

China's master planning system in transition

Case study on Beijing

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1. Introduction

Ever since China reformed and opened up to the world in 1978, there were immense changes taken place in structure and system framework of society, economy and space. The service industry has entered the fast development track and the economic structure is speedily adjusting. Millions of farmers left their land to look for new development. In this period, industrialization and urbanization kept pushing forward. Thus, the conflicts between rural and urban development deteriorated and social migration is increasing. The largest dualistic economy entity in the world is changing. During this period, resource consumption increases rapidly in volume and environmental pressure continues to increase. In fact, China's urban planning system play an important role for its development and growth as well as resource and environmental problems. This paper will discuss the great changes of the China's urban planning system and have a Beijing case study during that time. In general, Urban planning in China first 30 years used the former Soviet Union urban planning model according to the planned economy system. Urban planning is implementation in space of the state economic development plans. The second 30 years exploring national conditions of the socialist market economic system in urban planning. Traditional urban planning system is broken and the new planning system also can not copy urban planning system from the European market economy countries. In the 1990s, China's urban planners found that it is difficult for the traditional master planning to adapt to rapid economic system restructuring and urban development, learn from the U.S. Action Planning, UK Structure Planning, Australia's Strategy Planning), and Germany's Land-use Planning and Singapore's Concept Plan, the China's urban planning system start to rebuilt.

2. China's Master Planning Review

In china, it is master plan that means to make a comprehensive study and to confirm the urban nature, size and spatial development, overall arrangements for urban construction land, rational allocation of urban infrastructure, to handle the relationship between long-term development and short-term construction, to guide the rational development of the city. China's urban planning with economic development and political instability can be divided into four rounds since 1949.

2.1 The first round of the master plan (1949 - 1978)

In this stage, The CPC(Communist Party of China)'s change its Focal points from the countryside to the city. Traditional city was planned as productive city and was no longer a consumer city. Urban Planning learned from the Soviet urban planning model, Planed a city of the planned economy, construction and engineering organizations. It always prepared to implement the national economic plan to regulate the production and living. Main planning the content included overall spatial layout and some special planning such as external transportation planning, urban road planning, electric power and telecommunications planning, water supply and drainage plan, landscaping plan, and public facilities as well as a short-term construction planning. The master planning focused on: (1) medium and large industrial construction projects in a reasonable location in the city;(2) urban functional areas; and (3) urban transport and infrastructure. The master plan played an important role of the urban production and living.

2.2 The second round of the urban master plan (1978 - 80 late)

In this stage, China launched the reform and opening up policies for its goal of the socialist modernization. The master planning still affected by the planned economic system, but it emphasized that urban planning should play a role of the regional economic development, and strengthened as comprehensive plan included construction, economic, social, regional development, etc. Some main planning content were added in the overall spatial layout such as economic and social analysis of urban development, as well as urban system planning. The special plans enriched some content such as the implementation plan and zoning. The master planning focused on: (1) urban nature, size, direction of urban development and spatial structure, a reasonable urban functional areas;(2)urban system planning; (3)urban infrastructure planning; (4)urban environmental protection plan and (5) transformation of the old downtown area. The master plan played a role of the development of the regional urban system and urban infrastructure for the modernization of the urban building. It still laid a basic framework of urban development.

2.3 The third round of the Urban Master Plan (late 1980s – 2000)

In this stage, the master plan played a very important role for urban economic growth and social development during the reform and opening up context. The master planning focused on the socio-economic development and environmental issue according to the principles of sustainable development, and Pushed forward process of China's urbanization. Some new planning content were added such as the outline of urban master planning. The special planning also emphasizes the historical and cultural preservation planning, various ETDZ

planning, utilization of underground space, urban comprehensive transportation planning, and some cities also prepared a urban image and features planning, tourism planning, etc. The master planning focused on: (1) goals of modernization of Chinese urban development; (2) historical and cultural protection and development in urban areas;(3)urban environmental quality and rational use of resources as a sustainable city;(4)building a good image and personality of the city. The master plan played a role of urban development and construction of full functionality, overall quality, comprehensive benefits, and Multiple cultures in urban modernization.

2.4 Fourth round of the urban master plan (since 2000)

It is a period of urban globalization after China's accession to WTO in 2001. The south-east coastal areas become the world's factory because of cheap labor and land markets, open technology and product markets to attract significant foreign investment. The master planning always find new spaces for the rapid development of the city and large manufacturing areas, as well as supporting infrastructure and social facilities for large projects. The master planning increased its global vision of urban development, and emphasized the development of global cities, and cities have also begun to focus on the development of producer services. The master planning focused on: (1) economic globalization on urban and regional development; (2) large-scale infrastructure; (3)global economic networks; (4)development of tertiary industry. The master plan played a role to promote Chinese cities connecting with the global urban system, and supporting infrastructure for the development of the world's factory. However, there are some problems about the master plan in China, such as the master planning with the social and economic research is still weak, process of public participation is not rigorous. During a new climate change era, the master planning need transformation in satisfied with transition of economic and social growth model in China.

3. Beijing Urban development planning since 1949

The People's Liberation Army with the Communists triumphant entered into the ancient capital in 1949. In September of the same year, during the first plenary session of the National People's Political Consultative Conference in *Huariren* Hall at *Zhongnanhai*, Beijing was elected the Capital of the People's Republic of China, and, with a significant reference to its history, it was renamed Beijing (Northern Capital), once more. With the inauguration of the People's Republic of China on October 1st 1949, new structures, symbols and images of various kinds were needed to represent the new nation. The planning process developed firstly under the leadership of *Mao Zedong* and then changed direction under *Deng Xiaoping*

and his successors.

3.1 Urban development planning under Maoism

Design theories were formulated in 1954 and 1958-59 with important buildings constructed at the two moments accordingly. For the planning of the city, the basic concept was made around 1953 and 1954, under the Communist Party's direction and with reference to the Moscow Plan of 1935 under Stalin. The Beijing Plan called for the administrative centre to be located inside the old imperial city, and for Beijing to be the political centre and industrial base of the nation, a city whose aim was, among others, to increase the "efficiency of the working people's labour and production."

3.1.1 The Earliest Beijing Plan in 1949-50

In the beginning of the People's Republic of China, Beijing became the capital of new China. Location of the administrative centre of the country was the core issue for its urban development and layout of the spatial structure. For this reason, there was a heated debate (Zuo, 2008; Dong, 2006). In December 1949, various planning proposals for the Beijing city were debated. To sum up, there were two different opinions: (1) to consider the economic and aesthetic factors, experts advocated an administrative centre based on the Old Town (Dong, 2006:4). These experts were mainly the Soviet Union experts Abramoff and Barannukov, *Hua Nankui*, *Zhu Zhaoxue* and *Zhao Dongri* and other Chinese experts. (2) to consider the protection of the old city, the administrative centre covers a bigger area, between *Yuetan* and *Gongzhufen* (Dong, 2006:4). This was suggested by *Liang Sicheng* and *Chen Zhanxiang*. The municipal officials clearly displayed their preference for the first option.

