been set for China's urbanization with its own characteristics. As long as we move forward unswervingly along this path, the urbanization with Chinese characteristics will see a brighter future.

As China is the largest developing country in the world, its healthy development of urbanization with Chinese characteristics will not only help promote the sustainable development and modernization in China, but also provide valuable experience of urbanization and modernization for developing countries, and make contributions to peace and development of the world.

August 17, 2012

Dr. Joan Clos

United Nations Under-Secretary-General and
Executive Director of United Nations Human Settlements Programme

Today humanity has crossed a major historic milestone and entered a path in which cities have become the dominant habitat. The significance of the demographic and geographic transformation is quite profound for the future of humanity and the configuration and sustenance of the world as a whole.

Cities are human artifacts, shaped, steered and composed by engagements, transactions and interactions among people. They embody human creativity, vision, needs and desires, as well as tensions and compromises.

Modern cities are, unarguably, our engines of economic growth and wealth creation, as well as enduring human institutions for self-actualization through employment generation. They are configured to generate prosperity, provide opportunity, and increase access for all to the benefits accruing from urban transformation. However, when not properly managed, the manner in which this process occurs may well undermine the dynamism, equity and sustainability of the same prosperity. For instance, prosperity and poverty are now almost coterminous. Not only does poverty impede the realization of the full potential of cities, but it also weakens human agency, creating tensions and generating dysfunctions that can ultimately undermine the very basis of prosperity. While this interplay of prosperity and poverty defined in broad terms continues, human beings have to rise and find innovative solutions to all diverse challenges to their urban future.

As the foundations of the urban future are being built and consolidated, urgent steps are required to rectify past imperfections by recognizing fully that development is an evolutionary process with assignments that cannot be entirely resolved in one decade and by one agency acting alone. The urban future we envisage is one where economic growth and prosperity proceed with equity; human exploitation of the natural environment is carried on sustainably; and inequality and under-employment are attenuated by strong human-centered policies. To achieve all these, there is a need for collective response with concrete actions.

The State of China's Cities 2012/2013 is a collection of contributions from UN-Habitat, China Science Centre of International Eurasian Academy of Sciences, China Association of Mayors and Chinese Society of Urban Planning. This publication captures new initiatives taken by the central and local governments of China to make the life of rural migrants equitable to those of urban residents in terms of security of employment, education, pension, medical care and housing; build 36 million flats for low income families in cities between 2011 to 2015; consolidate institutions for disaster reduction and prevention; expand poverty reduction programmes in rural China; and build and demonstrate low-carbon and ecological cities and communities. I am convinced that these policies and practices can provide useful knowledge to many growing cities around the world as they address their own urban challenges.

August, 2012

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** The content of this Report only covers the Mainland China, does not cover Hong Kong SAR, Macau SAR and Taiwan*

Executive Summary

Cities are the crystallization of human civilization, and urbanization is an important part of modernization. Since the launching of reform and opening-up program over 30 years ago, China has quickened the pace of industrialization and urbanization, with consequential rapid urban population increases. The emergence of city clusters and central cities with strong influence and dynamism for development has boosted the stable and rapid economic development, social progress and prosperity, and remarkable improvement of people's lives.

I. Historic Urbanization Milestone

By the end of 2011, China had 657 cities with a municipal people's government. The total area of the administrative regions of the cities at various levels reached 5,216,000 square kilometers, accounting for 54.3% of China's total land mass of 9,600,000 square kilometers. The number of designated towns increased to 19,683.

The total population of Mainland China reached about 1.35 billion in 2011, increasing by 6.44 million from the previous year, with a natural growth population rate of 4.79%. The urban population amounted to 690.79 million (51.27% of the total population) - an increase of 1.32 percentage points from the end of the previous year, and there were 656.56 million rural dwellers. China's urban population therefore reached an urban majority for the first time in 2011, which was a historic change in China's demographic structure.

China's 2011 GDP was 47,156.4 billion yuan, with the proportions of the agricultural, manufacturing and service industries remaining at 10.1, 46.8, and 43.1% respectively. China's economic aggregate in the world has steadily risen and surpassed that of Japan in 2010 when China became the world's second-largest economy after the USA. The GDP per capita reached 35,083 yuan, equivalent to 5,432 US dollars when converted according to the average interest rate.

In 2011, the number of employed reached 764.20 million persons in China, including 359.14 million employed in urban areas. The registered urban unemployment rate at the end of the year was at 4.1%. The average disposal income of urban residents grew to RMB 21,810 yuan. The proportion of the average disposal income between the urban and rural residents was 3.13:1.

II. Evolution of Regional Urban-rural Spatial Arrangement

From 2000 to 2010, the spatial distribution of China's urban population further centralized and the regional imbalance became more aggravated. The urban population concentrations and industrial agglomerations have gradually started to from a spatial pattern with two horizontal axes, three vertical axes, multiple urban poles and one urban network. The two latitudinal axes refer to the two regions along Longhai Railway (Lianyungang-Lanzhou) from east to west and the middle and lower reaches of the Yangtze River. The three longitudinal axes refer to the coastal area of China, the areas along Beijing-Guangzhou and Beijing-Harbin Railways and Baotou-Kunming transportation corridors. The multiple urban poles refer to the central cities at various levels with high capacity to absorb population, high urbanization level, highly concentrated factors of production, and remarkable comprehensive competitive advantages. They also refer to the established urban agglomerations that perform the role in regional coordination and global competitiveness, including Beijing, Tianjin, Shanghai, Guangzhou, Shenzhen, Chengdu and Chongqing. The urban network refers to an interconnected system of cities that relies on regional transport corridors and includes urban agglomerations and central cities at various levels as nodes of coordinated development.

The objective of China's urbanization strategy is to purse the principles for overall planning, rational layout and improvement of urban functions, to utilize large cities to drive the development of smaller cities, to follow the objective law of urban development, to gradually establish urban agglomerations with strong regional functions by focusing on the development of small and intermediate cities around these large cities, and to promote the coordinated development of cities of all sizes. It further seeks to establish a strategic urbanization structure with urban agglomerations as its core and other urbanized areas and cities as the important components of a balanced urban hierarchy; as well as to gradually build urban agglomerations with better international competitiveness in the eastern region, and to cultivate and develop urban agglomerations in central and western regions where conditions allow.

III. Challenges 0f Rural-urban Migration Flows

The rapid development of urban economies and the transformation of rural industrial structures have promoted the large increase of domestic migration flows. In 2011, the migrant population in China reached 230 million, increasing by 8.28 million from the previous year. These rural migrant workers in the inflow cities tended to be long term and many became de facto the new urban residents. Rural migrant workers accounted for over half of the employees working in urban manufacturing and processing industry, construction industry, and service sector including sanitation, housekeeping and catering, etc.

Rural migrant workers have made important contributions to the urban development. However, they always lack sense of belonging to the cities where they work. Although they have left their rural communicates, it is still hard for them to integrate themselves into urban communities, and effectively protect their interests and rights. The welfare gap between urban residents and urban migrant workers is becoming larger.

The urban residentialization of the rural migrant workers is an important foundation to promote the healthy development of urbanization in China. Great efforts will be made to enhance the equal access to basic public services with a view to attracting rural migrant workers to settle down in urban areas, to facilitate the urban residentialization of the rural migrant workers and the orderly settlement of qualified rural migrant workers in their places of employment, to rationally guide these population flows, optimize the distribution of rural migrant workers over cities and towns, and to promote sharing of benefits of reform and urban development.

IV. Accelerated Development of Social Housing

By the end of 2010, urban residents' per capita floor space in China increased to 31.6 square meters in 2010 from 18.7 square meters in 1998. To enable most urban households to live in separate flats that conform to standards of civilization and health is one of the major targets of the Chinese government while building up a middle class society in an all-round way by 2020. The Chinese government is dedicated to establishing a social housing system with low-rent housing, public rental housing, affordable housing and fixed-price housing, whereby the low-rent housing has a social housing character; affordable housing is provided for medium- and low-income households and public rental housing and fixed-price housing for medium-income households. In this regard, the institutional improvement by governments, especially in terms of capital, land and administration, has become the key for the large-scale construction of a broad range of social housing,

From 2005 to 2010, China launched various social housing projects besides a program for the renovation of 16.3 million shanty units, and completed the construction of 11 million residential units. By the end of 2010, China had solved the housing problems for nearly 22 million urban low-income households as well as those of a number of medium and low income households by providing adequate housing. The number of households provided with social housing accounted for 9.4% of total urban households. Nearly 4 million urban low-income households received rental subsidy for low-rent housing. The construction of low-income housing has remarkably improved the housing conditions of low-income households and played an important role in promoting economic development and social harmony.

V. Resources, Environment and Urban Infrastructure

Natural resources and the environment are important components of modern urban development and management. The land and water resources are vital for urban sustainability, human settlement quality and public security. The Chinese government therefore views environmental protection as an important means to transform the economic development modes and a fundamental means to promote ecologically responsible development. However, a general trend of environmental deterioration in China is fundamentally not yet controlled and the environment conflicts are obvious with continuously greater tensions. In some key basins and coastal areas, water pollution is severe; in some regions and cities smog is a serious problem, and mission of major pollutants exceeds environmental capacity in many regions.

Urban infrastructure is an important pillar for the development and improvement of cities and the physical foundation for a coordinated economic and social development of cities. Driven by urbanization, the speed of China's urban infrastructure construction remained high. In 2010, investments in urban infrastructure amounted to 1,430.5 billion yuan, increasing by 155% compared with that in 2005; facilities for urban water supply, waste water treatment, garbage disposal, gas supply, heat supply, transportation, as well as parks and urban green space were significantly upgraded and human settlement environment was continuously improved.

VI. Urban Public Safety and Disaster Prevention and Mitigation

Urban public security usually refers to events endangering urban life and property, including natural disasters like earthquakes, floods, and landslides and accident disasters such as environmental pollution,

infectious disease, or food poisoning, but excluding social security incidents like terrorist attacks, hostage-taking, and financial crisis.

China is one of the world's worst natural disaster-prone countries, exposed with a great variety of disasters with a wide geographical coverage, high occurrence frequency and huge losses. Urban security matters therefore comprise with severe and complicated situations. At the state level, the Chinese government has consolidated the disaster prevention and mitigation and improved disaster emergency management system, which significantly enhances China's disaster prevention and mitigation capability. China has initially established a comprehensive coordination mechanism for disaster prevention, reduction and relief, which is guided by the State Council, coordinated by the Office of State Flood Control and Drought Relief Headquarters and the National Committee for Disaster Reduction, and executed by relevant departments in joint actions. At the municipal level, the development of urban comprehensive system for disaster reduction, contingency management and disaster prevention and reduction planning plays an important role in safeguarding urban public security.

Assuring urban public security not only requires contingency management for disasters, but also needs to build reasonable infrastructures for disaster reduction, establish sound urban disaster reduction systems, and make progress in the four aspects of legislation, management, technical standard and technological support.

VII. Basic Public Services in Cities

The Twelfth Five-Year Plan for the National Basic Public Service System points out that extending basic public services to all Chinese people is at the innovation core of public services development, from concept to the institution. It is an obligation of the government to assure that every citizen enjoys basic public services. The scope of basic public services generally includes those services that meet the basic needs of people's livelihood, like education, employment, social security, health care and family planning, housing security, culture and sports, and those areas that are closely connected with people's living environment, like transportation, telecommunications, public facilities and the environment, as well as those fields that safeguard the public security, like public security, consumption and national defense.

Basic social services the government will provide during the Twelfth Five-Year Plan period include the minimum subsistence allowance and special relief for the urban and rural groups experiencing financial difficulties, including life care and material assistance for foods, clothes, housing, medical care and funeral for the "five guarantees" families in rural areas; relief for people affected by natural disasters; social services for vagrants and beggars without secured urban livelihoods; welfare services for the special needs groups including the disabled, orphans and the mentally challenged etc.; basic elderly care services; favorable treatment, compensation and settlement services for various groups entitled of preferential treatment; free marriage registration services for urban and rural residents; and basic funeral services to the deceased.

VIII. Social Service System for the Elderly

The Chinese society is affected by rapid growth of the number of elderly people. In 2010, the number of people aged 60 and above reached 178 million, accounting for 13.3% of the total population. The number of people aged 65 and above reached 119 million, accounting for 8.9% of the total population.

It is predicated that, in 2020, the number of old people over 60 will increase to 243 million, accounting for 18% of the total population. The population ageing process will be accompanied with a tendency towards smaller families, and connected with inevitable complications associated with China's current economic and social transformation period. Meanwhile, the demand for elderly social care and services is growing significantly and with the proceeding acceleration of demographic ageing, the problems of elderly care are increasingly highlighted. Consequently, there is an urgent need for accelerating the establishment of elderly care service systems.

According to the Plan for the Development of Social Senior Care Service System (2011-2015), the Ministry of Civil Affairs demanded that a home-based, community-dependent and institution-supported social senior care service system be established with sound operations, excellent services, and rational regulation. The tasks shall focus on improving social security, medical and health care, household building, spiritual and cultural life, social management, and protection of the rights and interests of the elderly.

IX. Community Service and Social Assistance

Developing and improving community services system is an important precondition and guarantee for harmonious urban communities. By the end of 2011, there were 7,194 urban sub-district offices, 89,480 urban communities (neighborhood committees) and 1,340,000 residents groups in China operating 160,000 community service facilities, and 453,000 convenient service outlets. There were159,000 community volunteer service organizations and 1,089,000 persons working in the communities. There were 439,000 community committee members and 1,059,000 community public service workers. About 5,076,000 community residents became volunteers for

their communities and constituted the backbone for promoting community development and services.

In 2011, there were 11,457,000 households and 22,768,000 persons entitled to subsistence allowance in China's urban areas. The average urban subsistence allowance was RMB287.6 per person per month and the subsidy per capita for persons entitled to urban subsistence allowance was RMB240.3 per month. However, the Outline for Poverty Reduction and Development of China's Rural Areas (2011-2020) has set a new national standard for poverty alleviation at net annual income per capita level of RMB2,300 for farmers - a 92% increase compared to the standard in 2009, while the number of people entitled to poverty relief has increased to 128 million.

X. Urban Planning and Management

In support of the Urban and Rural Planning Act, the State Council released the Rules for the Revision of Urban Master Plans. The Ministry of Housing and Urban-Rural Development subsequently promulgated further regulatory documents, including the Methodologies for the Formulation and Approval of the Provincial Urban System Planning and the Methodologies for the Formulation and Approval of Detailed Control Plans on Cities and Towns, and the Notice on Strengthening the Preparation of Short-term Construction Plans of the Twelfth Five-Year Plan. In addition, the urban and rural planning standard system has gradually been improved. Standards and specifications like the Code for Classification of Urban Land Use and Planning Standards of Development Land were successively enacted, effectively promoting the preparation and technical management of urban and rural planning.

Local governments in China have explored different planning modalities, including the integration of urban and rural areas in different regions in the developed areas of eastern China, the integration of urban and rural planning and the construction of resource-saving and environment-friendly society in central China, and the coordinated development of urban and rural areas in western China. These practices are under-built with strong policies and implementation strategies. In order to build better living environment, the focus of urban and rural planning has turned from urban expansion to settlement optimization and upgrading. "Big Events" have become the success factors to promote the quality of cities.

With a service-oriented transformation of the Chinese governmental functions and increasingly rich information channels, the threshold for public participation has been lowered, effectively promoting the public participation in urban planning. Recently, multiple public participation mechanisms have been established to help safeguard community rights, which has become an important channel to promoting the building of a civil society. Improvements in participatory urban planning, enhanced government accountability system and participation of social groups and non-governmental organizations all have promoted the public involvement in urban and rural planning.

XI. Challenges and Opportunities in Urban Development

China is facing a phase of rapid and sustained urbanization over the coming 20-30 years. At the same time, the whole world is under the great pressure from climate change and for access to various resources in a deteriorating environmental context. It is hard for city development modes characterized by extensive growth to sustainably meet development demand under these conditions. Therefore, low-carbon and eco city developments have become central in addressing the impacts of climate change and leading Chinese urban development in the right direction.

In order to promote the effective implementation of measures to address climate change, the State Council incorporated energy conservation and emission reduction targets in the medium and long-term plans for economic and social development. The ministries and commissions under the central government also took corresponding initiatives for low-carbon and green activities.

The National Zoning of Major Functioning Regions, enacted in 2011, regulates the population distribution, geographic spread of economic activities, state-owned land use and urbanization patterns according to the resource and the environmental carrying capacity, current development strength and development potentials in different regions. It further clarifies the scope, function positioning, development orientation and regional policies for major functional zones.

According to the research results of China's Low-carbon and Eco Cities Development Strategy, China's urbanization level will reach 70% to 75% by 2050; the share of urban economies in the national economy will reach 90%; and the value created out of per unit of energy consumption and per unit of resource consumption will increase by 15-20 times from the 2000 level. The development of low-carbon and eco cities in China has reached an international leading level. Planning and developing low-carbon eco city now applies to different levels of cities, new development zones and plots, and reflects the direction of future urban development in China.

Chapter 1
Urbanization Process In China

Cities are the crystallization of human civilization, and urbanization is an important part of modernization. Today, urbanization is changing our world and our way of life in significant ways. The emerging economies and developing countries, with millions of people joining the urban population every day, have become the main force driving urbanization in the world.

Since the launching of reform and opening-up program over 30 years ago, China has quickened the pace of industrialization and urbanization, with urban population increasing from 170 million to some 700 million. The emergence of a number of city clusters with strong influence and dynamism for development has boosted the economic and social development.

1.1 Overview of Urbanization Development

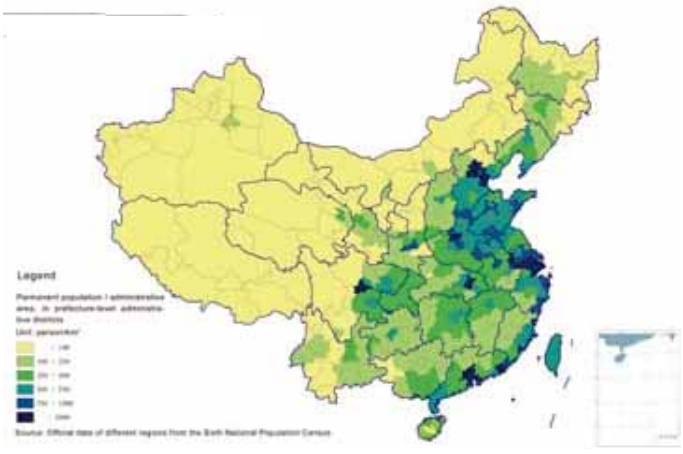
By the end of 2011, there were 657 cities in China, including 4 municipalities directly under the central government, 15 sub-provincial cities, 268 prefecture-level cities and 370 county-level cities. The total area of administrative regions of the cities at various levels accounted for about half of China's land area. The number of the designated towns increased to 19,683. There were 30 cities with a permanent resident population of over 8 million, among which 13 cities were with a population exceeding 10 million.

According to the latest statistics, the population living in cities and towns surpassed the population in rural area for the first time in China to reach 690 million, representing a historical change of China's social structure. The urbanization rate has remained fairly for a long time, reaching 51.27% in 2011, an increase of 1.59% from 2010, and 13.46% for the period from 2000 to 2010.

1.2 Urbanization Progress

1.2.1 Concentrated spatial distribution of urban population and intensified regional imbalance

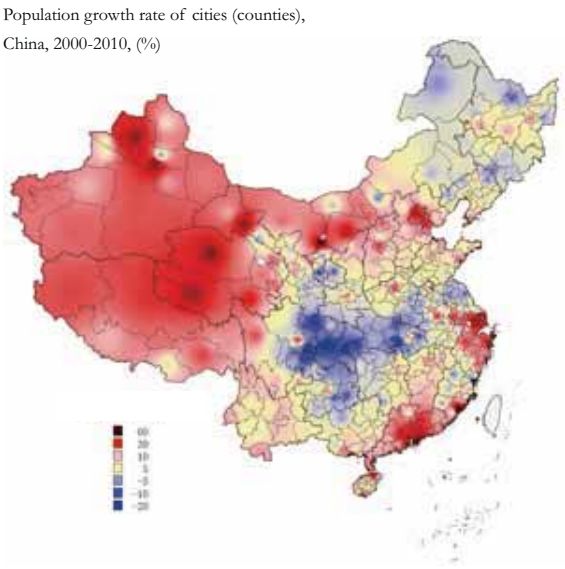
In 2010, the 30 most populated cities accounted for 26.7% of the total urban population, compared with 24.6% in 2000, and became home to a population of nearly 50 million. The total population of three central cities of Beijing, Shanghai and Guangzhou increased by 15.40 million within 10 years, and their percentage in the population of all prefecture-level cities increased to 4.5% in 2010 from 3.5% in 2000. In the eastern costal area, the population density of the three areas of the Yangtze River Delta, Pearl River Delta and Beijing-Tianjin-Hebei Region where cities and towns are densely distributed reached as high as 739 person per square kilometer, 608 person per square kilometer and 481 person per square kilometer respectively; while during the same period of time, the average population density in China was 140 person per square kilometer and the population density in western China was only 53 person per square kilometer.



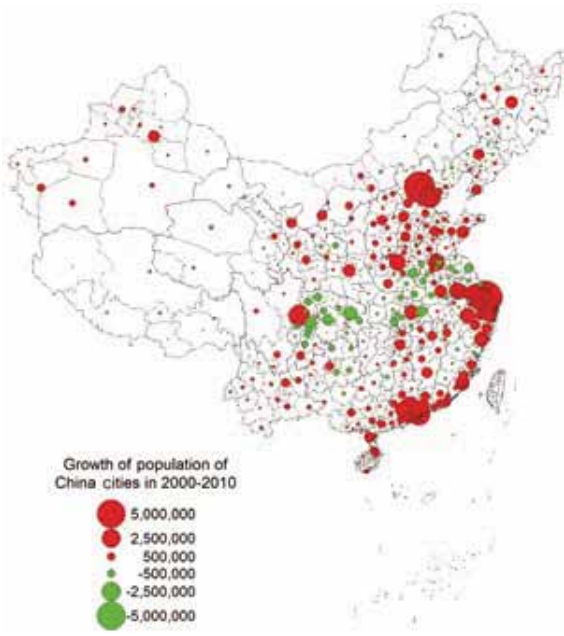
Map 1-1 Urban Population Density in China, 2010

1.2.2 Rapid growth of national and regional central cities including metropolitan areas and provincial capitals

From 2000 to 2010, the total population growth in top 20 cities with the highest population growth rate in China reached as high as 38.88 million, accounting for 45.3% of the total growth of population in all prefecture-level cities. With the exception of those specific resource cities like Karamay and Erdos, a majority of these cities are located in the Yangtze River Delta, Pearl River Delta and Beijing-Tianjin-Hebei Region. During the period from 2000 to 2010, the total population growth in top 20 cities with the highest population growth in China reached as high as 49.05 million, accounting for 57.2% of the total growth of population in all prefecture-level cities. With the exception of the regional central cities of Chengdu, Wuhan, Harbin and Zhengzhou, the other 16 cities are located in or bordering the three metropolitan areas. The total population growth of the three metropolitan areas from 2000 to 2010 reached over 43.00 million, where the Beijing-Tianjin-Hebei Region accounted for the growth of 9.65 million, the 16 cities of Yangtze River Delta accounted for the growth of over 20.20 million and the 9 cities of the Pearl River Delta accounted for the growth of 13.20 million. In addition, the Northwest China, featured with fragile ecological environment, limited comprehensive carrying capacity and frequent disasters, still maintained a high population growth rate.



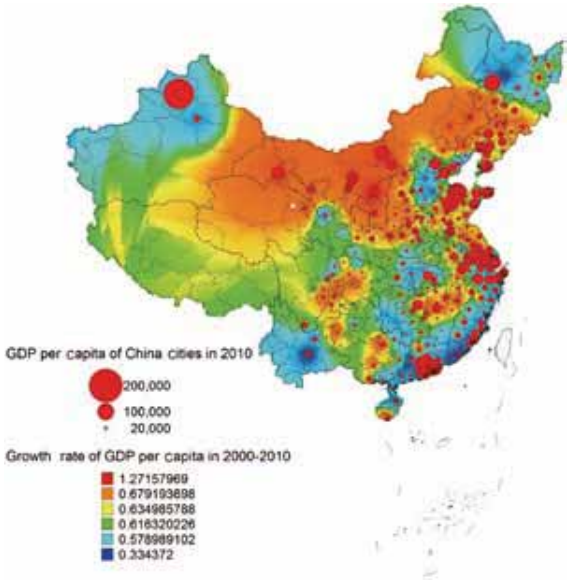
Map 1-2 Growth Rate of Permanent Population in Cities (Districts), China, 2000-2010



Map 1-3 Growth of Permanent Population in Prefecture-level Cities, China, 2000-2010

1.2.3 Remarkable regional differences in urban economic development

With the exception of a small number of resources cities, the cities with high GDP per capita in 2010 were mainly centered in the three metropolitan areas of Yangtze River Delta, Pearl River Delta and Beijing-Tianjin-Hebei Region, Shandong Peninsula, the mid-south of Liaoning Province and the coastal area of Fujian Province. However, except Shandong Peninsular and the mid-south of Liaoning Province, the economic growth rate and growth rate of GDP per capita in all these three metropolitan areas witnessed a remarkable



Map 1-4 Economic Development Levels and Growth Rates of Prefecture-level Cities in China, 2010

slowdown within the past 10 years, while the urban areas with relatively slow economic development levels including Inner Mongolia, Qinghai, Gansu, Shaanxi, Jilin, Shanxi, Jiangxi, northern Jiangsu, Anhui, Guangxi and Chengdu-Chongqing area, etc. realized rapid growth.

With the exception of some specific cities like Dongguan, the prefecture-level cities with average annual growth rate of GDP per capita exceeding 7.5% from 2000 to 2010 in China were located in mid-western China; and with the exception of resources cities like Daqing, Yuxi and Suihua, etc., the cities with average annual growth rate of GDP per capita below 4.4% were all located in eastern coastal area.

Since 2000, the overall urban economic development growth in China has showed the basic trend of regional contraction; areas with traditionally high development levels have displayed the slowdown of regional economic growth rate; areas with traditionally low economic development levels have started to pick up speed; and some areas with relatively backward economic development including Heilongjiang, Hebei, Hubei and Hunan, etc. have witnessed no fundamental change for a long time.

1.3 Urbanization and Its Spatial Distribution

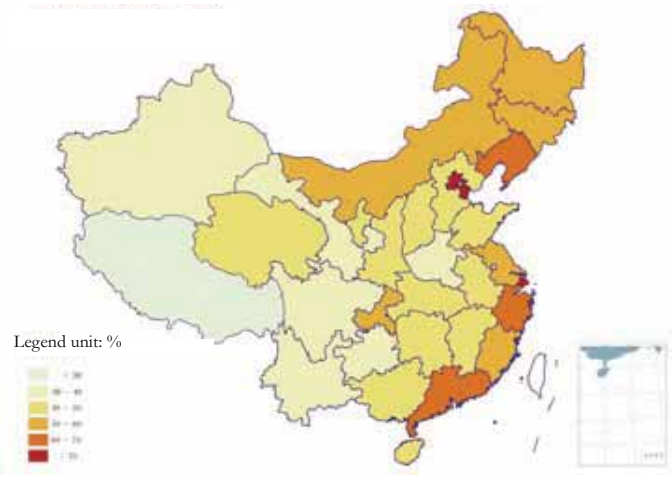
1.3.1 Spatial concentration of urban population and industries in two horizontal axes, three vertical axes, multiple poles and one network

The two horizontal axes refer to the two regions along Longhai Railway (Lianyungang-Lanzhou) from east to west and the middle and lower reaches of the Yangtze River. The three vertical axes refer to the coastal area of China, the areas along Beijing-Guangzhou and Beijing-Harbin Railways and Baotou-Kunming transportation corridors. The multiple poles refer to the central cities at various levels with high capacity to absorb population, high urbanization levels, high efficiency in concentrating factors of production, and remarkable comprehensive competitive advantages, and the established urban agglomerations that have certain role in regional coordination and global competitiveness, including Beijing, Tianjin, Shanghai, Guangzhou, Shenzhen, Chengdu and Chongqing. The network refers to the interconnected urban system that relies on the regional transport channels and takes urban agglomerations and central cities at various levels as the nodes featured with coordinated development. Based on the actual situation of the geographical distribution of population and social and economic development, areas with high population density and urbanization rate enjoy relatively higher degree of intensive land use, closer inter-city industrial connection and economic cooperation, and remarkable development advantages, which help to enhance their radiation effect and scope of its influence. At the same time, there are huge regional differences in the urban population distributions in China. For example, Shenzhen, a city in the Pearl River Delta, has been fully urbanized and the population with non-agricultural household registration reached 100%. Meanwhile, Zhao Tong, located in Southeastern border of China, is the city with the lowest urbanization level where the population with non-agricultural household registration amounted to only 14.88% in 2010 (According to statistics of Sixth National Population Census, the population in the city and towns of Zhaotong accounted for 21% of the total population).

Source: The Communiqué of the National Bureau of Statistics of People's Republic of China on Major Figures of the Sixth National Population Census; China Statistical Yearbook 2011, etc.

1.3.2 Important roles of large cities and urban agglomerations in the urbanization strategy of China's Twelfth Five-Year Plan

The urbanization strategy proposed in the Twelfth Five-Year Plan of China is as follows: to purse the principles for overall planning, rational layout, improvement of functions, use of large cities to drive the development of small cities, adhering to the objective law of urban development, gradual establishment of urban agglomerations with strong regional radiation function by means of focusing on the development of small and medium cities on the basis of large cities, so as to promote the coordinated development of large, medium and small cities, as well as



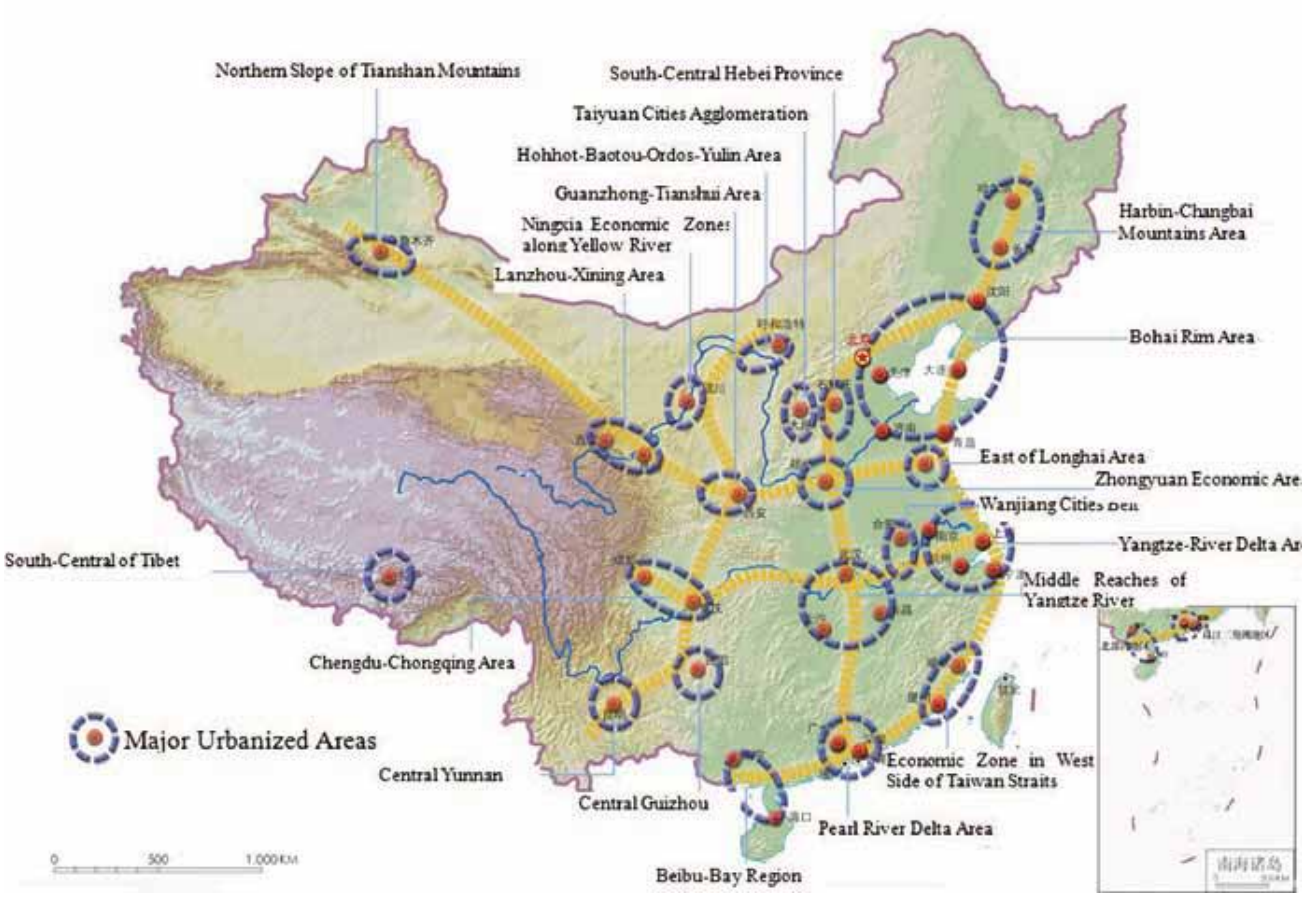
Map 1-5 Urbanization Rate of Different Provinces, 2010

Source: The Communiqué of the National Bureau of Statistics of People's Republic of China on Major Figures of the Sixth National Population Census; China Statistical Yearbook 2011, etc.

small towns; to construct a strategic urbanization structure with urban agglomerations as the basis and other urbanized areas and cities as the important components; to gradually build urban agglomerations with better international competitiveness in the eastern region, and cultivate and develop a number of urban agglomerations in central and western regions where conditions allow.

Map 1-6 China's Urban Agglomeration Pattern by Night Lights

On this basis, the functional arrangement shall be made for small and medium cities and small towns. On the basis of planning the functional positioning for each city within the urban agglomerations as well as the industrial layout thereof in a scientific manner and relieving the pressure on the central areas of megacities, the industrial functions of small and medium cities the public services and residential functions in small towns shall be enhanced. The integrated infrastructure construction and network development in large, medium and small cities shall be promoted. The priority shall be put on the development of small and medium cities with obvious geographical advantages and comparatively strong environmental carrying capacity. The central towns in the eastern region, county towns in the central and western regions, and important hubs in border areas in small and medium cities shall be developed and upgraded where conditions allow.



Map 1-7 The Strategic Urbanization Structure of Two Horizontal Axes and Three Vertical Axes in the Twelfth Five-Year Plan for National Economic and Social Development

Box 1.1

Joint Declaration on the China-EU Partnership on Urbanization

Brussels, May 3, 2012

The Government of the People's Republic of China (hereinafter referred to as 'the Chinese Side') and the European Commission (hereinafter referred to as 'the European Side') affirm that:

We live in an interdependent world dominated by global opportunities and challenges. The economies and societies of China and the European Union are interlinked on an unprecedented scale in the history of our relations, and therefore we need to draw on experience from each other, strengthen interaction and cooperation, jointly seize the opportunities and cope with the challenges of the future, and strive to achieve win-win results.

The level of urbanization in China has exceeded 50% and is in rapid development. This offers a huge development potential and market opportunities. At the same time, China faces challenges of optimizing the layout and form of urbanization, promoting the transfer of rural populations into cities, and improving the sustainability of the city.

About three quarters of the EU's population lives in an urban context. The EU and its Member States have developed a comprehensive framework and accumulated rich experience relating to urban development, while facing challenges of energy and natural resource conservation and the reduction of greenhouse gas emissions.

Both sides recognize that the common interests and synergy between our respective long-term economic strategies have laid a sound foundation and brought historical opportunities in tackling together the challenges of urbanization and jointly promoting healthy urbanization development.

