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NEW PATTERNS OF URBAN DEVELOPMENT IN CHINA

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ABSTRACT: According to the basic features of socio-economic development in China, the paper retrospects the developmental process of Chinese cities in the 20th century. Based on lots of data and related research achievements, five new patterns of Chinese urban development are pointed out, that is 1) regional disparity of urban development in China is still obvious and large; 2) cities in developed region develop in the form of agglomeration and coordination; 3) spatial layout shape of Chinese cities appears relatively tight, and there exists great outside expansion inclination; 4) the construction of exploitation zone becomes the new important factor of urban development in the 1990s; 5) number increase of cities at county level become the main tide of urban development, but cause the discrete understanding for the concept of urban substantial region, which construct a challenge to urban management. In the end the article puts forward a series thoughts on the future trends and countermeasures of urban development in China.

KEY WORDS: new patterns; urban development; urban group; urban scale system

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1 INTRODUCTION

City plays an important role in the process of regional economic development. For instance, in 1996, the total municipal areas of 666 cities only covered the proportion of 18.12 percent in national territory, and built-up area 1.8 percent. But they produced the 68.63 percent of GDP(Gross Domestic Product) in whole country, 75.53 percent of gross industrial output value, 70.21 percent of total retail sales of consumer goods. In the view of trans-century, although numerous setbacks and reversals appear in the changing process of society and economy of the late half 20th century, a fact is indeed real and obvious, which means the preference for urban development and promoting urbanization are the final choice for China striding into the 21st century.

2 CENTURY RETROSPECTING — TORTUOUS DEVELOPMENT IN THE HISTORICAL PROCESS

In the first half of the century, Chinese cities had completed the process for transforming the feudal cities into the semi-colonial and semi-feudal cities, and there existed the extremely unbalanced phenomena of spatial distribution, that is, "east density and west sparsity". On the one hand, owing to the invasion of imperialism and the foreign capital input, some new rising cities appeared, whose function of lopsided development was relatively modern, for example, Shanghai shared the reputation of 'No 1 city' in Asia. On the other hand, influenced by imperialism and domestic capital development, local changes in the original feudal cities took place, such as in

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Beijing and Xi'an. Whereas in the inland cities at medium and small scale, small or no changes took place because economic base had no distinguishing improvement. The above features existed till 1949.

But after the liberation, it is very obvious that two utmost important factors influence and limit the healthy growth of cities.

2.1 Worse and Low Level of Infrastructure for Urban Development

In 1949, there were 69 administrative cities and 2000 towns, and the total urban population was about 5 700 000, which shared 10 percent of total population. In the meantime the global urbanization level was 29 percent, North America 64 percent, West Europe 60 percent, Latin America 41 percent. In addition, urban infrastructure was extremely not systematic and perfect. Among all these cities and towns, 72 possessed the facility of tap water supply, 103 held the imperfect sewer system, 26 had inside communication, and 9 equipped with access to gas①.

2.2 Changeable Policy Environment for Urban Development and Weak Dynamic Power to Drive Economy

From the period of "National Economy Recovery" and "Great Leap Forward" to "Great Culture Revolution", the national policy for urban development was changeable. In 1958, National People Delegate Conference published the regulation of "Chinese Household Registration", since then China has been carrying out the regime of household separation between city and countryside. Moreover the government raised the establishment criteria for city and town, and adjusted the suburb sphere of city, which caused the negative influence on the normal development of Chinese cities. In 1961 - 1976, a profound movement of "deurbanization" (also be called urban ruralization) was launched. amount of urban population returned to countryside, and many organizational towns were cancelled. By the end of the year 1965, urban population decreased to 101 700 000. During the period of 1966 - 1976, large quantities of "yound people" went to the countryside to receive the reeducation from the poor and lower-middle peasents, and cadres were transferred to do manual labor in the countryside. Therefore urban population grew very slowly, the natural growth was the main form of urban population growth and the urban population in 1975 only increased about 10 million compared with that of 1965.

Because of the long-term strategy deviation of economic and social development, the non-agriculture process finally was at a standstill, and employment structure level was low. But in the Chinese countryside controlled by restrict registered permanent residence institution, a large number of agriculture surplus labors had been accumulated for a long time (Table 1).