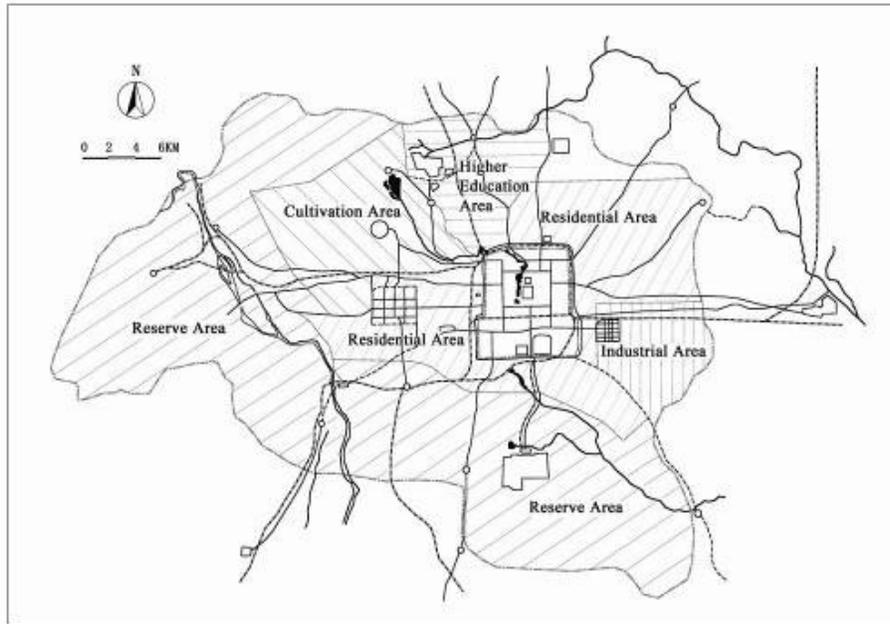


Figure 1 *Beijing Plan: Barannukov's Proposal in 1950*

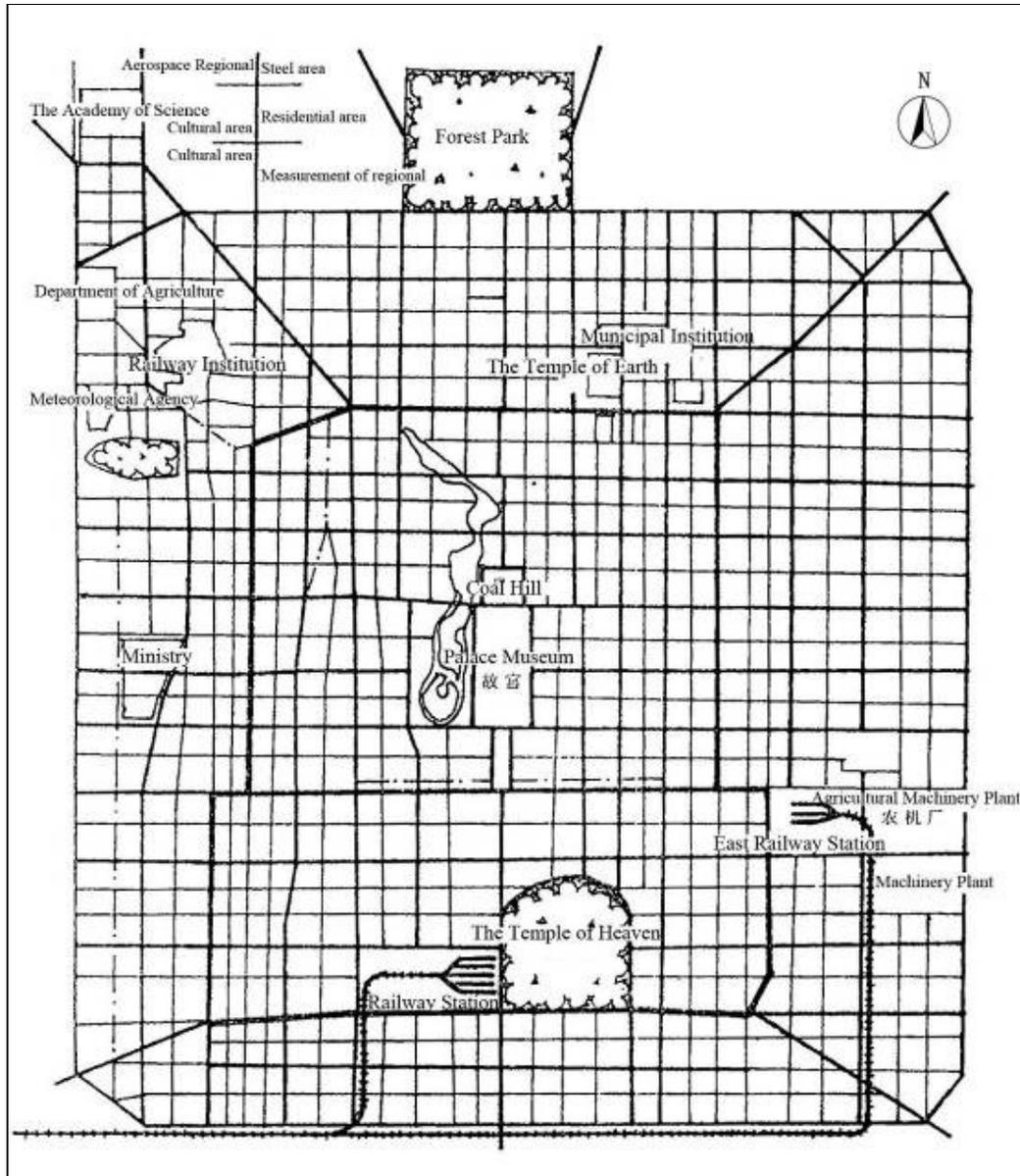


Figure 2 Beijing Plan: Hua's Proposal in 1950

Resource: Dong, 2006, *Historical Capital Beijing: Changes and Evolution 50 Years*. Nanjing: Dongnan University Press: p6.

In February 1950, Liang and Chen developed a 'Proposal for the location of the Administrative Centre of the Central People's Government' (Liang, 2001). Known as the *Liang-Chen Plan* (Figure 3), it proposed that the new centre be in the western suburb and argued for decentralization, clear zoning, a balance between development and preservation, and conservation of the imperial city on its north-south axis. A counterproposal by *Zhu* and

Zhao was made in April 1950 (Figure 4) .