Therefore, both sides declare that efforts will be stepped up centering on the China-EU Partnership on Urbanization (hereinafter referred to as 'the Partnership'):

1. Both sides affirm their commitment to the objectives and priorities of the Joint Communiqué of the 14th China-EU Summit and promote the smooth development of the Partnership, while implementing China's "12th Five-Year Plan" and the "Europe 2020 Strategy."

2. The Chinese Side appoints the National Development and Reform Commission (NDRC), and the European Side appoints Directorate-General for Energy of the European Commission (DG ENER) as coordinators of the Partnership.

3. In support of the China-EU Summit, an annual China-EU Urbanization Forum (hereinafter referred to as 'the Forum') will be held and the Forum will play a steering role for the Partnership. China and EU will take turns to host the Forum and deliverables of the Forum will be presented to the leaders on both sides.

4. The Partnership is aimed at tackling challenges together through cooperative efforts between stakeholders at all appropriate levels, including national, regional and local levels. The Partnership will highlight, inter alia, the following subjects:

1) Strategies and policies relevant to the development of urbanization;
2) Spatial distribution of urbanization;
3) Sustainable development of urban industrial economy;
4) Urban public services system;
5) Urban infrastructure investment and financing mechanisms;
6) Urban housing supply system and patterns;
7) Urban energy supply and demand management;
8) Urban mobility, public transport and smart transport;
9) Urban green buildings;
10) Urban ecological protection, environmental protection and treatment;
11) Protection of urban historical and cultural features and formation of urban landscape;
12) Urban governance;
13) Urban-rural integrated development;
14) Exchanges and discussions as well as personnel training on urbanization development;

5. The Partnership encourages and supports existing and upcoming cooperation, inter alia, on China-EU Mayors' Forum, EC-Link Project, China-EU Emissions Trading Scheme, China-EU Social Protection Reform Project, China-EU Disaster Risk Management Project, Satellite Cities and Metropolitan Governance Project.

6. The Partnership encourages governments and businesses on both sides to provide financial, technical and personnel support for related initiatives, promote multi-faceted exchanges and cooperation. The Partnership will put emphasis on actions undertaken by China in the field of urban development in EU Member States and actions undertaken by EU Member States in the field of urbanization in China. The initiatives adopted by both parties to feed into the Partnership shall constitute a major contribution towards the smooth development of China-EU urbanization cooperation.

FOR THE EUROPEAN UNION

José Manuel BARROSO
President of the European Commission

FOR THE GOVERNMENT OF THE PEOPLE'S REPUBLIC OF CHINA

Li Keqiang
Vice-Prime Minister

http://www.sdpc.gov.cn/xwfb/t20120504_477781.htm

1.4 Quality of Urbanization

1.4.1 Big differences between regions

There are regional differences in terms of income levels of urban and rural residents. On one hand, the economic output of unit land area and production efficiency per capita of the eastern region is much higher than those in the central and western regions. On the other hand, there are big differences of the income and consumption levels of urban and rural residents in different regions. Except the two provinces of Hebei and Hainan in the eastern regions, the income levels of urban and rural residents in the eastern region are generally higher than the average level of China, while the income levels of urban and rural residents in various provinces, cities and autonomous regions of northeastern region and central and western regions are generally lower than the average level of China. By comparing the actual income data from different provinces in 2010, the income of urban and rural residents in Shanghai was the highest in China, about 2.41 times and 4.08 times respectively that of Gansu, the province with the lowest. There were also large differences between urban and rural residents of different regions in terms of expenditure for consumption. Take the data of Shanghai and Gansu for example, Shanghai was 2.34 times and 3.47 times that of Gansu respectively.

Regional differences in demographic, social and culture structures. In recent years, the Chinese population with junior college and above education mostly quickly converged and migrated to eastern and coastal areas with rapid social and economic development. Except some provinces of northern and northwestern China where policies towards ethnic minorities and border areas are implemented, the population with junior college and above education in the provinces of central and western regions of China has grown very slowly. During the 10 years from 2000 to 2010, the proportion of the population with junior college and above education in Jiangsu Province of eastern China rose sharply from 3.92% to 10.81%; during the same period, the proportion of the population with junior college and above education in Guizhou Province of western China only rose from 3.93% to 5.29%. In addition, the imbalance between different provinces and cities of eastern China was also remarkable. For example, according to statistics of the sixth national population census, the proportion of population with education above junior college level was 31.50% in Beijing in 2010, which was 1.8 times that of its neighboring city Tianjin (17.48%) and 4.3 times that of Hebei Province (7.30%). During the same period, the illiteracy rate (proportion of illiterate population of 15 years old and above) of Beijing in 2010 was 1.7%, and 1.96% for Guangdong Province, while the rates were as high as 2.74%, 3.81% and 5.62% for Shanghai, Jiangsu Province and Zhejiang Province that are located in the Yangtze River Delta. With the continued progress of urbanization, the regional imbalance of demographic, social and culture structures will further increase and deeply affect the future healthy development of China's urbanization.

Map 1-8 Spatial Distribution of Population with Education above Junior College Level in 2010

Source: The Communiqué on Major Figures of the Sixth National Population Census

Table 1-1 Basic Social and Economics Indexes of Different Regions, 2010

	End-of-year population (10,000 persons)	(%)of the national total	GDP (100 million Yuan)	(%)of the national total	Land area (10,000 square kilometers)	(%)of the national total	GPD per capita (Yuan/ person)	GDP per land area (10,000 Yuan/ square kilometer)
Eastern region	50,663.7	38.0	232,030.7	53.1	91.6	9.5	45,798	2,533
Northeastern region	10,954.9	8.2	37,493.5	8.6	78.8	8.2	34,225	476
Central region	35,696.6	26.8	86,109.4	19.7	102.8	10.7	24,123	828
Western region	36,069.3	27.0	81,408.5	18.6	686.7	71.5	22,570	119
Total	134,091.0	100.0	401,202.0	100.0	960.0	100.0	29,920	418

Source: China Statistical Yearbook 2011

Job-hunting of Rural Migrant Workers

1.4.2 Pressures on resources and environment

The tension is rising between the rapid growth of the demand for urban construction land, a growing urban population, and the limited space resources and land supply. According to the National Plan for Function Zoning in Major Regions, the land area of China suitable for development and construction for industrialization and urbanization purposes is about 1.80 million square kilometers, and by deducting the arable land that must be protected and the land that has been used for construction, the land area available for future industrial and urbanization development and construction for other purposes is about 280,000 square kilometers, accounting for about 3% of China's total land area. In the recent five years, the area of newly added construction land approved by the state council and provincial governments each year exceeded 4,000 square kilometers, and even reached the record high of 5,877 square kilometers in 2009. According to the predictions, the urban population will increase by 10 million annually in the future 10 years and the supply of construction land is hardly optimistic.

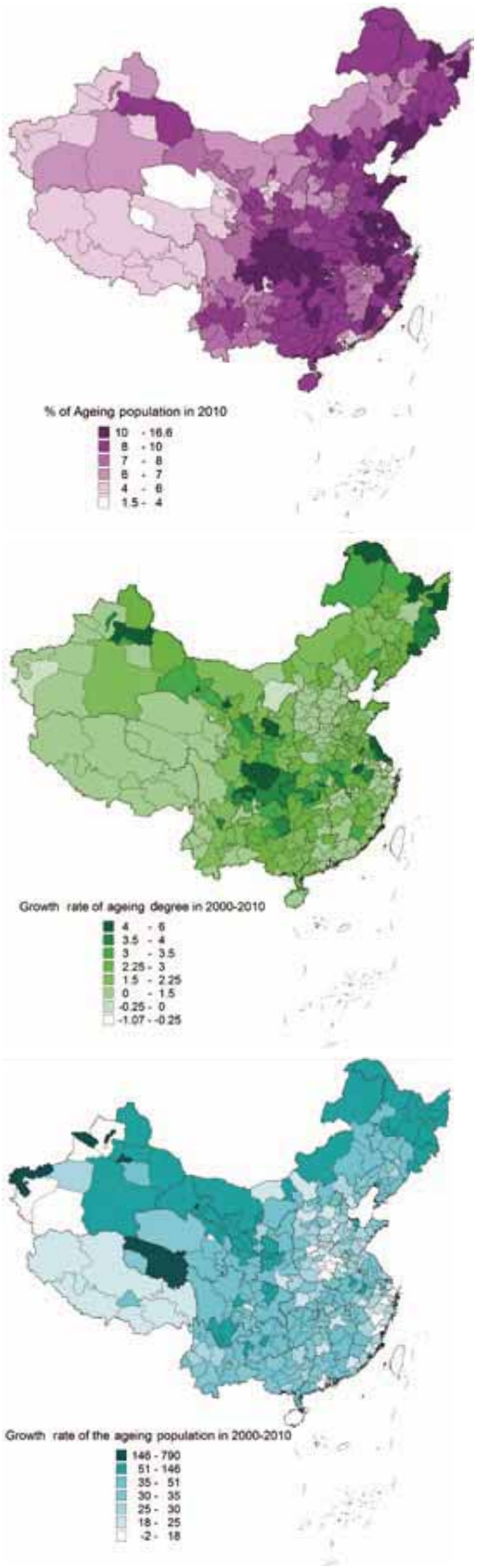
The contradiction remains acute between arable land protection and the serious space shortage needed for urban and rural expansion. The principal grains-producing areas of China and the areas suitable for urban and rural construction are highly overlapping, resulting in the tense relationship between arable land and construction land. This requires overall planning in order to handle the relationship between urban development and protection of arable land. Take the Suitability I Area that is most suitable for urban development and human settlement for example, this Area accounts for 19% of the land area of China, and provides 55% of China's arable land the Suitability II Area accounts for 29% of the land area of China and 31% of China's arable land; and Suitability III Area accounts for 52% of the land area of China but only provides 14% China's the arable land. In 2008, China's arable land area per capita was about 1.4 *mu*, less than 40% of the world average. The high quality arable land only accounted for one third of the total arable land. The backup arable land reserve was about 200 million *mu*, and 60% of the reserve were located in areas with many restrictive factors for development and utilization, such as insufficient water resources and fragile ecosystems.

1.4.3 Challenges from the rapidly ageing population

China has entered the stage of ageing society. According to the statistics of the Sixth National Population Census, among the population of 31 provinces, autonomous regions, municipalities directly under the central government and military personnel in active service in China's mainland in 2010, the number of the population of 60 years old and above reached 178 million, accounting for 13.26% of the total population, and the number of the population of 65 years old and above reached 119 million, accounting for 8.87% of the total population, indicating that China has entered the stage of ageing society. The population ageing level in over 280 cities exceeded 7%, accounting for 81.4% of all the cities in China and the number of the cities with the population ageing level exceeding 10% accounted for 23.5% of all the cities. By comparison of the Fifth and Sixth National Population Census, the areas with the fastest speed of ageing were the central and western regions with relatively underdeveloped economy and high population density, such as Chengdu-Chongqing area, Guanzhong area, Henan Province, northern Jiangsu Province and northeastern border areas, while the speed of ageing was relatively slow in areas with relatively developed economy such as the Pearl River Delta, Yangtze River Delta and Beijing-Tianjin-Hebei Region. With the exception of the ageing increase as a result of life expectancy increase in some areas, especially the severe cold areas (including Mohe River), most areas with serious ageing of population fall under the category of "spatial residual accumulation of elderly people" as a result of outflow of young labor force, while the cities receiving the inflow of young labor force witnessed slower speed of ageing.

Table 1-2 Proportion of Population Within Different Age Groups in Past Censuses

Census time	0-14 Years	15-64 Years	65 Years and above
1953.7.1	36.28	59.31	4.41
1964.7.1	40.70	55.74	3.56
1982.7.1	33.59	61.50	4.91
1990.7.1	27.70	66.72	5.58
2000.11.1	22.89	70.15	6.96
2010.11.1	16.60	74.53	8.87

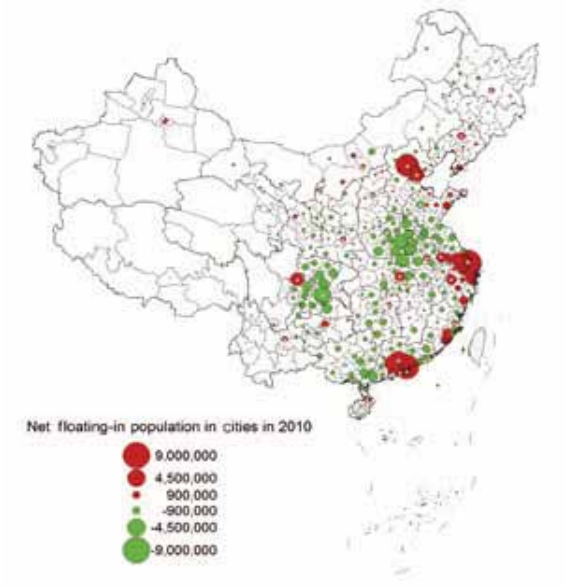


Map 1-9 Speed of Ageing in Cities of China, 2000-2010

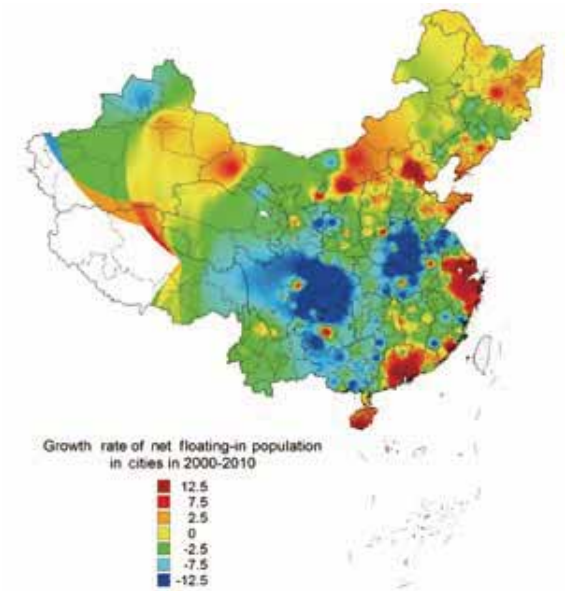
1.5 Population Movement and Institutional Provision for Urban Residentialization of Migrant Workers

1.5.1 Large-scale population movement

The total of floating population (population living in places other than the towns of their household registration where they had left for over 6 months) in China in 2010 reached 261.39 million, increasing by 117.00 million, or 81.03% from 2000. The accelerated movement of rural labor force and rapid urban economic development for these years were responsible for the large increase of floating population.



Map 1-10 Spatial Distribution of Net Population Inflow in Prefecture-level Cities in China, 2010



Map 1-11 Growth Coefficient of Urban Net Population Inflow, China, 2010

According to the Statistical Communique on the 2011 National Economic and Social Development, the total number of rural migrant workers in 2011 (the annual number of rural migrant workers includes rural migrant workers working outside of their hometowns for over six months within the current year and the local rural workers engaging in non-agricultural industries for over six months in their hometowns within the current year) reached 252.78 million, increasing by 4.4% from 2010, where the number of the migrant workers working outside of their hometowns reached 158.63 million, increasing by 3.4% from 2010, and the number of local rural workers reached 94.15 million, increasing by 5.9% from 2010.

High mobility of population poses great pressure on comprehensive social supply for rapidly urbanizing areas and areas with population drain. The highly spatial uncertainty of the population mobility resulted in the double supply and double idling of public resources. Take Shunde City, Guangdong Province for example. During the 10 years from 1998 to 2008, the total population of the city increased by 653,000 (increasing by 46.4%), where the population with household registration in Shunde increased by 149,000 (increasing by about 14.2%) while the population without household registration in Shunde increased by 504,000 (increasing by 142.2%). The existing urban administration system needs to be improved and the urban-rural structure and layout needs to be adjusted. Scientific evaluation and estimation shall be adopted to achieve the geographically balanced distribution of population nationwide and promote the proper and orderly movement and flow of economic factors between rural and urban areas and different regions.

The influence of high mobility of population on the urban and rural planning and construction shall not be underestimated and problems including "villages in the city" and "hollow villages" are becoming increasingly serious. Due to the overall low education and skill levels of migrant rural workers and the disconnection between the urban development and construction and the high mobility of population in cities, the "villages in the city" with the features of high density buildings, lower construction standards, insufficient provision of public services and infrastructure, and even total detachment from urban planning and administration, have become the settlements for most of the newly migrated urban underclass. On the other hand, the failure to adjust some of the rural construction projects in a timely manner after the outflow of the rural population has resulted in the emergence of more and more hollow villages. Faced with the village destitution, talents shortage, idle land and decline of social vigor, the economic development in rural areas is under great pressure.

1.5.2 Urban residentialization of rural migrant workers

In 2011, China's urbanization rate exceeded 50% for the first time. However, there remained an important fact of non-residentialization of over 200 million rural migrant workers in the urban population. The residence of rural migrant workers in the inflow cities tended to be on long term and their average employment time in the current cities was 5.3 years, and about 40% of them exceeding 5 years and about 20% of them exceeding 10 years. This indicated an increasingly remarkable tendency of migration that most of the migrant workers became migrants de facto. By the end of 2010, the rural migrant workers accounted for over half of the urban employees working in the manufacturing and processing industry, construction, excavation industry, and service industry including sanitation, housekeeping and catering, etc. The rural migrant workers made important contributions to the urban development. However, they always lacked of the sense of belongingness to the cities where they worked and felt hard to fit into the cities. Though they left the rural communities, it was still hard for them to fit into the urban communities and effectively protect their own interests and rights. The welfare gap was becoming larger between the urban residents and urban migrant workers. Surveys showed that the proportion of rural migrant workers participating in pension insurance, medical insurance, work-related injury insurance and unemployment insurance reached 18.2%, 29.8%, 38.4% and 11.3% respectively. The unequal access to public services became the most important factor in restricting the urban residentialization of rural migrant workers.

In recent years, the criticism of the media over the difficulty for rural migrant workers to become urban residents has been on the rise and the central government also has requested local governments to gradually solve the employment and settlement of qualified rural migrant population in the urban areas. Many small and medium-sized cities have begun to lower the threshold for household registration of urban residents and absorb the rural migrant workers to become the urban citizens. However, the difficulties are still large for the rural migrant workers in megacities like Beijing and Shanghai to enjoy the benefits of local urban citizens. The stagnant progress in the reform of the household registration system is mainly due to the close connections between the urban household registration and the education, employment, medical and healthcare and social security-related interests and rights as well as the benefits. Surveys show that about 84.5% of the new generation of rural migrant workers has never engaged in agricultural activities and 92.3% of them are not willing to go back to the rural areas. The current cost for the residentialization of each rural migrant worker is about 80,000 yuan and the total cost for the urban residentialization of the 250 million rural migrant workers reaches over 20 trillion yuan. However, it is the irresistible general trend to promote the urban residentialization of the rural migrant workers, and the urban residentialization of the rural migrant workers is an important foundation to solidify the urbanization and in some sense is more important than rapidly increasing the urbanization level. There is much to be done to enhance the equal access to basic public services to attract rural migrant workers to settle down in urban areas, facilitate the urban residentialization of the rural migrant workers to allow qualified rural migrant workers to settle down in the places of their employments in an orderly manner, rationally guide the flow of population, optimize the distribution of cities and towns, so as to promote the co-sharing of the achievements of reform and development with the rural migrant workers.

Map 1-12 Regional Distribution of Population Flow in Prefecture-level Cities, 2010

Map 1-13 Increment of Net Population Inflow of Cities, China, 2000-2010

Box 1.2

To gradually transfer rural population into urban residents when conditions allow is an important task for the promotion of the urbanization progress. The independent choice of farmers whether they wish to move into cities or stay in countryside shall be fully respected. Their legitimate rights and interests over their contracted land and housing land should be effectively protected. The principle should be adhered to gradually transfer migrant workers who have stable jobs and have been residing in urban areas for a certain number of years and their families into urban residents step-by-step in light of local situations. The appropriately control of population in megacities shall be implemented. The population management shall be intensified and improved in large and medium-sized cities to attract the migrant population and bring their important role into full play. The household registration requirements shall be relaxed in small and medium cities as well as small towns in light of local situations. Local governments are encouraged to explore new ways and formulate and implement policies and measures to determine appropriate scales of transferring rural population into urban residents.

Rural Migrant Workers Ready to Go Home

With respect to migrant workers who are not eligible for settling in urban areas, the promotion of their access to public services and protection of their lawful rights and interests shall be intensified. To be specific, the children of migrant workers shall be provided with equal access to compulsory education mainly at full-day public elementary and secondary schools at the places where the migrant workers work, and the appropriate links to high school education shall be ensured. The migrant workers who have established stable labor relationship with their enterprises shall be included in the basic pension and medical insurance schemes for the urban employees. The basic training subsidy system for migrant workers shall be established. The mobilization of funds training migrant workers should be coordinated at the provincial level. Various ways and measures shall be explored to improve the living conditions of migrant workers and include eligible migrant workers into the urban social housing system.

Excerpt from The Twelfth Five-Year Plan for National Economic and Social Development

Box 1.3

Urban Residentialization and Household Registration System Reform in Chongqing

One Year after household registration system reform in Chongqing: "Five Clothes" were in place and 3.1 million farmers moved into cities as urban residents: Xinhuanet.com.

The Proposal on Overall Planned Reform of Urban-rural Household Registration System of Chongqing Municipality finally came into being in 2010. On the basis of the Proposal, Chongqing also formulated three core corresponding measures on rural land transfer and utilization, household registration transfer and social security.

Firstly, "Five Clothes" were provided at one go. (1) Pension insurance. 1,880,000 household transferred residents took out various pension insurances, accounting for 78.3% of all the household transferred residents. Among them, 225,000 farmers who lost their lands due to expropriation of land for construction applied for taking out pension insurance which is catered specifically for farmers who have changed from agricultural to non-agricultural status due to land expropriation and 118,000 elderly persons started to receive pension of at least 500 yuan each month. Of the 1,900 household transferred residents who applied for taking out pension insurance which is catered specifically for farmers who have changed from rural to urban status due to land transfer, 921 elderly persons started to receive pension

of at least 500 yuan each month. (2) Medical insurance. 2,517,000 persons participated in various medical insurance programs, accounting for 83.9% of all the personnel concerned. (3)Employment. Chongqing conducted employment and entrepreneurship trainings for 12,400 household transferred residents, recommended jobs for over 28,400 persons, issued secured micro loans of 18.89 million yuan to household transferred residents who started their own business, arranged jobs for 345 discharged soldiers whose status have changed to urban resident status, assisted 3,085 discharged soldiers whose status have changed to urban resident status to find their jobs on their own, and issued the once-for-all financial subsidy of 61.7 million yuan for individuals who found jobs on their own. (4) Housing. 31,400 thousand households of household transferred residents and rural migrant workers applied for and successfully obtained the access to social housing, accounting for 38.26% of all the housing available for renting. There were 917 new households of household transferred residents among the migrant workers who have moved into the two social housing communities of Minxinjiayuan and Kangzhuangmeidi, accounting for 22% of the total migrant workers who have moved into social housing. (5) Education. 276,000 rural migrant workers were assisted and their problem of children's education was solved.

Farmers moved into cities as urban residents get pensions
Source:Chongqing Daily, Ju Jianbing

Secondly, Achievements. By the end of 2011, an accumulation of 3.10 million persons had their household registration transferred from rural to urban status with an average of 6,299 person each day. Judging from the geographical distribution, Chongqing's 1-hour economic circle had 1.61 million persons who changed their household registration, accounting for 52.2% of the total; the northeast of Chongqing had 950,000 persons who changed their household registration changed, accounting for 30.5% of the total; and the southeast of Chongqing had 540,000 persons who changed their household registration, accounting for 26.3% of the total. Judging from the three-tier urban distribution, 830,000 persons who changed their household registration lived in the downtown of Chongqing, accounting for 27% of the total; 820,000 persons lived in urban districts and county seats, accounting for 26.3% of the total; and 1,450,000 persons lived in small towns, accounting for 46.7% of the total. Judging from the population groups who have their household registration changed, the number of rural migrant workers and the new generation of migrant workers reached 1,920,000, accounting for 63.1% of the total.

Thirdly, Comments from experts. (1) Cai Fang (Director of the Institute of Population and Labor Economics (IPLE-CASS), Chinese Academy of Social Sciences (CASS)): This round of household registration system reform launched by Chonqing has substantial significance. The implementation principles and methods of the reform meet two requirements of equal access to public services and the lower threshold for the registration change. All these will be instructive for handling the major challenges in China. This reform is worthy of wide recognition. (2) Dang Guoying (researcher of the Rural Development Institute, Chinese Academy of Social Sciences): Chongqing took an active attitude and a recommendable route in this reform, because we need to increase the land use efficiency and expand the urban area to an appropriate degree. (3) Cui Zhiyuan (Professor of School of Public Policy and Management of Tsinghua University): The household registration system reform in Chongqing is not for the farmers to exchange their land for the urban household status and the purpose is not to obtain the land from the farmers. The farmers who have their household registration status changed do not have to transfer their land to the government and can still enjoy the various policies attached to the land. After the household registration change, the farmer can still get access to the employment, pension, medical, education and housing benefits and security as provided for the urban residents. Moreover, with the help of the Chongqing Rural Land Exchange, the farmers willing to transfer their land to the government can get relevant compensation, for example the compensation for land expropriation of rural residential land. It can be seen that the farmers have benefited from the reform. The practical experience of Chongqing's household registration system reform and social housing provision, etc. are worthy of research, recognition and promotion.

Chapter 2
Urban Housing Construction in China

2.1.Development of Urban Housing

Since the period of reform and opening-up, and especially since urban housing system reform, when welfare-oriented distribution of public housing was abolished in 1998, the real estate market in China has attained rapid development. By the end of 2010, the per capita floor space for urban residents in China increased to 31.6 square meters in 2010 from 18.7 square meters in 1998. The homeownership ratio of households had reached above 80%.

2.1.1 Role of the real estate industry as the pillar industry in national economic development

Guided by large scale infrastructure investment plans and a series of policies intended to expand the domestic demand of the state, real estate development and investment still maintained rapid growth; and the real estate industry (dominated by family housing) has made important contributions in driving investment, consumption, solving employment problems. and played an important role in national economic development.

In 2010, China completed investment of RMB 4,826.7 billion yuan in real estate development, increasing by 33.2% on a year-on-year basis; and the investment in commodity housing increased by 33.2% on a year-on-year basis, with the increase making a record high since 2001. In 2011, the investment in real estate development reached 6,174.0 billion yuan, increasing by 27.9% from 2010, where the housing investment was 4,430.8 billion yuan, accounting for 71.77% of the total investment in real estate development. The secondary housing market and housing rental market developed stably and became important components to satisfy the residents' housing demand. Housing industrialization gained positive progress, promoted the improvement of the housing quality and living environment, and drove the rapid development of upstream and downstream industries like building construction, renovation and decoration, and furniture and home appliances.

2.1.2 Accelerated housing marketization and socialization processes and intensified real estate regulation policies.

The sales volume of the Chinese housing market continued its upward trend. The area of commercial apartment sales in China reached 921.17 million square meters in 2010, increasing by 8.0% on a year-on-year basis. Despite the frequent emergence of regulation policies, the overall commodity housing market still maintained stable growth.

During the Eleventh Five-Year Plan period from 2006 to 2010, the real estate market and housing prices of China underwent large fluctuations under the influence of internal and external factors. China adopted flexible and targeted policies and measures in response to the different problems of the real estate market in different stages, and strengthened regulations concerning the real estate market. The series of real estate regulation measures covered areas of land, finance, and taxation.

Faced with a precipitous rise in the price of housing, the government focused on adjusting the housing supply structure in 2006 and 2007. The real estate market fell into a recession after October 2008

Figure2-1 Areas of Newly-built Urban Residential Buildings and Residents' Housing in China

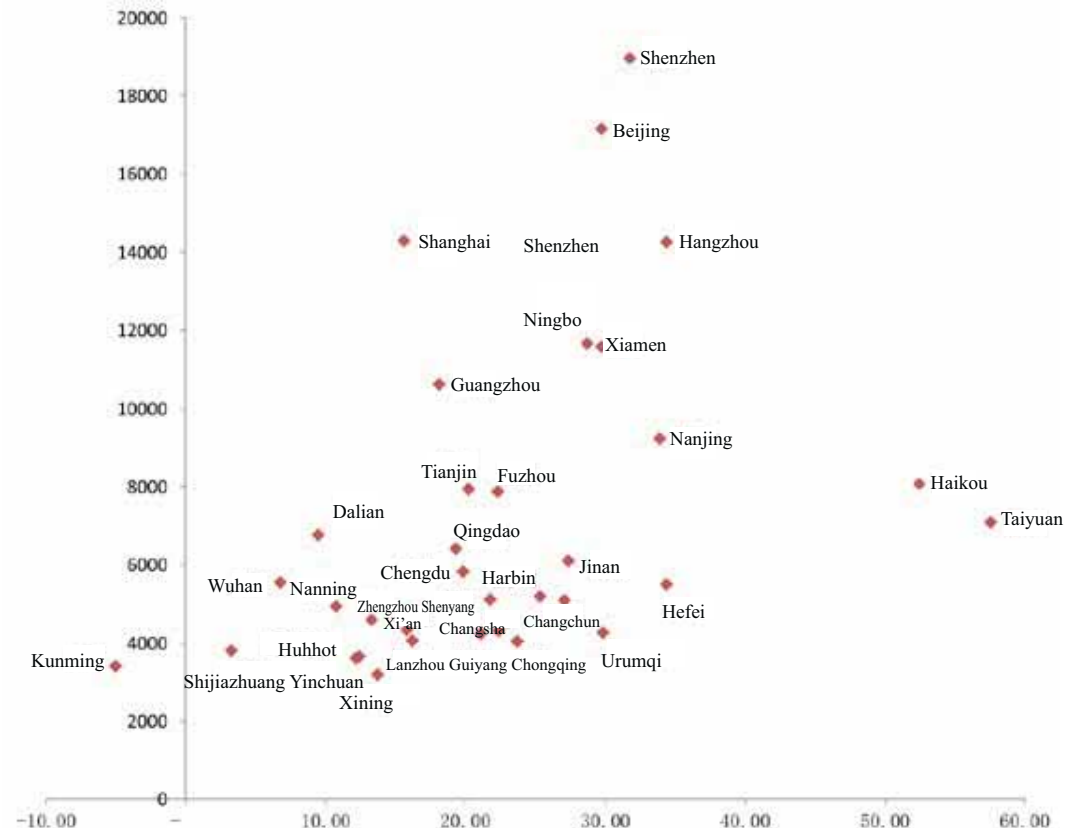


Figure 2-2 Housing Sale Price and Annual Growth Rate In Major Cities of China in 2010

in the wake of the international financial crisis. Then, the government took a series of measure to stimulate housing consumption and investment and facilitated the recovery of the real estate market. However, after 2009, such phenomena as excessively high housing prices and brisk housing speculation buying reemerged in some cities.

In 2010, the State Council of the People's Republic of China regulated the real estate market for the third time. In January of that year, the State Council issued the Notice of the General Office of the State Council on Promoting the Stable and Sound Development of the Real Estate Market, proposing to rationally guide housing consumption, curb the practice of speculative investment (i.e. flipping), tighten the management on the loans for the second unit of housing, and raise the down payment to over 40% of the house value. In April, the State Council issued the Notice of the State Council on Resolutely Curbing the Soaring of Housing Prices in Some Cities, proposing to adopt more stringent differentiated housing credit policy, raise the down payment for families purchasing a second unit of housing on loans to over 50% of the house value, and maintaining a mortgage interest rate not less than 110% of the benchmark interest rate. In September, some ministries and departments of the central government demanded to restrict the number of apartments purchased by each household within a certain period of time in cities with excessively high housing prices and a tight housing supply and to improve the differentiated housing credit policy, and adjust the down payment for purchasing commodity housing on loans to 30% and above of the house value. All commercial banks were requested to suspend offering housing mortgage loans to individuals and households for purchasing three or more units of housing.

At the end of January 2011, the General Office of the State Council announced the Eight Real Estate Market Regulation Measures, the so-called most stringent regulatory policy. Firstly, local governments were required to undertake their responsibilities. Local governments must set up a reasonable target for price control of new housing developments based on local economic development goals and the growth of per capita disposable income, and make public announcement of the target in the first quarter of the year. Secondly, further emphasis is put on the supply of housing, especially on the supply of low- and medium-cost, small and medium-sized apartments.

Zhongtong Mingshi Jiayuan Community

Thirdly, the demand speculative investment shall be contained. It stipulated that the down payment for purchasing a second unit of housing with loans shall be raised from less than 50% to no less than 60% of the house value. The policy further requested the municipalities directly under the central government, cities under separate state planning, provincial capitals and cities where housing prices are too high or rise too rapidly to develop and implement strict measures to restrict housing purchases for a period of time. The housing transaction cost shall be increased to an appropriate degree and the threshold for obtaining mortgage loans shall be raised for purchasing more than two units of housing.

These regulatory policies have taken all possible measures including those for land, financial, and taxation, to increase the supply of housing and curb the irrational demand for housing (i.e. bubble market). At the same time, more emphasis has been put on the implementation of the policies and the major responsibilities of the local governments in making regulative policies. Under the influence of multiple factors, the soaring trend of housing prices has been curbed to a certain degree. However, the pressure remains high due to constant demand.

2.2.Urban Social Housing Construction

2.2.1 Clear policy framework for social housing

To enable most urban households to live in separate flats that conform to the standards on urban living and public health and safety is one of the major targets proposed by the Chinese government in fully building up the urban society in an all-around way by 2020. In 2007, China started to build its social housing in a large scale. A series of policies and measures were launched successively to provide the policy support for the building of social housing. Relevant policies on the building of public rental housing were launched in 2010 and became an important symbol that the scope of social housing has been further expanded, for example, from low-income groups to low- and medium-income groups.

The social housing policy framework of China consists of low-rent housing funded by the government and rented to low-income households at low rates; public rental housing with the guidance of the government and participation of the whole society and rented at prices slightly lower than the market price; and fixed-price policy-regulated housing. Social housing

includes low-rent housing, public rental housing, affordable housing, and fixed-price housing, where the low-rent housing is for social households, affordable housing for medium- and low-income households, and public rental housing and fixed-price housing for medium-income households.

2.2.2 Increased supply of social housing and rising demand

The housing security system with low-rent housing and affordable housing as the major components has initially come into being in China. The urban housing marketization reform has increased housing production efficiency, improved residents' housing conditions, and enhanced overall social welfare. At the same time, the Chinese government has launched measures according to the trends of market changes since 2010 and carried out a series of reforms to the long-term housing system on the basis of adhering to real estate market regulation. From 2005 to 2010, China launched the construction of various social housing developments including former shanty area renovations of 16.3 million units and completed the construction of 11 million units, resulting in the coverage rate of urban social housing in China reaching 7%-8%. By the end of 2010, China has solved housing problems for nearly 22 million urban low-income households and some medium- and low-income households. The number of households benefiting from the physical security of new housing and infrastructure accounted for 9.4% of the total urban households. There were also nearly 4 million urban low-income households with housing problems who enjoyed rental subsidies for low-rent housing. On this basis, the construction of 10.43 million units of urban social housing began in 2011 and 4.32 million units were completed in the same year.

Jiumalu Road, Xiangyang District after energy conservation upgrading

However, due to the large population in China and the rapid increase of an urban population, the housing conditions remains poor for urban low-income households, shanty area residents, newly-employed workers, students graduating from colleges and universities, and rural migrant workers. To meet their basic need of housing has become an urgent task. By the end of 2010, there were still over 20 million urban low-income households and a small amount of households at the lower middle income level living in the apartments with poor and insufficient facilities, including over 10 million households living in the shanty areas. The shanty areas were crowded with shabby houses and insufficiently equipped kitchens, some with considerable safety hazards. Moreover, some newly-employed urban workers and permanent migrant workers lived in the basements and villages within the cities due to their poor financial situation and weak housing payment capacity. This group of people is the important force in urban economic development and helping them to solve the basic housing problem is of great importance for promoting economic development and social stability.

