

## The Development Tendency of China's Urban Spatial Structure

### Background

In the 21st century, economical globalization and regional integration have become increasingly deepened, and sustainable development has become the consensus of the international community. A new recognition is commonly accepted, i.e. competition among various countries is centered on the completion of comprehensive national strength with central urban as core, and the urban spatial development becomes the hot spot of urban and regional planning theory and practice for many countries. The spatial plan, especially the plan in national sense, has gradually become important means and measures for governments of various countries to promote economical development, social progress, and coordinate unbalance in regional development, and realize sustainable development, and it has become an integral part of public policy for governments of various countries.

For the over 20 years since reform and opening policy, China's economy has been constantly growing fast with rapid development of urbanization. The population of urban areas increased from 200 million in 1978 to 547 million in 2004, with urbanization rate growth from 18% to 41.7%, and great changes have taken place in urban and rural areas. With the unprecedented urbanization, lots of problems also occur, for example, serious waste of resources, ecological environment destruction, unbalance of regional development, urban and rural separation, loss of local cultural characteristics, serious social structural differentiation, etc, these questions have already turned out to be the bottleneck affecting the continued fast development of China in the future 20 years. By the end of the year 2004, China's per capita GDP reached USD1000, which was a major transitional period in socio-economic development, and the level of urbanization entered an internationally recognized fast development stage. How to make objective judgment on the speed and scale of China's urbanization from the perspective of resources environment, and from spatial sense, how to arrange population distribution, industrial development, infrastructure construction, environmental protection and regional coordinated development and other series of major issues, have become major integral part of the policy for national macro economic regulation.

In October, 2004, the important thought of scientific outlook on development was put forward at the 3<sup>rd</sup> plenary session of 16<sup>th</sup> CPC conference, and major adjustment of the thought on fast development for the past 20 years was made with emphasis put on the quality of development. In terms of urban development policy, it was further proposed that the comprehensive urban bearing capacity should be improved, and urbanization should be progressed positively and safely according to the principle of proper sequence, saving land, intensive development, and reasonable layout. In March, 2006, the 4<sup>th</sup> plenary session of the 10<sup>th</sup> NPC passed the "11<sup>th</sup> five-year plan for national economic and social development", in which the chapter "Promote regional coordinated development" was added specially, besides the newly increased such

contents in spatial planning as the division of the principal function of national territory, fostering of new urban cluster, giving priority to the development of traffic and transportation. All of this shows that spatial planning, as a means of macro regulation, is becoming a major means for central governmental macro management under the market economy system. Under the guidance of scientific outlook on development, how to make comprehensive judgment on the trend of urbanization in such many aspects as resources, environment, population, and industry, how to put forward integrated national spatial development policy, and how to build and promote sustainable national spatial planning system are not only the objective demand for national socio-economic coordinated development, but the great challenge facing the present China's urban and regional planning theory and practice. In a broader sense, it is also the necessary requirement for comprehensive improvement of China's human settlement. .

According to the Urban Planning Law of People's Republic of China issued in 1990, the Ministry of Construction shall have the responsibility to organize and compile "Urban system planning", and guide the development of urban areas and trans-regional coordination throughout the country. Urban areas serve as major spatial carriers for socio-economic development, and the planning for them must cover a good many aspects concerning socio-economic development, to be specific, Urban system planning is the spatial planning in the sense of national level. For the past 15 years since the issuance and implementation of the above planning law, the Urban system planning has experienced several changes since the mid 1990s. With the proposal of scientific outlook on development, the mentioned planning made substantial progress in 2005. In view of the fact that this work is in progress, the paper only gives brief introduction to and technical analysis of the "Outline of Urban system planning".

## **Technical route**

From where to handle the spatial planning in the sense of national level is the core of this round of planning. The work team has improved mode of three major structures of urban function structure, rank structure and scale structure, and according to the new situation of international political and economic development, the new tendency of national industrial development, and the new trend in population migration, the team analyzes the characteristics and the future development road of China's urbanization, proposes China's national urban spatial structure in the future, giving prominence to public policy attribute, attaching importance to the analysis of prerequisite for urban development, and displaying the democratization of scientific decision making.