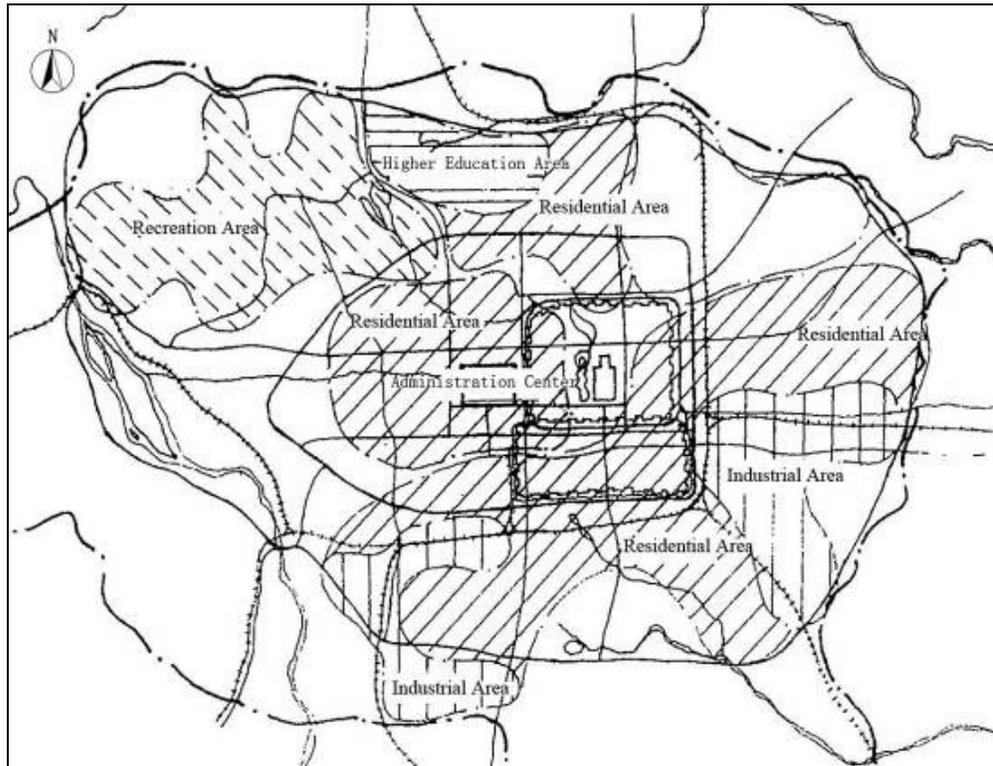


Figure 3 Beijing Plan: Liang and Chen's Proposal in 1950

Resource: Dong,,2006,, *Historical Capital Beijing: Changes and Evolution 50 Years*. Nanjing: Dongnan University Press, p7.

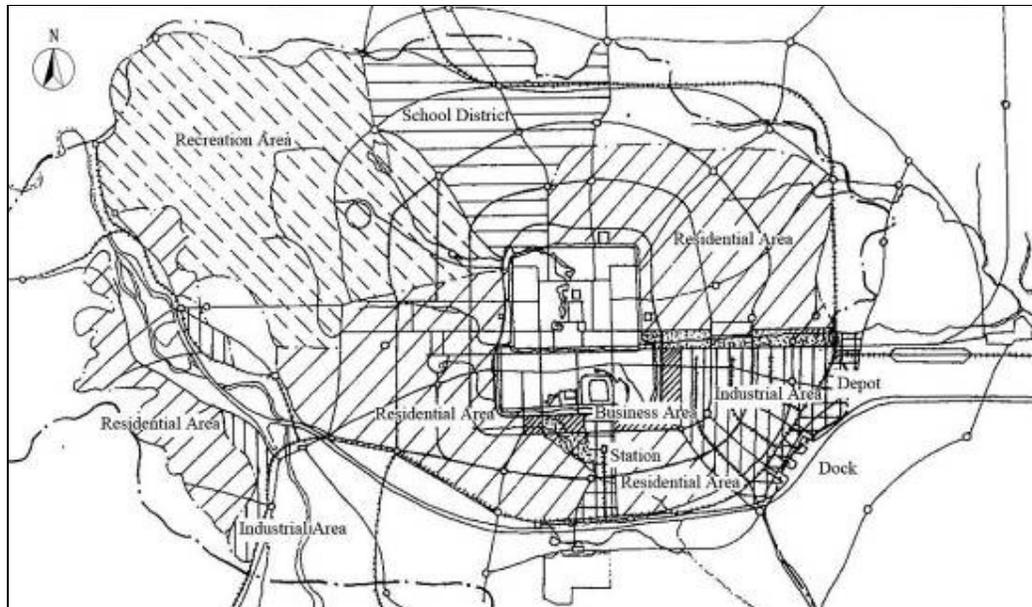


Figure 4 Beijing Plan: Zhu and Zhao's Proposal in 1950

Resource: Dong,,2006,, *Historical Capital Beijing: Changes and Evolution 50 Years*. Nanjing: Dongnan University Press, p5.

Active construction in Beijing, however, was ongoing in the central area (Figure 5), effectively following the Russian proposal which was in fact, as revealed later, based on Mao's message passed on to the Russian team via the municipal Party Secretary *Peng Zhen* (Wang, 2003).