Table 1 The structure change of Chinese employment in 1952 - 1978 (%)

Year	Primary industry	Secondary industry	Tertiary
1952	83.5	7.4	9.1
1957	81.2	8.9	9.9
1962	82.0	7.8	10.1
1965	81.5	8.3	10.2
1970	80.7	10.1	9.2
1975	77.1	13.3	9.6
1978	70.5	17.4	12.1

Data source: China Statistical Yarbook (1994)

Although experienced many lashes of the disadvantageous factors such as nature, economy, history and so on in the nearly 30 years' development after the liberation, Chinese cities still had made considerable progress, which is shown in the aspect of urban number increase, built-up area enlargement, and the character of cities more obviously being transferred from "pure consumption to production". Therefore a set of comparably perfect industry production system were preliminarily built up, which contributed a great

① Data from Shanghai Society Academy, "Developing Cities in China"

deal to the national independence and the initiative in our own hands of China. In this stage, urban development appeared two apparent features.

2.2.1 Large and medium-size cities developing considerably, meanwhile small cities and organizational towns appearing decline

On the one hand, owning to the good original developmental base, the key construction project and urban productive function remolding in China were mainly concentrated in the large and medium-size cities. On the other hand, the dual society structure between city and countyside in China had been solidified since 1958, and the non-agriculture industry in countryside was restrained, the construction of small city lacked the support of economy and policy. Then from 1952 to 1978, large and medium-size city had grown, but small cities and towns had delined, especially the towns. For example there were 5400 towns in 1952, and meanwhile only 2600 in 1978, which was cut down about half. This kind of trend was opposite to the main tide of urban development of world. (Table 2 and 3)

Table 2 Developmental situation of Chinese cities in 1952 – 1978

City scale	1952	1957	1965	1978
Super city (population over 1 000 000)	9	10	13	18
Big city(between 500 000 – 1 000 000)	10	18	18	27
Medium-size City(between 200 000 – 500 000)	23	36	43	60
Small City (below 200 000)	115	114	97	92
Organizational town	5400(1)	3621(2)	About 3000	About 2600

Notes : (1)data in 1954, (2)data in 1956

Table 3 A comparison of urban scale structure between China and foreign countries

Urban scale		China (1977)	U.S.A. (1973)	Former USSR (1975)	Japan (1974)	France (1968)
Population over 1 000 000	Urban number	17	6	11	10	1
	Population ($\times 10^4$)	5405	1814	2222	2326	229
	Proportion(%)	48.8	29.0	26.2	39.0	23.2
1 000 000 – 500 000	Urban number	33	19	30	7	2
	Population ($\times 10^4$)	2422	1234	2128	371	142
	Proportion(%)	21.9	19.7	25.1	6.2	14.4
500 000 – 200 000	Urban number	78	38	87	67	6
	Population ($\times 10^4$)	2528	1254	2635	2066	164
	Proportion (%)	22.9	20.0	31.0	34.7	16.7
Below 200 000	Urban number	51	189	113	87	44
	Population ($\times 10^4$)	710	1959	1509	1198	450
	Proportion (%)	6.4	31.3	17.8	20.1	45.7
Total	Urban number	189	252	241	171	53
	Population ($\times 10^4$)	11065	6261	8494	5961	985

Data source: "A Study on Issues of Chinese Economic Structure"(last volume)compiled by Ma Hong and SHUN Shang-jiang

2.2.2 A great number of new cities being constructed in the middle and west part of China, strongly balancing the traditional spatial pattern of urban development

With the causes of resource exploitation and national defence safety, national economic (especially industry) construction inclined to be concentrated in the middle and west part of China. For example, in the period of the First Five-Year Plan, there were thirds of 694 constructed big projects which were laid in hinterland, the proportion of investment in capital construction of inland was 55.9 percent, and that of the Second Five-Year Plan was 59.4 percent. In the period of the Third Five-Year Plan and the Fourth

Five-Year Plan, "Three Line " construction was extremely stressed, then the investment proportion in capital construction of inland once reached 70.6 percent. So the frail cities in the middle and west part of China got great development. many new cities being built up, such as Daqing (oil), Dukou (steel and iron), Liupanshui(coal), Jinchang(nonferrous metal). The traditional coastal focal spatial pattern of city was greatly changed. In this time, the situation of urban population concentrated on the coastal part of China was greatly improved. By the year of 1964, the proportion of urban population in the coastal region of China had been decreased from 65.3 percent to 53.5 percent.