According to the 2010 housing land supply plan issued by the Ministry of Land and Resources, the proposed housing land supply of the 30 provinces, cities and districts (excluding the Tibet Autonomous Region) reached about 185,000 hectares, with a large increase from the actual housing land supply of 76,500 hectares in 2009 and the actual average annual land supply of 54,650 hectares in the past five years. The supply included 24,500 hectares for social housing, accounting for 13.2% of the total housing

Box 2.1

In northern China, some old and shabby buildings with low energy conservation capacity can only offer low indoor temperature in the winter and affect the living quality of the residents. During the Eleventh Five-Year Plan period, China speeded up the heating metering and energy conservation renovation in the existing residential buildings in northern China with heating provisions. Moreover, China phased out the mandatory standards on energy conservation on newly-built buildings, carried out energy conservation renovation on large-scale public buildings, and promoted green buildings. By October 2010, the heating metering and energy conservation renovation in the existing residential buildings in northern China covered an area of 167 million square meters, exceeding the renovation tasks set for the Eleventh Five-Year Plan period.

—— Excerpt from *People's Daily*, March 1, 2011

Landscape along the Grand Canal, Suqian

land supply; 36,600 hectares for housing construction in shanty areas, accounting for 20% of the total; and 80,400 hectares for medium and small-size commodity apartments, accounting for 44% of the total. The planned land supply for these three types of housing accounted for 77% of the total planned housing land supply. In 2010, construction began on 5.0 million units of various types of social housing and housing for shanty area renovation. About 3.7 million units were completed, exceeding the goals assigned by the State Council in the beginning of the year.

2.2.3 Accelerated development of social housing in China

China is moving into the stage of acceleration in the construction of social housing. The social housing security system continues to be dominated by public rental housing such as low-rent housing, policy-regulated housing such as affordable fixed-price housing and shanty area renovation, supplemented by rental subsidies. The Chinese government has decided to build new social housing of 36 million units during the period from 2010 to 2015, about twice the scale of construction undertaken during the past decade. At the same time, China will renovate dilapidated buildings for over 1.5 million households in rural areas. In 2011, China started construction of 10 million units of social housing and housing for shanty area renovation, a record high increase of over 70% from the previous year. The above tasks were specifically assigned to the local governments. By the large-scale construction of social housing, the coverage of urban social housing in China will increase to over 20% by 2015, which will basically solve the housing problems of urban social households, improve the housing conditions of some households with lower-middle income, and help more people with difficult situations to realize their dream of adequate housing.

According to the requirements of the State Council on substantially increasing the construction of social housing, the Ministry of Housing and Urban-rural Development (MOHURD), the National Development and Reform Commission (NDRC) and the Ministry of Finance jointly issued the Notice on Submitting the Plan and Tasks of Urban Social Housing on November 23, 2010, proposing to arrange the construction of 10 million units of social housing and various types of housing for shanty area renovation, and requiring local governments to adjust their plans and tasks on the basis of the original social housing construction plan to ensure the implementation of their plans at the city and county government levels.

During his online discussion at www.gov.cn with China's netizens on February 27, 2011, Premier Wen Jiabao declared that the government planned to build 10 million units of social housing and housing for shanty area renovation in that year. The State Council supervised the signing of the accountability agreements to build social housing between the central and local governments, and planned to build 36 million new social housing units within the next five years.

The Report on the Work of the Government 2011 pointed out that: This year, the total number of units of new social housing and units in shanty areas that will undergo renovation will reach 10 million, and 1.5 million dilapidated rural houses will be renovated. The priority is to develop public rental housing. The central government is allocating 103 billion yuan in this year's budget for subsidies to support this work, an increase of 26.5 billion yuan over last year. Governments at all levels need to raise funds through various channels and substantially increase spending in these areas. An administrative system shall be set up for the use, operation, and return of social housing. Transparency and public oversight shall be strengthened to ensure that eligible families will benefit from social housing programs. New sites shall be designated for building social housing in the overall plan. Provincial governments have general responsibility and municipal and county governments have direct responsibility for stabilizing housing prices and guaranteeing the availability of social housing. Relevant government authorities need to quickly improve their inspection, appraisal, admonition, and accountability systems. Localities that put insufficient effort into stabilizing house prices and promoting the construction of social housing and thereby affecting social development and stability will be held accountable.

The scale and magnitude of the social housing

construction in 2011 was unprecedented. Considering the large differences in social and economic development levels, urbanization processes and housing market situations of different regions, uniformity was not imposed on the social housing provision. In practice, different regions determined the type of social housing appropriate to the local conditions. The composition of the 10 million units of social housing to be constructed in 2011 was: 1.65 million units of low-rent housing, 2.27 million units of public rental housing, 1.10 million units of affordable housing and 830,000 units of price-fixed commodity housing and 4.15 million units in shanty areas that will undergo renovation. Moreover, the central government planned to increase the number of households enjoying low-rent housing rental subsidies by 600,000. Construction projects that only set up fence facilities surrounding construction sites or have had full or partial excavation would not be counted in the total number of projects and units that have actually begun construction.

Upon preliminary calculation, the construction of social housing for 2011 needed an investment of 1.3 trillion yuan, among which over 400 billion yuan for the construction of affordable housing and price-fixed commodity housing which would be mainly covered by public investment and income through sales; 500 billion yuan for the renovation of various types of shanty areas which will be supported with government subsidies, enterprise fundraising and resident payments; and over 400 billion yuan for the construction of low-rent housing and public rental housing which will be funded by governments at various levels, employers, and investment from social institutions. The central government provided subsidies of 152.2 billion yuan. Relevant ministries and departments formulated measures to strengthen construction-related fund management, urge local governments to put supportive construction funds in place, regulate the use of corporate bond financing, enhance credit support, expand pilot projects with loans from housing provident funds, and raise construction funds through multiple channels. In addition, provinces, regions, and municipalities also increased their investment and provided the construction land for social housing. Many conducted dynamic supervision on the operation and management of social housing programs.

People queue up to apply for first public-rental apartments in Chongqing

In order to ensure that the construction of social housing and shanty area renovation projects would start according to the quality and quantity as prescribed in this year's plan approved by the State Council before the end of November 2011, the General Office of the State Council organized eight inspection teams to inspect the situation of social housing construction in 16 provinces, regions, and municipalities such as Beijing, Liaoning, and Shanghai. The MOHURD also dispatched inspection liaison officers to each province who stayed in the provinces to facilitate the start of housing project construction, and improvement of quality and administration. The relevant authorities including the Ministry of Finance, the Ministry of State Land and Resources, the NDRC, the Ministry of Agriculture, and the State Forestry Administration also strengthened their inspection and facilitation procedures.

On December 23, 2011, Jiang Weixin declared at the China Housing and Urban-rural Development Work Meeting that with the joint endeavor of local governments and organs of the central government, the task of starting the construction of 10 million units of social housing and shanty area renovation were completed ahead of schedule.

However, the overall state of housing in China is still in its exploratory stage with many contradictions and problems, including the still-incomplete status of housing institutions and policies, security and regulatory practices, and insufficient administration and mishandling in the implementation period. Experiences need to be summarized in a timely manner to improve the institutions and strengthen the administration in the years ahead.

2.2.4 Practices of building social housing by central and local governments

During the period when large-scale construction of social housing was initiated and turned into the track of regulation development, different local authorities are faced with great local differences and huge challenges. Institutional improvement has become an important "security" for large-scale construction of social housing, especially in terms of capital, land, and administration.

(1) Land Supply. The land supply quota for social housing should be assigned individually to the local governments by the central government. Land supply has become an important precondition for the construction

of social housing. The central government has enacted a series of land-related supportive policies and the local governments have continuously increased the land supply to satisfy the demand of social housing projects. For example, Guangzhou has adopted the land reserve system for the construction of social housing. Beijing has confirmed that the land for the construction of social housing shall account for over 50% of the municipal land supply for residential buildings, and the number of units of new social housing to be constructed and purchased shall account for over 50% of the number of all newly-started units of housing construction of the city. Sites for social housing should be selected at locations with convenient transport and living facilities. The Provincial People's Government of Shaanxi has explicitly demanded that the land for low-rent housing, affordable housing, and public rental housing shall account for 30% of the land for real estate development. Shandong Province has also adopted a policy to designate areas of land for social housing development and assigned social housing development plans with land use plans.

(2) Fundraising. Among the various types of social housing, investment can be recovered and marginal profits can even be made by sale of units of affordable housing and price-fixed housing. The major financial pressure comes from rental-type housing such as low-rent housing and public rental housing. In order to alleviate the financing pressure of social housing, the central government continued to increase the financial subsidies and stipulated that the central government subsidies for 2012 shall not be lower than 152.6 billion yuan, the figure for 2011. On February 6, 2012, the Ministry of Finance proposed that the revenue of property tax collected from individuals in pilot cities shall be specifically used for social housing construction. In the first half of 2011, the NDRC formulated the Notice on Relevant Issues of Using Bond Financing to Support the Construction of Social Housing, explicitly allowing financing companies to apply for issuing enterprise bonds to raise funds for the construction of social housing projects. The financial investment of the central government in social housing has become a weather vane, and local governments have also increased their financial support at the provincial and municipal levels. For example, Heilongjiang Province arranged provincial-level subsidies of 1.91 billion yuan in 2010, an increase of 209 million yuan from the previous year. The provincial government and municipal and county governments of Jiangxi Province arranged 1.07 billion yuan and 10.1 billion yuan respectively for the construction of social housing projects in 2010, with the accumulative investment since 2008 reaching nearly 65 billion yuan. Various local governments also issued enterprise bonds and allowed qualified local financing companies to issue enterprise bonds to raise funds for the construction of social housing projects and their associated supportive infrastructures. The local governments have taken proactive measures to increase the investment by government-led market operation. For example, Chongqing Municipality has stipulated the figure of 5% of the gross land transfer fees for the construction of social housing projects.

(3) Allocation and Management. With many social housing units being completed successively, how to ensure equal allocation and how to prevent social housing units from being subleted for profit has become an issue of major concern after the completion of housing construction. The application for social housing units in Beijing includes a three-step review, that include neighborhood and township review and public announcement, district and county re-checking, and public announcement in the media. Modern technology is used to check the relevant income data through channels of public provident funds, local taxation, social security, civil affairs, and public security authorities. Data exchange is carried out on the credit management platform to check and verify income, existing housing ownership, and other relevant information of the applicants. Tianjin, Hebei, Chongqing, and Jiangsu have also tried to use various direct and indirect measures to truthfully reflect the financial conditions of the applicants. Tianjin Municipality has even tried to conduct non-litigious administrative execution on violators through cooperation with judicial authorities, which decreased the violation rate from 1.09% in 2008 to 0.03% in 2011. In addition to the problem of allocation, social housing also faces the problem of management. Currently there are two ideas on the management of social housing properties: The first one is the combination with community management and the second one is using the gains from the associated supportive commodity housing to subsidize the property management cost.

Zhongtong Mingshi Jiayuan Community, Suqian

Box 2.2

The construction of Xin'an Public Rental Housing Program in Huangdao District of Qingdao City, the largest public rental housing program in China, was formally launched on March 30, 2011. The total investment of the program was about 800 million yuan, with the total planned building area of 240,000 square meters and over 3,500 units of public rental housing. Two private companies joined the construction team of the program as investors with their investment exceeding 600 million yuan. The program integrated the investment of Haixi City Investment Co., Ltd. under the Qingdao municipal government, and two strong private companies of Qingdao Ruiyuan Engineering Group Co., Ltd., and Shandong Xinghua Construction Group Co., Ltd. It was reported that these two private companies were responsible for the total development area of 180,000 square meters, accounting for 75% of the total quantity. In order to attract private capital to invest in the construction of public rental housing, Qingdao issued relevant documents including the Notice on Relevant Preferential Taxation Policies to Support the Construction and Operation of Public Rental Housing in 2010, and granted preferential policies on various taxes including land-use tax concerned in the construction and operation of public rental housing. The Notice on Relevant Issues of Fund Use and Management for Social Housing Programs issued later also allowed the net income from land transfer and the capital gains from housing provident funds to be used for the development of public rental housing.

Xin'an Public Rental Housing Project at Qingdao Economic and Technological Development Zone

Box 2.3

Practices of the Local Governments

Beijing and Shanghai. Collective-owned land has been approved for the construction of social housing in Beijing and Shanghai. The source of land is one of the main bottlenecks for the current construction of social housing and collective-owned land, which was once strictly prohibited from real estate development, has become the new benchmark of social housing construction. Beijing and Shanghai have conducted pilot programs of building social housing on collective-owned land since 2009. These pilot programs have been approved by the State Council. To allow collective-owned land to be used for building social housing can revitalize the construction land in rural areas, especially the vacant land. This also can become a new way to solve the land shortage problem for social housing programs and solve the housing problem for low- and medium-income households. According to relevant regulations, the ownership of the collective-owned land for the construction of social housing still belongs to the rural collective economic organizations and the land still falls under the category of rural collective-owned land and is only rented to households with housing problems. In addition, there are also restraints including the strict prohibition against occupying the arable land during the construction process.

Shandong Province. Shandong has fully implemented the lifelong liability of construction quality for social housing. Permanent boards have been established at social housing sites, with names of the construction companies and responsible persons for the permanent supervision of the general public.

Hebei. The competent construction administrative departments of municipalities and counties have organized intensive self-inspections on the quality of the social housing projects under construction within their jurisdiction and solved problems in a timely manner to ensure construction quality.

Hangzhou. The pilot project of economical rental housing has become the main way to solve the housing problem of "sandwich" families that are unable to purchase housing units and cannot meet the conditions to enjoy low-rent housing. 52 units of economical rental housing located at Sandun Metropolitan Water Town in western Hangzhou city were allocated for the first pilot project and all these units were decorated in advance. According to the regulations, the eligibility for the pilot project is for those people who qualify for affordable housing but are temporarily unable to purchase housing. The applicants must meet four conditions at the same time: be permanent urban residents with over 5 years of urban household registration and born before December 31, 1970; married without housing; average annual household income lower than 60% of the average disposable income of urban resident in 2008 announced by the municipal statistics bureau; and never having applied for affordable housing or economical rental housing.

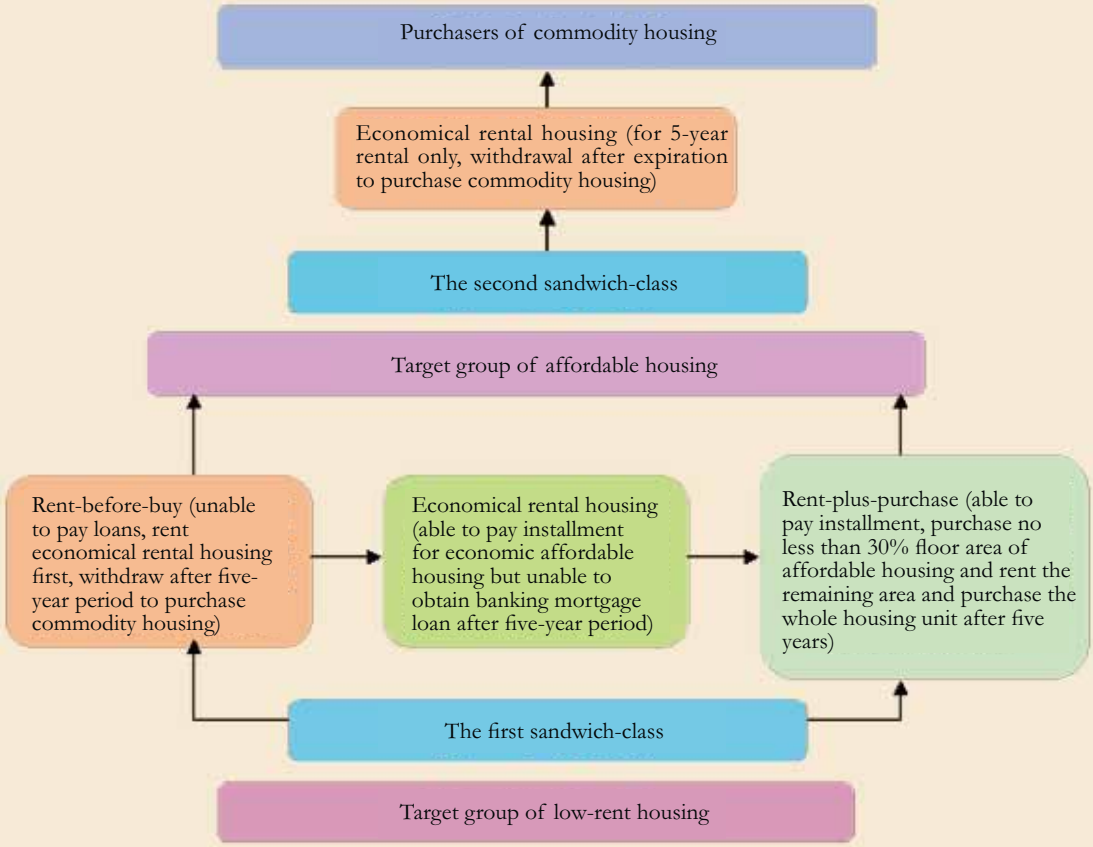


Figure2-3 The Institutional Innovation of Economic Rental Housing in Hangzhou

Chapter 3
Urban Environment and Infrastructure in China

Urban environment and infrastructure are the important components of contemporary urban planning, construction, and management. The two are interconnected and have a cause-and-effect relationship. Both urban environment and infrastructure are vital for urban sustainability, quality of life, and public security. To this end, Chinese cities at the rapid development stage of industrialization, urbanization, and motorization, have made considerable efforts, gained great achievements, and inevitably encountered many challenges. In this chapter, the status of China's urban environment and infrastructure in recent years, together with its outlook on infrastructure construction in the country's Twelfth Five-Year Plan are introduced with a comprehensive focus on state standards and the monitoring of air quality at the urban level.

3.1 Quality of the Urban Environment

The Chinese government regards environmental protection as an important means to transform the economic development mode, and a fundamental measure to promote eco-friendly urbanization and construction, and it has made significant achievements in this regard. During the Eleventh Five-Year Plan period, in areas of energy consumption and national economy, both exceeded the plan guidelines with an annual growth rate of 6.6% and 11.2% respectively, while SO_2 emission and chemical oxygen demand (COD) discharge from cities and industries decreased by 14.29% and 12.45% respectively. In 2011, total COD discharge was 24,999,000 tons, decreasing by 2.04% compared to that of the previous year; total SO_2 emission was 22,179,000 tons, decreasing by 2.21% compared to that of the previous year. However, the trend of general environmental deterioration in China hasn't been fundamentally controlled and environmental conflicts are increasing in intensity. In some key basins and coastal areas, for instance, water pollution is so severe, as is the phenomenon of cloudy brownish haze in some regions and cities, and the emission of major pollutants exceeds the environmental capacity in many regions.

During the Twelfth Five-Year Plan period, China will further promote total emissions reduction of major pollutants and strive for improvement of environmental quality. This objective includes: By 2015, COD, ammonium nitrogen, SO_2 and nitrogen oxides emissions shall be reduced by 8%, 10%, 8% and 10% respectively compared to that of 2010; the proportion of water quality worse than Grade V in surface water-monitored sections decreases by 2.7 percentage points; the proportion of water quality better than Grade III in the sections monitored at seven main water systems increases by 5 percentage points; the proportion of air quality equal to or above Grade II standards in cities at or above the prefecture level increases by 8 percentage points. China will proactively search for new ways of environmental protection that cost less, produces more benefits, leads to reduced emissions and contribute to sustainability, speeds up the construction of a resource-conserving and environment-friendly society, and strives for improving the level of ecological conservation and quality of life.

Pearl River Park, Zhujiang New City, Guangzhou

3.1.1 The state of urban air quality

In recent years, urban air quality in China generally displays a tendency toward gradual improvement. According to the monitoring results of the Ministry of Environmental Protection on air quality of most cities in China from 2005 to 2010, the proportion of cities with air quality equal to or above Grade I standard decreased from 4.2% to 3.6%; the proportion of cities with air quality equal to or above Grade II standard increased significantly from 56.1% to 79.2%; and the proportion of cities with air quality equal to or below Grade III standard has decreased from 39.7% to 17.2%. The tendencies displayed were that the proportion of cities with air quality equal to or above Grade II standard increased, while the proportion of cities with air quality equal to or above Grade I standard and equal to or below Grade III standard decreased (Figure 3-1).

Urban air quality is still faced with a number of challenges. At present, air pollution is severe in around 20% of the cities in China. In 2010, among the 113 key environmental protection cities, there were 30 cities with air quality below Grade II standard, including 15 provincial capital cities or other cities at a higher level. PM 2.5 air pollution in cities was becoming obvious. On the basis of the monitoring results of selected pilot cities in 2011 and the new ambient air quality standard, most cities failed to meet the standard for fine particulate matter with average value of 58 mg/m3.

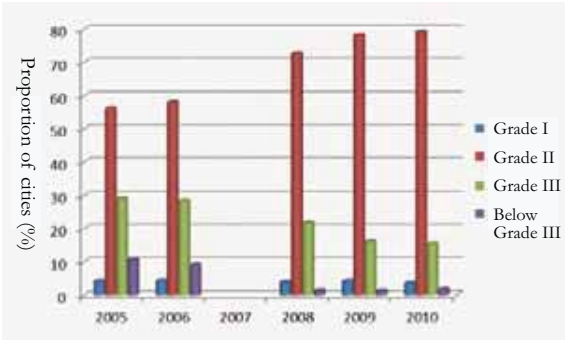
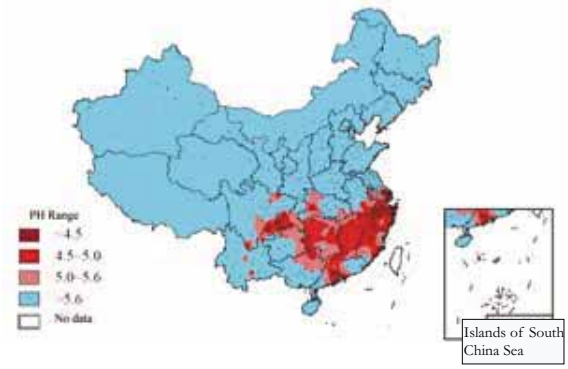


Figure 3-1 Changes of Urban Air Quality in China (2005-2010)



Map 3-1 The Average PH of Precipitation in China, 2010

In China, acid rain pollution is still severe. Acid rain is mainly distributed from south of the Yangtze River to the east of Tsinghai-Tibet Plateau [Tsinghai or Qinghai], including the most part of Zhejiang, Jiangxi, Hunan, and Fujian provinces, the Yangtze Delta, south of Anhui, west of Hubei, south of Chongqing, southeast of Sichuan, northeast of Guizhou, northeast of Guangxi, and the middle part of Guangdong (see Figure 3-2). Among the 494 cities (counties) being monitored in

3.1.2 Ambient air quality standards

Since the period of reform and opening-up, China's ambient air quality standard has experienced a continuously-improved process. On April 6, 1982, the environmental protection leading group of the State Council released Ambient Air Quality Standards (GB 3095-82). According to the Standards, ambient air quality was classified into three grades and pollutants-monitoring indicators were composed of six items, including total suspended particulate (TSP) and floating dust etc. On October 1, 1996, Ambient Air Quality Standards (GB 3095-1996) took effect, in which the number of pollutants-monitoring indicators increasing to 10 items with the addition of indicators for inhalable particulate matter (PM10), lead, Benzo(a)pyrene, and fluoride. Effectiveness of statistics were prescribed. On January 6, 2000, the State Environmental Protection Administration revised Ambient Air Quality Standards (GB 3095-1996) by removing the NO_x indicator and increasing the average yearly ceiling for Grade II standard NO_2 concentration and the average hourly ceiling for Grade I O_3 concentration.

The Ambient Air Quality Standards (GB 3095-2012) was revised on February 29, 2012 and included the following adjustments: firstly, adjusting the scheme for regionalizing ambient air quality zones; secondly, adjusting the items and limit of pollutants, add PM2.5 average concentration ceiling and 8-hour average concentration ceiling of O_3 and tighten the concentration ceilings for pollutants including PM10, NO_2, lead and Benzo(a)pyrene etc.; thirdly, reinforce the provision on the effectiveness of monitoring statistics; fourthly, update the standard for analytical approach for SO_2, NO_2, O_3, and particulate matter, etc.; fifthly, define the timeline for Standards execution, which will take effect in Beijing, Tianjin, and Hebei, the Yangtze River Delta, Pearl River Delta, as well as municipalities directly under the central government and provincial capital cities in 2012 and in 113 key environmental protection cities and national environmental protection model cities in 2013; and all cities above the prefecture level in 2015; and, finally, the new Standard, which will be put into practice in the whole territory of China starting from January 1, 2016.

3.1.3 Ambient air quality monitoring

The Ministry of Environmental Protection is the administrative department in charge of environmental protection in China. Its major responsibilities include: "supervision and management of the prevention and control of environmental pollution; development and implementation of the management system for the prevention and control of water pollution, and air pollution…." Local administrative departments are responsible for related environmental protection work within their territories. At present, the standard for ambient air quality monitoring is the Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution revised in 2000, which specifies the total emissions volume of major air pollutants as well as system licensing; the system of imposing discharge fees based on types and amount of air pollutants discharged, and the system of releasing reports on the state of atmospheric environment quality.

In recent years, social involvement plays an increasingly important role in environmental quality monitoring. The breadth, depth, and strength of public participation in air quality monitoring continue to grow. The role of the public to drive the improvement of ambient air quality is fully reflected in the move of adding PM2.5 in the new Ambient Air Quality Standards (GB 3095-2012). However, conditions for social involvement still need to be further improved, including strengthening air quality evaluation and information release system, widening social monitoring channels, enabling the public to understand the ambient air quality monitoring processes and methods, the quality control of monitoring data, etc., and by introducing third party monitoring at appropriate time and scale to supplement the data released by the environmental protection authorities.

A sanitation worker collects the garbage along the road in Beijing.

Box3-1

Debate on PM2.5 Control

Since the enactment of Ambient Air Quality Standards (GB 3095-2012) in February 2012, PM2.5 has become a compulsory indicator for ambient air quality monitoring. PM2.5 has been widely discussed among the public mainly around the following aspects: (1) Costs of PM2.5 control. Besides higher monitoring costs, PM2.5 will place higher demands on urban industrial structure, energy structure, and environment management. The adjustment costs for some cities cannot be neglected.

(2) PM2.5 background value. PM2.5 is affected by many natural factors, including wind dust, forest fires, pollen, fungal spores, etc. PM 2.5 background value in north China is higher due to natural conditions. Uniform control standards will not only bring high cost for north China, but also contravene the principle of regional equity.

(3) Layout of PM 2.5 monitoring points. Location of PM2.5 monitoring points shall be representative, which could make the monitoring data reflect air quality of urban built-up areas. Compared with Nanjing who has selected three monitoring points at Caochangmen, Xuanwu Lake, and Xianlin University City where the environment is relatively better, Beijing has selected its PM monitoring point at Chegongzhuang, which is an area with concentrated traffic flow. Therefore its PM2.5 data is more representative.

(4) Utilization of PM2.5 monitoring data. Monitoring is not the final goal, but the basis for pollution control. On the basis of PM2.5 monitoring, components of PM2.5 shall be further analyzed, major sources of pollution for PM2.5 shall be identified and corresponding air quality improvement measures shall be developed.

Bicycle for rental in

3.2 Urban Infrastructure

Urban infrastructure is an important pillar for the growth and development of cities and the material foundation for a coordinated economic and social development of cities. During the Eleventh Five-Year Plan period, the speed of China's urban infrastructure construction remained high. In 2010, investment in urban infrastructure amounted to RMB1,430.5 billion, increasing by 155% compared to 2005; facilities for urban water supply, waste water treatment, solid waste management, gas supply, heating fuel supply, transportation, parks and urban green space were significantly upgraded and quality of living was continuously improved.

3.2.1 Comprehensive promotion of infrastructure construction

Water supply. By the end of 2010, urban water supply quantity was 50.79 billion cubic meters, increasing by only 1.2% compared to 2005. In the meantime, the urban water supply pipeline network reached a length of 540,000 km, 160,000 km longer than that of 2005. The five years from 2005 to 2010 witnessed the most rapid growth of the water supply pipeline network since the period of reform and opening-up. Thanks to the expansion of the water supply pipelines, more surrounding areas integrated their water supply networks with those in the urban centers.

Water drainage. Urban wastewater collection and treatment capability has also been considerably improved. In 2010, the length of urban drainage pipes in China reached 370,000 km, and wastewater treatment capacity exceeded 100,000,000 m^3/day. The wastewater treatment ratio reached 82.31%, increasing by 30% compared to the figure in 2005. However, there remain significant problems, such as unbalanced regional development of waste water treatment facilities construction, relatively low operation of some treatment facilities, and comparatively slow construction of associated projects for pipeline networks.

Gas and heat supply. China's urban gas consumption structure was initially established as a natural gas network. However, insufficient natural gas supply has become the bottleneck for urban gas industry development. In 2010, natural gas supply was up to 48.76 billion m^3, accounting for 54.5% of the total gas supply. The coverage of urban central heating has expanded rapidly, leading to an increasingly larger pressure on upper-stream energy supply. During the Eleventh Five-Year Plan period, central heating areas in China increased from 2.52 billion m^3 in 2005 to 4.36 billion m^3 in 2010, an increase of 73%.

Environmental sanitation. Non-hazardous urban waste treatment facilities have developed rapidly. But the problems of insufficient treatment capacity and low waste-to-energy utilization still exist. As of 2010, there were 628 non-hazardous urban waste treatment plants in China, with a capacity of 388,000 tons/day, and a treatment rate of 77.9%. Sanitary landfill is the major treatment method adopted in China at current stage, accounting for 74.8% of total treatment capacity.

Road transportation. China's urban road transport system has also been gradually improved. However, the road network structure is not quite satisfactory. In 2010, the length of urban roads in China reached

Yellow River Park in Suqian

294,000 km with an area of 5,210,000,000 m^2. The modern road transportation network consists of urban trunk roads, sub-trunk roads, slow lanes, side roads, ring roads, and overpasses were gradually improved, and urban transport functions were rapidly enhanced.

Parks and green space. The area of urban green space has increased rapidly and the structure of the green space system has been continuously improved and become more functionally diverse. By the end of 2010, the area of urban green space in China was 2,134,000 hectares, increasing by 45.4% compared to 2005; vegetation coverage in the urban built-up areas was 38.6%; the per capita park land area was 11.18 m^2. There were 63 national key parks, 41 national urban wetland parks, 180 "national garden cities," 7 national garden urban districts, 61 national garden counties, 15 national garden towns, and 22 national forest cities in China.

3.2.2 New Characteristics of Infrastructure Construction

The supporting capacity of special water infrastructure program to water security and assurance has been greatly enhanced. During the Eleventh Five-Year Plan period, guided by the urban water resources development and utilization strategy of "prioritizing water saving, pollution control and resources expansion," China's urban water supply was transformed from purely pursuing capability growth to paying more attention to water quality improvement, overall urban-rural planning, service improvement, treatment in accordance with local conditions, and energy saving and emissions reduction. Supported by the results of national research on Major Science and Technology Program for Water Pollution Control and Treatment, relevant technological level for water conservation, water purification, water transmission, and pipeline distribution was greatly improved in China. The Chinese government put forward the Standards for Drinking Water Quality (GB 5749-2006) in line with international practice, which were fully implemented from July 1, 2012.

The exploration in improving road structures has made positive progress. From the perspective of improving road structures, the Pearl River Delta region has made a positive trial via construction of greenway networks. Meanwhile, more and more cities have begun to plan the construction of urban rail transit. As of 2010, total mileage of urban rail transit in China has reached 1,428.9 km. In terms of regional distribution, rail

Drinking water stand at Olympic Park MRT Station, Beijing

transport is mainly concentrated in East China, which accounts for about 95% of the total mileage. Planned new mileage by 2020 includes economically developed regions of Beijing, Tianjin, and Hebei, the Yangtze River Delta, and the Pearl River Delta, which will account for 65% of the total increase. Cities such as Beijing, Shanghai, Guangzhou, Shenzhen, and Nanjing will witness relatively larger increase in new road structure.

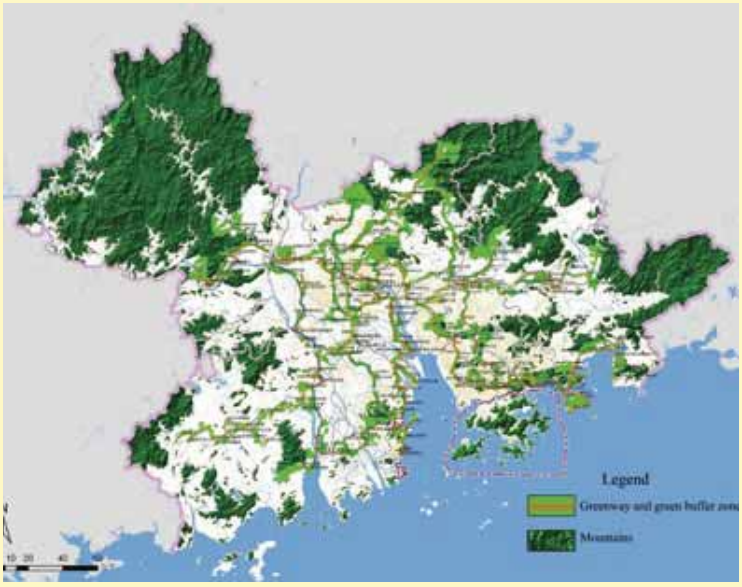
The pressure of urban energy supply has gradually emerged. In the winter of 2009, a natural gas contingency plan was initiated in Xi'an, Wuhan, Chongqing, Yichang, Nanjing, Yangzhou, Hangzhou, and Rizhao due to gas shortage. At the beginning of 2010, as a wide swath of snowstorms hit Beijing, Tianjin, Hebei, Inner Mongolia and northern Shandong, transportation infrastructure was seriously impaired and another natural gas supply emergency resulted. The major route to solving the "gas shortage" issue is to analyze the natural gas supply mechanism, strengthen gas supply pipeline construction, improve gas storage and peak regulation capability, and optimize the pricing system. Urban heat supply also faces similar energy supply problems. Under the current development environment, price increases of upper-stream energy (coal, etc.) is the major risk faced by the urban heat supply industry. From 2006 to 2010, the average coal price increased by 74%, which put a relatively large cost pressure on heat supply firms. Safeguarding upper-stream energy supply, promoting heat metering reform and improving heat supply efficiency have become the major priorities for the entire industry.

Kitchen waste disposal has experienced regularized and efficient development. In recent years, more and more cities have begun to emphasize the management of kitchen waste. They have tried to improve the recycling ratio of kitchen waste and avoid the recurrence of gutter oil [Gutter oil refers to various types of recycled cooking oil and repeated use of deep frying oil.] at the table through improving relevant management mechanisms and building kitchen waste disposal plants. At present, Beijing, Shanghai, Chongqing, Shenzhen, Xining, Suzhou, Yinchuan, Changsha, Kunming, and Shijiazhuang have all released management rules or regulations concerning kitchen waste. However, the problems of "ineffective implementation of local management regulations, difficult kitchen waste collection, unsophisticated technical routes, and low waste-to-energy conversion ratio" still exist.

Great achievements have been made in the development of urban parks and public green spaces and the saving of land and water. By the end of 2011, the rooftop greening area in Beijing exceeded 1.5 million m^2, playing an important role in reducing wind dust, improving microclimates, and mitigating urban "heat island" effects. Cities including Kurla, Shihezi, and Jiayuguan have actively explored water-saving green roads, water-conservation technology, and drought-resistant plants to improve green coverage and reduce wind-sand hazards. The good atmosphere of "building, loving and protecting green space" with government initiation and public participation has been established.