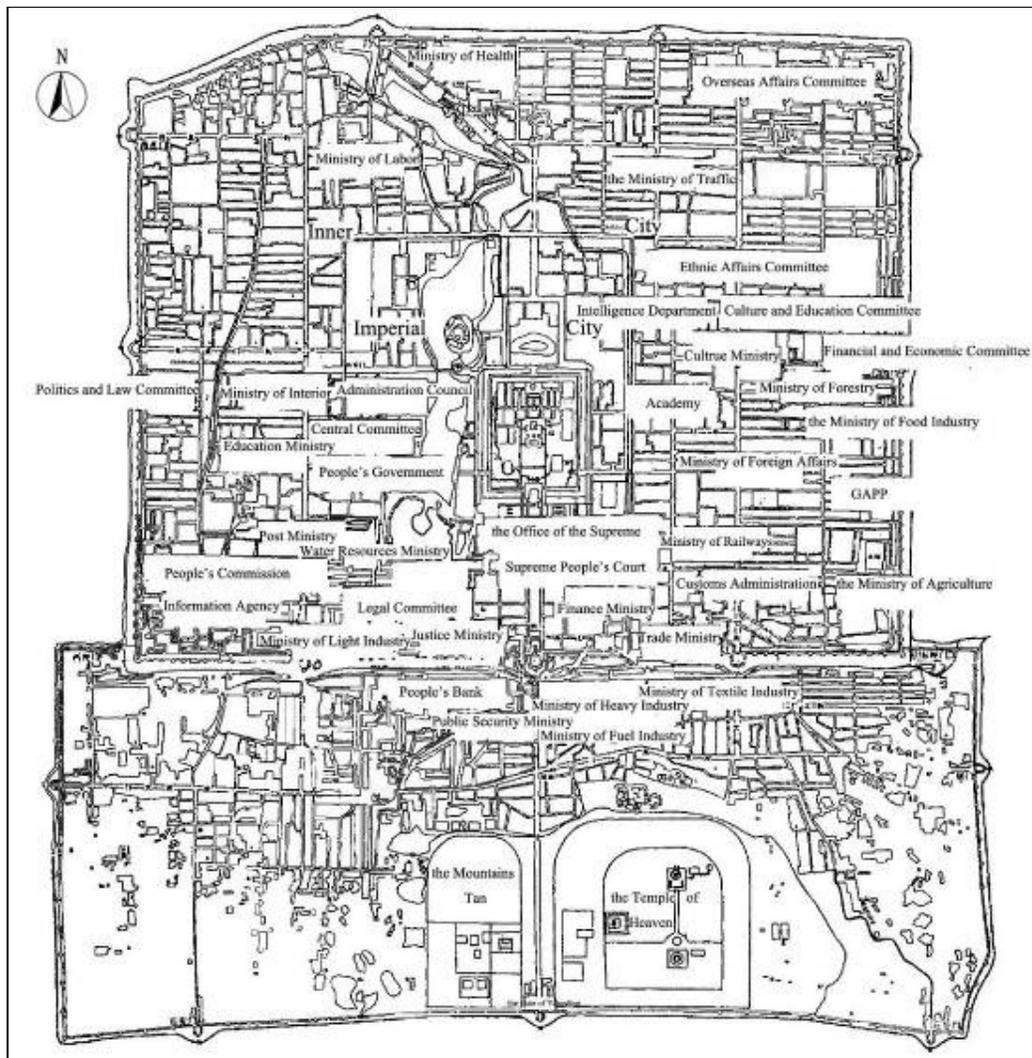


Figure 5 Early offices distribution of state organs in the Beijing Old City

Resource: Dong,,2006,, *Historical Capital Beijing: Changes and Evolution 50 Years*. Nanjing: Dongnan University Press, p12.

3.1.2 Beijing Plan 1953-54

In 1952-53, Two plans made by *Hua Lanhong* and *Chen Zhanxiang* respectively, under *Liang's* coordination, based on the idea of the new centre placed inside Beijing, were again sidelined for their lack of 'Progressive' ideas. To reach a better plan, the municipal government organized another team inside the Party to work in a building called *Chang-guan-lou*, in a zoological garden in western Beijing) which produced in November 1953 a decisive document, 'Draft Plan for Reconstruction and Expansion of Beijing'.

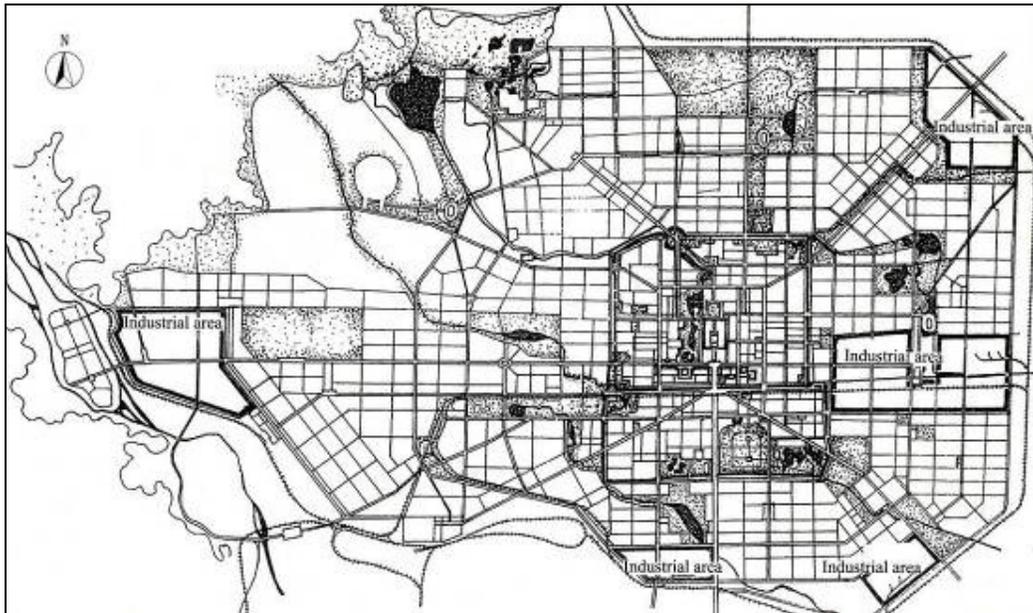


Figure 6 *Beijing Plan in 1953 (Hua's Proposal)*

Resource: Dong,,2006,, *Historical Capital Beijing: Changes and Evolution 50 Years*. Nanjing: Dongnan University Press, p28.

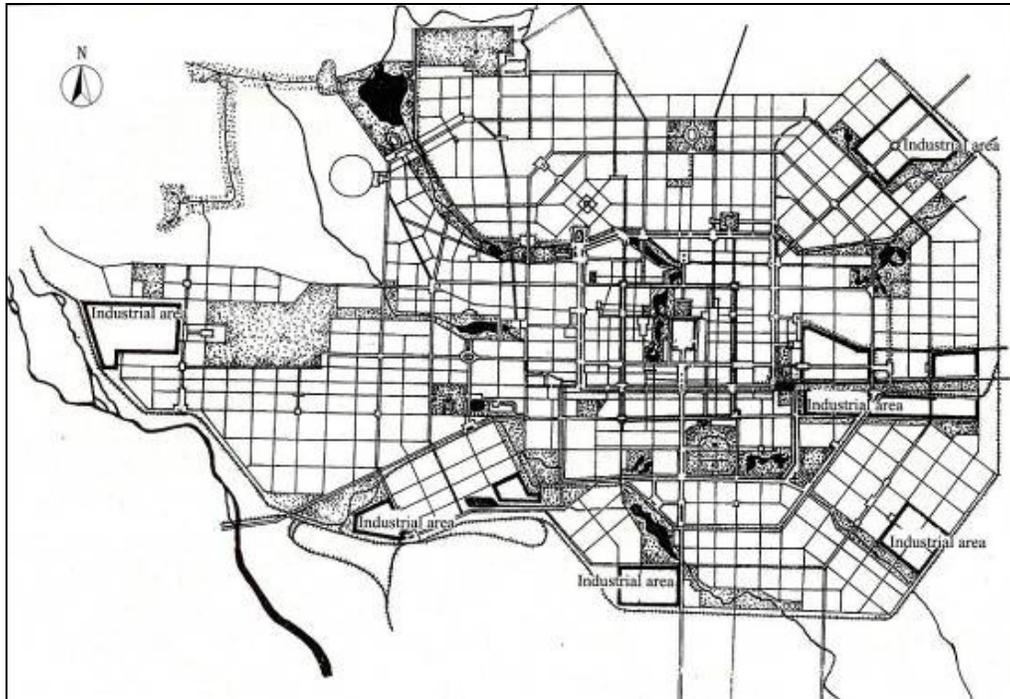


Figure 7 Beijing Plan in 1953 (Chen's Proposal)