3 REFORM AND OPENING DOOR OUTSIDE — THE FEATURES AND ISSUES OF URBAN DEVELOPMENT

Since reform and opening door outside, urban development in China has turned up much new characteristics. Especially in the environment of dual solidified separation between rural and urban areas, there emerged the phenomenon of unbalanced development of urban scale system, diversifying channels of urban population growth and economy internationization which bringing about the change of "international city" character. All these gave a new developmental connotation and severe challenge to Chinese cities.

3.1 Still Obvious Regional Disparity of Urban Development

Cities in the east belt of China have the higher density, bigger scale, better green-environment in municipal district and bigger volume of built-up area than the cities in other belts. They also spread stronger radiation to the adjacent area. For instance, the city density in the east belt is 2.27 per 10 000 square kilometers and in middle is 0.87, whereas in the west is 0.22, the gap between the east and the west is about more than 10 times. In addition the density gap of town is more than 8 times, which reflects the difference of degree in urban influence on adjacent areas. The two indicators of "built-up area proportion" and "per capita cultivated area" reflect that cities in the east belt have the smaller suburb area than the cities in other belts.

Table 4 Regional comparison of urban distribution(1996)

Indicators	All cities	Cities in the east	Cities in the middle	Cities in the west
Territory area($\times 10^4$ km^2)	960	131	289	540
Urban number	666	298	245	123
Town number	18402	8291	5608	4503
Proportion of GDP(%)	100	64.2	24.7	11.1
Total industrial output value(%)	100	69.7	22.1	8.2
Average scale of city ($\times 10^4$ persons)	31.19	35.86	12.37	24.85
Population density in proper (person /km^2)	296	587	253	131
Per capita cultivated area (ha/person)	0.057	0.045	0.076	0.056
Percentage of built-up area (%)	1.18	2.33	1.07	0.48
Green cover percentage in built-up area(%)	24.1	25.6	23.4	20.2
Per capita yearly consumption of tap water for residential use(t)	76.1	82.0	73.1	62.2
Per capita area of paved roads(m^2)	2.9	3.3	2.6	2.2

Data source: Statistical Yearbook of Chinese City (1997)

Since the 1990s, "the green cover percentage" of cities in every belt has been improved and raised in varying degrees, which is due to the ecological environment and particularly investment environment construction being laid stress on. In addition the number and density of city grow further more. But owing to the main tide of growth of cities at county level and possible adjustment in administrative areas, the relative volume of built-up area of city reduce in some degree, urban scale in eastern and western region is enlarged, whereas urban scale in middle part is decreased (Table 5).

Table 5 Regional comparison of urban distribution(1991)

Indicator	All cities	Cities in the east	Cities in the middle	Cities in the weste
Urban number	476	191	164	121
Town number	11882	5769	3812	2301
Urban scale($\times 10^4$ persons)	32.28	33.04	33.03	19.49
Green cover percentage in built-up area(%)	16.53	18.09	16.32	12.38
Percentage of built-up area(%)	1.13	2.45	1.18	0.41

Data source: Statistical Yearbook of Chinese City (1991)

3.2 Cities in Developed Region Developing in the Form of Agglomeration and Coordination and Super and Big Cities Growing More Rapidly

Because economic development and industrial construction project lay out concentrately in space, cities in coastal region develop in the form of "urban group". At present the four "urban groups" of "Hu (Shanghai)-Ning (Nanjing)-Hang (Hangzhou)", "Jing (Beijing)-Jin (Tianjin)-Tang (Tangshan)", "Zhujiang Delta" and "South-Middle Liaoning" have been recognized, (Fig. 1). Super and big cities inside the "city groups" develop rapidly, and especially in the above four groups, cities are crowed together, with a high population density. Besides cities develop in the form of continuous layout, the trends of spatial concentration clear(Table 6). In addition, with the construction of enormous communication facilities and the development of "market & export - oriented economy", the concentrated districts of city in coastal region increase progressively, especially in Shandong and Fujian provinces, and the southern Guangxi zhang Autonomous Region, new urban belts are being formulated.