Box3-2

Greenway Networks in the Pearl River Delta



The greenway network is an open space system composed of a number of regional greenways, urban greenways, and community greenways. Since its rollout in March 2010, within just less than a year, a 2,372 km province-level greenway network in the Pearl River Delta has been established. These greenways connect important places of high natural, historical, and cultural value, such as wilderness parks, nature reserves, scenic spots, and historic heritage sites. Supporting facilities have been built. Space control has been extended to green buffer zones within a certain width, so as to provide more recreation space for the general public.

Figure 3-2 Master Plan of Greenway Networks in the Pearl River Delta

3.2.3 Outlook on infrastructure construction during the Twelfth Five-Year Plan period

Water supply. According to the Twelfth Five-Year Plan and Vision 2020 for the Renovation and Construction of Urban Water Supply Facilities, during the Twelfth Five-Year Plan period, China will take the following measures such as water supply facilities refitting and construction, reinforcing water quality inspection and monitoring capacity building to make the urban water supply access rate in cities, county seats, and key towns reach 95%, 85% and 75% respectively.

Water drainage. According to the Twelfth Five-Year Plan for the Construction of the National Urban Wastewater Treatment and Recycling Facilities, during the Twelfth Five-Year Plan period, China will make wastewater treatment rate in cities, counties and towns reach 85%, 70% and 30% respectively, and utilization rate of recycled water from urban wastewater treatment facilities reaches over 15% through such measures as strengthening urban wastewater supporting pipe network construction, improving wastewater treatment capability, upgrading and transformation of wastewater treatment plants, and promoting the reuse of recycled water.

Road transport. According to the Twelfth Five-Year Plan for the Communications and Transportation Development, during the Twelfth Five-Year Plan period, China will strengthen the planning for the linkage between the intercity rail systems and passenger transport hubs, and promote further linkage among intercity rail transport, urban rail transport and urban public transportation systems; build complete and integrated transport planning systems to integrate the planning for coordinating and for various transport modes and their connection with urban transport systems as a whole; carry out prioritized development strategies for public transport, develop urban public transport systems, build up multi-layer and differentiated public transport service networks, and establish convenient, efficient, intelligent and green urban public transport systems.

Environmental sanitation. According to the National Plan for the Construction of Urban Domestic Garbage Hazard-free Treatment Facilities (2011–2015), during the Twelfth Five-Year Plan period, China will accelerate the treatment facilities construction, improve the collection, transfer, and transport systems, reduce the garbage stockpile, promote the classified treatment of kitchen waste and household garbage, so as to realize the following objectives: In municipalities directly under the Central Government, provincial capital cities and cities under separate state planning, full-scale hazard-free domestic garbage treatment will be realized; in other cities, the non-hazardous treatment rate for domestic garbage will reach over 90%; all counties will build their capabilities to engage in non-hazardous waste treatment, and their non-hazardous treatment rate for domestic garbage will be over 70%; the capacity of domestic waste incineration facilities will account for more than 35% of the total non-hazardous treatment capacity in cities and towns; and about 50% of cities will initially realize classified collection, transport, and disposal of kitchen waste, with a target treatment capacity of 30,000 tons/day.

Parks and public green space. According to the Twelfth Five-Year Plan for Forestry Development, China will vigorously launch the construction of green belts around cities, surrounding towns and villages, and green space in organizations' courtyards and residential quarters; promote the vertical and rooftop greening and the construction of green parking lots, so as to provide recreational and sun-sheltering space for urban and rural residents. The vegetation coverage of urban built-up areas will reach 39%. The per capita public green space will reach 11.2 m^2 at the end of the Twelfth Five-Year Plan period.

Classified waste collection in Beijing

Beijing green environment provides a good rest and leisure space for residents


玉树州红旗小学

Chapter 4
Urban Public Security and Disaster Prevention and Reduction in China

The term "urban public security" usually refers to events involving or endangering life and property, safety of the public occurring in urban areas, including natural disasters such as earthquakes, floods, and landslides and other disasters such as environmental pollution, the spread of infectious disease, and food poisoning, but excluding social incidents such as acts of terrorism, hostage-taking, and financial crises. China is one of the worst natural disaster-prone countries in the world. It has been beset with a great variety of disasters in its history over a wide geographical region, a high frequency of occurrence, and huge losses in life. Thus, China's urban public security is faced with severe and complicated situations. At the state level, the Chinese government has continuously consolidated the foundation of disaster prevention and mitigation and improved disaster emergency management systems, which significantly enhances China's disaster prevention and mitigation capability. At present, China has initially formed a comprehensive coordination mechanism for disaster prevention, reduction, and relief, which is guided uniformly by the State Council, coordinated by the Office of State Flood Control and Drought Relief Headquarters, and the National Committee for Disaster Reduction, and executed by relevant departments with joint actions. At the municipal level, the development of urban comprehensive systems for disaster reduction, disaster contingency management, and disaster prevention and reduction planning play an important role in safeguarding urban public security in China.

4.1 State of Disasters in Cities

In the recent decade, China has experienced frequent occurrences of natural disasters and accidental disasters, extensive damage in disaster-prone areas, diverse causes of disasters, and huge casualties which have affected people's life and property.

4.1.1 Natural disasters and the risk of urban public security

In China, over 70% of cities and over 50% of the population are distributed in regions seriously affected by natural disasters, including meteorological disasters, earthquakes, geological, and marine disasters. According to statistics of Ministry of Civil Affairs, from 1993 to 2009, direct economic losses caused by natural disasters on average accounted for about 2.2% of the GDP every year, significantly higher than that of developed nations (around 0.5%). The Eleventh Five-Year Plan period has experienced the worst spate of natural disasters since the founding of the People's Republic of China, with one catastrophe after another, including below freezing temperatures, torrential rain, snow storms, and other disasters in South China, the Wenchuan Earthquake, Yushu Earthquake, Zhouqu flood and landslide, and other disasters including serious flooding, droughts, geological disasters, typhoons, hail storms, high temperature and sustained heat waves, sea ice, snow, and forest fires. As a result, about 2.2 billion people combined were affected by the

Huge loss caused by earthquake in Yushu County, Qinghai Province on April 14, 2010

Reconstruction of Yushu County, Qinghai Province

disasters; 103,000 people died or were missing and the direct economic loss amounted to 2.4 trillion yuan, which has brought serious impact on China's economic and social development.

4.1.2 Sudden accidents and the uncertainty of urban public security

In recent years, sudden accidents threatening urban public security have occurred frequently, e.g. SARS in 2003, Songhua River pollution in 2005, blue algae proliferation in Taihu Lake in 2007, and the big fire in Jing'an District, Shanghai, in 2010. These accidents indicate the insufficiency of preparation and capacity of some cities to respond sudden accidents and disasters.

4.1.3 Multiple disaster-causing factors and the challenge of urban public security

The multiple dimensions of disaster-causing factors makes disasters more hazardous, leading to a more complicated situation for urban public security. For example, in 2010, there were a total of 269 cities at or above the county level in China that suffered damage as a result of flood waters. This not only related to heavy precipitation in extensive areas during the rainy season, but also results from inadequate planning, design, and management of urban drainage systems and related infrastructure.

4.2 Urban Comprehensive Disaster Reduction System

To safeguard urban public security not only requires contingency management for disasters, but also requires building a reasonable infrastructure for disaster reduction, establishing sound urban comprehensive disaster reduction systems, and making progress in the four aspects of legislation, management, technical standards, and technological support.

4.2.1 Initial establishment of legal framework for urban comprehensive disaster reduction

At present, laws concerning disaster prevention and reduction in China are basically aimed at dealing with individual disasters, e.g. the Act on the Prevention and Control of Infectious Diseases; Regulation on the Urgent Handling of Public Health Emergencies; Flood Control Act; Act on Protection Against Earthquake and Disaster Mitigation; Act on Safety in Mines; Safe Production Act; and Emergency Response Act. On May 1, 2009, the revised Act on Protection Against Earthquake and Disaster Mitigation was formally implemented, which touched on various aspects including earthquake prevention and disaster reduction planning, earthquake prediction, earthquake disaster prevention, earthquake contingency rescue, post-disaster reconstruction, and promotion of the protection measures against earthquake disasters and mitigation of damage. However, at the current stage, there is no comprehensive disaster reduction law at the municipal level to strengthen urban disaster management under normal and extraordinary conditions.

4.2.2 Improved management framework for urban comprehensive disaster reduction

In 2005, China founded the National Committee for Disaster Reduction, whose major missions include the research and development of guidelines, policies, and plans for national disaster reduction, coordination of major disaster reduction activities, guidance of local disaster reduction efforts, and promotion of international cooperation in disaster reduction. Currently, many inland cities, e.g. Lanzhou, Shijiazhuang, Hefei, and Nanchang, have established municipal disaster reduction committees to coordinate disaster reduction and rescue activities by urban development, civil affairs, earthquake, and water conservation management departments in cities and towns in a unified way.

4.2.3 Improved technical standard system for urban comprehensive disaster reduction

During the Eleventh Five-Year Plan period, the Ministry of Housing and Urban-Rural Development (MOHURD) enacted the Planning Standard for Earthquake Resistance and Disaster Prevention in Cities and the Seismic Technical Code for Building Construction in Towns and Villages, and reviewed the Planning Standard for Disaster Prevention in Towns and Villages.

After the 2008 Wenchuan Earthquake, the MOHURD formulated the Technical Guide for Building Appraisal and Reinforcement after Earthquake Disasters, revised the Code for Seismic Design of Buildings, the Standard for Classification of Seismic Protection of Building Engineering, the Standard for Seismic Appraisal of Buildings, and the Technical Specification for Seismic Reinforcement of Buildings, and further improved the technical standards system for disaster prevention and reduction.

4.2.4 Enhanced role of scientific support to urban comprehensive disaster reduction

With the strengthening of China's scientific power, science and technology supports to urban comprehensive disaster reduction have increased. For instance, the MOHURD successively launched over 50 research subjects on disaster prevention and reduction of urban buildings in the field of urban development during the Eleventh Five-Year Plan period. Ministries, including the Ministry of Civil Affairs, the Ministry of Land and Resources, and the State Meteorological Administration also carried out a great number of scientific research projects from professional perspectives and obtained a series of significant results. At the municipal level, many cities initiated useful exploration. For example, Beijing set up the Around-Beijing Dense Observation Network for Special Meteorological Conditions, established the coordination system and high-performance calculation platform for meteorological operation, and built an operation system combining early warning and short range forecasts for Beijing meteorological disasters to realize risk warning for major disastrous weather in Beijing.

Box 4-1

May12 Disaster Prevention and Relief Drill in Sichuan[1]

On the afternoon of May 11, 2012, in order to mark the fourth anniversary of the May 12 Wenchuan Earthquake before the National Disaster Prevention and Reduction Day, examine the results of disaster prevention and rescue systems developed in Sichuan, and further improve the capability of disaster prevention and relief, the "May 12 Disaster Prevention and Relief Drill 2012" was jointly organized by the CPC Sichuan Provincial Committee, the Sichuan Provincial Government, and the Office of National Committee for Disaster Reduction was formally launched. Hui Liangyu, Member of the Political Bureau of the CPC Central Committee, Vice Premier and Chairman of the National Committee for Disaster Reduction made an on-site inspection during the drill.

1 News of Sichuan: http://scnews.newssc.org/system/2012/05/12/013522483.shtml

The scenario used in this drill was that an 8.0 magnitude earthquake on the Richter scale re-struck the Longmenshan fault, where the Wenchuan Earthquake occurred. The earthquake epicenter was located in Jiezi Town, Chongzhou City, Chengdu Municipality, and the earthquake also affected other related regions along the fault, which led to the collapse of buildings, damage to roads and bridges, and required a large number of wounded people to be transferred out of the affected areas. According to the drill arrangement, the whole process was divided into four stages: HQ decision-making and deployment, gathering of reinforcements, and rescue and conclusion assessment. During the whole drill process, the exercises in the major drill region were focused on 7 life-saving items: building of channels for emergency communication and lifelines, rescue of persons from collapsed structures, air rescue, water rescue, disposal of hazardous chemicals, fires and explosions, emergency repair to power and communication systems, and evacuation, relocation, and settlement of the affected public. The subsidiary drill region was located in Jiuling Town, Jiangyou City, and Qingping Village, Mianzhu City, where response to secondary disasters were carried out, including elimination of risks from landslides and broken dams, and contingency retreat from aftershocks and other geological disasters. In this drill, most aftershocks and other post-earthquake potential secondary disasters were included, organizations at the province, city, county, village and countryside levels were involved, and the participants consisted of party members, government personnel, military personnel, and students. It was the largest integrated disaster prevention and relief drill in Sichuan.

After observing the drill, Vice Premier Hui Liangyu made a summary speech and he pointed out that China was one of the worst natural disaster-prone countries in the world. In the practice of protecting against various types of catastrophes, in accordance with the decisions and deployment of the CPC and the State Council, and based on the realities, China has established the fundamental goal of human-oriented goals and priority for the people's livelihood; improved the mechanism of unified guidance and coordinated action; defined the basic principle of regulated and orderly promotion in accordance with the law; shaped the important concepts of focusing on prevention and combining prevention with relief; determined the goal of demand-orientation and scientific control; improved the working mode of military-civil joint prevention and public prevention and control; and explored a route of disaster prevention and reduction with Chinese characteristics. In coping with the Wenchuan Earthquake, China's disaster prevention, damage reduction, and resistance and recovery capabilities have undergone a major test and a comprehensive examination. Earthquake preparedness, disaster relief, post-disaster recovery, and reconstruction have reached great success, which has created a milestone in the history of disaster prevention and relief on a global scale. At present, a secure, contented, harmonious and prosperous atmosphere has emerged in the earthquake-stricken regions.

The medical staff are rescuing the wounded at the drill yard of hazardous chemicals explosion. Taken by Li Qiaoqiao, a journalist from Xinhua News Agency.

4.3 Urban Disaster Emergency Management

Disaster prevention and reduction is a challenge faced with the whole world for the sustainable development. In the practice and exploration within the recent decade, China has established the comprehensive coordination mechanism for disaster prevention, reduction and relief, which is guided by the State Council, coordinated by the Office of State Flood Control and Drought Relief Headquarters and the National Committee for Disaster Reduction, and executed by relevant departments with joint actions. The system and mechanism of urban disaster emergency management is also under continuous improvement.

In March 2003, after the sudden burst of SARS, the State Council released the Regulation on the Urgent Handling of Public Health Emergencies immediately, which provided a legal means for effectively responding to SARS by that time. It signifies the fact that responses to public health emergencies have been put onto the legal track and handling mechanism of public health emergencies has been further improved.

On January 8, 2006, the State Council enacted the General Contingency Plan for Public Emergencies, which clearly defined the grades and categories of public emergencies and contingency frameworks and prescribed the organization system and working mechanism for the State Council to respond to extraordinarily major public emergencies. It is a normative document to guide the prevention of and response to various types of public emergencies, indicating the initial establishment of framework for contingency plans in China.

In April 2006, General Office of the State Council set up the emergency management office (General Duty Office of the State Council), taking charge of daily work in contingency management and general duty work of the State Council, performing the functions of duty observation for emergency, information collection and integrated coordination and playing the role as an operation hub. Afterwards, emergency management offices in provinces, cities directly under central government and autonomous regions came into being successively.

The Emergency Response Act implemented since November 1, 2007 puts forward that "an emergency management mechanism focusing on centralized leadership, integrated coordination, classified management, layered responsibility and localized management" shall be established; the principle for emergency response shall be "prevention in the first place and combination of prevention and contingency management," in which clear responsibilities have been made for central and local governments to respond to emergencies. The Emergency Response Act is an important law for regularizing basic principle of emergency response activities and other contents including prevention and contingency preparation, monitoring and early warning, contingency disposal and rescue, ex-post recovery and reconstruction, etc.

At present, many cities in China have set up "Emergency Management Office" or "Contingency Committee for Public Emergencies," which is responsible for coordinating and guiding the prevention, early warning, drilling, contingency response, investigation and assessment, information release, contingency safeguarding and rescue for public emergencies. In the future, normalized emergency management shall be further promoted to improve the professional capacity of emergency management.

Box 4.2

Shenzhen Emergency Management Committee

Shenzhen Emergency Response Committee was renamed as Emergency Management Committee of Shenzhen Municipal People's Government in 2010 ("SEMC"). SEMC is mainly responsible for making decisions on important events involved in major and extraordinarily major emergencies in the Shenzhen Special Economic Zone. The daily administrative body of SEMC is the Emergency Management Office of Shenzhen Municipal People's Government and its member units which include 48 departments, including the Publicity Department of CPC Shenzhen Committee, Development and Reform Commission, Municipal Bureau of Housing and Construction, State-owned Assets Supervision and Administration Commission. The Emergency Management Office consists of the General Duty Office, General Division of Contingency Plan, Contingency Command Office, and Safety Supervision Division.

Organization Framework of Shenzhen Emergency Management Office

Emergency signs

Emergency shelter

Emergency first aid

Emergency command

Emergency water supply

Emergency power supply

Emergency goods supply

Area for makeshift tents

Beijing emergency shelter and emergency facilities built on the basis of the parks

4.4 Urban Comprehensive Disaster Prevention Planning

In China, urban disaster prevention planning is provided with legal foundation and specific requirements. It is prescribed in the Urban and Rural Planning Act implemented from January 1, 2008, that disaster prevention and reduction shall become compulsory in overall urban and rural planning. On November 26, 2011, the General Office of the State Council enacted the National Comprehensive Disaster Prevention and Reduction Plan, which plays an important part in development of the undertaking for comprehensive disaster reduction, the comprehensive system for disaster prevention and reduction, and the comprehensive capacity for disaster prevention and reduction in China. On September 14, 2011, the MOHURD issued the Twelfth Five-Year Plan for Disaster Prevention and Reduction in Urban and Rural Development, which provides the basis for urban and rural construction authorities at each level to perform their public service function, develop disaster prevention and reduction policies, and organize disaster prevention and reduction activities. This Plan plays an important guiding role for formulating urban comprehensive disaster prevention planning.

Urban disaster prevention planning includes the traditional planning for individual disasters (e.g. flood control, earthquake preparedness, and fire-fighting plans, etc.) and overall urban comprehensive disaster prevention planning. The latter, built on the basis of assessment on various types of risks in urban areas, integrates the arrangement and deployment of engineering and non-engineering measures for the cities to protect against and mitigate the impacts of disasters in the short and long-term. In recent years, cities such as Beijing, Xiamen, Haikou, Hefei, and Huainan, have developed urban comprehensive disaster prevention plans or carried out special research on developing further plans. On this basis, they have identified the current state of urban disaster prevention and its existing problems, defined the goal of disaster prevention, improved the planned measures for different types of disasters, reinforced capacity-building for urban disaster prevention measures, and provided useful references for other cities engaged in similar efforts.

The urban comprehensive planning for disaster prevention is emerging in China. At present, regional difference exist in terms of technical difficulty, technological route, planning content, and practice guidance. However, with the establishment and continuous improvement of relevant regulations and standards systems for urban disaster prevention and reduction, the urban disaster prevention planning measures will experience ongoing standardized, regularized, and scientific development in the coming years.

Box 4.3

Comprehensive Urban Disaster Prevention Plan of Huainan City, 2009-2020

The scope of Comprehensive Urban Disaster Prevention Plan of Huainan City for 2009-2020 covers the administrative region of Huainan with a total area of 2,585.13 square kilometers. On the basis of current status survey, disaster risk assessment, and land use safety evaluation, the Plan determines the layout of urban emergency facilities, including emergency command systems, emergency access, emergency shelters, fire stations, and emergency material supplies. It provides direction for special planning of flood control, earthquake preparedness, fire-fighting, air defense, geological disasters, and sudden water or environment accidents. In addition, the Plan also puts forward basic countermeasures and implementation steps for disaster prevention.

Layout of evacuation exits and emergency shelters in urban areas of Huainan

Chapter 5
Urban Social Development and Services in China

In recent years, social service capacity building in China's urban areas has been continuously strengthened, social service level has increased and social service sector improved, making great contributions the smooth and rapid economic development and social harmony and stability.

On March 14, 2011, the Chinese government released The Twelfth Five-Year Plan for National Economic and Social Development, in which it put forward that, in terms of improving people's livelihood and building up and improving basic public service system, it will "follow the principle of priority on the people's livelihood, improve the institutional arrangements on employment, income distribution, social security, medical care and health and housing, promote equal access to basic public services and try to make sure the benefits from development shall be shared by all.

5.1 Basic Public Service

Starting from the Eleventh Five-Year Plan in 2006, "gradually promoting equalization of basic public services" has become a basic goal for China to build a well-off society in an all-round way. During the Eleventh Five-Year Plan period, China's basic public service system construction made great achievements. The framework was taking form for basic public service system, which is initiated by the government and aimed at safeguarding basic living and development requirements of all citizens. Free compulsory education was fully implemented. Labor employment service system for all labor force was initially established. Social security system was expanded from urban areas to rural areas and from employees to residents. Social assistance and social welfare system was basically formed. Primary medical and public health service system in urban and rural areas was gradually improved. National essential drug supply system was set up. Social housing projects were accelerated and public cultural facilities improved.

In 2012, the budget of the central government of China is 6.4 trillion yuan, including 2.9 trillion yuan directly related to people's living and closely related to people's livelihood, which accounts for 45% of the total budgets.

In May 2012, the Twelfth Five-Year Plan for National Basic Public Service System was approved to be implemented with the following main tasks:

-- To clarify the range, projects, main tasks and the essential national standards of the basic public services during the Twelfth Five-Year Plan period and to carry out a batch of safeguard projects in areas of basic public education, employment service, social security, basic social service, basic medical and health service, population management and family planning, basic housing security, public cultural and sports program and the basic public service for the handicapped so as to improve the infrastructure conditions and service networks.

-- To gradually set up the integrated basic public

A "left-behind child" of Class 2, Grade 3, reads the textbook with classmates in Linwei District Siyuan School, a private boarding school in Dashi Village, Guandao Town, Linwei District, Weinan, Shaanxi Province

service system in the urban and rural areas, to complete the institutional mechanisms of equalization in regional basic public service, to increase the preferential policies in public funding for the rural and poverty-stricken areas and the vulnerary groups, devote more financial and material resources to the grass-roots units in order to eliminate the differences in the basic public services level, equalize resources allocation and promote equal development opportunities.

-- To establish a financial expenditure growth mechanism in basic public service in conformity with the economic growth and the increase of government revenue, to clarify responsibilities for supervision and expenditures of the government, refine the transfer payment system, polish finance guarantee mechanism and effectively enhance the ability of the government finance on all levels, especially on that of the county, to provide and protect basic public service.

-- To speed up the establishment of the basic public service provision mode characterized by government guidance and social participation. Under the condition of government's undertaking the responsibility, the market mechanism, and social participation shall be encouraged to promote the diversification of provision of basic public services.

5.1.1 Universal basic education and new development of education undertakings

In 2010, China issued the Medium- and Long-term Education Reform and Development Plan. The national education work meeting put forward the strategic objectives of basically attaining education modernization, developing a learning-type society and becoming a strong nation with powerful human resources by 2020. In accordance with the requirements of the Plan, in 2012, the Central Finance made the budget planning based on the principle that state financial educational funds expenditure accounts for 4% of the national GDP. The State Council also required local financial authorities to make corresponding arrangements to ensure the attainment of this goal.

By the end of 2010, 2,856 counties, cities and districts in China realized the goal of "basically popularizing the nine-year compulsory education and eliminating illiteracy among young and middle-aged people". As the number of school-aged population gradually decreased, the number of primary and junior middle schools, the number of new enrollments and number of students and graduates in primary and junior middle schools decreased continuously. However, the gross enrollment rate of junior middle school and progression rate of junior middle school students continued to grow.

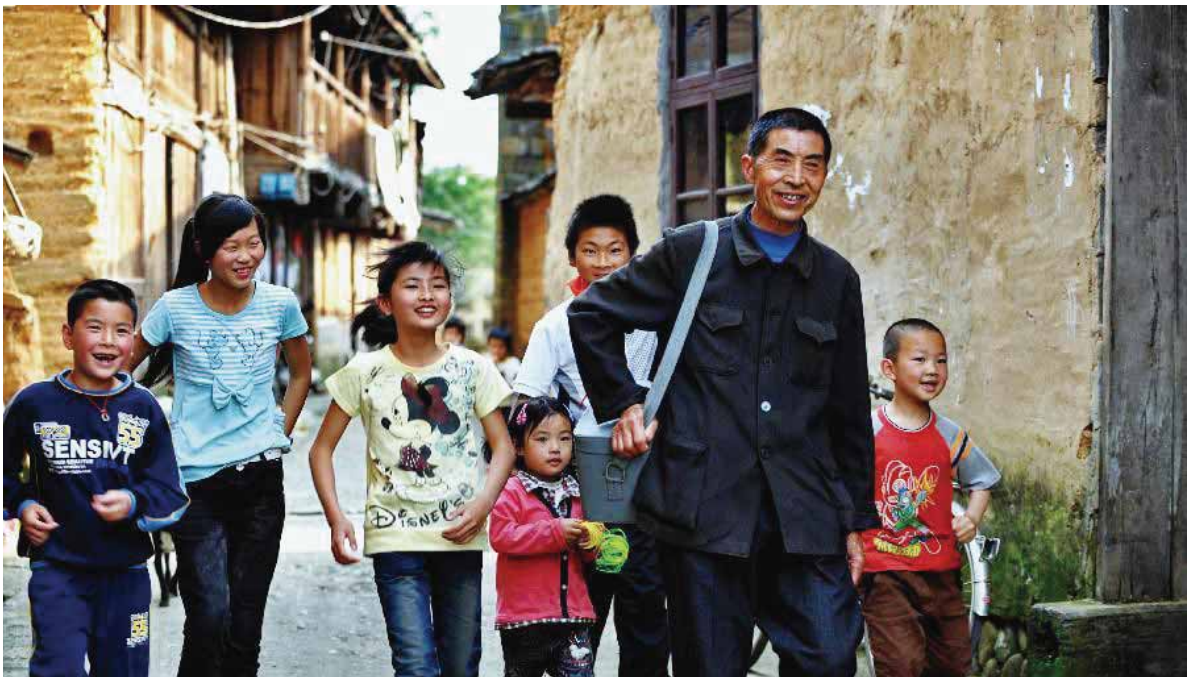
By the end of 2010, there were totally 150,400 kindergartens in China with 29,766,700 enrolled children (including pre-school children); 1,706 special education schools with 425,600 enrolled students; 28,584 high schools (including general high schools, high schools for adults and secondary vocational schools) with 46,773,400 enrolled students; 2,723 regular and adult higher education institutions with the total number of enrolled students reaching 31,050,000 and gross enrollment rate attaining 26.5%. In China, there were 119,000 private schools (education institutions) with totally 33,929,600 enrolled students.

In 2010, there were 9.65 million candidates attending self-taught higher education examination and 620,000 students obtained their diplomas; 11,030,000 candidates for non-curricular education (e.g. training); 3,328,900 persons received various types of non-curricular higher education and 7,125,600 persons completed their education that year; 52,919,100 persons received various types of non-curricular secondary education and 59,863,700 persons completed their education that year.

In the context of school bus accidents across the country in recent years, the State Council announced the Regulation on School Bus Safety Management on April 5, 2012, which indicates that it is the joint responsibility of the government, school, society and family to safeguard traffic safety of students. The Regulation has made detailed provisions on schools, provider of school bus service, school bus license, bus driver, traffic safety of school bus, passenger safety, legal responsibility, etc. It also empowers school buses with top road prioritized right to further ensure the safety of children passengers and students.

Table 5-1 Profile of Nine-Year Compulsory Education in China, 2010

	Primary schools	General junior middle schools
Number (10,000)	25.74	5.49
Students (10,000)	9,940.70	5,279.33
Full-time teachers (10,000)	561.71	352.54
Student-faculty ratio	17.70:1	14.98:1
Proportion of schools with the area of sports field (stadium) meeting the standard (%)	55.48	69.53
Boarding students (10,000)	1,038.08	2,305.43
Left-behind children among enrolled students (10,000)	1,461.79	809.72
Children living with rural migrant workers in cities (10,000)	864.30	302.88



A country doctor makes house call in Shan'ao Village, Langu Town, Wuyishan

5.1.2 Gradual improvement of primary health care system

Since the release of the Opinions of the CPC Central Committee and the State Council on Deepening the Health Care System Reform and the Implementation Plan for the Recent Priorities of the Health Care System Reform (2009-2011) of the State Council in 2009, significant progress has been achieved in the focused areas of medical and health care system reform.

Firstly, a framework for basic medical insurance system covering urban and rural residents has been set up. Up to 1.3 billion people have taken part in the three basic health insurances: the Basic Medical Insurance for the Employees, the Basic Medical Insurance for Urban Residents and the New Rural Cooperative Medical Insurance, covering more than 95% of urban and rural residents. The coverage has been expanded from serious illness to minor ailments.

Secondly, the national essential drug supply system has been initially established. All government-run primary health care institutions have implemented the "zero appreciation" for sale of essential drugs.

Thirdly, the primary health care service system covering urban and rural areas has been essentially completed. More than 2,200 county-level hospitals and more than 33,000 urban and rural primary health care and health institutions have been modified and improved. The construction of the general practitioner system has been launched.

Fourthly, the equal access to basic public health services has been significantly increased. Ten basic public health services such as free vaccination and health records are provided to rural and urban residents and the full implementation of the major national public health services has begun.

Fifthly, the government has actively promoted the reform of public hospitals and steadily carried out institutional and mechanism innovations, such as separating politics from public affairs, management from operation, doctors from medicines, and profit from nonprofit.

In 2011, the total number of health professionals in China was 8,616,000; the number of registered (assistant) doctors per 1,000 persons was 1.82; the number of registered nurses per 1,000 persons was 1.66; the number of workers working in specialized public health institution per 10,000 persons was 4.73. Total health expenditure was 2249.6 billion yuan in China and the health expenditure per capita was 1,643.2

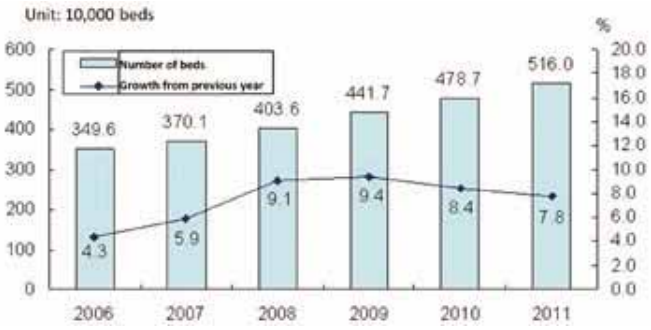


Figure 5-1 Number of Beds in Medical Care and Health Institutions and the Growth Rate from 2006 to 2011

yuan, in which urban residents accounted for more than three quarters and rural residents accounted for less than 1/4. The number of visits and inpatients in China's medical care and health institutions amounted to 6.27 billion and the average number of visits to health care institutions was 4.63 times.

By the end of 2011, 2,637 counties, districts, and cities in China rolled out the New Rural Cooperative Medical Insurance. Up to 832 million people were insured under the cooperative medical insurance scheme and the participation rate reached 97.5%. The total funding for the New Rural Cooperative Medical Insurance amounted to 204.76 billion yuan and the funding amount per capita was 246.2 yuan. New Rural Cooperative Medical Insurance fund expenditure in China was 171.02 billion yuan. An accumulative total of 1.315 billion people were compensated by the insurance. There were 32,860 community health service centers (stations) in China, including 7,861 community health service centers and 24,999 community health service stations.

Figure 5-2 Number of Health Professionals from 2006 to 2011

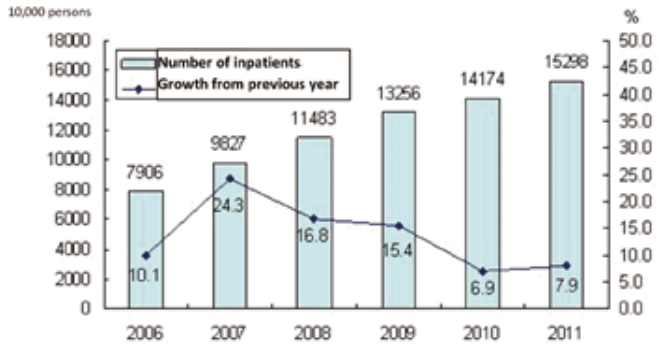


Figure 5-3 Number of Inpatients in Medical Care and Health Institutions and the Growth Rate from 2006 to 2011

Table 5-2 Number of Health Care and Health Institutions in China, 2010-2011

	Number of institutions	
	2011	2010
Total	954,389	936,927
Hospitals	21,979	20,918
Public hospitals	13,542	13,850
Private hospitals	8,437	7,068
Among hospitals: AAA hospitals	1,399	1,284
AA hospitals	6,468	6,472
A hospitals	5,636	5,271
Primary medical care and health institutions	918,003	901,709
# Community health service centers (stations)	32,860	32,739
# Government-run centers (station)	19,821	18,390
Township health centers	37,295	37,836
# Government-run centers	36,850	37,217
Village clinics	175,069	648,424
Clinics (medical offices)	662,894	173,490
Specialized public health institutions	11,926	11,835
Centers of disease control and prevention	3,484	3,513
Specialized disease prevention & treatment institutions	1,294	1,274
Maternal and child healthcare institutions	3,036	3,035
Sanitary supervision institutions	3,022	2,992
Other institutions	2,481	2,465

Note: # refers to the median. It also applies to the tables below.

Table 5-3 Mortality Rates of Pregnant Women and Infants in Urban and Rural Areas, 2011

	National average	Urban areas	Rural areas
Mortality rate of children less than 5 years old ‰	15.6	7.1	19.1
Infants mortality rate (‰)	12.1	5.8	14.7
Newborn mortality rate(‰)	7.8	4.0	9.4
Mortality rate of pregnant women (1/100,000)	26.1	25.2	26.5

Old people enjoy their happy life in Ningguo Community, Jiangxi Province

5.1.3 Development of social senior care service system

Since 1999, China has stepped into an ageing society and the number of ageing population is increasing dramatically, which is characterized by the large number of elderly people, a rapid growth rate and high proportion of people over the age of 80, more Empty Nests (families without young people), "becoming old before becoming rich," too much historical debt, unbalanced development between urban and rural areas and an increasingly great number of disabled and disabled elderly. According to the Sixth National Population Census in 2010, the number of people aged 60 and above reached 177,650,000, accounting for 13.26% of the total population, a 2.93 percentage increase compared with the result in the Fifth National Census in 2000. The number of people aged 65 and above reached 118,830,000, accounting for 8.9% of the total population. The old-age dependency ratio in China was 11.9%, which signifies a tedious task for the development of the social senior care service system.

5.1.3.1 Social senior care service

By the end of 2011, there were 40,868 social welfare institutions for the aged with 3,532,000 beds and 2,603,000 aged people were adopted at the end of 2011; there were 19,407 legal aid centers for the elderly, 84,000 old people's right-safeguarding organizations, 48,116 schools for the aged, 6,032,000 enrolled aged students and 413,000 recreation centers for the elderly. For the whole year of 2011, 458,000 visits and letters of complaint were received. All these provide a powerful guarantee for the legal rights of senior citizens.

In 2010, up to 257 million people were insured in the basic pension insurance for urban residents, total income from urban basic pension insurance fund amounted to 1342 billion yuan and total financial subsidy at each level to basic pension insurance fund was 195.4 billion yuan. There were 23,105,000 urban residents entitled to basic living allowances, including 3,386,000 old people (accounting for 14.7%). There were 5,764,000 aged people entitled to old-age allowance.

In 2010, health service for the elderly was included into the basic public service program in health care system reform. The old people aged at and above 65 could receive annual physical examination and health counseling service for free with the financial investment by government at each level. There were 57.14 million aged people who received physical examination and setting up their own health records.