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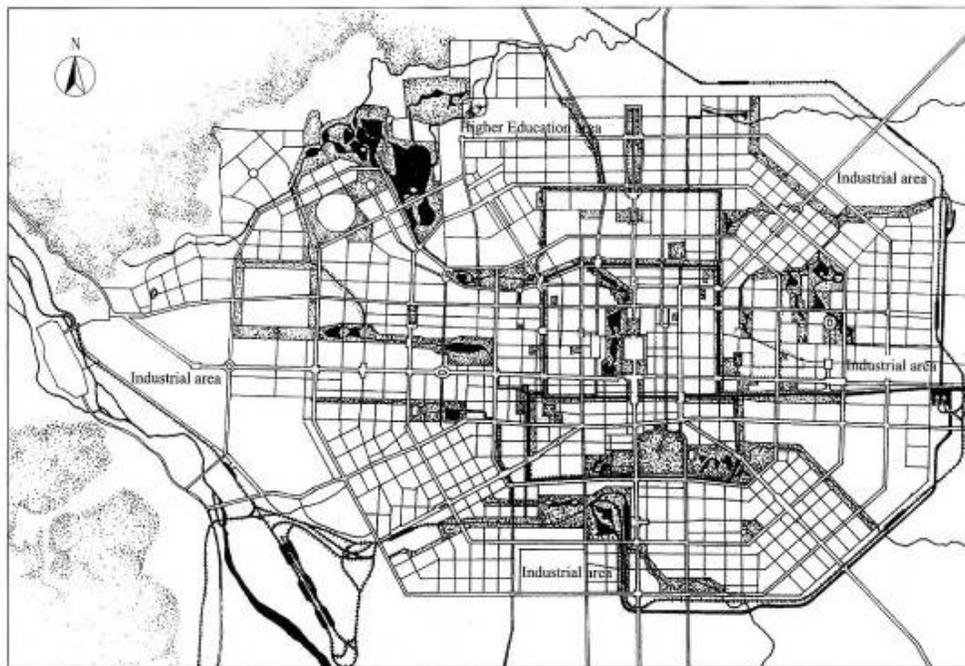


Figure 8 Beijing Plan in 1954 (Last Revised version)

Resource: Dong,,2006,, *Historical Capital Beijing: Changes and Evolution 50 Years*. Nanjing: Dongnan University Press, p29.

In the 1953 master plan, functional zoning was introduced in which 'Industrial zones were dispersed in suburbs, while new residential areas were located between the old city and new industrial zones' (Sit, 1995, pp. 92-97, cited in Lu, 2006, p. 94). The zones were linked via ring roads and radial sub-arteries, and separated by greenbelts. The Plan privileged industry and production. It stipulated that Beijing would be the political, economic and cultural centre, and also the industrial base for the nation. It specified that the capital was for production, for the central government, and for the working people, and that it should strive to serve 'the rise of efficiency in the working people's labor and production'. It projected population growth and expansion of the city to 5 million and 600 square kilometres in twenty years and areas for government, industry and education at the centre, south-east and north-west respectively. It requested that the existing orthogonal streets be 'broadened, interlinked, and straightened', plus the addition of ring roads around the centre and radial avenues extending outward, for efficient communications in all directions. While the major orthogonal avenues were to be 100 metres wide, the radial avenues and the ring roads with secondary roads were to be 60-90 and 40 metres in width respectively. Regarding preservation, it suggested that Beijing should develop from the historical past, preserve good elements, and eradicate restrictions of old layouts and patterns, and the preservation of heritage buildings should be assessed on a case-by-case basis.

Known as the *Chang-guan-lou* Plan, it consolidated Mao's idea and the Russian proposal and laid down basic principles for Beijing to develop in the following decades, although new additions were also made in 1954, 1957 and 1958, and in the 1980s.

3.1.3 Beijing Plan 1957-58

In the 1957 master plan the Soviet concept of micro-district (of 30-60 hectares with 10-20,000 residents) was introduced based on limited journey to work (ibid.). The Soviet influence on planning was great, and its legacy continued for several decades despite the Sino-Soviet split in 1960 (Sit, 1996). Even today, Beijing is still very limited commuter circle, commuting circle of maximum radius has no more than 25 kilometres. According to work, school and the scope of employment of labour as well as shopping behaviour, this range may be smaller. The main reason for this phenomenon is that the planned economic system had very strong control to urban transportation facilities, employment, schooling, shopping and other daily work of the public.



Figure 9 Beijing Master Plan 1957(Draft)

Resource: Dong, 2006., *Historical Capital Beijing: Changes and Evolution 50 Years*. Nanjing: Dongnan University Press, p30..

Planners struggled to control urban growth, however, and work units sought autonomy over their own area or *danwei*. Central government oscillated between the desire to have more control over urban form and sympathy for the need of work-units to build as they saw fit. 'At times, the Beijing Planning Bureau was dismissed by the state for being too strict and bureaucratic' (ibid., p.96). The Beijing City Master Plan 1958 therefore decentralized planning via emphasis of the close relationship between work and home, and critique of the principle of segregated land use.

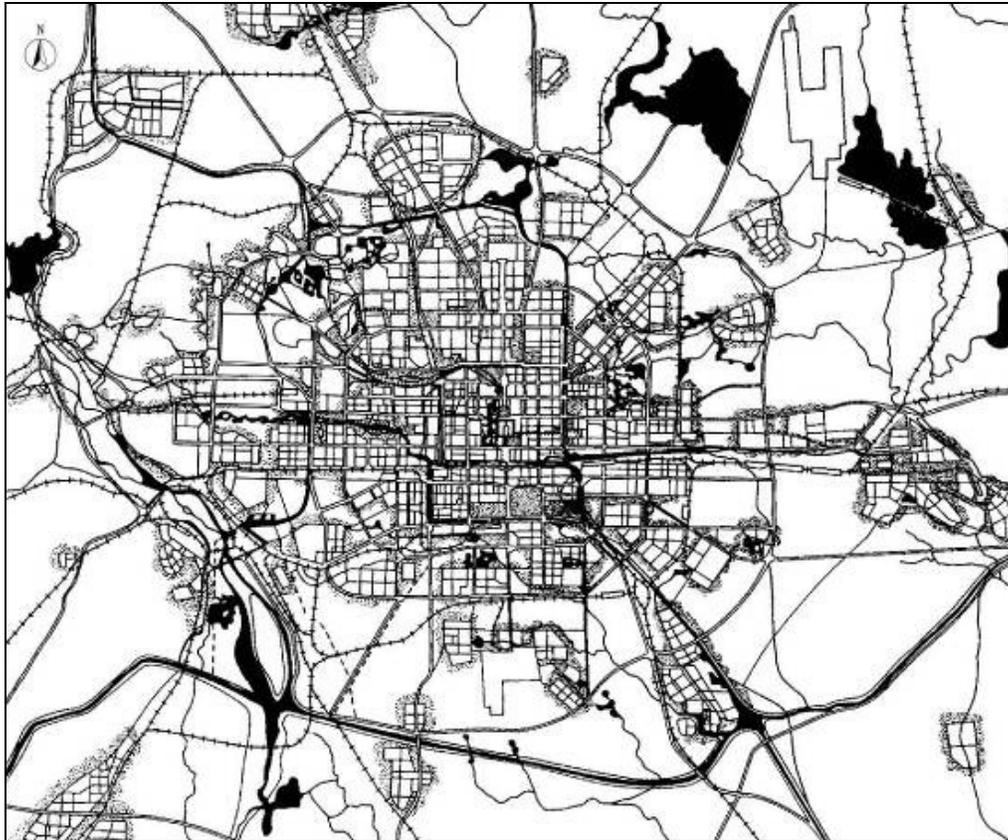


Figure 10 Beijing Master Plan 1958(A)