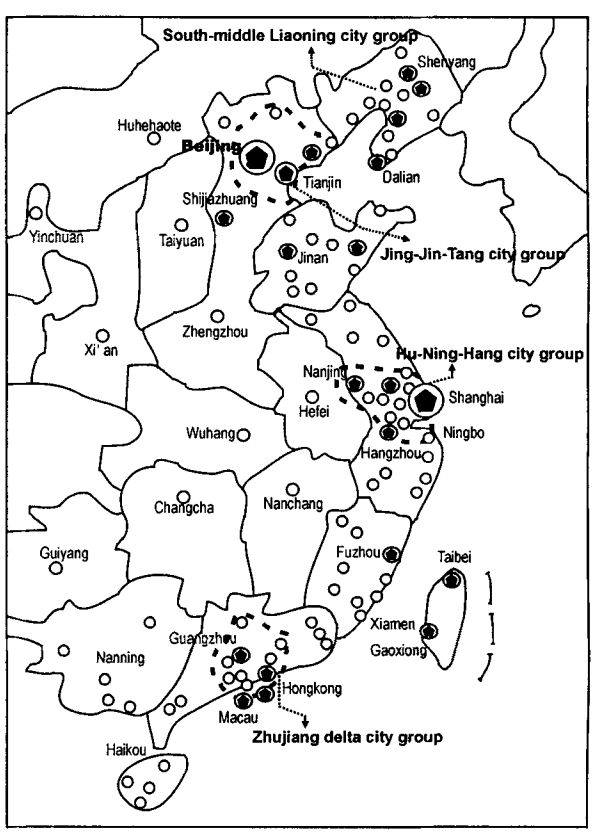

Fig. 1 Distribution of coastal urban group in China

But with the enlargement of concentration phenomena in urban function and scale, the population and construction density of central municipal area in side the groups incline to further increase . In every type of cities(population scale) there exists the problem of outmoded facility and insufficient capacity in varying degree, which causes the infrastructure overloaded, therefore the urban environment, population

Table 6 Developmental situation of cities in four urban groups along the coast of China

		Hu-Ning-Hang	Jing-Jin-Tang	Zhujiang delta	South-middle of Liaoning
1953	City number	9	3	3	4
	Super city	Shanghai	Beijing, Tianjin	Guangzhou (Hong Kong)	Shengyang
1980	City number	12	6	6	7
	Super city	Shanghai, Nanjing	Beijing, Tianjin	Guangzhou (Hong Kong)	Shengyang
1989	City number	24	8	12	14
	Super city	Shanghai, Nanjing, Hangzhou	Beijing, Tianjin, Tangshan	Guangzhou (Hong Kong)	Shengyang, Dalian
1998	City number	29	12	18	16
	Super city	Shanghai, Nanjing, Hangzhou, Wuxi, Suzhou	Beijing, Tianjin, Tangshan	Guangzhou, Shenzhen, Hong Kong	Shengyang, Dalian, Anshan, Fushun

Data source: (1)"Chinese Urban Groups" compiled by Yao Shimou *et al*. (1992); (2)data of 1998 comes from Planning Bureau of Construction Ministry; (3)Hong Kong back to motherland on July 1st, 1997

and economy capacity are waiting for being improved.

3.3 Relatively Spatial Layout and Great Outside Expansion Trend

Because of the lack of construction fund, new residential areas are exploited stagnantly, which causes the population in "life area" highly crowed, the building density in residential area high. In common per capita landuse in ordinary city of China is between 100 square meters and 120 square meters, but per capita landuse in the city with a population of more than 1 000 000 is between 60 square meters and 90 square meters. For instance, per capita landuse in Shanghai is about 28.9 square meters, then its landuse level is much lower than that of the external city in the same population scale. Landuse level in inner London is 113.8 square meters per capita, outer London is 285.4 square meters per capita, which is 4 and 10 times larger than Shanghai respectively.

As far as industry production is concerned, both capital and land are the elements of production. But because of the lack of capital, per unit investment amount can not be raised in great extent to realize the substitute for the land factor. Then it results in the clear trends of "land replacing capital" and the extensive development of "industrial landuse". Inside the urban construction landuse, "industrial landuse" shares the higher percentage than other type of landuse, commonly 30 percent or so. On the contrary the industrial landuse in other countries only shares the lower percentage, even in such kind of industrial cities as Chicago and Detroit, their industrial landuse only hold 6 to 7 percent (Table 7).