## **Technical characteristics**

### ***1. Planning guideline based on scientific outlook on development***

As for the planning, the explicit proposal is to implement the people-oriented and scientific outlook on comprehensive and sustainable development, and actively and surely promote

urbanization on the principle of proper sequence, saving land, intensive development, and reasonable layout. It is to be further displayed the function of urban and rural planning as government regulation, social management, and public service, adapting to the requirement of the establishment and improvement of socialist market economy system. Improve China's capability to participate in international competition via planning, and further display the impetus of urban areas on socio-economic development so as to comprehensively improve the environmental quality of urban and rural housing, and form the new framework of saving resource, environmental friendliness, high efficient economy, and harmonious society. Inherit and carry forward the historical and local cultural traditional characteristics, protect valuable nature and humanistic resources, and create new and diversified urban socialist culture with Chinese characteristics.

The planning target is defined as the coordination between specified future (2011~2020) and medium-and long-term planning so as to guarantees the orderliness and healthy development of urbanization and achieve the new framework of developed economy, sufficient employment, prosperous culture, resource conservation, suitable environment, harmonious social, high efficient infrastructure, urban and regional coordination, and coordinated development of big, small and medium-sized cities and small towns. Near future (2005~2010) planning coordinates with the 11<sup>th</sup> five-year plan of the country so as to display the three metropolises integrated function, foster new urban complex, strengthen the channel construction for the connection among the east, the middle and the west urban areas, and a preliminary spatial system with urban and rural areas planned as a whole is to be established so as to improve regional and urban management level and guarantee the implementation of healthy urbanization strategy.

## ***2. Accurate grasp of urban development background***

First, under the background where the economical globalization increasingly deepens, development is still the theme of the future 15 years. This requires there must be the construction of cities and regions conforming to China's new round of restructuring in global production, trade, science and technology, and culture. At the same time, the establishment of many regional cooperative organizations between our country and its neighboring countries provides much more regional cooperation platforms for our country. It is quite necessary to build the urban spatial structure targeting at two markets and taking the advantage of two kinds of resources, and frontier cities' functions are greatly enhanced. In addition, the mutual dependence on international and domestic market requires us to strengthen the layout of domestic industries and regional division, and reinforce the liaison and cooperation in such aspects as economy and traffic with early developed areas and inland regions as well.

Secondly, to develop on the road of new industrialization and build economical society is the policy which our country will persist for a long time in the future development. According to studies, in the future 20 years, China will form five major urban economic areas, i.e. Beijing-Tianjin-Hebei, Yangtze River Delta, Zhujiang River Delta, Central and South of Liaoning Chengdu-Chongqing, and ten population-industrial compact areas, i.e.

Harbin-Dalian-Qiqihar, Changchun-Jilin, Shangdong Peninsula, across the Taiwan straits, central plains, central Shanxi plain, Jiangnan plain, East of Hunan, Gulf of Tonkin, North foot of Tianshan. These industrial compact areas will be the areas which are key areas in urban development.

Thirdly, to promote agricultural development and solve the reasonable arrangement of rural surplus labor force is the important task at present and a quite long period in the future. To build socialist new rural areas requires us to not only improve public service and quality of life and environment in rural areas, but to strengthen the construction of county seats and key towns, improve small towns' population accommodation so as to develop on a road of urbanization conforming to the fact that China's rural population accounts for the majority of the total and it will like this for a long time.

Fourthly, the first 20 years in the 21st century is a development phase linking the preceding with the following which China is certainly to experience in the construction of an all-round well-off society. To promote healthy and orderly development of urbanization and improve the level of urban construction is the important base and condition for the realization of all-round well-off society.

### ***3. Objective analysis of natural resource conditions for urban development***

First, our country is vast in territory and varies greatly in climate, elevation, terrain and landform, etc. and urban areas are varied in extent of development. According to the synthetic assessment of many natural conditions, preliminary analysis is made concerning the national territory proportion and primary areas suitable for urban construction. The research shows that the areas suitable urban development in the whole country (with tillable field deducted) only accounts for 8.55% of the total national territory. The bearing capacity of plain basin areas is relatively high, while resources environment bearing capacity of the western is low. It can be said that this is the foundation for the construction of human settlement in China.

Secondly, to protect tillable field is a basic national policy. 1.65 billion-mu basic farmland is the base line for grain security. The area suitable urban construction is usually major grain production area, therefore it is vital to deal with the relationship between urban & rural construction and the protection of tillable field. Through the analysis of basic farmland distribution and the land for urban construction, the planning proposed basic requirement for saving land in urban construction.