In March 2012, the Ministry of Civil Affairs held the

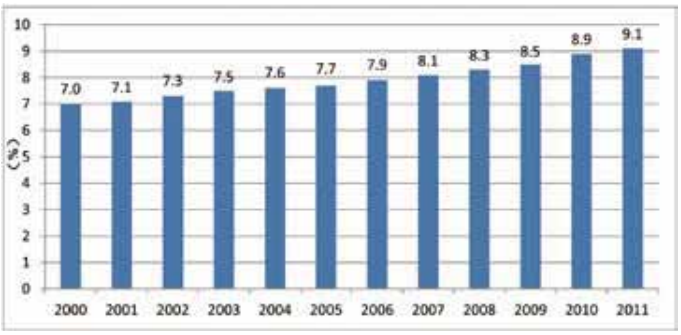


Figure 5.4 Proportion of the People at and over 65 Years Old to the Total Population (2000-2011) (%)

Roliball Team takes part in the event organized by Capital Museum

working meeting on the development of national social senior care service system. During the meeting, by implementing the spirit of the Plan for the Development of Social Senior Care Service System (2011-2015) and the 13th National Civil Affairs Conference, activities were fully deployed for the development of the social senior care service system during the Twelfth Five-Year Plan period. Activities for the "Year of Promoting the Development of Social Senior Care Service System" and the "Program to Respect and Love for the Elderly" were initiated, and the pilot construction of basic service system for the elderly was further promoted. The central government has granted RMB 300 million yuan to the pilot work and old-age allowance system has been established in seven provinces.

Old people play croquet in Tonghui Neighborhood, Meishan City

The meeting required that, by 2015, a home-based, community-dependent and institution-supported social senior care service system with well-defined system, complete organization, moderate size, sound operation, excellent services, rational regulation and sustainable development shall be basically established in China, which shall be corresponding to the process of ageing population and compatible to the economic and social development. Meanwhile, the government shall carefully organize and carry out activities for the "Year of Promoting the Development of Social Senior Care Service System" and execute the "Program to Respect and Love for the Elderly" to realize the planned objective of 30 beds per 1,000 old people in nursing homes and 6.6 million beds in total with 3.4 million beds newly added in 2015.

5.1.3.2 Development of social senior care service system

From 2011 to 2015, the number of old people aged over 60 would increase from 178 million to 221 million with an annual growth of 8.6 million every year; proportion of the old in total population would increase from 13.3% to 16%; in 2020, there will be 243 million old people in China, accounting for 18% of the total population. The population ageing process

Old people enjoy their happy life in Community, Beijing

will be accompanied with a tendency of smaller families and more Empty Nests. The process will also be connected with conflicts inevitable in the economic and social transformation period. Meanwhile, demands for social senior care security and social senior care service will increase drastically. With the acceleration of ageing population, the number of disabled and half-disabled elderly will continue to grow. In such context, the problem to care for these old people is increasingly highlighted. Along with the increasingly higher demand for senior care service, it is highly urgent to accelerate the construction of social senior care service system. In the future 20 years, the problem of ageing population in China will be increasingly severe, and by 2030, number of the aged in China will double the current size, which poses a difficult task for future development.

However, the development of China's social senior care service system is still at the rudimentary stage, which is characterized by: insufficient planning as a whole and lack of integrity and continuity of system construction; inadequate community old-age service and inadequate number of beds in elderly nursing homes with significant conflicts between the demand and supply; very simple facilities with single functions, which is difficult to provide multi-functional services covering caring, nursing, medical recovery, mental support, etc.; unreasonable layout and unbalanced development among different regions and between urban and rural areas; insufficient government investment and limited private investment; unprofessional service teams and inadequate subsequent support for industry development; insufficient implementation of favorable policies enacted by the state; and service norms, regulations and market monitoring to be strengthened, etc.

Strengthening the development of social senior care service system is a necessary route to transform the traditional mode of service for the elderly and satisfy the people's requirement for senior care service. It is very urgent to solve the problem of providing service for the disabled and half-disabled elderly and promote social harmony and stability. It is also an effective way to stimulate consumption and promote employment. Demands for care and nursing by a large number of old people could contribute to the formation of a senior care service market. It is estimated that by 2015, the potential market size of China's senior care services could amount to 450 billion yuan, which will create more than 5 million new jobs for the country.

According to the Twelfth Five-Year Plan for China's Undertakings for the Aged, the future tasks for the ageing population shall focus on social security, medical and health care, family building, ageing population service, living conditions, ageing industry, spiritual and cultural life, social management, and protection of their rights and interests. By 2015, a social senior care service system with well-defined institution, complete organization, moderate size, sound operation, excellent services, rational regulation and sustainable development will take shape.

5.2 Accelerated Development of Community Service System

A harmonious community is the basis for a harmonious society. Developing community services and improving community service system is an important precondition and guarantee for a harmonious community. Community service system refers to the service network and operation mechanism with government direction and support and social participation by regarding urban and rural community as the basic unit, depending on various types of community service facilities, serving for all residents and units in the community, focusing on public service, voluntary mutual aid service and convenient service to the people, aiming for satisfying the requirements of community residents for living and production and improving their living quality.

5.2.1 Development of community service facilities

By the end of 2011, there were 7,194 urban sub-district offices, 89,480 urban communities (neighborhood committees) and 1,340,000 residents groups in China. During the Eleventh Five-Year Plan period, the Opinion on Strengthening and Improving Community Service of the State Council and the Eleventh Five-Year Plan for Development of Community Service System released by National Development and Reform Commission and Ministry of Civil Affairs were implemented throughout China, which brought out a significant achievement for the urban and rural community service system.

"Left-behind children" play hop chess in a recreation center of Beijie Community, Chengguan Town, Shiquan County, Ankang, Shaanxi Province

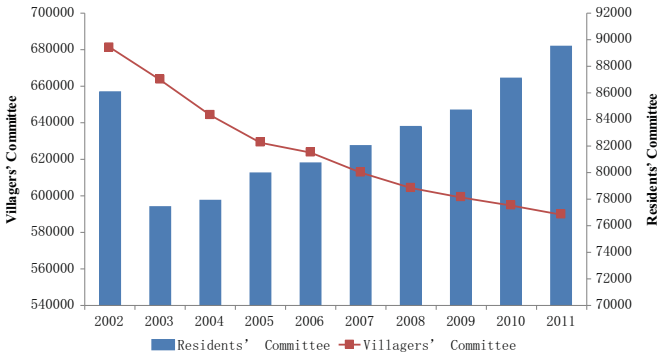


Figure 5-5 Grass-roots Autonomous Organizations

5.2.1.1 The construction of community service facilities made initial progress

During the Eleventh Five-Year Plan period, the number of special community service facilities increased substantially, including sub-district community service centers, convenient service outlets, community health service centers (stations), community cultural centers (rooms), etc.

5.2.1.2 The range of community service was continuously expanded

Government public services composed of labor employment, social security, social service, living allowance, culture and recreation and social safety were gradually expanded to the communities. Community volunteer registration system was widely promoted and volunteer mutual aid service in the communities became prosperous. Some commercial outlets necessary for residents' living, including supermarkets, vegetable markets, breakfast stalls, gained substantial supports. Some convenient services, including home service, property management, old-age nursing home and kindergartens, repair service, waste recycling, were also extended to the communities, which greatly facilitated the residents' life and improved their living quality.

5.2.1.3 The community service team was gradually enlarged

The selection of community committee members in accordance with the law was changed to employment of full-time community workers via public announcement and recruitment. By the end of 2011, there were 160,000 community service facilities, 453,000 convenient service outlets and 159,000 community volunteer service organizations and 1,089,000 persons working in the communities. By 2010, there were 439,000 community committee members and 1,059,000 community public service workers. About 5,076,000 community residents became volunteers for the communities, who were active in community service and became the backbone for promoting community development and services.

5.2.1.4 Community service model was continuously improved

Many cities and towns carried out one-stop services by relying on sub-district community service centers and stations. They rapidly satisfied the diversified requirements of the residents by utilizing modern IT to drive community information construction. Some cities and towns attracted social organizations, enterprises and government agencies and residents to participate in community management and service activities by outsourcing government services, establishing project funds, providing project subsidy, etc., which strengthened the dynamics of community service and service capability of social organizations.

5.2.1.5 The community service system environment emerged

The central government enacted laws concerning the protection of rights of seniors, minors and the handicapped and released relevant policies on community health, social assistance, labor employment, culture and education and community service facilities, etc. Local governments also released policies and measures to actively promote community service. Policies and regulations on community service were gradually improved. The governments at each level paid more attention to community services. The sense of community identification and belonging by the residents was increasingly stronger.

It is proved by practice that strengthening the development of community service system is a pro-people program to secure and improve the people's livelihood and residents' living condition and quality, promote the transformation of economic development mode, upgrade social management systems, and maintain social harmony and stability.

5.2.2 Planning for the development of community service system

In general, China's community service system development is still at the preliminary stage. There are still many difficulties and problems, but also many opportunities and challenges. The most significant problem lies in the serious unbalanced development between urban and rural community services, insufficient community service facilities, inadequate service space in sub-districts and communities and a late start of community service facilities development in rural area. The range of community service needs to be enriched; there is a huge gap for community public services between urban and rural areas; supply is disconnected with the demand due single supply mode. Service talents in the community are scarce and the existing workers are not qualified and the staffing structure needs to be optimized. Community service system mechanism is not smooth and lacks unified planning and sufficient investment; the problem of administration separation and repetitive construction is obvious; resources integration is not adequate and social participation mechanism needs to be improved.

In order to integrate the economic and social development in urban and rural areas and strengthen the community management, consolidate autonomy and service functions of communities, secure and improve the people's livelihood and promote social harmony and stability, the State Council issued the Plan for the Development of Community Service System (2011-2015), providing the general concept of building up urban and rural communities and turning them into the civilized and harmonious social entities with orderly management and consummate services.

During the Twelfth Five-Year Plan period, the specific objectives and tasks for development of community public service include: develop multi-layer and diversified community labor employment, social insurance and social service, community health care and family planning service, community culture, education and sport service, community legal and safeguarding service and community convenient service for the public. By 2015, a relatively complete set of community service facilities, service range, service teams, service networks and operation mechanisms shall be basically established. Meanwhile, the community service funds guarantee mechanism by combining government investment with social investment shall be built and improved to bring out the role of the market for a diversified participation and strengthen the development of community service facilities, especially in urban villages, newly built neighborhoods, neighborhoods with concentration of special population and transient population, so as to accelerate the development of community service facilities network that focuses on comprehensive service facilities supplemented with special service facilities. Oriented by the residents' demands, community service resources, community IT construction and community comprehensive management and service platforms shall be integrated and promoted. The community service for all residents, especially residents with living difficulties, entitled groups, seniors, the handicapped, minors and rural migrant workers, shall be facilitated.

Family Service Center, Beijing Street, Yuexiu District, Guangzhou

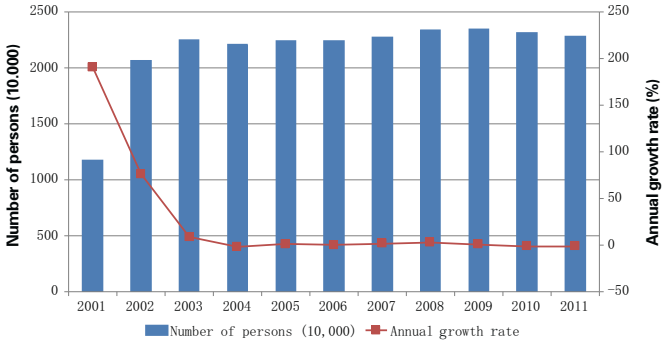
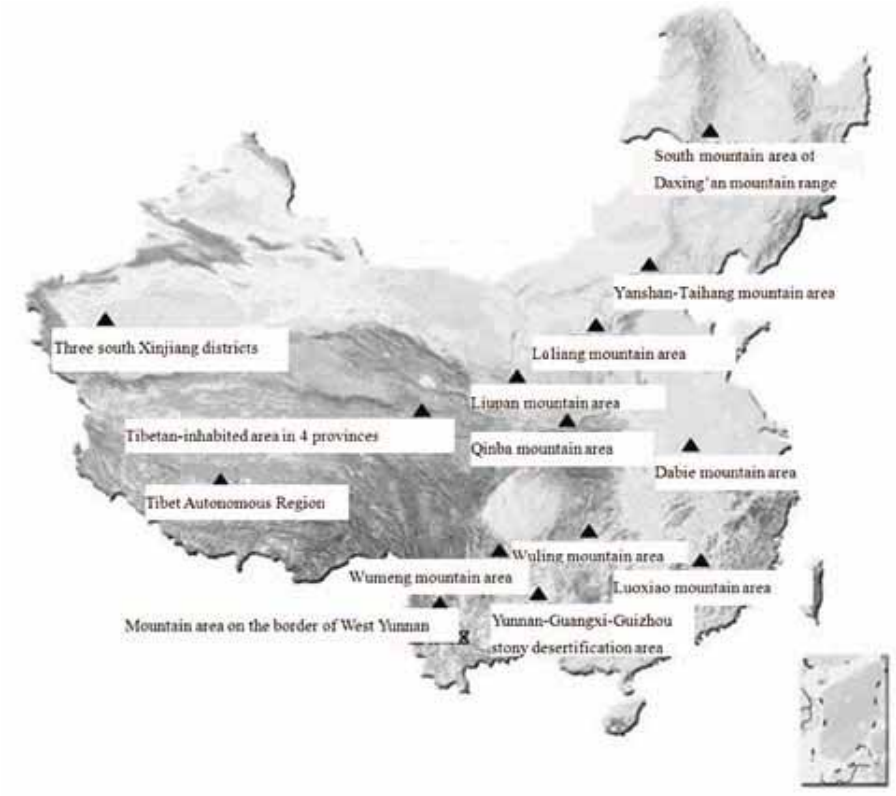


Figure 5-6 Subsistence Allowance for Urban Residents



Map 5.1 Sketch Map of Major Regions for China's Poverty Alleviation

5.3 Social Development and Services

5.3.1 Social assistance

5.3.1.1 Living allowance for low-income groups

By the end of 2011, there were 11,457,000 households and 22,768,000 persons entitled to subsistence allowance in China's urban areas. Financial expenditure on urban subsistence allowance from governments at all levels totaled 65.99 billion yuan, including 50.2 billion yuan allocated from central government budget. Average standard for receiving urban subsistence allowance was 287.6 yuan per person per month; subsidy per capita for persons entitled to urban subsistence allowance was 240.3 yuan per month (including one-time living subsidy), increasing by 27.1% compared to last year.

On November 29, 2011, the national poverty alleviation meeting was held in Beijing. The meeting fully deployed the Outline for Poverty Reduction and Development of China's Rural Areas (2011-2020) and identified the major regions for poverty alleviation, including those most poor regions, such as Liupan mountain area, Qinba mountain area, Wuling mountain area, Wumeng mountain area, Yunnan-Guangxi-Guizhou stony desertification area, mountain area on the border of West Yunnan, south mountain area of Daxing'an mountain range, Yanshan-Taihang mountain area, Luliang mountain area, Dabie mountain area, and Luoxiao mountain area, and those regions that are provided with special policies, such as Tibet, Tibetan-inhabited areas in Sichuan, Yunnan, Gansu and Qinghai, and three south Xinjiang prefectures. In the meantime, the Chinese government decided to set the new national standard for poverty alleviation at a net per capita income of 2,300 yuan for farmers, a 92% increase compared with the standard in 2009. In such context, the number of people entitled to poverty relief increased to 128 million.

5.3.1.2 Medical assistance

In 2011, an accumulative total of 22.22 million urban residents received medical assistance, including 15,498,000 persons insured in Basic Medical Insurance for Urban Residents received subsidies from civil administration departments and the per capita subsidy was 67.9 yuan. 6,722,000 urban residents received direct medical assistance from the civil administration departments and per capita medical assistance was 793.6 yuan. Within the year, a total of 6.76 billion yuan was spent on urban medical assistance by financial departments at each level, increasing by 36.6% compared to that of last year.

5.3.1.3 Assistance to vagrants and beggars

By the end of 2011, in China, there were 1,788 organizations engaged in offering assistance to vagrants and beggars, with 79,000 beds. Among these organizations there were 1,547 assistance management stations with 71,000 beds. The number of vagrants and beggars without assured living sources in cities and receiving

Care for the social vulnerable group

assistance in 2010 was 2.41 million, and the number of urban residents receiving temporary assistance was 2.901 million.

5.3.2 Social welfare service

By the end of 2011, there were 46,000 social service institutions providing boarding service with 3,964,000 beds and 2,934,000 persons were adopted in China.

5.3.2.1 Orphan support system

The General Office of the State Council released the Opinion on Strengthening Orphan Support Work, which has made a comprehensive arrangement for policies and measures including orphan placement, basic living, education, medical care and recovery, employment after grown-up and housing, etc. The Ministry of Civil Affairs and the Ministry of Finance jointly issued the Notice on Basic Allowance for the Orphans and the central financial budget arranged 2.5 billion yuan for subsidizing local governments to distribute basic allowance to the orphans. The minimum upbringing standard for orphans has been gradually implemented in China. Special initiatives including "Plan for Tomorrow," "Reborn Action" and "Hernia Recovery" continue to be carried out.

By the end of 2011, there were 509,000 orphans in China, including 108,000 children adopted by social welfare institutions and 401,000 orphans living with their relatives. In 2011, the number of family adoption registration nation-wide was 31,424, including: 27,579

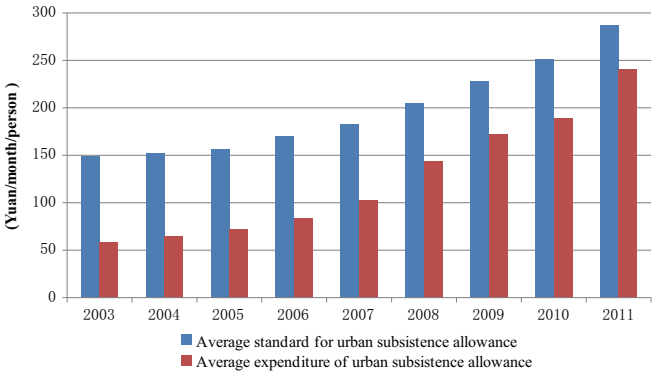


Figure 5-7 Standard for Subsistence Allowance for Urban Residents and Their Expenditure Level

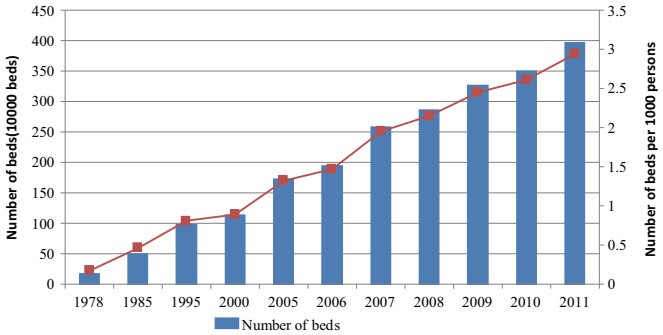


Figure 5-8 Number of Beds in Social Service Institutions

Physicians of Zhumadian First People's Hospital conduct free medical treatment for the disabled

items of registration by Chinese citizens and 3,845 by foreign citizens. 179,000 under-age vagrants and beggars received assistance in 2011.

5.3.2.2 Social welfare enterprises

By the end of 2011, there were 21,507 social welfare enterprises in China with the added value in the amount of 73.8 billion yuan, accounting for 0.36% of the tertiary industry. They employed 628,000 disabled workers. The total profit made by these social welfare enterprises was 14.01 billion yuan and year-end fixed assets were valued at 181.81 billion yuan.

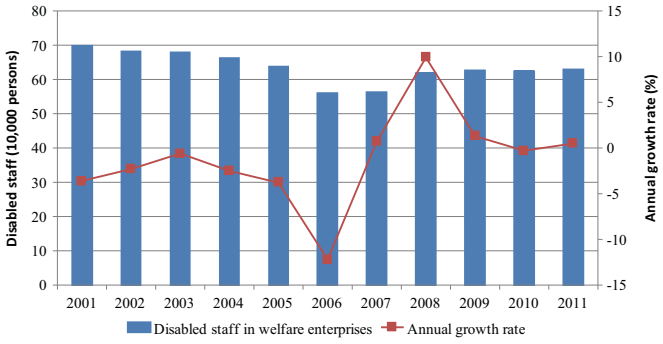


Figure 5-9 Disabled Workers in Social Welfare Enterprises

5.3.2.3 Social charity

Charity is the traditional virtue of the Chinese nation, which is also an important component of socialist construction with Chinese characteristics. Accelerating the development of charities plays an important role to adjust profit distribution, alleviate social conflicts, promote social equality, advance social harmony, facilitate socialist spiritual civilization construction, increase sense of responsibility of the civil society, create a good social atmosphere and enhance national cohesion under new situation.

By the end of 2011, China built up 34,000 regular social donation stations (points) and charity supermarkets. Within the year, the amount of total donation directly from the society was 49.5 billion yuan, in which the civil administration departments received cash donation and relief goods donation respectively in the amount of 9.66 billion yuan and 480 million yuan. Various types of social organizations received cash donation in the amount of 39.36 billion yuan. In this year, 29,185,000 pieces of quilts and clothes were donated in all parts of China. The indirect cash and quilts and clothes donation transferred by other departments was respectively 380 million yuan and 5,884,000 pieces. 14,597,000 people benefited from the charity causes.

5.3.3 Social organization and their development

By the end of 2011, there were 462,000 social organizations in China working in every field of social life, such as science and technology, education, culture, health, labor, civil affairs, sports, environmental protection, legal service, social intermediary service, industrial and commercial service and rural and agricultural development. Among them there were 255,000 social organizations, 204,000 private non-enterprise entities and 2,614 foundations. These social organizations employed about 5,993,000 persons and received social donation in the amount of 39.36 billion yuan.

5.3.4 Social service institutions

By the end of 2011, there were 1,298,000 social service institutions in China, which employed 11,298,000 persons and held fixed assets in the amount of 698.98 billion yuan. Added value generated by the social service sector amounted to 245.98 billion yuan, accounting for 1.2% of the tertiary industry. By the end of 2011, there were 13,412 candidates passing the social worker certification examination and 40,755 candidates passing the assistant social worker certification examination.

The construction of volunteer team was facilitated through actively promoting volunteer registration, exploring the establishment of the coupling service mechanism between social work professionals and volunteers, and setting up the Chinese Volunteer Association. In 2010, there were 106,000 community volunteer organizations and 5,076,000 community volunteers.

5.3.5 Social service expenditure

In 2010, China's expenditure on social services was 269.75 billion yuan, including special compensate funds: 36.27 billion yuan; demobilization payment: 26.9 billion yuan; subsistence allowance for urban residents: 52.47 billion yuan; social welfare expenditure: 14.98 billion yuan; relief funds for natural disasters: 23.72 billion yuan; retirement pension at the local level: 3.04 billion yuan; other funds for urban and rural medical assistance and civil administration: 54.41 billion yuan. The proportion of expenditure on social services to the national financial expenditure was increased from 2.9% in 2009 to 3.0%.

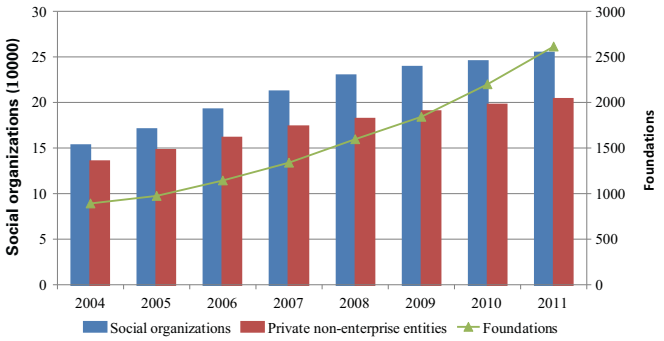


Figure 5-10 The Process of Social Organization Development

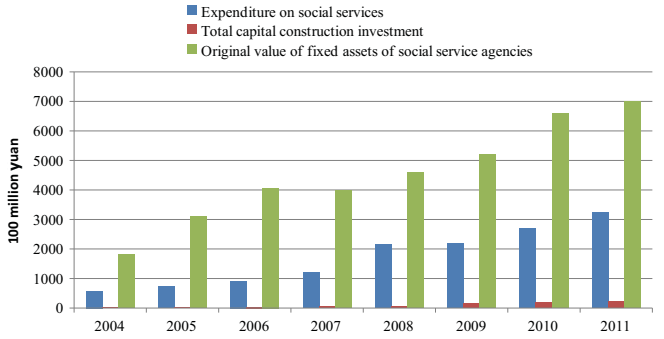


Figure 5-11 Summary of Assets of China's Social Service Sector

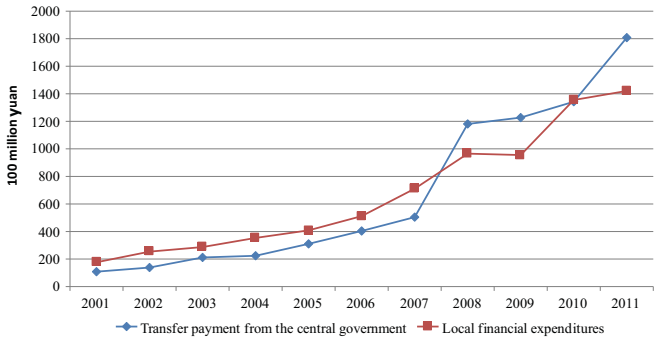


Figure 5-12 Transfer Payment for Social Service Expenditure from the Central Government

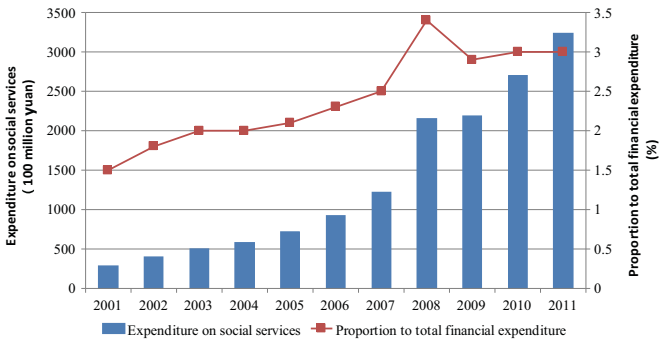


Figure 5-13 The Proportion of Social Service Expenditure to the Total National Financial Expenditure

Chapter 6
Urban Planning and Administration of China

6.1 Overview of Urban Planning and Management

6.1.1 Improved legal system for urban and rural planning

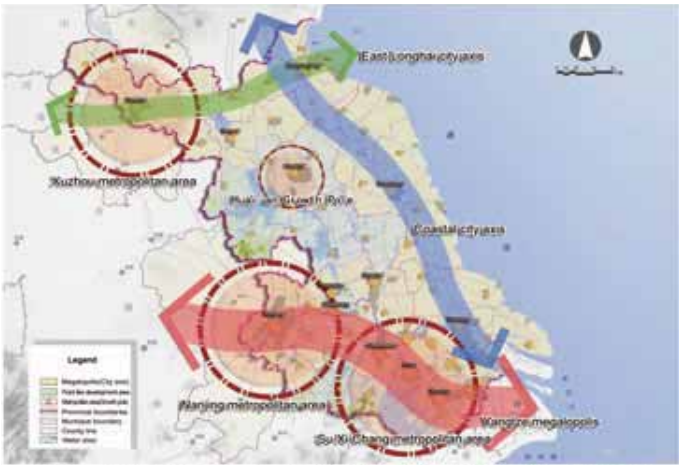
6.1.1.1 Progress of administrative legislation

Since the Urban and Rural Planning Act of the people's Republic of China was promulgated and enacted in 2008, the Ministry of Housing and Urban-Rural Development (MOHURD) has promulgated two ministerial-level rules and regulations on city and county planning of the Methodologies for the Formulation and Approval of the Provincial Urban System Planning, and the Methodologies for the Formulation and Approval of Detailed Control Plans on Cities and Towns as the supportive regulations for the Act.

The Methodologies for the Formulation and Approval of the Provincial Urban System Planning, enacted on July 1, 2010, have provided legal basis for the provincial and regional governments to implement national major development strategies, coordinate trans-province spatial development, and promote the coordinated development of urban and rural areas within their administration. The methodologies have further highlighted the administrative powers of the provincial governments and pointed out that, in order to facilitate provincial urban system planning and promote implementation of system planning, provincial governments may formulate specific regional plans as well as plans covering more than one administrative unit at the next lower level. The methodologies have also raised new requirements on guiding provincial urbanization and coordinated development of urban and rural areas in an orderly manner, optimizing the allocation of urban and rural spatial resources and control of development scale, protecting the regional ecological environment and integrated use of resources, building the regional integrated transport system and major infrastructure, strengthening spatial regulation and major strategic regional management, formulating urban and rural plans at the lower level, and policies and measures for their implementation. The implementation of these measures has effectively facilitated the formulation and approval of a series of provincial urban system plans.

The Urban System Plan of Jiangsu Province (2011-2030) has successfully passed the examination of the MOHURD, while Jiangxi, Anhui, Yunnan, Heilongjiang, Fujian and Guizhou, have also accelerated the formulation of their plans.

The Methodologies for the Formulation and Approval of Detailed Control Plans on Cities and Towns enacted on January 1, 2011 have further clarified the role of control plans by stipulating that "the detailed control plan is the basis for the competent urban and rural planning departments to make planning permits and implement planning management." The assignment and transfer of state-owned land use right shall conform to the detailed control plans. They have clarified the



Map 6-1 The Urban System Plan, Jiangsu Province, 2011-2030
Source: Jiangsu Institute of Urban Planning and Design

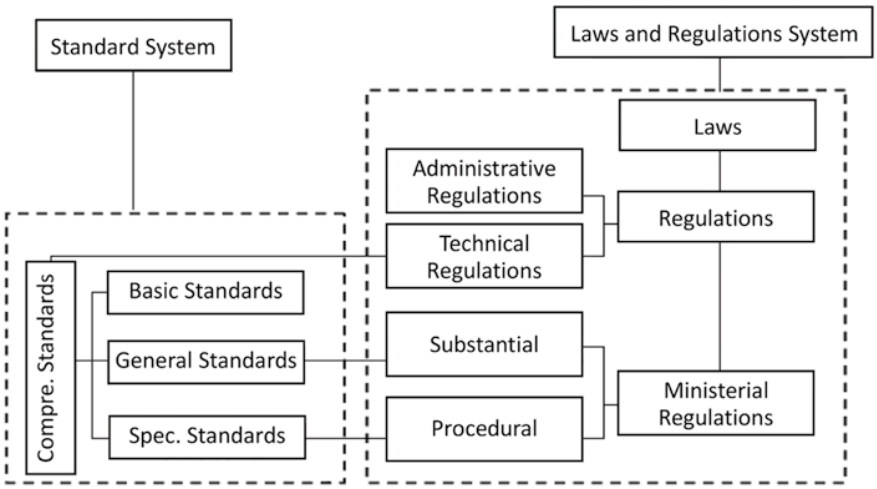
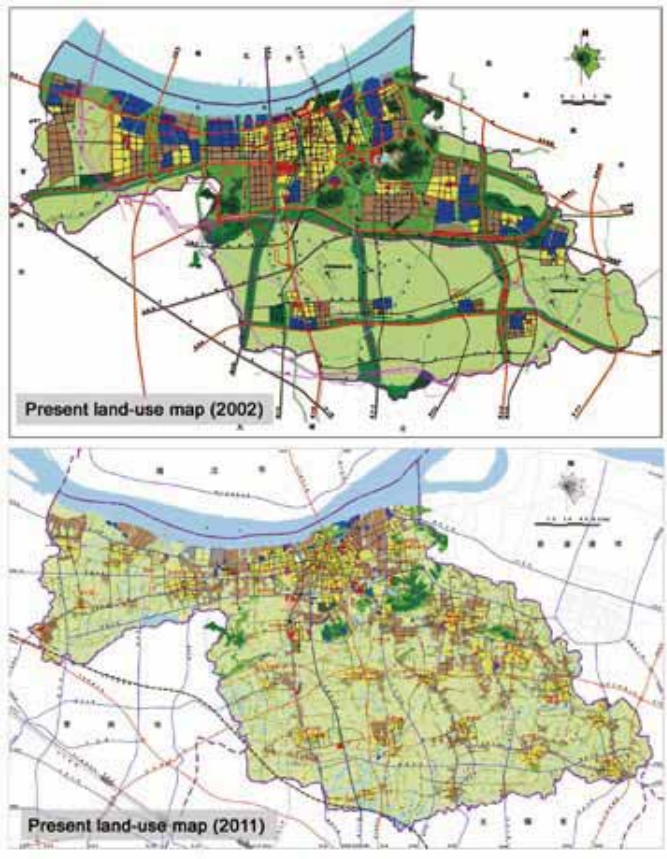


Chart 6.1 New Act-standard Relationship in Urban and Rural Planning

Source: SHI Nan, LIU Jian; Planning Technical Standard System Based on Factors and Procedure Control [J], Urban Planning Forum, 2009(2):1-9.



Map 6-2 Evaluation Report on the Implementation of Jiangyin Urban Master Plan

contents and procedures for the preparation, approval, maintenance and management and modification of the control plans.

In order to safeguard the authoritative seriousness of urban master plans and regulate the modification procedure and content of urban master plans that should be submitted to the State Council for examination and approval, the State Council has released the Rules for the Revision of Urban Master Plans. In order to ensure the timely and effective implementation of the urban economic and social development targets and various construction tasks stipulated in the Twelfth Five-Year Plan, and formulate and implement the short-term construction plans of 2011-2015, the MOHURD has promulgated and enacted the regulatory documents including the Notice on Strengthening the Preparation of Short-term Construction Plans of the Twelfth Five-Year Plan.

In addition, the urban and rural planning standard system has been gradually improved. Under the guidance of new act-standard relationship, such standards and specifications including the Code for Classification of Urban Land Use and Planning Standards of Development Land (GB50137–2011), the Standard for Urban and Rural Land Evaluation (CJJ123-2009), the Code for Compilation of Urban Railway Network Planning (GB50546-2009), and the Code for Planning of Intersections on Urban Roads (GB50647-2011) have been successively enacted and effectively promoted the preparation and technical management of urban and rural planning.

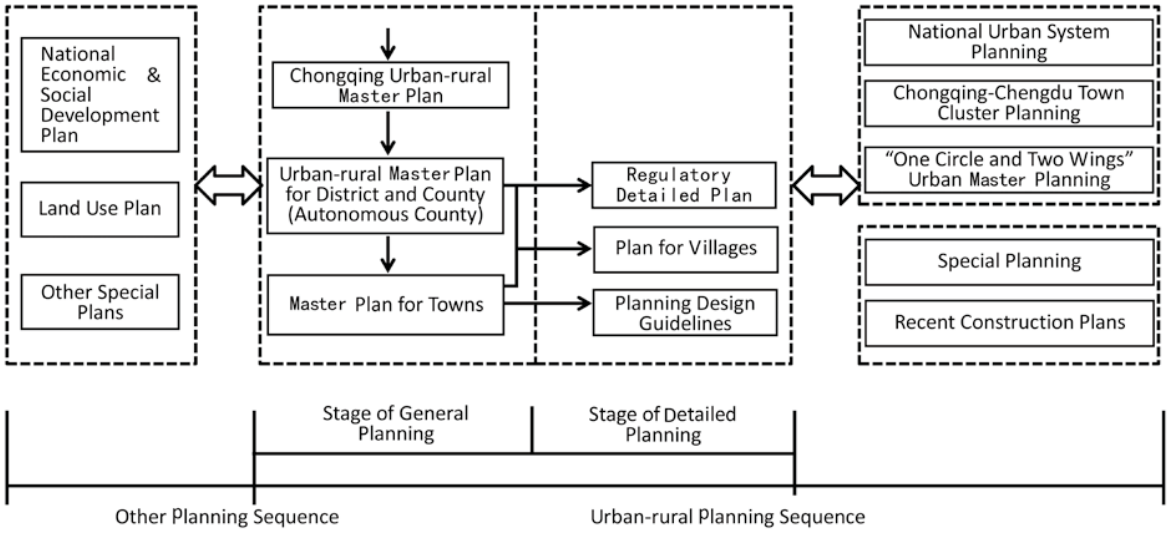


Chart 6.2: Framework of Urban-rural Plan Formulation System Identified in Urban and Rural Planning Ordinance of Chongqing
Source: SHU Muhui, HU Wantai, YU Ying.; Conception of Plan Formulation System in Chongqing Based on Urban-rural Integration [J] City Planning Review, 2010(6):31-35.