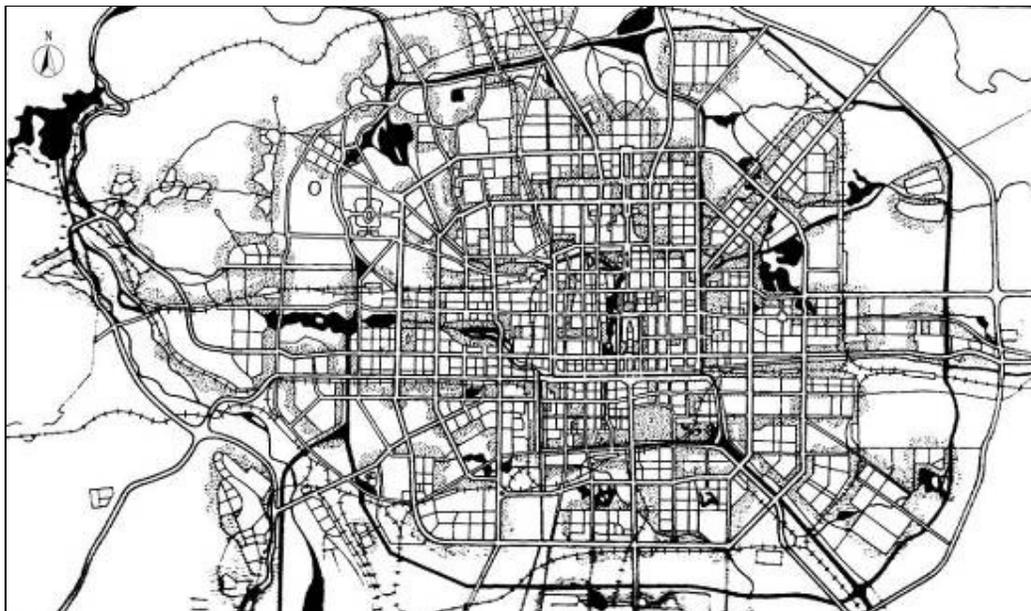


Figure 11 Beijing Master Plan 1958 (B)

Resource: Dong,,2006,, *Historical Capital Beijing: Changes and Evolution 50 Years*. Nanjing: Dongnan University Press, p31.

Under *Mao Zedong*, Beijing was massively transformed in both form and function. Heavily influenced by Soviet style Master Planning, changes included the removal of the city walls that not only restricted urban development but also symbolized the previous feudal order, the layout of vast boulevards across the city especially *Chang'An*, the Avenue of Heavenly Peace, and the massive expansion of *Tian An Men* square to become the focal point of the city and the largest urban square in the world. 10 huge new buildings were built to celebrate the 10th anniversary of the PRC in 1959, including the Great Hall of the People in which the National People's Congress is held. Beijing became a production city with a focus on heavy industries such as iron and steel production and petro-chemical works (*Dong Liming*, 1985). The city became one of the most austere capital cities in the world, closing down by 9pm in the evening, except for a few exceptions, and tourists were few and far between. Right through until the 1990s tourists had their own restricted currency that could only be spent in such places as the Friendship Hotel or the Friendship Store, that catered mainly for foreigners.

3.2 Urban development planning under Deng's Ideas

Deng Xiaoping came to power in 1978, 2 years after Mao's death and a brief power struggle with the 'Gang of Four'. He ushered in a period of reform that included the 'Four Modernizations' and an 'Open Door' policy, initiating a long process of transformation. Among his many memorable slogans were "To get rich is glorious", helping to lead China generally and Beijing in particular towards a consumption ethos. Within Beijing there were growing criticisms of the emphasis on industrial development, and from 1980-82 'opinions were published on the city's future development' (*Dong Liming*, 1985, p. 72). Dong argued that the city was 'poorly endowed for industrial development' (p. 73) and yet was 'rich in cultural resources' (p. 75) for example, therefore 'should concentrate on expanding its role as the nation's administrative centre. It should develop also as a centre of scientific research, education, cultural activities and tourism. A few industries should be permitted, but only those which do not consume large amounts of water or create pollution' (*ibid*, p. 75). This debate concerning the appropriate balance between Beijing's role as a capital, essentially cultural, centre and its role as a production centre had also been found in the 1950s (Sit, 1996), and would continue into the 21st Century.

3.2.1 Beijing Plan 1970s-80s

China's return to a more conventional path of economic construction and opening-up to the West started in the early 1970s, when China joined the UN and China-US relation started to improve. There was also an indication in 1975 that Beijing would become a "new,

modernized, socialist city". However, 'urban planning turned out to be a feeble intermediate element under Chinese socialism...With the arrival of the Cultural Revolution (1966-1976), the city's master plan was suspended in 1967, and the Beijing Planning Bureau was suspended in 1967 and not re-established until 1972 '(Sit, 1995, p.205). Beijing was in a period of planning anarchy: a great deal of piece-meal urban development was carried out by individual work-units. This was a situation not without irony, in at least two ways. Firstly, the anarchist Peter Kropotkin was heavily influential in the development of Sir Ebenezer Howard's Garden Cities ideas that were to lead to the establishment of the Town and Country Planning Association in the UK, and secondly many outside China were completely unaware of this anarchistic element in Beijing's development, viewing China as being a hierarchical monolithic state with top-down planning similar to the Soviet Union! This situation could only be rectified via a thorough turn in policy and ideology towards modernization and this was impossible until Mao died in 1976 and Deng assumed leadership in 1978.

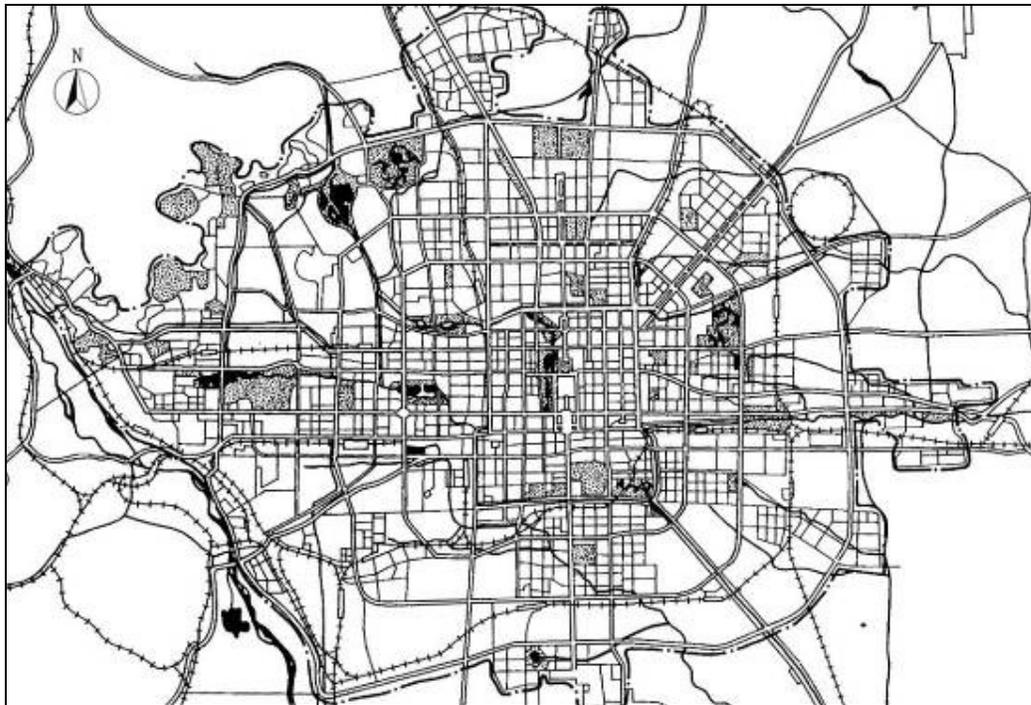


Figure 12 Beijing Master Plan 1982

Resource: Dong, 2006,, Historical Capital Beijing: Changes and Evolution 50 Years. Nanjing: Dongnan University Press, p44.