Thirdly, our country has serious shortage of water resources. The preliminary analysis of national water resources distribution situation is made in the planning. According to the situation that there are more water resources in the south and east than in the north and west, the planning tells us that the large-scale trans-drainage area water-diversion project under implementation in our country, for example, the south water diversion to the north project, although it alleviates the pressure of water shortage in urban development in the north area, the crux to the solution to water resources bottleneck lies in changing the way of urban

growth.

Fourthly, seen from the overall situation, the trend that environmental pollution is worsening has been changed yet, and waters pollution has spread from land to offshore waters. The three urban compact areas, i.e. Around Bohai Gulf, Yangtze River delta, and Zhujiang River Delta are the core areas for our country's economic development, and the areas with most serious pollution in China. The urban development in coastal area, especially industrial choice and scale expansion must base on the environment bearing capacity as prerequisite.

In brief, resources environment bearing capacity varies from area to area in our country with relative shortage of land, water resources and energy and the imbalanced spatial disposition, so urban development must act as local conditions permit, and guidance must be given in classification.

#### ***4. Objective judgment on the present condition of population growth and urban development***

According to the prediction of National Family Planning Commission, by the year 2033 or so, the total population of our country will have reached 1.5 billion of peak value. Before this, the total population still grows by 8 million ~ 10 million a year and our country will meet in succession three major peak periods, i.e. the population of people at work age, total population, and old aged people. In the meantime, population flow and migration scale will increase, and the contradiction among population and resources, environment as well as employment.

This planning and research holds the opinion that the population flow in the future will still follow the basic rule that it will flow from rural areas to cities, from backward areas to relatively developed areas, and from small cities to big and medium cities. Metropolis continuous areas, conurbations and central cities in various areas will be the major space carriers to accommodate population. So far as population flow destinations are concerned, coastal areas before 2015 will still be the first destination for population flow, and after 2015, the mentioned coastal areas will tend to be stable in terms of the proportion of population accommodation, and reduce to some extent. Central area, however, with economic development, will transform from net outflow area to the area balanced in population flow around 2015. The prediction of population flow tendency has important influence on the regional distribution in terms of urban development.

By the end of the 2004, our country has 661 cities and 19,892 towns with urban population of 540 million, and the urbanization rate reached 41.7%. Urbanization has already become an important measure to solve our country's employment issue, realize market expansion, and promote new type of industrialization. Urban space accommodates rural surplus labor force, and city areas have become basic spatial unit for economic development. But in our country development of urbanization, there are still many prominent problems. First, the difference between urban and rural areas is huge, and the dual structure problem is prominent. In the

past over 20 years of urbanization advancement, emphasis was put on rural population transformation, and the adjustment of agriculture to non-agricultural industry, little attention was paid to the rural development. At the same time, massive rural surplus labor force entering cities can not be transferred to be urban people, so they are unable to enjoy medical service, pension, education, economical houses and other social security and welfare, and they can just be "pre-urban people" secondly, regional development is imbalanced. Our country's urbanization varies obviously from region to region, not only in the east, central and west of China, but in certain places in some provinces, including provinces in developed regions. Thirdly, the international competitiveness of big cities is not strong, which is unsuitable to the requirement for the promotion of comprehensive national strength. In the new round of international competition, cities in metropolis continuous areas in our country are mostly doing on their own and compete with each other, lack of integration and coordination, which affects the country's full participation in international competition. Fourthly, small towns' ability to accommodate population and industries is not displayed to the full. buy in the ability to the population and the industry not to obtain the full display. At present small towns' population compact extent is not high with small scale, and economy with characteristics are not prominent, in addition, public service level is low, and infrastructure construction lags behind. Fifthly, there is lack of integrated planning for regional development. Although the majority of provincial areas have already established provincial territory urban system planning, the planning lacks of integration if we combine it as a whole (see Fig.2). for instance, there is lack of integration among the three metropolis continuous areas in coastal provincial areas and their peripheral provincial areas; various provinces in central areas are establishing their respective economic compact areas, forming mutual separate urban system spatial framework, and lacking of regional cities in real sense; as for southwest area, its terrain is not integrated, having no condition for concentrated development, and urban complex is being planned, too; as for northwest area, it is vast in territory with a sparse population, the urban scale is small with big spacing, it is also using the axis belt to plan urban system; three provinces in Northeast of China pay excessive attention to the integrity of spatial structure within provinces, but neglect the development of northeast area as a whole.