6.1.1.2 Progress of local legislation

The 23 provinces (autonomous regions and municipalities under the central government) of Beijing, Shanghai, Tianjin, Chongqing, Liaoning, Jiangsu, Zhejiang, Anhui, Shanxi, Hunan, Jiangxi, Guangxi, Guizhou, Gansu, Shaanxi, Xinjiang, Hainan, Henan, Fujian, Sichuan, Qinghai, Hubei, and Hebei have formulated their rules or measures to implement the Urban and Rural Planning Acts, decided on the whole set of procedures and content requirements for the urban and rural planning from preparation, approval, implementation, and supervision and management, and provided important legal basis to promote the legal administration for urban and rural planning in different places.

The Urban and Rural Planning Act has reinforced the legal status of detailed control plans and has become the basis for the competent urban and rural planning departments to make planning permits and implement planning administration. In order to upgrade the level of the detailed control planning, local governments have actively explored the management methods of preparation and implementation of the control plans. The Standing Committee of the People's Congress of Jiangxi Province has promulgated the Administrative Rules of Jiangxi Province on Detailed Control Plans on Cities and Towns; Hangzhou has promulgated the new Administrative Rules on Detailed Control Plans of Hangzhou and the Preparation of Technical Specifications on Detailed Control Plans of Hangzhou; and Changchun has proposed the Supplementary Regulations of Changchun on Preparation and Approval of Detailed Control Plans on Cities and Towns, and set up special departments to be in charge of the administration of planning of construction land.

New Energy Bus of Hefei

Box 6.1

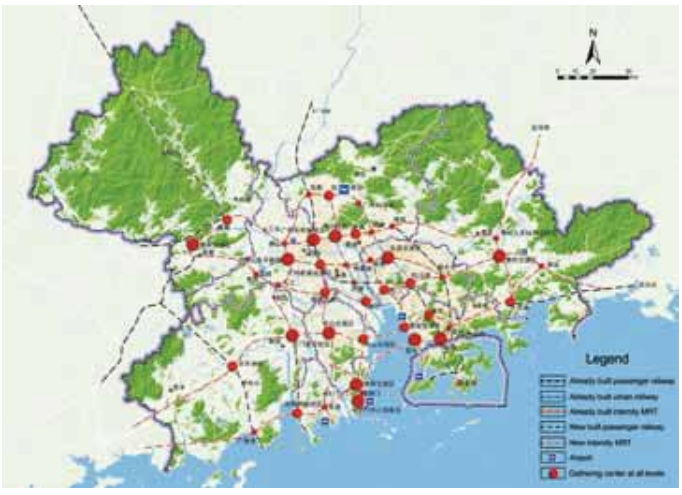
Hangzhou: Control Administration System with Hierarchical Control as the Core

Hangzhou promulgated the new Administrative Rules on Detailed Control Plans of Hangzhou and the Preparation Technical Specifications on Detailed Control Plans of Hangzhou in 2010, and set up the new control system with the hierarchical control as the core. The so-called hierarchical control refers to the division of the planning into three levels of unit-block-plot, where the unit level planning (legal aspect) focuses on the implementation of the control content of overall urban planning and guides the block and plot planning; block-level planning (legal aspect) focuses on the specific implementation of such content of block land distribution, public facilities for public welfare, infrastructure arrangement and determination of the six line planning and identifies the various planning content and overall control indicators of the block as the basis of intra-block plot development and administration; and the plot level planning (internal administration practice level) refers to formulating or adjusting the control indicators of various plot according to the actual administration situations and is the technical basis for planning examination and approval and administration. The planning results at the unit level and block level are the statutory documents consisting of statutory texts and statutory maps; and the plot level planning results are the administration documents consisting of detailed execution rules and execution maps.

6.1.2 People-oriented concept in urban and rural planning

6.1.2.1 Attention paid to social equality and people's livelihood

Since the promulgation and implementation of the Regulation on the Expropriation and Compensation of Buildings on State-owned Land in 2011, the policy of land acquisition and relocation in urban areas has paid more attention to people's livelihood and equality. Guangzhou has set up the villager's independent redevelopment mode with the village economic organizations as the redevelopers; and Shanghai has actively explored the organic old-city updating mode, using that mode to redevelop Pengpu Xincun, the large-scale workers' community of Zhabei District, and realized the win-win-win of improving urban environment, government image, and the livelihood of its residents.



Map 6.4 Integrated Urban and Rural Plan in the Pearl River Delta
Source: Guangdong Urban and Rural Planning and Design Institute

In the area of housing construction, the guidance of the planning on residential building construction, especially the construction of low- and medium-income housing has been reinforced. Jiangsu Province has formulated the General Rule of Jiangsu Province on the Preparation of Technical Guidelines for Housing Construction Planning, which provides technical guidance on the formulation of housing planning and bring into fully play the role of the housing planning in guiding the housing construction and consumption and regulating the real estate market development.

The construction of public facilities has paid more attention to people's livelihood. Provinces including Guangdong and Jiangsu have conducted the planning and construction of regional green road and landscape roads, and taken concrete measures to improve the transport environment for the green transport of residents. Cities including Changzhou and Harbin have launched the even distribution of urban and rural basic public service facilities and strengthened the planning and construction of the community cultural stations, community medical service institutions and community support centers, etc.

6.1.2.2 Urban and rural integration and regional coordination

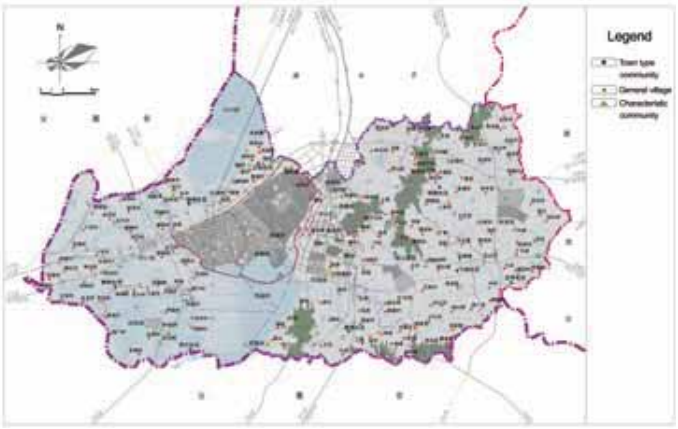
Local governments in China have undertaken activities and explored different patterns for the planning to integrate urban and rural areas in different regions, including the urban and rural integration in the developed areas of eastern China, the combination of the overall urban and rural planning and the construction of resource-saving and environment-friendly society in central China, and urban and rural

Slow city in Gaochun

coordinated development in western China. These practices are embedded with strong policies and strong implications of operability.

At the same time, the planning at different levels has also paid attention to the issue of urban and rural integration. The provincial level planning focuses on the provision of guidance on the zoning and classification. For example, the Urban System Plan of Jiangsu Province (2011-2030) proposes the policy guidelines of zoning classification and differentiation for the rural development at different developmental stages with different regional features. Urban agglomerations pay more attention to the integration of networks of urban and rural infrastructure, and equalization of basic services. For example the Integrated Urban and Rural Plan in the Pearl River Delta (2009-2020) puts emphasis on the integration of urban and rural networks for regional transport corridors, and concentrated clusters, and regional green road networks. Metropolitan areas put priorities on the urban and rural integrated development. Following the good examples of Chengdu and Chongqing that have completed their planning to integrate urban and rural areas in their entire regions, a number of cities including Nanjing, Shijiazhuang, Changsha and Lanzhou has explored the planning to integrate the urban and rural spatial development, development and distribution of industries, public services and infrastructure, and ecological and environmental protection. The planning at county and city levels pays more attention to village construction and renovation, with the focus on making plans and development requirements on village distribution, rural environment improvement, rural land arrangement and the construction of agricultural exemplary projects, etc.

Guangdong greenways



Map 6.5 Urban and Rural Master Plan of Gaochun County
Source:Jiangsu Institute of Urban Planning and Design

Map 6-6 Master Plan of Shanghai Expo 2010
Source: Bureau of Shanghai World Expo Coordination Technical Publishers, 5, 2010

Map 6-7 Guangzhou E-Map Inquiry System for City-wide Planning Disclosure
Source: Bureau of Urban Planning of Guangzhou Municipality Website: www.upo.gov.cn

6.1.2.3 City quality and living environment

In order to build better living environment, the focus of urban and rural planning for cities has turned from spatial expansion to optimization and upgrading. "Big Events" have become the success factors to promote the quality of cities. As a strategic initiative, Shanghai World Expo has played an important role in upgrading city functions, optimizing the spatial distribution, promoting the construction of urban infrastructure and improving the urban environmental quality in Shanghai. Guangzhou has taken the advantage of the construction of venues for Guangzhou Asian Games to implement the Smooth Transport Project, Cultural and Landscape Project, Supportive Facilities Project, Green Mountain and Green Land Project, Blue Water and Blue Sky Project and Municipal Improvement Project, and greatly improved the living environment of the city. In addition, Jiangsu Province has conducted the province-wide Beautiful Cities and Towns Development Initiative to improve the urban spatial quality and the quality of living environment.

6.1.3 Popularized public participation in urban-rural planning

6.1.3.1 Legal system on information disclosure

In order to regulation the disclosure and public announcement of urban planning information, improve the mechanism of public participation and public supervision in planning, promote the openness, and democracy and scientific nature of planning decision-making, and safeguard the legal interests and rights of citizens and public interests, local governments have actively explored the administrative system for disclosing information about urban and rural planning. Currently the competent urban and rural planning departments of 15 provinces

Box 6.2

Xiamen: Joint Review for Architecture and Design Plans

The check of past architecture design plans were conducted within the planning bureau where the projects concerned, after initial check, shall be submitted to the department directors for review and then to the director-general in charge of the affairs for approval. The cross-check was time-consuming and generated various opinions, lacked of uniform check standard, and resulted in frequent modification of the project and delayed progress. In 2011, the planning authority reformed the system by changing the internal check to open check-up. The check-up team was set up with the members of the team consisting of leaders of the planning bureau, relevant staff of supervisory department (or branch bureau), some annual top 10 architects of Xiamen, representatives of project owners, project designers and the general public. The design plans that passed the check-up shall be published on the website of the planning bureau to further solicit the public opinions. The joint check-up system realized three change: 1. from closed-door check to open check-up; 2. from individual check to collective check-up; and 3. from the submission of final results for approval to intervention into half-finished results, and the three changes enabled the general public to effectively participate in the urban planning.

have promulgated special regulatory documents on disclosure and public announcement of urban and rural planning. Three large-scale municipalities with local legislative power have promulgated special regulatory documents on public announcement of urban-rural planning. Many counties and cities, including Kunshan of Jiangsu Province, Taizhou of Zhejiang Province and Liuzhou of Guangxi Province, have actively explored the establishment of public announcement system on urban and rural planning and promulgated special documents. Judging from the coverage of legislation and number of rules and regulations passed, the public announcement system for urban planning has moved onto a legal track.

Some Chinese cities have also innovated and improved the information disclosure system and effectively promoted the transparent planning. For example, Beijing Municipal Commission of Urban Planning has established the Joint Consultation and Examination System, Public Announcement Hearing and Public Participation System and the Public Opinions Collection and Feedback System. Xiamen Municipal Commission of Urban Planning has adopted the joint consultation system on architecture and design plans. Changsha Municipal Commission of Urban Planning has also implemented the system of organizing pre-examination meetings before the modification of its detailed control plans.

6.1.3.2 Information capacity building

In recent years, the information capacity building of China's planning industry has continuously expanded from inner intra-system service to socialized comprehensive service. Wuhan has integrated the original planning and land websites and established the new website of Digital Wuhan–Land Resources and Planning Website (www.wpl.gov.cn) which has 16 main columns and integrates the websites of the branches, branches of remote districts and public institutions to form the 1+N cluster of planning website. In the wake of Write to Director-General's E-mail Box, Wuhan launched the online QQ, Online Reception Room and Micro-Blog Interaction, and promoted more direct and convenient public participation. The Urban Planning Bureau of Guangzhou Municipality has established the Electronic Map Inquiry System for City-wide Planning Information Disclosure and launched the Map of Planning Disclosure, which integrated all information to be disclosed and realized the one-stop disclosure and Inquiry.

The growth of the 3-D technology has helped the general public to participate in the urban and rural planning more directly, simply and effectively. A number of cities including Wuhan, Shenzhen, Chongqing, Guangzhou, Jinan, Yantai, Suzhou, Nanning, Changsha and Ningbo started the 3-D modeling of their respective cities. Wuhan has completed China's first large-scale city-level 3-D model with one set of standards, two platforms, three research projects and four maps. The Urban Planning Bureau of Shenzhen Municipality has integrated the 3-D simulation with the geographical information system and established the 3-D real scenes platform. Guangzhou has launched the Digitalization of Detailed Control Plans and established the 3-D information management platform for urban and rural planning. All these activities have effectively promoted the public participation.

6.1.3.3 Community-based public participation

According to statistics, over 90% of the public participation in the planning of Chinese cities was on the individual basis. The weak organization basis of public participation has seriously influenced the effectiveness of public participation. In recent two years, with the democratic practice of community-level autonomy, communities have gradually become the organizational basis and created a new stage for the public participation.

The Beijing Municipal Commission of Urban Planning has built the Community Planning Public

Map 6-8 3-D Wuhan

Source: 3-D Wuhan, website:wuhan.o.cn

Public participation

Platform: Community Planning Office at Xueyuanlu Street, Haidian Dsitrict, Beijing

Rural planners work on planning program on the spot

Participation Platform and made urban plans to reflect the concerns and aspirations of community residents by face-to-face interaction between planning professionals, representatives from neighborhood committees and community residents. Shenzhen has initiated the Program of Community Planner Participation, and effectively promoted the public participation in community planning. During the protection and transformation of the Ahuo community in the old towns of Kashgar, the local government has abandoned the traditional practice of taking charge of everything, and encouraged each resident to participate in the design under the guidance of architects, allowing the residents to experience the I-am-the-master-on-my-land situation. The transformation not only has achieved the target to upgrade the resident's living environment, but also fully respected the local Islamic traditions and won the trust and praise for the governments and urban construction plans. This program won the top award in the China Architecture Media Awards 2010.

In addition, with the rising requirements for overall urban and rural integrated development, the public participation has expanded to rural areas. Chengdu has created the rural planner system for the first time in China. The first 50 rural planners went to work in rural areas in October 2010 and achieved satisfactory results. The rural planners were not only the publicity agents, participants and technology reviewers of village and town plans, but also the bridge between villagers' expression of opinions and government decision-making.

Publicity campaigns to promote legal knowledge in residential communities

6.1.3.4 Various types of public supervision

With the service-oriented transformation of the Chinese governmental functions and increasingly rich information channels, the threshold for public participation in supervision has lowered, and effectively promoted the public supervision of urban planning. The multiple types of public supervision mechanism have been initially established.

To safeguard community rights has become the important channel to promote the construction of

Uygur residents participating in old town renovation in Kashgar

Photo 6-5 Shanghai Maglev Train project suspended due to protests from strollers
Source: Southern Metropolis Weekly

Villagers' Three-Old (Old Towns, Old Factories and Old Villages) Reformation Meeting in Zhuhu Village, Guangzhou

the civil society. In recent years, community conflicts and community right safeguarding have become the focus of social attention. The residents' participation in community direct voting, establishment of property owners' committees and replacement of property management company, the protection of public interests of residents in such cases of eviction and relocation compensation, right for sunshine, supportive facilities and green spaces, and the community rights protection events including the ceasing of PX projects in Xiamen and Dalian, re-consultation of Shanghai Maglev Train project and suspended construction of Liulitun Waste Incineration and Power Generation Plant of Haidian District, Beijing, have all indicated that community collective right safeguarding initiatives have become the important channel for supervision of urban and rural plans.

The supervisory role of the media on urban planning has been increasingly enhanced. The all-media public supervision platform consisting of newspapers, broadcasting stations, TV network and the Internet has become the promoter and participants of planning development. For example, some of the unauthorized building works of No.1 Villa area of Xiangmihu community, Futian District, Shenzhen, were demolished in 2011 under the supervision of the media including Shenzhen Special Zone Daily and Joint Law Enforcement on Unauthorized Building Works (UBW), The buildings under the unauthorized construction in 2012 were demolished again recently after complaints were lodged through UBW to the Land and Planning Supervision Division of Shenzhen Municipality. In addition, the improvement of urban planning supervision systems, the enhanced government accountability systems and the participation of the social groups and non-governmental organization have effectively promoted the public supervision on urban and rural planning.

New energy utilization on the Tibetan Plateau

6.2 Planning for Low-carbon and Eco Cities

6.2.1 National Strategy to Combat Climate Change

In 2007, the Chinese government formulated and enacted the China's National Climate Change Program, the first national plan for climate change in the developing countries. The National Zoning of Major Functioning Regions enacted in 2011 regulated the population distribution, economic activity layout, state-owned land use and urbanization patterns according to the resource and environmental carrying capacity, current development strength and development potentials in different regions. It further clarified the scope, function positioning, development orientation and regional policy for major functional zones.

On the legislation level, the central government also promulgated a series of laws, rules and regulations including the Energy Conservation Act of the People's Republic of China and the Regulation on Energy Conservation in Civil Buildings to alleviate and adjust to climate change.

In order to promote the effective implementation of measures to address climate change, the State Council incorporated the energy conservation and emission reduction targets in the medium and long-term plans of economic and social development. In 2006, the Eleventh Five-Year Plan proposed the constraint index of reducing the energy consumption per unit of GDP by about 20% from the 2005 level in 2010. In 2009, the State Council set up the action target of reducing the greenhouse gas emission per unit of GDP by 40% to 45% by 2020. The Twelfth Five-Year Plan formulated and enacted in 2011 proposed the target of reducing carbon dioxide emission per unit of GDP by 17%.

The ministries and commissions under the central government also took corresponding low-carbon and green initiatives. For example, 17 ministries and commissions including the National Development Reform Commission (NDRC), the Publicity Department of the CPC Central Committee, the Ministry of Education and the Ministry of Science and Technology initiated the nationwide full activation initiative for energy conservation and emission reduction. The NDRC issued the Energy Saving Action Plan for 1,000 Enterprises, Medium and Long-term Renewable Energy Development Plan, and Energy Conservation and Environmental Protection Industries Development Plan, etc.. The MOHURD issued the Evaluation Standard for Green Buildings, the Evaluation System for National

Aerial photo of new Beichuang City

Table 6.1 Comparison Table of Connotation of Low-Carbon City, Eco City and Low-Carbon and Eco City

	Low-carbon city	Eco city	Low-carbon and eco city
Philosophical connotation	Consider and handle the human-nature relationship mainly from carbon emission reduction	Adopt integrated measures to realized the harmonious co-existence of human and nature	Realize the harmonious co-existence of human and nature through the combination of low-carbon and ecological development
Functional connotation	Reduce carbon emission and reduce the negative influence of cities on the natural environment	Build a system for the Co-existence between cities and the natural environment	Realize low-carbon and ecological development and make the city a component of the natural ecosystem
Economic connotation	Take low-carbon economy as the core and emphasize on reducing the carbon emission in the economic process	Take recycling economy as the core and emphasize on the recycling and use of various elements in economic process	Take recycling economy as the major development mode to realize the low-carbon and ecological development of the economy
Social connotation	Enhance social awareness on environment protection and reduce carbon emission	Use ecological ideas to guide the social life of humans and cities, and coordinate the relationship between human social activities and natural ecosystems	Advocate eco-civilization within the social system, enhance the eco-awareness of the whole society, and realize the integration of social system and natural eco-system through social activities on low-carbon emission
Spatial connotation	Emphasize the compact and complex features of the space	Emphasize the diversity, coexistence, compact and complex features of the space	Integrate the diversity, coexistence, compact and complex features of the space

Low-carbon and Ecological Model Cities, the Design Standard for Energy Efficiency in Public Buildings and Guideline of National Green Building Creation Awards, etc. The State-owned Assets Supervision and Administration Commission (SASAC) issued the Interim Measure for Monitoring and Management of Energy Conservation and Emission Reduction in Enterprises under the Administration of the Central Government.

6.2.2 Theoretic Exploration for the Development of Low-Carbon and Eco Cities

China is facing the rapid development phase of urbanization which is expected to maintain such a trend within the future 20-30 years. At the same time, the whole world is under the great pressure from climate change and resources and environment. It is hard for the city development mode characterized by extensive growth to meet the development demand under the new situations. Therefore, the development mode of low-carbon and eco cities has become one of the important measures to tackle the climate change and lead the urban development of China in the right direction.

Public Bicycle System (PBS) in Zhuzhou

6.2.2.1 Connotations of low-carbon and eco cities

Some Chinese scholars have pointed out that the low-carbon and eco cities actually fall under the category of ecological cities, and the pursuit of eco cities starts from the angle of carbon emission reduction. However, it does not exclude other features (i.e. harmony and recycling) of eco cities, but re-integrate the features on the basis of carbon emission reduction. Low-carbon and eco cities are at the primary stage in the realization process of eco cities with carbon emission reduction as the major breakthrough point. The concept of low-carbon and eco cities can be understood as the integration of low-carbon targets with ecological concepts to realize the complex human settlement system featured with harmonization and co-existence of human beings, cities and their natural environment.

6.2.2.2. Strategic targets of low-carbon and eco cities

Faced with the challenge of resource and environmental constraints, China has implemented the development strategy to build low-carbon and

eco cities and chose the sustainable urbanization route that can meet the urbanization and social and economic development demand and effectively and gradually lower the resource consumption, reduce carbon emission and maintain sound human settlement environment.

The strategic targets of low-carbon and eco cities are in conformity with strategic requirements of the Chinese new-type urbanization mode. According to the research results of China's Low-carbon and Eco Cities Development Strategy, China's urbanization level will reach 70% to 75% by 2050; the contribution of urban economy to the national economy will reach 90%; the value created out of the per unit of energy consumption and per unit of resource consumption will increase by 15-20 times from the 2000 level; zero growth of energy consumption will be realized by 2040 and zero growth of greenhouse emission by 2035.

6.2.2.3 Types of low-carbon and eco cities

There are mainly four types of low-carbon and eco cities: technological-innovative cities, suitable-livable cities, gradually-evolving cities, and post-disaster rebuilt-and-transformed cities. The technological-innovative cities adopt the available technologies and expect to solve the urban problems through science and technological innovation. However, this mode is hard to copy and popularize and is very costly. The suitable-livable eco cities are generally assumed to contain about 300,000 urban residents, adopt applied technology as the technology subject, green buildings as the building subject, service industry or emerging industries as the industrial subject, green transport including walking, bicycling and public transport as the transport subject, TOD-dominated land use as the development mode, and the reproducible, sustainable and improvable targets as the target subject. This mode can be popularized and applied in China and other developing countries. By establishing the development targets of eco cities and giving appropriate guidance and stimulation, the gradually-evolving cities integrate the strength of the citizens and people from all walks of life to promote the healthy urban development and help the "old cities" to evolve toward the sustainable development. Through ecological rebuilding planning, the post-disaster rebuilt-and-transformed cities (towns) promote the cities affected by disasters to change the original evolution tracks and rapidly obtain the anti-disaster capacity, systematic self-adaptability and sustainability of development. They are similar to the cities like Wenchuan, Qingchuan and Beichuan of Sichuan Province that are under reconstruction.

6.2.2.4 Planning for low-carbon and eco cities

There are currently three types of urban ecological planning. The first one is the new planning independent of other planning, for example the eco cities planning. This planning is based on the ideal urban ecological features and currently has no generally recognized planning modes and methods. The second type is the urban ecological planning which is taken as a component of urban planning and generally incorporated in the master plans in the form of specialized planning or independent chapter. The third type is the integration of ecological ideas and technical measures with the urban planning. Such integration enables the ecological planning ideas, technologies and methods to be mutually reinforced with the traditional urban planning and achieve the ecological targets among the various contents of urban planning. With the view of future development, the integration of urban ecological planning and urban planning is the major

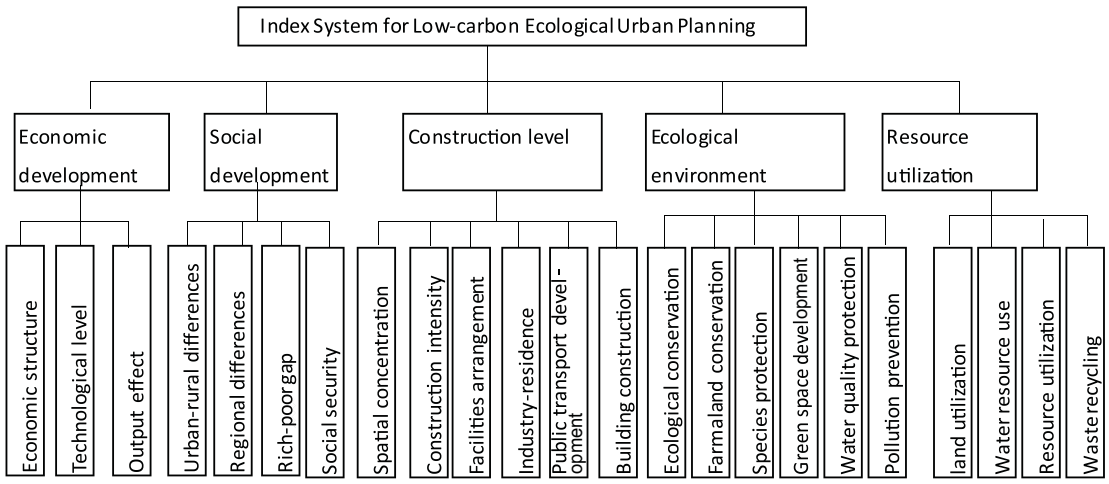
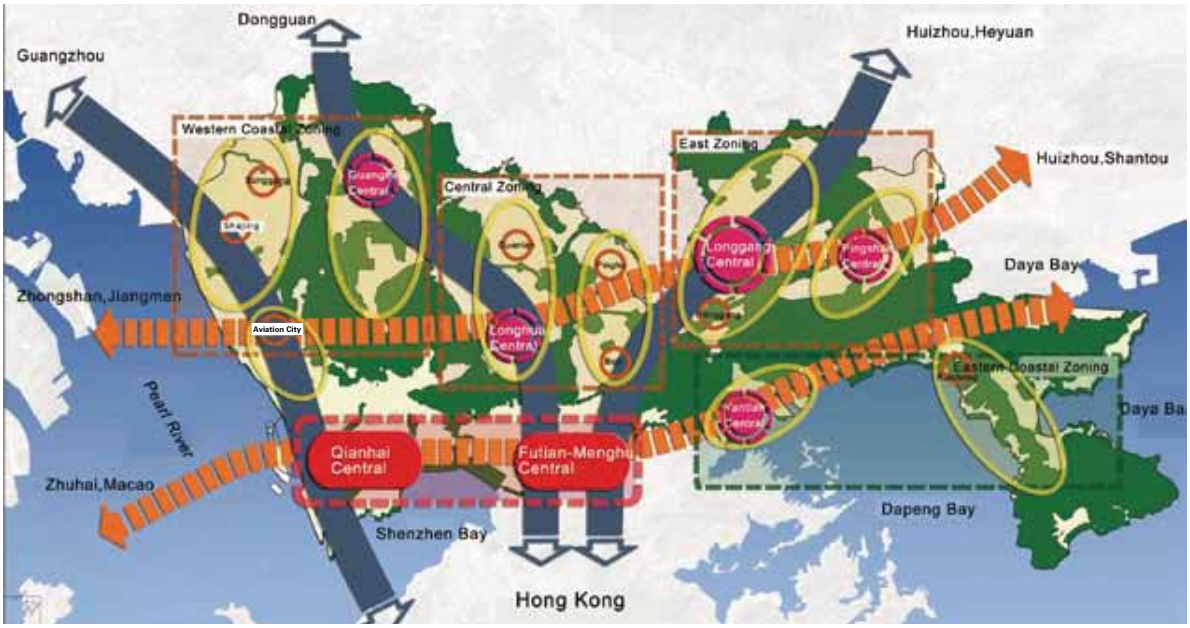


Chart 6-3 Structure of Index System for Low-carbon Ecological Urban Planning

Source: Low-carbon and Ecological Urban Planning



Map 6.9 The Spatial Structure in the Shenzhen Master Plan, 2010-2020
Source: http://www.ycwb.com/epaper/ycwb/html/2010-08/24/content_907693.htm

trend; the final implementation of urban ecological planning is inseparable from the urban land use distribution and construction of facilities. The ecological planning will definitely have multiple interactions with the urban planning. The traditional urban planning is also in urgent need to combine ecological planning to improve itself and adjust to the urban development needs in the new period. Therefore, their integration will help the statutory planning adjust to the climate change and facilitate the implementation.

The index system of low-carbon and eco cities reflects the connotations and basic features of eco cities and represents the operable, integrating, measurable, regional and dynamic principles. The operable principle means that the index system of low-carbon and eco cities shall consider the planning preparation and control and guiding of management process and assist the implementation of low-carbon eco cities. The integrating principle means that the low-carbon and eco cities indexes shall combine with other indicators and standards the sustainable development cities, environmental protection model cities, national ecological garden cities, low-carbon cities and other ecological cities. The measurable principle means that the index system shall contain the quantitative data as much as possible. The regional principle means that index system of each city shall take into consideration their distinct ecological and environmental conditions. The dynamic principle means that the determination of the indexes shall take into full consideration of the historical evolution process and the differences of the low-carbon and eco cities index system in temporal and spatial scales.

Smart public transit system in Suzhou Industrial Park

6.2.3 Practices for planning low-carbon and eco cities

The development of low-carbon and eco cities in China has reached the international leading level. The following planning cases reflect the practices at different levels of cities, new development zones and plots, representing the direction of future urban development in China.

6.2.3.1 National low-carbon and eco model city in Shenzhen

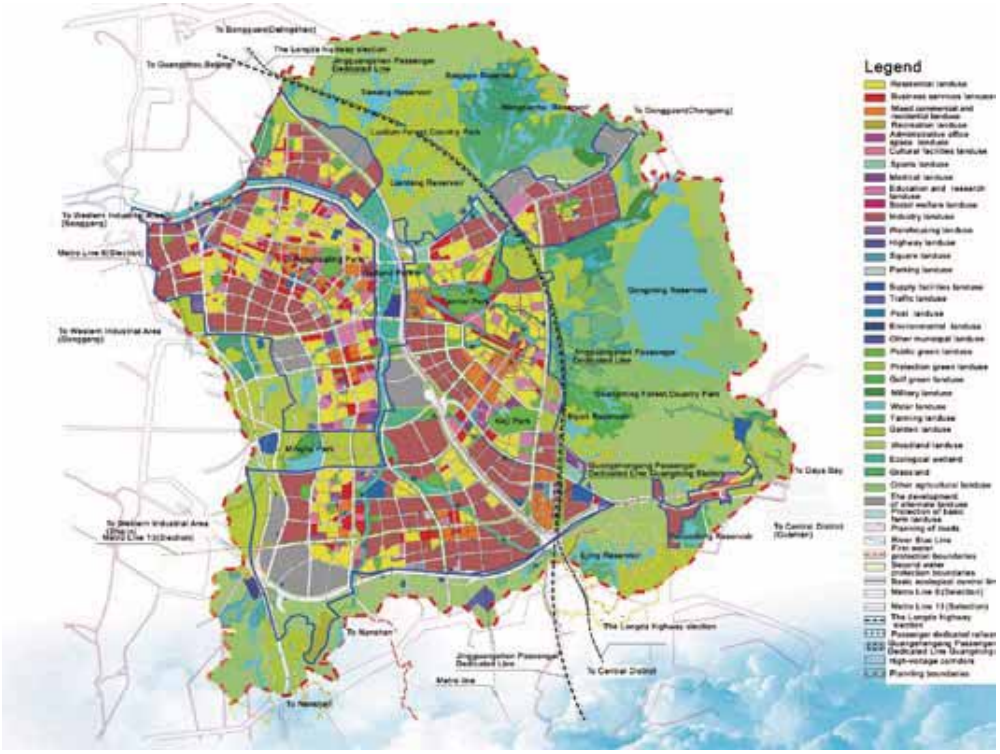
In January 2010, Shenzhen municipal government signed a cooperative agreement with the MOHURD to jointly build the first low-carbon and eco model city in China, focusing on the planning and development

Map 6.10 Eco-control Lines of Shenzhen
Source: http://www.szpl.gov.cn/main/csgh/zxgh/stkzx/2.jpg

of a "constantly evolving" low-carbon and eco city during the urban development transition and under the climate conditions of southern China. After 30-year development, Shenzhen has made huge achievements in social and economic development. However, the sustained inflow of the migrant population and corresponding increase of material demand has brought great pressure on its limited land, water and energy resources and the ecological environment. The contradiction between the rising demand from the sustained rapid economic growth and the short supply of urban resources has become more evident.

Faced with the urgent challenge, Shenzhen has set the target for building the national low-carbon and eco model city, i.e. "to build Shenzhen into the low-carbon and eco city model with prosperous and energetic social and economic development, sound and suitable living and production environment, high efficiency of resource and energy utilization, low CO_2 emission, low-carbon ecological civilization among residents, healthy and harmonious urban ecological systems, important role as a model city within China, and strong influence in the international community. By 2020, the carbon emission intensity per unit of GDP of Shenzhen shall reduce by over 45% with respect to the 2005 level and by over 40% with respect to the 2009 level; the increase of CO_2 emission per capita and total CO_2 emission shall reduce by about 60%." In order to achieve the targets in building the national low-carbon and eco model city, Shenzhen has identified the major tasks for the eight key fields of planning, transport, architecture, ecological environment, water resource utilization, solid waste recycling, industry and energy, mainly including "strengthening the planning integration and overall planning to realize the spatial integration and compactness; strengthening ecological protection and environmental improvement to realize the optimization of ecological functions; constructing the comfortable and highly efficient transport system to realize the green and people-oriented transport; vigorously promoting green architecture to realize low-carbon and carbon-reduction for buildings; tapping new resources and

Shenzhen Civic Square



Map 6.11 Land Use Plan of Guangming New District, Shenzhen

Map 6.12 Ecological Structure Plan of Guangming New District, Shenzhen

economizing consumption through various channels to realize the sustainable utilization of water resources; following the concept of recycling economy to realize the recycling of solid wastes resources; vigorously promoting the industrial upgrading and transformation to realize the high-end industrial structure; and optimizing resource supply and utilization to realize the clean and highly-efficient use of energy resources."

6.2.3.2 Planning of Guangming New District, Shenzhen

Guangming New District is located in the northwestern Shenzhen with an area of 156.1 square kilometers and is the sub-center of Shenzhen city and one of the new cities under key development. For the development of a green city, the Plan of Guangming New District in Shenzhen (2007-2020) has the following main characteristics:

(1) Faced with the current status of obvious ecological value and limited land stock, growth boundary management and TOD mode shall be adopted to lead the compact development and increase the land use efficiency.

(2) The plan plays an active role in influencing the distribution of large-scale infrastructure and the district government to take the initiative to seek strategic resources. The plan suggests that the large-scale transport infrastructure shall be used to attack low-carbon and highly efficient economic activities that are suitable to the local development conditions.