In order to remold the construction volume in old urban area, and especially to improve the investment environment and humane residence level of cities, a great number of residential areas in suburbs have been built up and many factories have been moved outside to set up industrial exploitation zone since the 1990s. It causes the great extensive expansion inclination in urban landuse.

3.4 The Construction of Development Zone —a New Important Factor

In the 1990s, the improvement and enhancement of urban "modernization function" is the key policy, and every kind of governments devoted to implement and push on it. The modernization facility level of Chinese cities basically gets low and down with the urban scale decrease. And at the same time, it is also can be seen that the prosperous degree of urban business is in direct proportion to the urban scale (Table 8).

As a need of constructing and improving urban

Table 7 Construction landuse structure of main cities of China in 1991 (%)

City	Residential	Public facility	Industrial	Warehouse	Outer traffic	Road square	Municipal facility	Green	Special
Shanghai	49.63	-	26.21	4.33	7:28	-	-	-	12.55
Beijing	39.05	-	16.08	4.03	5.54	-	-	-	35.30
Tianjin	26.07	15.57	26.83	8.21	4.01	8.09	1.89	4.27	4.27
Guangzhou	35.94	-	27.06	9.94	17.12	-	-	-	9.94
Shengzhen	59.86	1.27	17.61	4.51	4.65	7.18	0.99	3.02	0.42
Shenyang	29.56	10.02	22.62	5.33	3.82	8.29	1.67	6.89	11.79
Zhongqing	34.04	16.01	26.18	7.23	5.04	3.83	2.11	3.12	5.44
Wuhan	26.84	10.77	23.91	6.47	6.07	4.24	3.88	7.00	8.75
Zhengzhou	25.51	18.42	21.97	6.29	8.70	9.04	1.60	7.89	0.57
Nanjing	36.79	1.67	20.39	2.69	3.71	3.71	0.46	1.85	28.73
Hangzhou	36.17	0.28	25.0	4.89	6.28	5.31	3.91	14.94	3.21
Kunming	28.69	22.64	18.60	4.46	9.35	4.78	1.70	3.08	6.70
Taiyuan	20.96	9.73	21.80	4.93	7.66	5.45	9.99	19.47	-
Xi'an	44.51	19.43	24.78	4.53	6.40	0.08	-	0.08	0.16
Haerbin	38.01	11.13	20.64	5.70	6.90	6.97	1.61	6.64	1.81
Super city	33.62	9.92	24.92	5.48	6.38	4.93	2.36	4.62	9.27

Data source: "Preliminary Analysis on Sorting Statistics of Urban Construction Landuse of China in 1991" written by LIN Se-qun

Table 8 Modernization infrastructure situation of Chinese cities(1996)

	All cities	Super city	Special big city	Big city	Medium-sized city	Small city
Phone machines per 100 persons	11	28	19	17	9	5
Per capita yearly consumption of tap water for residential use(t)	76.1	105.9	69.3	81.3	72.4	52.6
Per capita yearly consumption of electricity for residential use	152.9	237.0	282.6	242.0	142.9	97.9
Per capita area of paved roads(m^2)	2.9	4.5	4.7	4.9	3.0	1.7
Public tram and bus per 10 000 persons	2.8	7.5	6.6	4.5	2.3	1.0
Average business net nod of every kind of city	14952.9	109715.5	46467.3	23505.3	15040.4	9455.2

Data source: Chinese Urban Statistical Yearbook(1997)

investment environment, participating in "international economy competition" and also an important component part of improving urban modernization function, there were 28 000 "development" zones being built up everywhere in the whole country in 1992 - 1993, which covered the total area of 15 000 square kilometers. Meanwhile the built-up areas of all cities in 1996 were only 20 600 square kilometers. The Chinese government had adjusted and regulated the development zones in 1993 - 1996, at present development zones have eventually shrunk, and reduced partly "cultivated land loss" (about 33 333 - 53 333 ha "cultivated land" replant per year). So, original city proper expanded considerably in the form of development zones, for instance, in the spatial pattern of Suzhou, "east garden west zone, old city sitting middle", original city proper only holds half proportion to total built-up areas. Planning construction and management patterns of development zones basically refer to the international experience. It is a part attempt for Chinese cities moving towards world.