It can be seen from the above analysis that the realization of urban and rural planning as a whole, expansion of employment, and guiding the reasonable flow of rural surplus labor force are the biggest challenge facing the urbanization of our country; the promotion of the coordinated development of central and west as well as east and north of China is major guarantee to realize all-round well-off society and establish harmonious socialist society; the formulation of scientific, reasonable, and strategic urban spatial structure is the crux to reasonable guidance of population, industrial concentration and the improvement of ecological environment.

##### ***5. Urbanization policy based on distinction among the east, central, and west of China***

According to resources and environmental conditions of various regions in east, central, and west of China, the planning first put forward comprehensive policy guideline of urbanization in various areas, aiming at adjusting measures to local conditions and implementing differentiated urbanization strategies and urban development patterns. On the basis of the

country's policy in regional development, the planning proposes the urbanization spatial strategy for four major areas, i.e. east, central, west and northeast areas. For example, guideline for the development of eastern area: promote urbanization quality, and improve the quality of population and optimize of population structure according to optimized development principle; speed up the development and resources integration of the three metropolises continuous areas, pay attention to the intensive use of land, and control the disorderly spread of space; medium- and small-sized cities and central cities form network-shaped urban spatial system; strengthen ecological environmental protection, especially the comprehensive control over water environment and build saving water cities; strengthen the prevention and control of inshore water pollution, and protect seacoast ecosystem. The development guideline for central area: strengthen the construction of major grain production areas; use good conditions such as energy, transportation, water, land, labor force, and raw material, and grasp the opportunity to develop vigorously energy and manufacturing industry with comparative advantages; foster urban complex and central cities vigorously, promote the rise of central area so as to strengthen its function linking the east and west, and emphasis is put on the development of Wuhan conurbation, Zhengzhou conurbation, and Changtutan conurbation and so on.

In terms of predication of urbanization level, according to the development history of China's urbanization in the past 20 years and the socio-economic development trend in the next 20 years, the planning holds that the urbanization level of our country will be further improved, and the speed will steadily stand at an annual growth by 0.8-1 percentage point, and enter low speed and stable development period in 2025 or so. The urbanization rate of China in 2010 will reach 46~48%, and 55~58% in 2020. Moreover, it made the predication of provincial urbanization level forecast according to the trend of various provincial economic development and population growth.

### ***6. Urban spatial layout structure based on the multi-centers***

Urban space development strategy is the core technology content of Urban system planning. The plan proposed that the base should be built on the population migration tendency, along with the tendency of the development of industries in various places, it put forward the differentiated spatial development guideline and control requirement; strengthen the construction of the three metropolises continuous areas and conurbations, improve the spatial structure with " multi-centers", and drive more regions to integrate into global economic network; strengthen the development of frontier gateway cities with strategic significance, and pay attention to cooperation beyond boundaries; strengthen the construction of urban axis belts linking the east, central and west regions, and foster conurbations and central cities in central and west regions as well as northeast area; enhance the impetus of development for small urban areas, intensify the construction of the infrastructure of traffic and social service, and promote the development of small towns; protect regional nature and humanistic resources, and deal with the protection and development relations between famous historical and cultural cities and tourism cities.

In terms of national urban spatial layout, it is proposed to center on national central cities and

regional ones, and organize regional economic activities, drive the axis with point and promote the whole situation with the axis. Foster multi-centers with national strategic significance and the impetus function so as to form urban spatial structure with sustainable development of large, big and small-sized cities by means of the framework with urban axis belts and multi-centers. "Belt" means costal urban belt, "axis" refers to the four east-west axis belt (Beijing-Hohhot-Baotou-Yinchuan, Longhai and Lanxin, belt along the Yangtze River, and Hu-Rui, as well as the three north-south axis belt, i.e. Beijing-Guangzhou (partial Beijing-Jiujiang), Harbin-Dalian and the Gulf of Tonkin, " multi-centers" refers to Beijing-Tianjin- Hebei, Yangtze River delta, Zhujiang River Delta, i.e. the three metropolises continuous areas and Wuhan, Chengdu-Chongqing, central Liaoning, the central Shanxi plain and Shandong Peninsula, Zhengzhou, Changzhutanhe, conurbations on the west bank of the straits, and Harbin, Urumqi, Kunming, Nanning and many other major frontier cities (see Fig. 1).