In the period 1978-89/92, leaving behind the Maoist planned economy, the new practice was a commodity economy with planning and market regulations. Foreign investment began to flow in. Hotels, offices, shopping malls, housing developments, and cultural and exhibition centres were built. Large housing districts, subway extension and the second and third ring roads were completed in the late 1980s in Beijing. The quantity of construction per year for the city rose from 4.5 to 7 and 10 million m² from the late 1970s to the mid and late 1980s (Zhu, 2009). 'By 1989, work units owned 90 per cent of urban public housing' (Lu, 2006, p. 97). Gan (1990) notes that the new Master Plan for Beijing was proposed and approved by the Central Committee of the Chinese Communist Party and the State Council in 1978, recognizing that there was a need for economic and industrial priorities but also for political and cultural ones. This has subsequently often been expressed as a tension between new build and conservation, with the desire for new roads, hotels, commercial centres and so on acting against the desire for conservation and preservation of ancient structures. In part, resolution of this tension has been attempted spatially, with the historic core being largely preserved, via restrictions on building height for example or through designation as conservation areas, whereas beyond the second ring road and further afield is the main concentration of high rise development. This issue will be returned to via discussion of the *hutongs* below.

In the planning regulations of 1980-3, the policy for swift economic development, for engaging with overseas collaborations and for the city to be on the "international" stage coincided with the call to preserve and inherit Beijing's images as a "renowned, historical, cultural city." Value added hi-tech manufacturing has also become more significant in recent decades. Somewhat paradoxically termed the 'cultural region' in the North West suburbs of *Haidian*, linking with the many universities in this part of the city and increasingly known as *Zhongguancun* Science Park, this is where Microsoft, Nokia and other such hi-tech companies are located in China's 'Silicon Valley'. One attraction for these companies is that highly skilled Chinese labour is available from the universities, but far cheaper than in California or Seattle (Cook, 2006). Many of these companies are located in high rise structures whereas the Beijing Plan in 1982-3 stipulated that buildings in the "old city", that is, within the second ring road, could only be four to six storeys high. In 1985, the control was more precise: the height limits in areas around the palace, the royal temples and lakes were set at 9,12,18 and 45 meters gradually as the building site in question moved further away from the centre. In 1987, the regulation became more restrictive: no building inside the second ring road could be more than 18 meters, except those along the ring road, the *Changan* Avenue, and another avenue further south which can be at 30 and 45 meters

maximum. In 1990, some twenty-five historical areas inside and around the centre were specified as zones for protection.

3.2.2 Beijing Plan 1989/92-2001/2

The 1989/92-2001/2 period was characterized by ongoing strong rule by the state and a more radical opening-up of the economy to market practice and global investment. After Deng's speech in his tour to southern China in early 1992 (Cook and Murray, 2001), "market economy" is socialism or "socialist market economy" became the set policy in late 1992. Reforms that had stopped in the late 1980s restarted, this time leading to success and social stability. Urban land can now be rented for speculation and development is more intensive than that in the 1980s. The quantity of construction per year had increased to between 11 and 12 million m² (rising to 20 million and later 30 million after 2000). The invasion of massive building in the centre, the breaching of height restrictions, and the destruction of old courtyard houses and urban fabric were now happening at a greater pace. The Oriental Plaza and the Financial Street, which should both have been 45 meters maximum, reached 68 and 116 meters in height, as a result of aggressive demands for profit by the developers. The protection of historic Beijing was once again called for with increased urgency and intensity.

3.3 Urban development planning under globalization

Although the 1980s were important for the development of Beijing, it is really from 1992 that progress towards becoming a new world city has been accelerated.

3.3.1 Beijing Plan 1991-2010

The Beijing Plan for 1991-2010, as set down in 1992-3, specified that Beijing be an international city 'open in all aspects', ready for the Olympics and for the 55th anniversary of the People's Republic (in 1999), and that it become a 'modernized international city of the first rank' in the period from 2010 to 2050. 33 aspects of the framework of historical Beijing were specified for protection. This reflected the fact that a new Beijing Master Plan was drawn up by the State Council for the period 1991-2010 (Zhang 1991), but also because of the impact on policy of *Deng Xiaoping's* tour of South China.