3.5 Number Growth of Cities at County Level — the Main Tide of Urban Development

Owing to the strong development of county economy, "rural urbanization" is accelerated. Cities at county level have increased about 100 since the 1990s, and shared 60 percent of the total urban addition. According to the analysis, considerable "agri-

culture surplus labors" are adopted by the development of cities at county level, which mitigate the part press of rural population.

However at present, as far as the phenomena of "whole county establishing city" are concerned, we can see that more than half agricultural and rural population are included in the concept of urban area. It causes the difficulty in accurately measuring the urbanization level. Meanwhile the regime of "city governing township" results in the joint administration between city and countryside, which causes disadvantage to urban management, and the space of urban construction possibly grow unrestrained.

According to the developmental features of Chinese economy and society, the method of urban management experienc radical change from "administrative plan" to "market regulation"; the urban development being up against the new strict control situation of land use. It can be obviously seen that, at the context of century turn, the mentioned new patterns of Chinese urban development which are different from the past, will inevitably appear in the 21st century and deeply influence the future developmental situation of Chinese cities.

4 PROSPECTING THE FUTURE — THE TREND AND STRATEGY FOR URBAN DEVELOPMENT IN CHINA

China faces the most fundamental problems in city and urbanization development, which is "the sharp contradiction between huge push power of rural population and limited capacity of city adopting rural surplus labors". Especially in the regions of the Changjiang (Yangtze) River delta, the Zhujiang (Pearl) River delta, Jiaodong Peninsula, Jing-Jin-Tang and Liaodong Peninsula, where there are dense population, developed agriculture and industry, crowed cities, the contradiction of "more population and less land" and the problems of labor surplus stick out in particular. According to the prediction of World Bank investigation, from 1980 to 2000, every year there are 10 000 000 labors newly being added in China. In addition judged by the estimation of the domestic investigation, the yearly labor addition is about 12 000 000 – 13 000 000. Among them countryside holds about the 70 percent of the total surplus (ZHENG, 1998). It is well known that the solution to the outlet of rural surplus labors and the population structural contradiction between city and countryside, mainly depends on the industrialization, and urbanization and the number increase of towns and the population scale enlargement of cities.

Based on the general objective of economy and society development in the next 15 years in China, it is predicted that the urban development and urbanization will still continue. A report of long-range planning of the Construction Ministry points out: "by the end of year 2010 or longer time, there will be about 1 000 cities and 20 000 – 25 000 towns being established in mainland. The yearly growth ratio of urban population is 4 – 5 percent, at that time the urban population in mainland will reach 600 000 000, urbanization level is about 45 percent. ' Inspecting the track of urban development since the 1990s, three trends appear in the process of the Chinese urban development in the 21st century.

(1) With the development of cities, their spatial layout developing in the continued form of groups and strengthening inner connection inside the group

In the view of "group structure", the common trends of world urban development are that the crowded together region (group, belt) of cities and the spatial continued pattern are their main features. Then regional development also eventually prefers to be the "city group" development which takes city as the developing center, and identifies the role of core-city in the city group.

As a high level form of urban regionization, "city group" start to get comprehensive construction just after reaching the certain degree of urban modernization. The original four "city groups" in the Chinese coastal region incline to further concentrate and connect closely, besides new city groups are formulating in some developed region.

(2) Medium-sized & small cities developing

strongly, and spurring on the order growth of small towns

The "rural urbanization" driven by the rapid and strong development of township and village enterprises and county economy, will incline to develop intensively and slow down the extensive number growth in the early next century.

A large number of cities at county level have extremely enhanced the influential degree of cities on countryside, and simultaneous integration between city and countryside also has been promoted with the rapid development of towns since the 1990s. But a key criterion for city establishment at county level and town is economic output. Owing to the inborn weakness and its development facing much competitive press, township and village industry will never "flower in all direction". Its impetus to county economy development is impossible to get further expansion, so the future development of city at county level and town mainly will be shown in the improvement of modernization, enlargement of built－up area, number growth will be weakened to some extent.