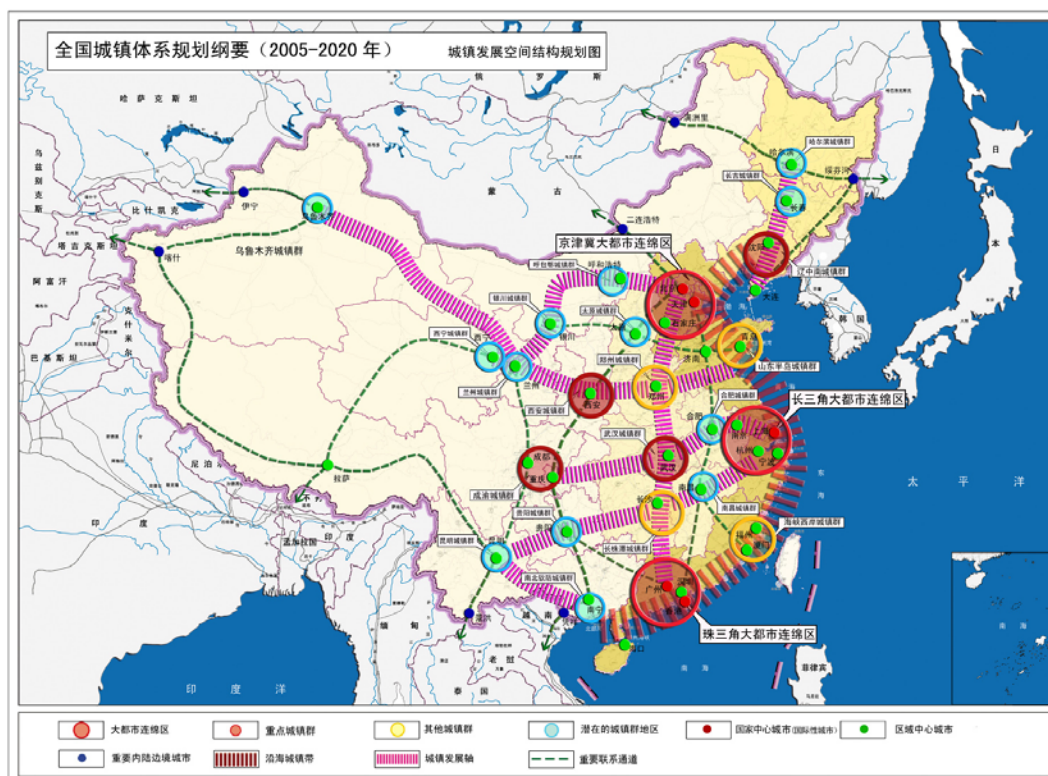


Fig. 1 The map of national urban spatial structure

**Origin of material: Outline of Urban system planning (2005 - 2020)**

From the perspective of national development, it is proposed in the planning the cities that need special attention, for example, gateway cities in land route, cities in old industrial bases, mining industrial (resources) cities, revolutionary liberated areas and towns in ethnic areas, famous national historical and cultural cities, etc.

In view of the requirement for the construction of new socialist rural areas, it is proposed the



rural town layout in the planning, mainly for the purpose of guiding rural people to gather in key towns, central villages with relatively good conditions, improving the relevant infrastructure and public facility service, realizing appropriate compact and reasonable scale of key towns and central villages, and improving employment capability and intensive development.