(3) On the basis of pollution treatment, projects shall be implemented to create Maozhou river ecological landscape axis crossing the urban area, retain and restore the riverine wetland, establish flood retarding basins as a solution to the urban flood control, build urban ecological parks to protect the water system of the tributaries of Maozhou River, and form an ecological framework which will expand the green space from the external region into urban centers.

(4) The green transport plan of Guangming New District shall be developed to build central transport networks with public transport systems and other public services, and guide the growth of the District.

(5) Integrated design shall be made for the public transport system and road system. Road networks shall be arranged to separate non-motorized traffic priority zone from the exterior express traffic corridors, to ensure the peaceful transport within the district and the convenient connection with outgoing transport networks.

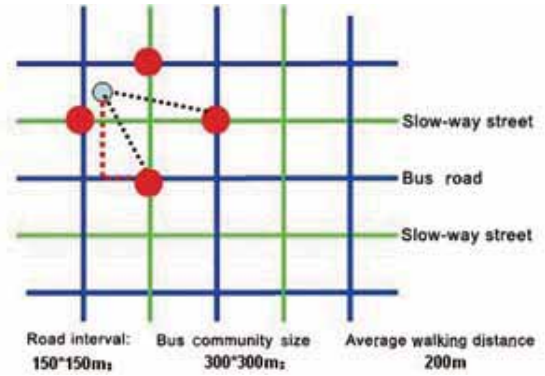
(6) The special municipal engineering projects shall follow 3R principles in designing, actively use local products and strive for operability and experimental performance.

6.2.3.3 Planning of Turpan New District, Xinjiang

Turpan New District is located on the Gobi desert in the east of Turpan city, five kilometers from the inner city and with an area of 8.81 square kilometers. This district lacks of water resource but has rich resources in wind energy, solar energy and geothermal energy. Turpan New District Sustainable Development City Project takes the utilization of solar energy as the key to explore the comprehensive utilization of renewable energy, and as the active response to the global climate change challenges. This Project, by combining the fields of urban planning, green architecture, climate forecast, smart micro-grid and green transport, will establish a new energy system and management model featured by integrated solar energy utilization and building complexes, with the largest scale and the most comprehensive technological integration in China up to now.

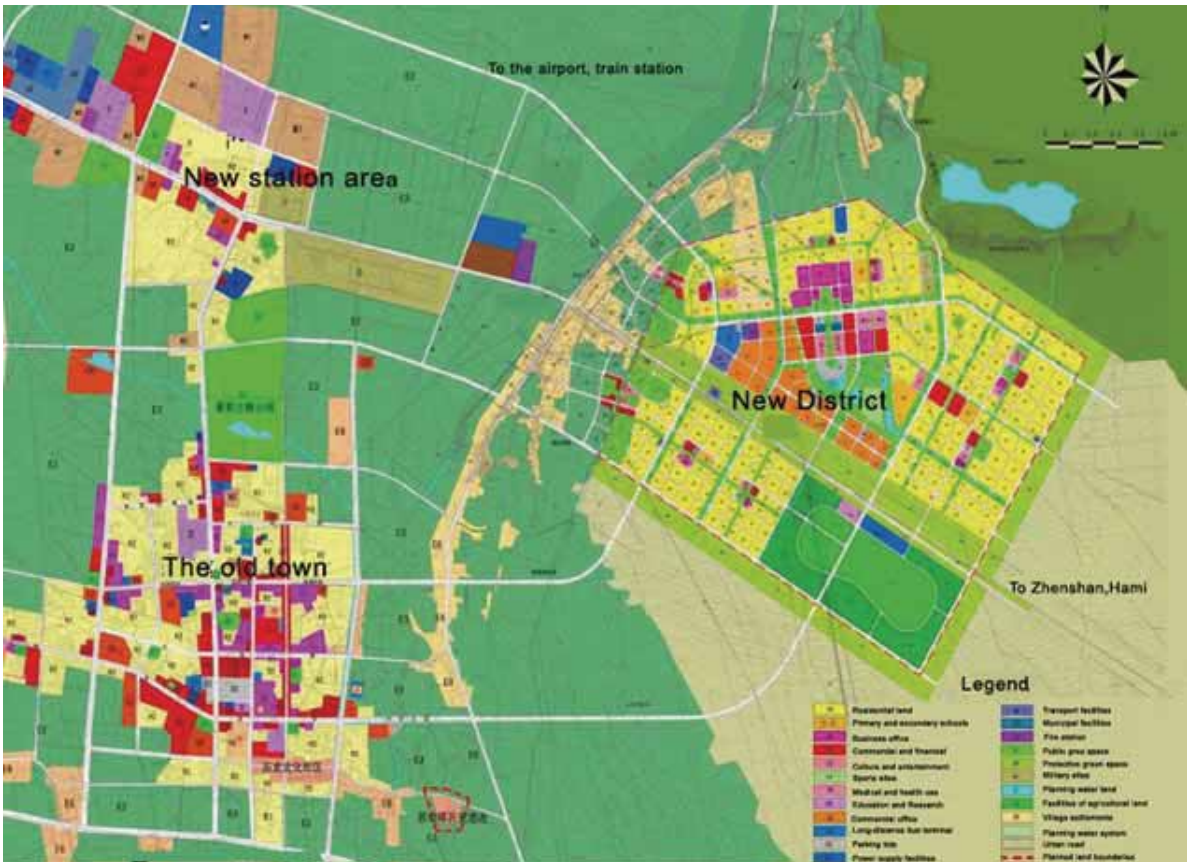
Map 6.14 Structural Plan, Turpan New District

Source: Sustainable Urban Development Project, Turpan New District, Xinjiang, China



Map 6.-15 Green Transport Structure, Turpan New District

Source: Sustainable Urban Development Project, Turpan New District, Xinjiang, China



Map 6.13 Land-use Plan, Turpan New District
Source: Sustainable Urban Development Project, Turpan New District, Xinjiang, China

Map 6-16 Detailed Design for the First Phase Development, Turpan New District
Source: Sustainable Urban Development Project, Turpan New District, Xinjiang, China

(1) To create the diversified energy supply system. The planning utilizes the rich solar energy and geothermal energy resources within the district, actively promotes the application of heat pump technology, shallow geothermal energy, solar energy and biomass energy in the heating system, urges the development of CCHP system, promotes the application of solar water heater in residential buildings and construct the green buildings with integrated PV system and architecture.

(2) To build the urban power generation center. The center shall be combined with the load centers to transform and develop a supply mode characterized by local power generation, local consumption and storage, dependent grids, dynamic balance and smart control, form the distributed generation system for the complex of buildings, minimum-loss in power supply and transmission, independent power generation and optimized power supply, as China's energy model. For the instability of solar power, the weather forecast shall be combined with the micro-grid scheduling to ensure the safety of the macro-grid and secure the supply for the residents.

(3) To adopt green transport recharging system to achieve the supply-demand balance of micro-grid and conduct promotion and utilization research on the green transport system and motorized vehicles based on the actual local conditions; fully promote the prioritized development of public transport system and enable the public transport system to cover 90% of the urban built-up area and create a sound environment for walking.

(4) To implement the waste water treatment and recycling projects, develop non-conventional water sources including reclaimed water, and use the reclaimed water in the nearly farmland irrigation and ecological green space.

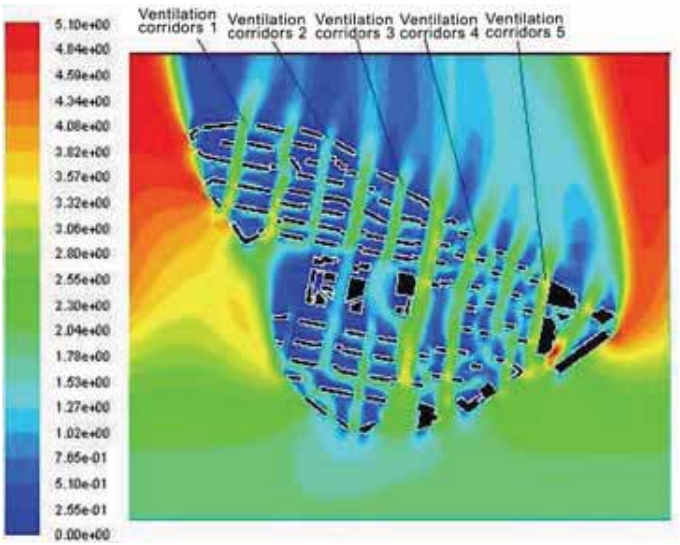
(5) To take advantage of the water sources to retain the green space, build the shelter forest system integrating the arbors, shrubs and grasses, arrange the green space proportion in a rational way and decrease the soil evaporation and crop transpiration.

(6) To take into consideration of such factors as solar radiation and predominant wind directions, in an effort to decrease the solar reflection to the residential buildings in summer, identify the best housing direction of this district as within south by east 15° and south by west 15°, and arrange the road network in a rational way.

(7) To consider the local climate features and local economic conditions in building construction, adopt the local building materials and processes and develop and utilize the passive technology.

Map 6-17 Construction of Residential Buildings, Turpan New District

Source: Sustainable Urban Development Project, Turpan New District, Xinjiang, China

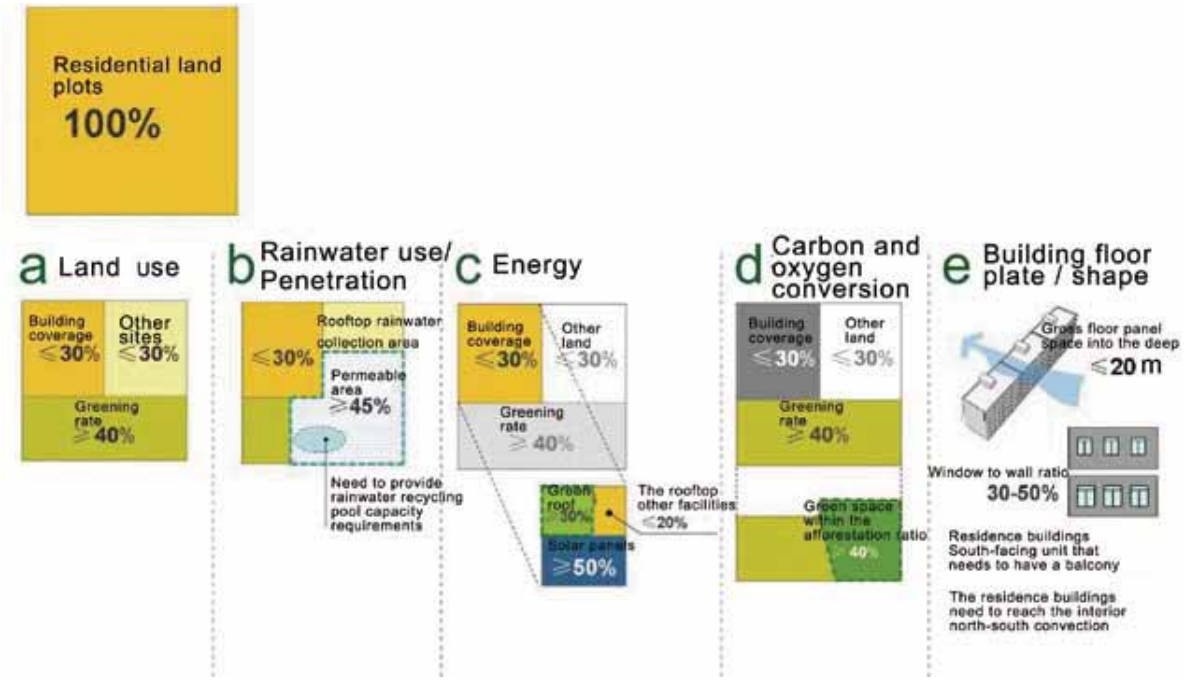


Map 6.18 Micro-climate Simulation in Changxindian Control Plan
Source: http://www.cityup.org/case/regional/20110411/76331-4.shtm

Map 6-19 Geographic Location of Changxindian
Source: http://www.cityup.org/case/regional/2011 0411/76331-5.shtml

6.2.3.4 Detailed control plan of Beijing Changxindian Low-carbon Community

Beijing Changxindian Low-carbon Community is located in southwestern area of Beijing and the west of Fengtai River. The project site is about 17km from the center of Beijing and occupies an area of 500 hectares, including the residential area, commercial areas, public space and science, technology, and industrial park area, with the planned population of 70,000. On the basis of analysis on the ecological background, and the relationship between land and transport and environment. The detailed control plan of Changxindian Low-carbon Community has formulated the comprehensive functional area development mode under the joint guidance of rail transport and inner public transport system. The plan has identified with the net-like street distribution mode suitable for creating a comfortable micro-climate within the district which shall greatly reduce the seasonal energy consumption of the buildings. The land-use distribution is characterized by phased construction and mixed development of commercial and residential buildings, for the benefit of decreased demand of travel and transport and balanced energy supply. The community adopts the traditional neighborhood structure as the basic spatial unit. The spatial dimension of each unit is set according to the walking distance. Within each unit, basic services including public supportive facilities, energy and open space shall be provided for the living and production activities in an effort to decrease the motorized transport within the community. The low-carbon city control guidelines in the plan of Changxindian Low-carbon Community adopt the hierarchical control according to the requirements for management and primary and secondary land development to carry out the block-level and plot-level control. The key control at the block level highlights the structural and systematic low-carbon requirements that shall be met by the government-dominated primary land development. On the basis of conventional control indexes the plot-level control is added with low-carbon requirements that shall be implemented by the secondary development construction bodies through concrete low-carbon measures. The plan has integrated the non-traditional low-carbon control system with the statutory control plan, and formulated a series statutory control indexes for each plot, including energy consumption reduction standard, renewable energy utilization standard, storm water permeation standard, green roofing requirement, green open space, micro-climate and environment requirement and water resource utilization, etc.



Map 6-20 Residential Plot Design of Changxindian

Map 6-21 Water Resource Control Indicators of the Control Plan

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I. Basic Data of China's 287 Cities at and above Prefecture Level in 2010

Name of Cities	Area of Administrative Regions (km^2)	Total Population (year-end) (10,000)	Permanent Population in the Sixth National Population Census (10,000)	Built-up Area(km^2)	GDP (10,000 Yuan)	Per Capita GDP(Yuan)	Tap Water Access Rate (%)	Wastewater Treatment Rate (%)	Domestic Garbage Treatment Rate (%)	Per Capita Public Green Space (m^2)
Beijing	16,411	1,257.80	1,961.20	1,186.00	141,135,800	75,943	100.00	82.09	96.95	11.28
Tianjin	11,760	984.85	1,293.80	687.00	92,244,600	72,994	100.00	85.30	94.31	8.59
Shanghai	6,340	1,412.32	2,301.90	866.00	171,659,800	76,074	100.00	83.29	81.86	6.97
Chongqing	82,829	3,303.45	2,884.60	870.00	79,255,800	27,596	94.05	91.65	99.13	13.24
Hebei Province										
Shijiazhuang	15,848	989.16	1,016.40	203.00	34,010,186	33,915	100.00	95.38	100.00	14.39
Tangshan	13,472	735.00	757.70	234.00	44,691,588	59,389	100.00	94.10	100.00	15.13
Qinhuangdao	7,523	288.30	298.80	89.00	9,304,969	31,182	100.00	92.10	100.00	19.90
Handan	12,062	963.50	917.50	111.00	23,615,569	26,143	100.00	91.74	100.00	19.61
Xingtai	12,486	732.03	710.40	70.00	12,120,943	17,189	100.00	84.51	100.00	15.74
Baoding	20,584	1,161.01	1,119.40	132.00	20,503,000	18,451	100.00	89.88	100.00	13.25
Zhangjiakou	36,873	465.97	434.50	84.00	9,664,158	22,517	100.00	87.50	80.13	11.03
Chengde	39,548	372.03	347.30	100.00	8,889,619	25,699	100.00	86.67	99.02	27.20
Cangzhou	14,053	730.89	713.40	46.00	22,031,199	31,091	100.00	85.08	79.30	10.03
Langfang	6,429	419.02	435.90	59.00	13,510,982	31,844	100.00	86.10	95.79	13.01
Hengshui	8,815	440.20	434.10	44.00	7,817,229	18,076	100.00	86.51	100.00	11.34
Shanxi Province										
Taiyuan	6,963	365.50	420.20	245.00	17,780,539	50,225	100.00	83.86	100.00	8.57
Datong	14,127	317.51	331.80	108.00	6,959,095	21,369	100.00	78.18	83.08	6.84
Yangquan	4,570	130.78	136.90	52.00	4,293,774	31,898	100.00	83.00	100.00	8.96
Changzhi	13,896	331.54	333.50	59.00	9,202,336	27,642	95.00	92.00	100.00	12.20
Jincheng	9,425	216.23	227.90	41.00	7,305,428	32,337	100.00	95.29	93.97	13.82
Shuozhou	11,066	159.07	171.50	36.00	6,701,476	41,107	98.11	96.38	75.47	9.27
Jinzhong	16,392	320.96	324.90	39.00	7,638,366	24,275	96.50	96.01	31.01	10.63
Yuncheng	14,181	503.68	513.50	55.00	8,274,316	16,175	93.02	90.00	90.00	9.19
Xinzhou	25,117	307.55	306.80	30.00	4,374,561	14,193	90.00	93.91		2.15
Linfen	20,275	437.32	431.70	37.00	8,901,440	20,851	92.12	86.32	52.00	13.63
Luliang	21,240	383.49	372.70	18.00	8,455,392	23,267	94.48	75.47	100.00	13.59
Inner Mongolia Autonomous Region										
Hohhot	17,224	229.56	286.70	166.00	18,657,116	66,929	95.50	77.10	97.88	15.39
Baotou	27,768	219.80	265.00	183.00	24,608,100	94,269	90.86	82.42	97.00	12.00
Wuhai	1,754	53.00	53.30	63.00	3,911,235	76,653	99.84	89.78	82.68	9.51
Chifeng	90,021	457.74	434.10	81.00	10,862,293	25,059	84.70	82.33	100.00	8.36
Tongliao	59,535	318.70	313.90	66.00	11,766,183	38,157	79.44	86.18	100.00	14.72
Ordos	86,752	152.38	194.10	113.00	26,432,300	175,125	97.21	92.56	98.58	14.26

Name of Cities	Area of Administrative Regions (km^2)	Total Population (year-end) (10,000)	Permanent Population in the Sixth National Population Census (10,000)	Built-up Area(km^2)	GDP (10,000 Yuan)	Per Capita GDP(Yuan)	Tap Water Access Rate (%)	Wastewater Treatment Rate (%)	Domestic Garbage Treatment Rate (%)	Per Capita Public Green Space (m^2)
Hulunbuir	253,356	271.30	254.90	28.00	9,320,138	34,452	71.92	80.60	81.82	19.08
Bayannur	64,413	186.34	167.00	38.00	6,033,292	35,463	80.52	86.30	96.28	6.76
Ulanqab	54,492	287.02	214.40	35.00	5,676,016	26,604	86.96	85.11	100.00	18.63
Liaoning Province										
Shenyang	12,980	719.60	810.60	412.00	50,175,427	62,357	100.00	73.61	100.00	12.72
Dalian	12,574	586.44	669.00	390.00	51,581,621	77,704	100.00	90.40	100.00	12.00
Anshan	9,252	351.79	364.60	158.00	21,250,121	58,426	97.73	70.59	100.00	10.38
Fushun	11,272	220.91	213.80	130.00	8,951,571	41,810	98.59	91.05	100.00	8.99
Benxi	8,411	154.60	171.00	107.00	8,603,685	50,612	100.00	87.07	100.00	9.01
Dandong	15,290	241.36	244.50	53.00	7,288,908	41,810	94.59	49.14	100.00	8.35
Jinzhou	9,891	308.35	312.70	71.00	9,126,325	50,612	100.00	60.17	86.69	9.16
Yingkou	5,242	235.53	242.90	99.00	10,024,494	41,452	86.19	74.46	93.50	10.05
Fuxin	10,355	192.38	181.90	76.00	3,788,656	20,819	99.64	54.25	90.89	10.47
Liaoyang	4,736	183.32	185.90	98.00	7,354,295	39,686	100.00	81.63	100.00	8.51
Panjin	4,071	131.25	139.20	61.00	9,263,214	66,976	100.00	62.97	100.00	7.46
Tieling	12,980	305.15	271.80	44.00	7,221,291	26,556	97.50	85.37	85.16	9.66
Chaoyang	19,698	339.24	304.50	53.00	6,564,084	21,536	91.18	68.49	28.13	8.80
Huludao	10,415	281.75	262.40	75.00	5,314,485	20,302	100.00	84.19	70.16	12.91
Jilin Province										
Changchun	20,604	758.89	767.70	394.00	33,290,329	43,936	99.46	89.46	99.84	13.70
Jilin	27,126	434.03	441.50	166.00	18,006,376	41,479	97.84	91.50	100.00	11.85
Siping	14,080	340.55	338.60	51.00	7,795,527	22,942	65.34	98.93	100.00	7.22
Liaoyuan	5,140	123.75	117.70	46.00	4,101,426	33,137	82.33	83.33	87.50	7.29
Tonghua	15,608	226.12	232.50	36.00	6,270,844	27,690	88.26	51.30	99.78	9.16
Baishan	17,485	128.70	129.70	40.00	4,331,670	33,524	91.51	22.12	100.00	10.07
Songyuan	21,090	290.05	288.10	43.00	11,028,462	38,136	92.24	81.52	81.11	10.54
Baicheng	25,745	202.64	203.30	38.00	4,451,802	21,973	92.02	10.70	100.00	7.84
Heilongjiang Province										
Harbin	53,068	992.02	1,063.60	359.00	36,648,538	36,951	89.17	57.18	82.91	10.07
Qiqihar	42,469	568.11	536.70	135.00	8,804,569	16,309	97.68	67.46	50.96	9.95
Jixi	22,531	189.20	186.20	79.00	4,194,931	22,083	97.23	33.18	73.06	9.31
Hegang	14,659	109.10	105.90	43.00	2,509,870	23,044	86.45	12.07		14.89
Shuangyashan	23,209	151.58	146.30	59.00	3,963,504	26,215	99.78	10.14	37.89	16.03
Daqing	21,219	279.80	290.50	207.00	29,000,642	103,576	83.18	100.00	82.86	13.47
Yichun	32,759	126.95	114.80	161.00	2,024,407	15,924	69.53	22.24		20.17
Kiamusze	32,704	253.78	255.20	94.00	5,124,563	20,254	90.21	53.99	75.37	11.89
Qitaihe	6,222	92.86	92.00	62.00	3,052,237	32,890	86.41			11.85

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Mudanjiang	40,583	270.23	279.90	76.00	7,649,791	27,545	92.08	45.47	100.00	10.47
Heihe	82,164	174.21	167.40	19.00	2,640,994	14,994	81.56	100.00	76.47	16.74
Suihua	34,873	586.21	541.60	28.00	7,334,286	12,576	96.31	56.15		4.33
Jiangsu Province										
Nanjing	6,587	632.42	800.50	619.00	51,306,500	64,037	100.00	88.82	100.00	13.69
Wuxi	4,627	466.56	637.30	231.00	57,933,000	92,166	100.00	95.17	100.00	14.41
Xuzhou	11,259	972.89	858.10	239.00	29,421,394	34,084	99.44	81.66	100.00	14.74
Changzhou	4,372	360.80	459.20	153.00	30,448,900	67,327	100.00	89.84	100.00	12.35
Suzhou	8,488	637.66	1,046.60	329.00	92,289,100	93,043	100.00	90.34	100.00	16.86
Nantong	8,001	762.92	728.30	125.00	34,656,700	47,419	100.00	91.38	100.00	10.50
Lianyungang	7,500	497.73	439.40	120.00	11,933,100	26,987	100.00	81.41	100.00	12.02
Huai´an	10,072	538.74	480.00	120.00	13,880,700	28,861	93.94	81.56	100.00	10.97
Yancheng	16,972	816.12	726.00	89.00	23,327,600	31,640	100.00	80.72	100.00	8.22
Yangzhou	6,591	459.12	446.00	82.00	22,294,884	49,786	99.81	88.90	100.00	19.14
Zhenjiang	3,847	270.71	311.30	109.00	19,876,400	63,280	100.00	86.13	100.00	15.95
Taizhou	5,787	504.65	461.90	65.00	20,487,200	44,118	100.00	83.70	100.00	9.34
Suqian	8,555	546.28	471.60	65.00	10,640,900	22,525	100.00	82.99	100.00	12.14
Zhejiang Province										
Hangzhou	16,596	689.12	870.00	413.00	59,491,687	69,828	100.00	95.40	100.00	15.12
Ningbo	9,816	574.08	760.60	272.00	51,630,017	69,368	100.00	85.21	100.00	10.49
Wenzhou	11,786	786.80	912.20	175.00	29,250,426	37,359	100.00	70.00	100.00	6.04
Jiaxing	3,915	341.60	450.20	85.00	23,002,027	52,143	100.00	87.26	100.00	12.92
Huzhou	5,818	259.98	289.40	78.00	13,017,294	45,323	100.00	85.11	100.00	15.28
Shaoxing	8,279	438.91	491.20	100.00	27,952,029	63,770	100.00	85.01	100.00	15.38
Jinhua	10,941	466.65	536.20	72.00	21,100,441	39,897	99.86	75.00	100.00	12.15
Quzhou	8,841	251.24	212.30	58.00	7,554,826	30,153	100.00	75.65	100.00	13.07
Zhoushan	1,440	96.77	112.10	52.00	6,443,170	66,581	99.44	75.10	100.00	15.08
Taizhou	9,411	583.14	596.90	116.00	24,264,533	41,182	99.33	75.67	100.00	10.61
Lishui	17,298	259.65	211.70	32.00	6,632,932	31,296	100.00	72.48	100.00	10.48
Anhui Province										
Hefei	7,047	494.95	570.20	326.00	27,016,100	54,796	97.22	99.81	99.97	13.21
Wuhu	3,317	229.50	226.30	135.00	11,085,924	48,306	100.00	75.00	100.00	9.45
Bengbu	5,941	362.23	316.40	105.00	6,368,877	17,621	99.67	87.31	100.00	7.03
Huainan	2,585	243.99	233.40	97.00	6,035,491	26,049	97.28	86.80	100.00	11.46
Ma´anshan	1,686	129.10	136.60	78.00	8,110,148	62,942	100.00	88.01	100.00	13.96
Huaibei	2,741	219.56	211.40	63.00	4,616,043	22,309	97.01	93.01	88.69	13.26
Tongling	1,113	74.01	72.40	48.00	4,667,000	64,496	96.63	69.01	94.30	10.93
Anqing	15,318	615.62	531.10	77.00	9,881,100	18,604	91.86	89.40	89.58	9.70

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Huangshan	9,807	148.05	135.90	44.00	3,093,198	20,846	99.33	96.41	90.31	14.52
Chuzhou	13,523	450.80	393.80	60.00	6,956,502	17,400	99.79	90.56	100.00	12.67
Fuyang	9,775	1,011.84	760.00	76.00	7,218,144	9,068	92.01	87.00	100.00	7.51
Suzhou	9,787	642.07	535.30	53.00	6,505,700	9,945	98.92	62.30	99.78	10.52
Chaohu	9,394	460.51	387.30	39.00	6,297,332	16,158	91.35	84.00	98.96	7.74
Lu'an	17,976	704.82	561.20	61.00	6,761,209	12,047	99.16	80.83	94.42	12.02
Bozhou	8,374	600.76	485.10	57.00	5,127,800	10,318	97.46	96.31	100.00	10.92
Chizhou	8,272	160.46	140.30	35.00	3,008,439	21,437	93.83	90.00	88.07	18.08
Xuancheng	12,323	278.36	253.30	43.00	5,257,000	20,754	98.58	90.74	100.00	14.13
Fujian Province										
Fuzhou	13,066	645.90	711.50	220.00	31,234,092	44,667	99.86	87.10	100.00	11.15
Xiamen	1,573	180.21	353.10	230.00	20,600,737	58,337	100.00	90.10	100.00	10.13
Putian	4,119	323.54	277.90	55.00	8,503,257	30,161	99.00	86.71	100.00	11.02
Sanming	23,094	272.73	250.30	28.00	9,751,010	37,917	98.87	81.04	96.19	11.94
Quanzhou	11,015	685.27	812.90	160.00	35,649,739	44,563	98.71	86.00	100.00	10.55
Zhangzhou	12,873	476.36	481.00	51.00	14,607,097	29,769	99.39	88.00	99.34	10.50
Nanping	26,308	313.90	264.60	26.00	7,286,525	26,279	99.61	82.68	100.00	11.66
Longyan	19,063	314.37	256.00	38.00	9,908,973	38,698	99.37	90.03	99.64	11.19
Ningde	13,452	339.37	282.20	19.00	7,386,099	25,200	99.13	73.83	100.00	13.63
Jiangxi Province										
Nanchang	7,402	502.25	504.30	208.00	22,001,059	43,769	100.00	75.00	100.00	9.01
Jingdezhen	5,256	163.16	158.70	73.00	4,615,001	29,155	99.62	99.92	100.00	15.65
Pingxiang	3,824	188.09	185.50	42.00	5,203,900	28,106	99.72	92.24	100.00	12.07
Jiujiang	18,823	497.91	472.90	89.00	10,320,647	21,862	100.00	98.01	100.00	18.11
Xinyu	3,178	118.01	113.90	53.00	6,312,212	55,492	100.00	100.00	100.00	15.80
Yingtan	3,560	121.92	112.50	29.00	3,448,865	30,769	98.73	77.90	100.00	12.69
Ganzhou	39,379	907.27	836.80	76.00	1,119,412	13,322	100.00	83.25	100.00	12.18
Ji'an	25,283	495.04	481.00	35.00	7,205,251	14,969	96.37	80.29	100.00	13.36
Yichun	18,669	557.93	542.00	50.00	8,700,005	16,075	99.29	92.83	100.00	14.52
Fuzhou	18,820	403.96	391.20	50.00	6,300,124	16,083	99.92	92.99	100.00	16.62
Shangrao	22,791	740.33	658.00	38.00	9,010,029	13,741	99.70	90.24	100.00	15.38
Shandong Province										
Jinan	8,177	604.08	681.40	347.00	39,105,271	57,966	100.00	96.65	90.78	10.25
Qingdao	10,978	763.64	871.50	282.00	56,661,900	65,827	100.00	88.29	100.00	14.58
Zibo	5,965	422.36	453.10	225.00	28,667,500	63,397	100.00	94.68	100.00	15.06
Zaozhuang	4,563	391.03	372.90	119.00	13,620,361	36,839	99.10	91.30	87.04	12.63
Dongying	7,923	184.87	203.50	108.00	23,599,400	116,448	96.30	88.34	100.00	17.25
Yantai	13,746	651.14	696.80	265.00	43,584,600	62,254	99.84	90.69	100.00	19.37

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Weifang	16,140	873.78	908.60	140.00	30,909,200	34,273	100.00	93.36	99.79	17.28
Jining	11,423	843.03	808.20	89.00	25,428,200	31,561	100.00	87.41	89.24	13.55
Tai'an	7,762	557.01	549.40	107.00	20,516,800	37,390	100.00	90.10	100.00	19.80
Weihai	5,797	253.61	280.50	132.00	19,447,000	76,778	100.00	92.39	100.00	24.45
Rizhao	5,348	287.92	280.10	90.00	10,250,800	36,883	100.00	90.78	100.00	21.32
Laiwu	2,246	126.69	129.90	58.00	5,463,300	42,397	100.00	92.00	100.00	18.87
Linyi	17,191	1,072.69	1,003.90	166.00	23,999,900	23,886	100.00	93.23	100.00	19.18
Dezhou	10,356	570.18	556.80	89.00	16,578,200	29,772	99.87	84.68	98.24	19.22
Liaocheng	8,703	597.53	579.00	69.00	16,223,800	28,464	100.00	94.74	100.00	11.46
Binzhou	9,600	377.92	374.90	87.00	15,515,164	41,661	100.00	92.81	100.00	16.77
Heze	12,239	958.80	828.80	77.00	12,270,900	14,841	94.62	62.63	93.79	10.37
Henan Province										
Zhengzhou	7,446	963.00	862.60	343.00	40,408,926	49,947	100.00	97.20	89.61	6.19
Kaifeng	6,444	534.70	467.60	94.00	9,271,584	19,750	97.65	88.00	100.00	5.22
Luoyang	15,200	703.54	654.90	181.00	23,202,460	35,762	97.78	95.54	98.15	7.17
Pingdingshan	7,904	539.59	490.40	71.00	13,108,394	26,730	80.69	98.33	85.18	8.60
Anyang	7,413	581.40	517.30	76.00	13,155,890	25,330	100.00	97.69	94.64	8.60
Hebi	2,182	162.05	156.90	51.00	4,291,193	28,531	97.88	82.51	90.49	14.01
Xinxiang	8,169	603.86	570.80	97.00	11,899,408	21,196	97.20	87.48	100.00	9.51
Jiaozuo	4,071	368.02	354.00	90.00	12,459,260	35,767	99.80	85.10	85.75	9.43
Puyang	4,266	409.83	359.80	51.00	7,754,037	21,787	90.62	53.42	90.52	12.57
Xuchang	4,996	489.64	430.70	80.00	13,164,870	30,536	96.86	96.94	96.13	11.39
Luohe	2,716	278.47	254.40	60.00	6,804,948	26,974	91.29	64.77	100.00	15.18
Sanmenxia	10,496	230.30	223.40	30.00	8,744,157	39,176	88.61	99.32	96.77	16.06
Nanyang	26,509	1,186.69	1,026.30	92.00	19,533,562	19,145	70.19	62.38	74.21	10.34
Shangqiu	10,704	918.01	736.20	60.00	11,437,912	15,085	64.35	100.00	66.84	5.27
Xinyang	18,847	870.22	610.90	68.00	10,918,323	16,936	96.00	81.00	93.02	13.91
Zhoukou	11,959	1,224.35	895.30	51.00	12,283,024	12,944	93.70	75.07		10.03
Zhumadian	15,083	886.10	723.10	52.00	10,537,118	14,117	63.38	92.02	91.84	9.37
Hubei Province										
Wuhan	8,494	836.73	978.50	500.00	45,591,116	58,961	100.00	94.96	100.00	8.89
Huangshi	4,586	260.14	242.90	66.00	3,525,200	28,427	99.97	81.21	100.00	11.95
Shiyan	23,680	353.19	334.10	62.00	4,607,691	21,267	88.35	72.75	93.28	10.00
Yichang	21,084	398.55	406.00	92.00	15,473,200	38,181	100.00	89.59	89.78	10.88
Xiangfan	19,724	591.07	550.00	107.00	15,382,700	27,969	99.62	87.38	80.51	10.75
Ezhou	1,594	108.46	104.90	52.00	3,952,900	37,943	100.00	81.80	100.00	14.13
Jingmen	12,404	300.40	287.40	50.00	9,300,900	25,509	100.00	84.50	100.00	10.26