(3) The belt disparity of urban development still exists, and "gap control" is a long-term process

A basic correct recognition on the urbanization road and construction policy showld be formed, which ought to be an overall and historical analysis on future development, not cut apart the history. Historical stages and objective developmental condition should be followed to appraise this or that, which should be acted as our operative norm.

(1) Improving the developmental mechanism of big city and super city

On the basis of China's fact, urban development should be directed by types, and overall pushed on in next term. Big city should be treated in different ways. For example, the cities whose non-agricultural population is more than 2 000 000 in urban area, should control their population scale expansion strictly. And some provincial capital cities whose population is less than 2 000 000, and some key port cities, or traffic pivots whose water and land using potential is big, should be allowed to increase some urban population just on the basis of infrastructure and environmental quality improvement.

(2) Big, medium-sized or small cities developing harmoniously

The population scale of medium-sized cities whose non-agricultural population in urban area is about 500 000 can expand rapidly, so that they can play the strong radiation role of regional economic center. In small cities and towns, their developmental step can take faster only if they hold good condition and strength. Therefore they can fully give free rein to the function of medium-sized and small cities as the economic and cultural connection link between city and countryside. Moreover medium-sized and small cities or towns continue to give free rein to the leading role of adopting surplus labors in countryside. Then the macro-regulation function of policy should be strengthen, and the establishment criteria for the city governing districts should be worked out as soon as possible, and new establishment criteria for the cities at prefecture or county level and towns be put forward. Meanwhile the scientific approach for the separate governing between city and countryside in the cities at county level, and the region division should be probed. As regards city group, the metropolis government or coordination institution for the management system of cities are established in big urban regions in U.S.A., Canada, Australia and Japan etc. So that the issues of metropolis region can be coordinated and the need for service which can not be solved by single city can be satisfied. Then the benefits of public service should be raised. It is a modernization road worthy of being taken for reference.

(3) Maintaining the sustainable development of cities by the necessary protection measures of environment, land and water resources

According to the possible capacity of environment and population, we should draw up a strict urban landuse regulation, guarantee the sufficient green cover percentage and the area of waters and squares, so that form a cold base for cities. It will be beneficial to regulate partly climate and ecological condition.

REFERENCES

CUI Gong-hao, 1992. *Research on Chinese Urban Development*[M]. Bejing: Chinese Construction Industry Press, 5－20. (in Chinese)

LIU Zai-xing, 1996. *Theory and Approach for Regional Economy* [M]. Beijing: Price Press, 7－18. (in Chinese)

NCRG(National Condition Research Group' of C. A. S.) 1992. *Tap New Resources and Economize on Expenses*[M]. Beijing: Science Press, 50－70. (in Chinese)

SHUN Jing-zhi, 1983. *Chinese Economic Geography Outlines*[M]. Beijing: Business Press, 45－60. (in Chinese)

USRAC(Urban Science Research Association of China), 1986. *Research on Urban Science in China*[M]. Guiyang: Guizhou People Press, 8－9. (in Chinese)

YAO Shi-mou, 1998. *Spatial Expansion of Chinese Metropolis*[M]. Hefei: Chinese Science & Technology University Press, 50－80. (in Chinese)

YAO Shi-mou, 1992. *Chinese City Groups*[M]. Hefei: Chinese Science & Technology University Press, 15－18. (in Chinese)

YE Shun-zan, 1995. *Urbanization and Urban System*[M]. Beijing: Science Press, 56－73. (in Chinese)

ZHOU Er-liu, 1991. *Research on Coordinate Development Between City and Countryside*[M]. Nanjing: Jiangsu People Press, 16－18. (in Chinese)

ZHENG Hong-yi, 1998. *Research on Rural Urbanization*[M]. Nanjing: Nanjing University Press, 70－90. (in Chinese)

ZHU Zhen-guo *et al.*, 1998. Construction landuse optimization under the circumstance of land control[J]. *Urban Issues*, (5). (in Chinese)

ZHOU Yi-xing, 1995. *Urban Geography*[M]. Beijing: Business Press, 33－36. (in Chinese)

ZHANG Zhen-sheng, 1999. Preliminary research on the problems of urban hierarchical system of China[J]. *Urban Research*, (1): (in Chinese)