### ***7. Urban development support system with traffic as core***

The urban development support system is the important condition for urban development; this planning takes synthetic traffic planning as the core in building support system. On the basis of the analysis of already finished national highway network, speedway network, railway network, passenger transport special network of the Ministry of Communications and the Ministry of Railways, the planning proposes comprehensive traffic strategy in urban development. The proposal is to establish secure, efficient, and environment friendly comprehensive traffic system which adapts to our country's environment and resources condition, to promote integrated joint transportation way, especially emphasis should be put on the linking of various ways of traffic and the construction of synthetic transportation hinge, improve the traffic service in gateway cities, promote the systematic integration traffic with cities and between regions, and establish efficient, convenient, fair and orderly urban traffic system and so on. In view of the national urban spatial layout strategy as well as the traffic hinge conditions of aviation, railroad, and highway, etc, the planning shows its proposal, i.e. the seven major comprehensive traffic hinge cities, Beijing - Tianjin, Shanghai, Wuhan, Xi'an, Chengdu - Chongqing, Shenyang, Guangzhou - Shenzhen - Hong Kong, the construction of efficient traffic and transportation network serving the whole country and covering other regions.

In view of already existent various kinds of traffic planning, and according to national urban need development requirement, the suggestions of revision and adjustment are proposed. For example, the site selection for civil aviation should start from regional demand so as to improve the utilization efficiency of airport, and build branch airports into general ones so as to serve commercial flight and disaster prevention, etc. as for railroad, high iron in eastern coastal area should be strengthened, especially the construction of coastal railroad channels; the selection of stations for urban passenger special railway line should be closely connected with urban passenger flow collection and distribution centers, taking the way of setting up stations within urban areas. As for highway, it is suggested under the premise of comprehensive consideration of water transportation, railroad and civil aviation transportation, the total scale of national highway construction should be arranged reasonably, and synthetic traffic system structure should be adjusted. In terms of ports, it is suggested the status and role of Caofeidian port area in Tangshan port in Beijing-Tianjin-Hebei port complex.

### ***8. Cross regional urban development guidance***

As the spatial development planning in the sense of national level, it is sure to involve the issues concerning the development and resource management across administrative areas.

According to the overall requirement of national urbanization and spatial layout, the planning proposed two types of spatial guidance. One is "cities and areas to be developed and managed as key", mainly those cities and areas on the main axis of national development of "one center, seven axis and multi-centers". The other is "cross provincial key coordinated areas", mainly including basin coordinated area, coastal zone and offshore sea area, provincial border coordinated area, metropolis area, conurbation area as well as the coordinated area concerning mineral and other resources utilization, etc. as for basin coordinated area, it mainly includes Yangtze River, Yellow River, Pearl River, Huaihe River and other drainage areas, as well as the peripheral areas such as Taihu, Dongting Lake, and Poyang Lake, it is required to prepare comprehensive development planning for water resources and basin area, conduct reasonable layout of industry and urban areas, focus on the control of environmental pollution in upper reaches areas, and establish the lower reaches area's shift and payment mechanism for upper reaches. For instance, coastal zone and inshore waters refer to the land territory scope of 15-20km in depth along eastern coastline and sea isobaths minus 15m scope, where it is required to protect the integrity and stability of coastal zone, plan and allocate coastline resources in a unified manner, and deal with relationship between marine resource development and protection satisfactorily.

Base on that, planning and guidance are proposed for 27 provincial areas and 4 municipalities directly under the central government. For example, the cities to be developed and managed as key in Hebei Province are Shijiazhuang, Tangshan, Handan, Baoding, Zhangjiakou and so on, which located on the coastal urban development belt, Beijing-Guangzhou urban development axis, and Hohhot-Baotaou-Yinchuan urban development axis. As for cross provincial coordinated areas and the content, they refer to the strengthening cooperation with Beijing and Tianjin, protecting ecological environment in Zhangjiakou-Chengde area, water source area in upper reaches of Beijing and Tianjin, and ecological environment around Bohai Sea, as well as constructing three-north shelter belt, strengthening Qinhangdao port, Tangshan port, and Huang Hua Port's cooperation with such ports as Tianjin and Liaoning, reserving Beijing-Guangzhou and Jing-Shanghai high speed passenger transportation special railway line, etc, and speeding up the Beijing-Tianjin-Tang inter-provincial railway traffic construction and so on.

In brief, as for the compilation of the Urban system planning, the work team take it as a specific practice of scientific outlook on development, and look at demand for development in a global perspective, and examine the development possibility from the resources environment condition. According to the principle of one level of government with the right concerning one level of issues, the said team propose requirement for planning and management in various layers, and under the prerequisite of improving socialist market economic system, constructing national spatial planning system so as to promote the healthy and steady development of our country's urbanization and the realization of an all-round well-off society.

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