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Xiaogan	8,910	531.05	481.50	33.00	8,006,700	16,630	97.40	85.18	94.12	10.06
Jingzhou	14,092	658.17	569.20	66.00	837,000	14,707	98.27	80.07	100.00	9.51
Huanggang	17,457	742.41	616.20	58.00	8,623,000	13,421	97.21	92.36	93.29	11.12
Xianning	9,861	290.96	246.30	63.00	5,203,300	21,129	84.34	85.50	85.71	9.34
Suizhou	9,636	257.91	216.20	43.00	4,016,600	18,381	94.51	46.11	100.00	10.27
Hunan Province										
Changsha	11,816	652.40	704.40	272.00	45,470,573	66,443	100.00	90.80	100.00	9.98
Zhuzhou	11,247	390.27	385.60	107.00	12,754,805	33,604	98.89	81.22	100.00	12.70
Xiangtan	5,015	288.98	274.90	73.00	8,940,050	32,321	97.54	82.10	100.00	8.72
Hengyang	15,299	791.62	714.10	99.00	14,203,377	20,419	100.00	63.83	100.00	9.21
Shaoyang	20,830	793.97	707.20	49.00	7,272,893	10,468	92.08	61.61	100.00	8.42
Yueyang	15,087	565.62	547.80	82.00	15,393,576	28,110	95.54	74.81	100.00	8.51
Changde	18,190	623.11	571.70	76.00	14,915,686	26,551	96.59	74.74	100.00	14.10
Zhangjiajie	9,516	164.75	147.70	28.00	2,424,785	16,238	97.53	61.97	93.02	7.68
Yiyang	12,144	476.36	431.30	54.00	7,122,748	16,839	84.44	87.58	100.00	7.58
Chenzhou	19,699	502.07	458.20	62.00	10,817,632	24,015	92.23	56.12	100.00	8.03
Yongzhou	22,441	610.65	518.00	55.00	7,670,148	14,874	98.77	53.38	78.16	5.64
Huaihua	27,624	509.72	474.20	52.00	6,749,227	14,371	97.33	71.33	100.00	8.12
Loudi	8,117	432.99	378.60	41.00	6,787,067	17,569	97.60	81.05	100.00	9.07
Guangdong Province										
Guangzhou	7,434	806.14	1,270.10	952.00	107,482,828	103,625	99.56	96.96	91.96	11.87
Shaoguan	18,463	328.10	282.70	78.00	6,831,033	22,995	93.88	71.06	100.00	11.76
Shenzhen	1,992	259.87	1,035.80	830.00	95,815,101	106,880	100.00	99.30	94.60	16.40
Zhuhai	1,711	104.74	156.00	124.00	12,085,958	80,697	99.70	78.81	92.34	13.67
Shantou	2,064	524.11	539.10	182.00	12,089,743	23,600	98.57	71.05	64.41	12.23
Foshan	3,798	370.89	719.40	152.00	56,515,223	93,983	100.00	88.98	100.00	10.24
Jiangmen	9,568	392.28	444.90	129.00	15,704,191	37,313	96.80	80.40	100.00	11.00
Zhanjiang	13,225	777.77	699.30	81.00	14,050,630	20,081	99.37	93.05	97.41	12.74
Maoming	11,458	747.17	581.80	70.00	14,920,857	23,961	100.00	82.81	41.91	10.03
Zhaoqing	15,464	422.41	391.80	80.00	10,858,680	27,836	99.94	81.92	97.88	22.66
Huizhou	11,343	337.28	459.70	215.00	17,299,543	43,397	96.57	85.16	100.00	11.14
Meizhou	16,089	514.75	424.00	45.00	6,128,522	14,736	96.16	70.99	100.00	11.80
Shanwei	5,271	344.98	293.60	14.00	4,650,789	15,787	95.07	51.65	100.00	10.67
Heyuan	15,642	358.39	295.30	29.00	4,751,396	16,301	99.89	89.32	96.54	12.07
Yangjiang	7,946	282.81	242.20	44.00	6,398,389	26,694	100.00	71.27	100.00	10.59
Qingyuan	19,036	413.47	369.80	69.00	10,881,840	28,326	99.98	61.50	100.00	11.27
Dongguan	2,460	181.77	822.00	92.00	42,464,527	66,351	99.50	84.69	98.19	15.32
Zhongshan	1,800	149.18	312.10	41.00	18,206,521	73,348	100.00	91.44	100.00	11.86

Name of Cities	Area of Administrative Regions (km^2)	Total Population (year-end) (10,000)	Permanent Population in the Sixth National Population Census (10,000)	Built-up Area(km^2)	GDP (10,000 Yuan)	Per Capita GDP(Yuan)	Tap Water Access Rate (%)	Wastewater Treatment Rate (%)	Domestic Garbage Treatment Rate (%)	Per Capita Public Green Space (m^2)
Chaozhou	3,146	260.89	267.00	42.00	5,592,431	21,663	100.00	82.52	100.00	10.34
Jieyang	5,266	661.79	587.70	58.00	10,095,114	17,373	97.60	57.63	82.75	12.86
Yunfu	7,779	282.76	236.00	19.00	4,009,741	16,391	93.72		100.00	11.47
Guangxi Zhuang Autonomous Region										
Nanning	22,112	707.37	666.20	215.00	18,002,613	25,622	95.10	93.27	100.00	9.83
Liuzhou	18,617	372.69	375.90	135.00	13,153,121	35,230	99.80	91.01	100.00	12.81
Guilin	27,809	518.96	474.80	63.00	11,035,587	22,842	78.27	96.16	100.00	9.16
Wuzhou	12,588	326.30	288.20	36.00	5,792,817	18,567	93.88	42.17	100.00	9.07
Beihai	3,337	166.84	153.90	55.00	3,975,762	25,412	97.08	81.06	100.00	8.60
Fangchenggang	6,222	91.24	86.70	31.00	3,204,155	37,264	100.00	35.53	41.43	10.40
Qinzhou	10,843	387.65	308.00	80.00	5,206,655		99.56	81.33	100.00	8.05
Guigang	10,602	523.81	411.90	56.00	5,446,570	12,531	91.38	86.34	97.59	12.08
Yulin	12,838	674.59	548.70	57.00	8,402,489	15,011	100.00	98.24	100.00	10.25
Baise	36,202	405.62	346.70	33.00	5,635,071	15,812	100.00	24.50	100.00	9.18
Hezhou	11,855	233.37	195.40	29.00	2,968,680	14,580	99.15	62.01	100.00	5.51
Hechi	32,907	399.19	336.90	19.00	4,687,372	13,912	99.26	92.63	100.00	5.09
Laibin	13,411	260.10	210.00	29.00	4,048,883	18,369	90.55	76.28	100.00	6.61
Chongzuo	17,386	243.35	199.40	22.00	3,923,691	18,583	100.00	18.52	14.73	7.51
Hainan Province										
Haikou	2,305	160.43	204.60	98.00	5,951,444	30,329	100.00	87.42	100.00	11.78
Sanya	1,918	57.01	68.50	28.00	2,308,509	46,596	91.23	29.92	100.00	18.98
Sichuan Province										
Chengdu	12,132	1,149.07	1,404.80	456.00	55,513,336	48,510	95.79	90.68	100.00	13.21
Zigong	4,373	325.96	267.90	80.00	6,477,251	23,053	83.93	85.10	85.48	8.07
Panzhihua	7,440	111.38	121.40	55.00	5,239,883	42,499	96.12	24.34	95.00	8.22
Luzhou	12,228	502.32	421.80	83.00	7,148,088	16,698	89.68	46.34	100.00	8.31
Deyang	5,911	389.15	361.60	54.00	9,212,679	25,335	98.67	83.75	100.00	9.65
Mianyang	20,249	541.87	461.40	103.00	9,602,153	20,053	97.96	89.00	100.00	10.39
Guangyuan	16,319	310.89	248.40	38.00	3,218,678	11,750	90.94	73.25	76.02	8.88
Suining	5,325	381.43	325.30	50.00	4,952,288	14,498	76.42	82.85	89.06	7.55
Neijiang	5,386	425.53	370.30	40.00	6,902,791	18,022	78.00	77.71	73.00	6.43
Leshan	12,826	353.35	323.60	54.00	7,439,150	22,990	91.28	53.12	96.05	7.10
Nanchong	12,479	751.72	627.90	78.00	8,278,238	13,212	96.98	60.51	83.27	8.65
Meishan	7,186	349.08	295.10	44.00	5,522,508	18,586	99.58	75.38	94.38	11.83
Yibin	13,271	539.02	447.20	57.00	8,708,472	19,499	100.00	36.70	92.59	15.96
Guang'an	6,344	466.16	320.50	30.00	5,372,243	15,588	72.82	90.70	97.22	15.31
Dazhou	16,591	685.49	546.80	32.00	8,192,030	14,623	94.91	60.81	78.16	14.43
Ya'an	15,302	154.90	150.70	20.00	2,865,379	18,787	100.00	62.50	86.30	15.50

Name of Cities	Area of Administrative Regions (km^2)	Total Population (year-end) (10,000)	Permanent Population in the Sixth National Population Census (10,000)	Built-up Area(km^2)	GDP (10,000 Yuan)	Per Capita GDP(Yuan)	Tap Water Access Rate (%)	Wastewater Treatment Rate (%)	Domestic Garbage Treatment Rate (%)	Per Capita Public Green Space (m^2)
Bazhong	12,301	388.01	328.40	18.00	2,809,074	8,618	94.18	88.68	97.35	8.84
Ziyang	7,962	501.13	366.50	36.00	6,579,017	16,644	88.32	85.66	95.30	5.70
Guizhou Province										
Guiyang	8,034	337.16	432.50	162.00	11,218,174	27,378	96.22	95.20	93.74	10.06
Liupanshui	9,965	319.20	285.10	39.00	5,006,319		98.32	91.89	100.00	2.44
Zunyi	30,762	784.16	612.70	47.00	9,087,570	25,290	100.00	59.85	94.35	4.94
Anshun	9,267	279.79	229.70	32.00	2,329,210		86.21	91.49	96.49	1.23
Yunnan Province										
Kunming	21,015	583.99	643.20	275.00	21,203,700	33,550	99.69	100.00	96.80	8.36
Qujing	28,904	626.40	585.50	56.00	10,055,964	17,236	100.00	83.55	100.00	9.29
Yuxi	15,285	230.60	230.40	23.00	7,364,354	32,068	100.00	95.59	89.60	10.14
Baoshan	19,637	252.70	250.60	25.00	2,608,992	10,469	90.03	95.51	94.94	10.99
Zhaotong	22,657	574.24	521.30	27.00	3,796,448	7,193	96.30	78.67	100.00	7.86
Lijiang	21,219	120.44	124.50	25.00	1,435,885	11,680	99.50	89.73	100.00	29.90
Pu'er	45,385	254.60	254.30	24.00	2,480,804	9,584	73.30	33.04	94.48	13.86
Lincang	24,469	243.18	243.00	14.00	2,169,731	8,988	94.84	52.28	100.00	2.22
Tibet Autonomous Region										
Lhasa	29,518	56.00	55.90	62.88	1,789,100	31,948	99.22		100.00	5.27
Shaanxi Province										
Xi'an	10,108	782.73	846.80	327.00	32,414,900	38,341	107.15	86.41	97.48	9.50
Tongchuan	3,882	85.44	83.40	28.00	1,877,340	22,508	95.67	70.15	85.03	9.74
Baoji	18,131	381.09	371.70	118.00	9,760,900	26,124	99.85	93.20	100.00	14.23
Xianyang	10,196	520.09	489.50	81.00	10,986,810	22,477	96.00	51.94	53.45	13.43
Weinan	13,134	560.06	528.60	44.00	8,014,230	14,950	99.38	75.11	91.62	11.88
Yan'an	37,037	230.22	218.70	36.00	8,854,200	40,621	86.01	86.96	82.03	9.58
Hanzhong	27,246	381.53	341.60	33.00	5,097,030	14,697	75.70	97.50	100.00	14.09
Yulin	43,578	364.50	335.10	52.00	17,566,680	52,480	95.14	67.71	84.77	7.11
Ankang	23,536	304.35	263.00	30.00	3,270,630	12,428	84.74	11.79	52.94	10.04
Shangluo	19,292	244.83	234.20	24.00	2,859,000	12,209	94.94	79.81	99.32	11.36
Gansu Province										
Lanzhou	13,086	323.54	361.60	196.00	11,003,898	34,009	94.96	57.55	100.00	8.63
Jiayuguan	2,935	21.80	23.20	50.00	1,843,192	83,425	100.00	73.13	100.00	16.61
Jinchang	8,896	46.48	46.40	37.00	2,105,134	43,400	100.00	93.82	100.00	14.90
Baiyin	21,158	180.39	170.90	55.00	3,111,826	17,680	97.80	52.03	88.79	6.66
Tianshui	14,359	366.73	326.30	42.00	3,002,285	8,758	76.09	65.02	100.00	5.62
Wuwei	33,238	191.26	181.50	27.00	2,287,676	10,621	94.12	88.58	99.31	3.80
Zhangye	41,924	130.83	120.00	34.00	2,127,010	17,101	99.01	74.98	90.52	15.71
Pingliang	11,170	231.82	206.80	20.00	2,318,873	10,504	95.39	81.59	98.41	7.78

Name of Cities	Area of Administrative Regions (km^2)	Total Population (year-end) (10,000)	Permanent Population in the Sixth National Population Census (10,000)	Built-up Area(km^2)	GDP (10,000 Yuan)	Per Capita GDP(Yuan)	Tap Water Access Rate (%)	Wastewater Treatment Rate (%)	Domestic Garbage Treatment Rate (%)	Per Capita Public Green Space (m^2)
Jiuquan	193,974	97.95	109.60	38.00	4,050,348	39,562	100.00	50.38	95.24	9.84
Qingyang	27,119	259.18	221.10	21.00	3,576,095	16,172	95.88	87.55	93.84	4.46
Dingxi	20,330	300.38	269.90	23.00	1,560,193	5,304	86.81	79.11	80.00	9.18
Longnan	27,914	281.78	256.80	14.00	1,694,085	6,457	48.16	100.00	100.00	1.32
Qinghai Province										
Xining	7,665	220.87	220.80	67.00	6,282,800	28,428	99.85	55.05	83.37	8.94
Ningxia Hui Autonomous Region										
Yinchuan	9,025	158.80	199.30	121.00	7,694,227	41,520	99.48	91.80	100.00	14.39
Shizuishan	5,310	74.82	72.50	94.00	2,985,969	41,163	99.29	41.14	85.01	26.36
Wuzhong	20,394	138.35	127.40	28.00	2,169,973	15,685	89.06	90.00	100.00	19.19
Guyuan	10,541	152.53	122.80	35.00	1,040,310	6,874	99.19	73.05	91.84	8.52
Zhongwei	17,441	118.12	108.10	32.00	1,731,892	15,596	97.99	100.00	89.56	11.62
Xinjiang Uygur Autonomous Region										
Urumqi	13,788	243.03	311.00	343.00	13,385,172	43,039	99.93	60.65	97.25	7.39
Karamay	9,548	37.51	39.10	57.00	7,113,531	121,387	100.00	92.12	100.00	9.04

II. Notes to the Basic Data of the State of China's Cities

The notes to the basic data of Year 2010 quoted in The State of China's Cities 2012/2013 are as follow:

I. Date Sources

Area of Administrative Regions, Total Population (Year-end), Area of Built-up Regions, GDP of Urban Areas and GDP Per Capita: Department of Urban Social and Economic Survey of National Bureau of Statistics, China City Statistical Yearbook 2011, China Statistics Press, Beijing, December 2011.

Wastewater Treatment Rate, Domestic Garbage Treatment Rate, Tap Water Access Rate, and Park Land Area Per Capita: Ministry of Housing and Urban-rural Development of the People's Republic of China, China Urban Construction Statistical Yearbook (2010), China Planning Press, September 2011.

Permanent Population in the Sixth National Population Census: The Communiqué on Figures of the Sixth National Population Census issued by the Statistics Bureaus of 287 Cities, and Social Emotion and Public Opinion Survey Network of the National Bureau of Statistics: http://my12340.cn/articlelist.aspx?classid=112.

II. Explanation of Indexes

1. Area of Administrative Regions refers to the total area of the land (including the water area) within the administrative regions. The land area shall be calculated on the basis of administrative regions.

—— *China City Statistical Yearbook 2011, p.391*

2. Total Population (Year-end) refers to the total population of the city concerned by 24:00PM, December 31 of the current year, which is subject to the total population with residence registration at the public security authorities.

—— *China City Statistical Yearbook 2011, p.391*

3. Permanent Population in the Sixth National Population Census refers to the permanent population in the Sixth National Population Census conducted at zero hour of November 1, 2010 as the reference time, including persons living in this town with their household registration at this town or with pending household registration; persons living in this town and having left the town (township or street) of their household registration for over 6 months; and persons with household registration in this town and having left this town for less than 6 months or studying overseas, not including the foreign personnel permanently residing within the provinces (autonomous regions or municipalities directly under the central government).

—— *The Communiqué on Figures of the Sixth National Population Census*

4. Area of Built-up Regions refers to the non-agricultural production and development areas developed through the requisition of land and the concrete construction within the municipal areas, including contiguous areas within the urban area and land developments that are scattered in suburban areas but closely connected with the city and basically equipped with complete municipal and public facilities (for example the airports, wastewater treatment plants and communication stations).

—— *China City Statistical Yearbook 2011, p.391*

5. Gross Domestic Product (GDP) refers to the final products at market prices produced by all resident units in a country (or a region) during a certain period of time.

—— *China City Statistical Yearbook 2011, p.391*

6. GDP Per Capita refers to the ratio of the gross domestic product of the city during a certain period of time to the average permanent population of the same period of time.

—— *Notice of the National Bureau of Statistics on Improving and Regulation Regional GDP Accounting (Guo Tong Zi [2004] No.4)*

7. Tap Water Access Rate refers to the ratio of the urban population with access to tap water to the total urban population within the report period. The formula is:

Tap water access rate= urban population with access to tap water / (urban population + transient urban population) ×100%.

—— *China Urban Construction Statistical Yearbook (2010), p.622*

8. Wastewater Treatment Rate refers to the ratio of the total sewage treatment volume to the total sewage discharge volume within the report period. The formula is:

Wastewater treatment rate = total sewage treatment volume / total sewage discharge volume ×100%.

—— *China Urban Construction Statistical Yearbook (2010), p.622*

9. Domestic Garbage Treatment Rate refers to the ratio of the domestic garbage treatment volume to the domestic garbage generation volume within the report period. The formula is:

Domestic garbage treatment rate = domestic garbage treatment volume / domestic garbage generation volume×100%.

—— *China Urban Construction Statistical Yearbook (2010), p.623*

10. Per Capita Public Green Space refers to the green space per capita in public space and parks within urban areas at the end of the report period. The formula is:

Park land area per capita = green space in public space and parks within urban areas/ urban population + transient urban population.

—— *China Urban Construction Statistical Yearbook (2010), p.622*

Note:

1. The State Council issued the Official Reply of the State Council on Approving the Renaming of Simao City of Yunnan Province and Its Related Counties and Districts on January 21, 2007 and the name of Simao was already changed to Pu'er in the *China Urban Construction Statistical Yearbook 2010*; however, the *China City Statistical Yearbook 2011* still used the name of Simao. In this round of statistics of *Basic Data of China's Cities of 2010*, the name of Pu'er is adopted throughout the report.

2. *China City Statistical Yearbook 2011* lacks of some data of Lhasa, which are supplemented by data taken from website of Lhasa municipal government.

3. At present, due to the different paces of the permanent residence registration reform in different cities, some regions have completely included the transient population into the local population for administration, while some other regions still maintain the existing residence registration system which excludes the transient population. As a result, the concepts of total population of different cities vary greatly. Therefore the definition of total population in this statistics and those of all per capita indexes calculated on that basis might be somewhat different from the statistical data from other sources, and should be used for reference only.

III. Lists of Winners of China Habitat Environment Award 2011 and China Best Practice Award for Habitat Environment 2011

Winners of China Habitat Environment Award, 2011

Weifang, Shandong Province

Jiangyin, Jiangsu Province

Changshu, Jiangsu Province

Winners of China Best Practice Award for Habitat Environment, 2011

1. Community Involvement in Urban and Rural Planning, Beijing
2. Longmentai Village Renovation and Development Pilot Program, Fangshan District, Beijing
3. Protection of Historic Buildings with Italian and German Architectural Styles, Tianjin
4. Demonstration and Operation of New Energy Buses, World Expo 2010 Shanghai
5. Suzhou River Human Habitat Environment Improvement in Putuo District, Shanghai
6. Green Rail Transport Development in Chongqing
7. Resource Utilization of Construction Wastes in Handan, Hebei Province
8. Integrated Management and Improvement of Juhe River Urban Section in Sanhe, Hebei Province
9. Collective Natural Gas Development and Utilization in Datong, Shanxi Province
10. Aoruite Community Heat Metering Reform in Changzhi, Shanxi Province
11. Old Town Upgrading Program in Tiexi District, Shenyang, Liaoning Province
12. Promotion of Conservation-oriented Urban and Rural Development in Jiangsu Province
13. Huaqiao Ecological Protection and Urban Green Space Development in Kunshan, Jiangsu Province
14. Small Town Development in Guli Town, Changshu, Jiangsu Province
15. New Countryside Development Program in Wangshan Village, in Wuzhong District, Suzhou, Jiangsu Province
16. Urban Management and System Innovation in Yangzhou, Jiangsu Province
17. Renovation of Urban Dilapidated Houses in Hangzhou, Zhejiang Province
18. Upgrading of Old Communities in Hangzhou, Zhejiang Province
19. Upgrading of Urban Parks along the Moat in Quzhou, Zhejiang Province
20. Shijiuyang Ecological Wetland for Drinking Water in Jiaxing, Zhejiang Province
21. Round-East-Lake Ecological Landscape Construction in Dongqiao District, Ningde, Fujian Province
22. Spring City Landscape Restoration and Protection in Jinan, Shandong Province
23. Area Old Village Upgrading in Licun River Upper Stream, Licang District, Qingdao District, Shandong Province
24. Roofing Greening in Linyi, Shandong Province
25. Solar Power Utilization in Dezhou, Shandong Province
26. Old Village Upgrading in Zhuquan Village, Yinan County, Shandong Province
27. Yanglan Lake Integrated Management in Ezhou, Hubei Province
28. Integrated Urban Management of Jiuhu Town in Shennongjia Forest Reserve, Hubei Province

29. Community-based Park Construction in Changsha, Hunan Province
30. Greenway Network Construction in the Pearl River Delta, Guangdong Province
31. Lizhi Bay Integrated Environmental Management in Guangzhou, Guangdong Province
32. Energy Conservation and Promotion in Buildings, Shenzhen Institute of Building Research Office, Shenzhen, Guangdong Province
33. Post-disaster Urban and Rural Residential Housing Reconstruction in Anxian County, Sichuan Province
34. Underground Pipeline Information System Development in Kunming, Yunnan Province
35. Panlong River Regulation in Kunming, Yunnan Province
36. Historical and Cultural Heritage Protection in the Ancient Town of Lijiang, Yunnan Province
37. Ecological Environment Development in Yimen County, Yunnan Province
38. Protection of Ming Palace Ruins in Xi'an, Shaanxi Province
39. Upgrading of Urban Heat Metering Systems in Longde County, Ningxia Hui Autonomous Region

IV. Go "All Out" to Create the Riverine Ecological New Hegang

Hegang is situated in the northeastern part of Heilongjiang Province. It is located in the included angle where the Songhua (Sungari) River meets the Amur River (i.e. Heilongjiang River) and the buffer zone where Small Xing'an Mountains joins the Sanjiang Plain. Covering an area of 15,000 square kilometers, Hegang administers two border counties of Luobei County and Suibin County and six administrative regions. It has a population of 1,100,000 people, including 700,000 urban residents. Hegang is also home to many enterprises directly under the administration of the central government or provincial government, including Heilongjiang Longmay Mining Holding Group Hegang Branch, Baoquanling Branch of the General Bureau of Land Reclamation of Heilongjiang Province, and Hebei Forestry Bureau of Heilongjiang Provincial General Bureau of Forestry Industry. By looking at the municipal situation, city positioning, and future prospects of Hegang in a comprehensive and dynamic point of view, they can be summarized as the "758 Strategy," where 7 stands for the strategy to build Hegang into "the Coal-Power and Chemical Industry Base, the Town of Green Food, the Capital of Graphite in China, the Leader of the Boundary River Tourism, the Channel

Urban landscape of Hegang City

Night of Culture Square of Hegang City

Opening to Russia, the Culture-rich Border City, and the Riverine Ecological New City" ; 5 stands for the plan to take "the rising of the southern area, the development of the northern area, the good administration of the eastern area, the expansion of the western area and the upgrading of the central area" as the five main-body strategies of urban development of Hegang; and 8 stands for the implementation of the eight measures, including "unswervingly focusing on the development of industries, projects, and industrial parks, etc."

Hegang is an important coal power and chemical industry base of Heilongjiang Province. As a large coal production base, Hegang has coal reserves of 2.6 billion tons with the annual output of 22 million tons; the installed-capacity of coal-fired plants is now 1.5 million kwh and is moving towards 3.5 million kwh. By taking advantage of the rich coal and electricity resources, Hegang is building towards a projection of 6 millions tons of coke and a projection of 2 millions tons of chemical fertilizer, which will turn Hegang into an important Coal-power and Chemical Industry Base of eastern Heilongjiang Province.

Autumn in Jindingshan National Forest Park

Hegang is the Town of Green Food of the Sanjiang Plain. As an important grain production area, Hegang has arable land of 533,000 hectares with grain output of 4 billion kilograms. Based on its eco-green advantages, Hegang has the rice processing capacity of 7.5 million tons, the corn processing capacity of 1 million tons, the soybean processing capacity of 1 million tons, and live pig slaughtering and processing capacity of 2.3 million. All these have made it possible for Hegang to become the scientific and technological achievement transformation base of Northeast Agricultural University and Heilongjiang Academy of Agricultural Sciences. Hegang is known as the Capital of Graphite in China and is opening its door to the outside world. Hegang holds graphite reserves of 630 million tons with the average grade at 10.2%. Hegang accounts for one third of the national output and export of graphite and is known as the No.1 Graphite Mine of Asia. The construction of the projects of spherical graphite, high grade carburant and anode materials, etc., and the development of new lubricating and sealing materials, and three-high graphite projects launched by China Railway Resources Group, Hong Kong South Sea Petroleum Holdings Ltd., Shenzhen BTR New Energy Materials Inc., Shandong Hiking Group, and Shanghai Shanshan Tech, have accelerated the steps of Hegang to become the global base of graphite products.

Hegang is a leading city of boundary river tourism. Relying upon Sanxia National Forest Park in Longjiang, known as the greatest landscape in the north of the Yangtze River, 667,000 hectares of forests, 533,000 hectares of land for integrated agriculture, great mines with an annual output of 22 million tons and 60,000 hectares of great wetlands, Hegang has built the Mingshan Jewish Village, an example of multi-cultural fusion, and Taipinggou Gold Village, the only place displaying gold rush culture in China, for which Hegang is awarded the title of top landscape tour destination

of China and becomes the leader of boundary river tourism in Heilongjiang Province.

Hegang is also a window opening to Russia with emerging advantages. Relying on the 235km borderline, the 5,000-tonnage waterway of the Amur River, goods-handling capacity of 430,000 tons per annum in its ports, and the progress of such projects as the Songhuajiang River Bridge, regional airports, and intercity railway projects, Hegang has carried out over 40 cooperation projects with Russia and has become the bridgehead connecting Sino-Russian trade as well as the great channel of economy and trade and an export-oriented processing zone.

Hegang is a culture-rich border city with a strong foundation. The area is the cradle of the civilization of the Amur River Valley, the crossroads of Chinese, Russian and Jewish civilizations, and the place where the gold culture of the Qing Dynasty (1644-1911), the Northeast Anti-Japanese United Army (Kanglian) culture, the Educated Youth (Zhiqing) culture, Russian and Jewish cultures and the cultures of ethnic minority groups are integrated. As the first city that was liberated from Guomindang (KMT) rule, Hegang is the cradle of the medical sciences of New China and the place where the six "Number Ones" of the film history of New China were created. Relying upon its rich culture, Hegang has built up the Heilongjiang River Area Museum, the first museum of its kind in China, to display in full scale the river area civilization. The forum on the Amur River Valley civilization which has already been held twice has acquired worldwide recognition.

Hegang is the Riverine Ecological New City that changes every day. It has established the five strategies of urban development: "the rising of the southern area, the development of the northern area, the good administration of the eastern area, the expansion of the western area and the upgrading of the central area." By relying on the two rivers, the Songhua and Amur, that run through Hegang, as well as another 72 large and small rivers, and by taking advantage of its natural landscape, geographical resources, and rich culture as the basis for future development, Hegang has implemented the squatter settlement redevelopment, subsistence training, and large-scale greening, brightening, beautifying and purifying projects in the city. The old Hegang, which was well-known for its mines, has become the new Hegang, a city near rivers and surrounded by green forests. By now, the planning and design for the five major strategies have been fully implemented.

Faced with the opportunities brought forward by the Twelfth Five-Year Plan for 2011-2015, Hegang is accelerating the transformation of the city from an old resource base, endeavoring to realize the 712 targets, the leap-frog development targets for the GDP to reach 70 billion yuan, the fiscal revenue 10 billion yuan and fixed assets investments 200 billion yuan.

New look of Hegang mining area

V. Suqian: Improving Habitat, Environment, and Creating a Livable City

Situated at the northern part of Jiangsu Province, Suqian is a prefecture-level city established in July, 1996. It is situated in the area of the Huaihai Economic Belt, the Coastal Economic Belt and the Yangtze River Economic Belt. Covering an area of 8,555 square kilometers and having a population of 5.55 million, Suqian administers Shuyang County, Siyang County, Sihong County, Suyu District, and Sucheng District. Suqian is a vast plain with rich and fertile land and many rivers and lakes. It is the only prefecture-level city with two lakes (Hungtse Lake and Luoma Lake) and two rivers (the Yellow River and the Grand Jinghang Canal) and is also the Hometown of Poplar Trees, the Hometown of Aquatic Products, the Hometown of Famous Liquor, the Hometown of Flowers, and the Hometown of Cocoons.

Before its upgrading to the city level, Suqian suffered from a weak economic foundation, seriously deficient municipal infrastructure, and a relatively poor living environment. After it was upgraded to the city level, Suqian highlighted the guiding role of city planning, set development targets from a high starting point, and defined the goal to build an environment-friendly, garden-like, sustainable and ecological city with rivers and lakes. Focusing on the objective to create the city brands of Ecological Suqian and Green Home, Suqian has made great efforts to implement the strategy of "Infrastructure Development Foremost" and "Urban Area Development as the Driving Force," and gained rapid, healthy, and coordinated social and economic development. The growth rates of multiple economic indicators have continuously ranked top in the whole province. In 2011, its GDP reached 130.9 billion yuan with an annual growth rate of 12.8%; the per capita GDP reaching 27,600 yuan which exceeded US$4,000; and the total fiscal revenue reached 27.62 billion yuan with an annual growth rate of 34.I3%. The construction of the central city started from scratch and expanded from a small scale to a large scale. By the end of 2011, the urbanization rate of Suqian reached 49.8%, increasing by 37% from the 1996 level.

While promoting sound and fast social and

The Grand Canal

economic development, Suqian has firmly focused on the vision of ecological civilization, strengthened ecological and environmental protection, created a municipal administration system and taken on a fundamental change of appearance. In order to further enhance livability, Suqian has formally launched the project to build itself into a China Habitat Award City. The municipal CPC Committee and the municipal people's government have specially set up the China Habitat Award City Building Project Command with the Secretary of the Municipal CPC Committee as the commissioner and the mayor as the general director, which has diligently formulated the implementation plan and dispatched personnel to work in centralized offices. In order to comprehensively improve the habitat environment of the city, Suqian has organized and implemented over 100 key infrastructure projects in the central city each year, including the projects for city roads, pipeline networks, waste water treatment systems, urban water connection systems, city water supply, heating supply, gas supply, telecommunications and traffic facilities, renovation of dangerous and old areas of the city and subsidized housing construction.

Firstly, Suqian has improved its urban infrastructure and quality of life in the city. The public water supply coverage of the city has reached 96.01%; the gas coverage rate reached 98.1% and internet user coverage reached 16.77 households per one hundred persons. Suqian has formulated the preliminary plans for disaster prevention and reduction and increased the security of its infrastructure. The per capita effective space of emergency shelter in the built-up area has reached 2.3 square meters per person. Following the idea of public transit priority, Suqian has made great efforts to develop the urban public transit system, built bay platforms on the basis of the construction of urban road networks, and took such measures as the right-of-way of public transit vehicles at intersections, and adding platform and bus stop facilities and traffic signage to improve the overall public travel and traffic environment. Suqian has also formulated the Special Plan for Pedestrian and Bicycle System, advocated environment-friendly traffic flow, promoted energy conservation and emissions reduction, and increased the ratio of travel by walking and bicycle to 48.99%. The schools in the built-up area are properly located; school buildings are equipped with complete facilities; school compounds meet safety requirements; and school environs boast good public security and complete traffic marks.

Secondly, Suqian has improved its urban green space and created its own ecological brand, with the municipal government as the leader, and the communities and the general public as the participants. Activities have been undertaken to develop green space through planning, demolishing unauthorized buildings, and demolishing walls in small parcels of the urban area to showcase additional green space. With the building of landscape belts along the Yellow River and the Grand Canal, the greening of the roadways serves as the framework, and the development of green street squares and green urban courtyards and residential communities serves as the wide green support network, Suqian has built a series of city gardens and greening projects including the Grand Canal landscape belts, Ancient Yellow River landscape belts, Yuanboyuan Garden, Roman Garden, Xuefeng Park, Hebin Park, Citizens' Park of Sucheng District and Qianniao Garden (Garden of a Thousand Birds). The green areas in the city are reasonably distributed with full infrastructure, shaping a special feature of "one ring, two belts, three zones, four longitudinal lines and four horizontal lines, six axes, ten gardens, and one hundred parks." Suqian was awarded the title of Jiangsu Province Garden City and State-level Garden City in 2005 and 2010 respectively. It successfully hosted the Seventh Horticultural Exposition of Jiangsu Province in September, 2011. By the end of 2011, the green coverage, green area coverage, and per capital public green space in the built-up area of the central city reached 40.92%, 37.1%, and 12.25 square meters respectively.

Thirdly, Suqian has improved its social housing system and quality of living environment. The city has actively promoted housing commercialization and privatization reform; made great efforts to establish the multiple-level social housing system, provide housing and relocation services for structures designated for demolition, and provide affordable and low-rent housing to meet the demand by medium and low-income households. Suqian has actively promoted the renewal of dangerous squatter settlements with poor living

Open green space

Landscape along the Grand Canal

conditions. It has implemented renovation projects for Xingfu, Xincheng, Xiangli, and Xiongzhuang Bay along the Ancient Yellow River, making fundamental improvements to the living conditions and standards of urban residents. In 2011, Suqian realized the social housing compliance rate of 100%, the completion rate of the social housing construction plans of 116.71%, and increased the per capita residential area in the city from 9.7 square meters in the early years after the establishment of the city, by 4.1 times to 39.9 square meters today.

Fourthly, Suqian has strengthened comprehensively its urban administration and made efforts to forge the civilized image of the city. In December 2001, upon the approval of the Legislative Affairs Office of the State Council of China and the Jiangsu Provincial People's Government, Suqian launched the project for a concentrated administrative policy in the municipal administration system. Following the requirements of "development, innovation, stability, and service for the people," Suqian has advocated the idea of people-first, developing an innovative municipal administration system, implemented a comprehensive administration system, and launched initiatives to build the Quality City and Province-level City Environment Example Road (Street). It has promoted the integrated improvement of urban and township environments, and actively implemented the pilot project of municipal domestic waste disposal to promote the operation mode of "environment maintenance by teams, collection by villages, transportation and transfer by towns, and treatment by the city (county)." The decontamination rate of municipal domestic waste has reached 100%. On the First Chinese Urban Management System Reform Forum held in Suqian in May 2008, the urban management mode of Suqian won exceptional high praise and recognition from experts, scholars, and city managers. In 2009, Suqian won the Award of Chinese Urban Management Progress.

The current Suqian has a complete city infrastructure with full functionality; its residents live and work in peace and contentment; the city management is well regulated and in order; administration and development in the city has a more environmentally-friendly focus; the features of the new city are emerging and continue to grow; and overall quality of life of the city has been remarkably improved. Known as a city lying in the forests, with roads in green areas, buildings in new gardens, and people enjoying green landscapes, Suqian is an energetic city showcasing its new charms day after day and has become a most livable habitat.

Qianlong Xanadu

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