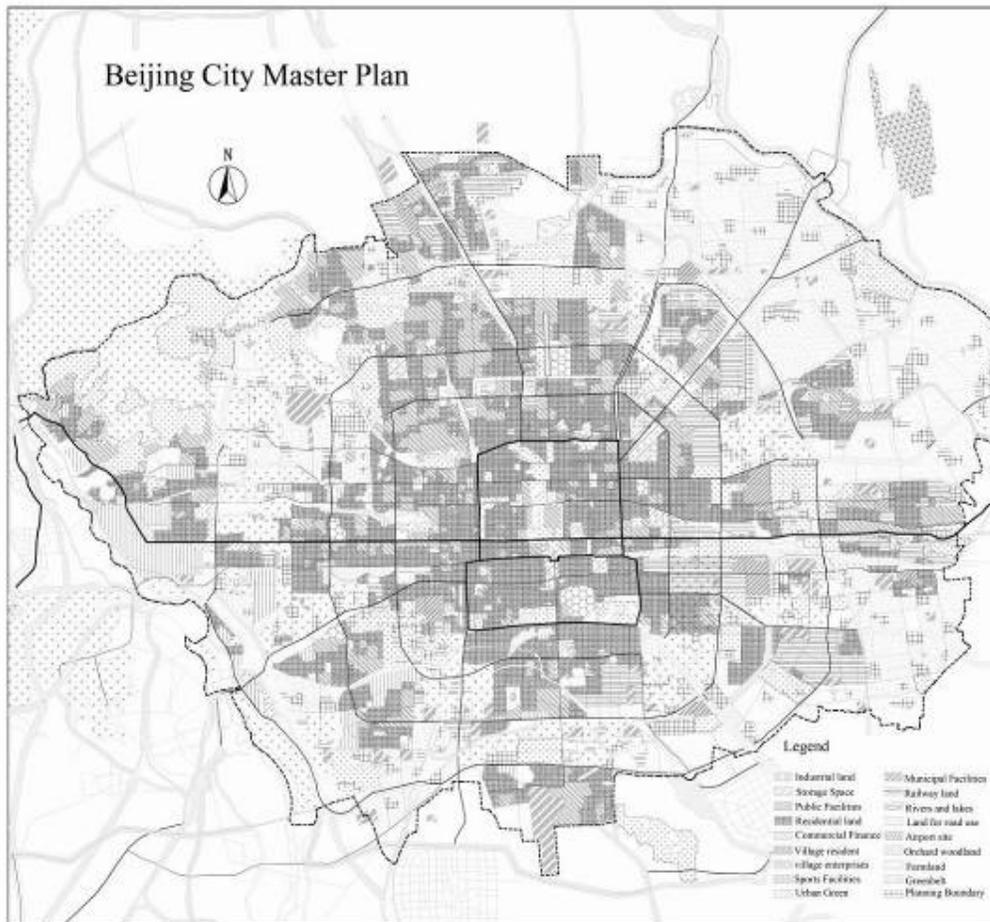


Figure 13 Beijing Master Plan 1992

This reaffirmed the opening up and modernization of China via links with the West. The new plan sought to increase the GDP of Beijing from 50 billion RMB (US\$5.7 billion) in 1991 to 310 billion RMB (US\$35 billion) in 2010 (Zhang, 1991). This will be achieved via, for example:

“Development of new and high-tech industries will be concentrated in *Yizhuan*, *Zhongguancun*, *Shangdi*, economic development zones and scientific and technological parks. Secondly, major efforts will be made to develop tertiary industries to raise their position in the GDP from 38.8% to 60%. During this phase a Central Business District will be constructed in *Chaoyangmenwai* district. Thirdly, there will be a readjustment and distribution of secondary industries, gradually moving them out of the city proper...Measures will also be taken to prevent and control industrial pollution. Finally, the development of the agricultural sector should be accelerated to give the benefits from

higher levels of technology and quality to the rural economy” (ibid: 12).

Related features of the plan included large scale residential building in the suburbs and satellite towns such as *Tongzhou* and *Huangcun*, renovation in the old central city, improved water supply via completion of such measures as the “Diverting Water from South to North” project, provision of natural gas via pipelines from interior provinces, major road and subway developments, a second international airport and a tenfold increase in telephone exchanges (ibid). Foreign investment and international cooperation would be important aspects to fund this tremendous growth in urban facilities.

3.3.2 Greater Beijing Plan 2004-2020

In 2004/5, after the sudden opening of the global market, Beijing, with its ambitions of matching its own economic level with that of richer countries of the West, finds itself also sharing the same problems, such as high pollution and the lack of water and energy supply. The Greater Beijing plans were made, which is with two axes, two development bands, and multiple urban centres, in a region beyond the conventional scope of 16800 km², to cover 70000 km² which included the neighbouring cities. The policies to develop high-tech industry and a tertiary or service economy while removing production industry to elsewhere, to reduce population growth and concentration inside the city (by then already at 15 million), to ‘green’ the city and to raise ecological qualities of the city, remained the same. Another newly emphasized idea was a ‘humanistic’ city and a ‘habitable’ city to be cultivated in Beijing.

According to Beijing Master Plan 2004-2020, the metropolitan region will evolve into a polycentric structure, with ‘two axes, two belts and multiple centres’. The two axes are running east-west and north-south, crossing at central Beijing. The two axes are the western ecological belt and the eastern development belt. Multiple centres refer to a system of towns and cities. There will be three major new towns in the suburb of Beijing. At *Shunyi* New Town, a manufacturing base will be developed. A comprehensive service centre will be based at *Tongzhou* New Town; and for *Yizhuang*, the development objective is to set up a high-tech development centre. These new towns are planned to grow into the cities with population between 700,000 to 900,000 by the year 2020 - a scale much greater than that of typical American edge cities.

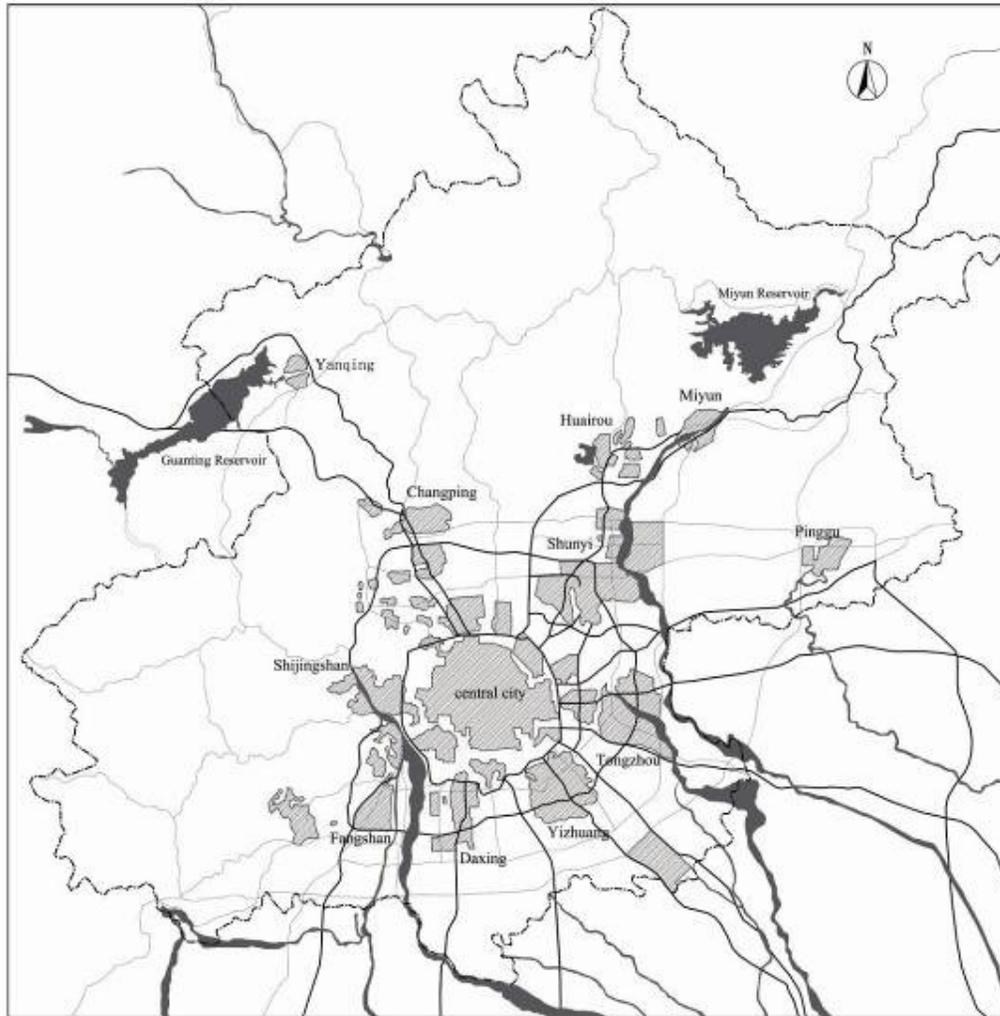


Figure 14 Greater Beijing Plan 2004-2020

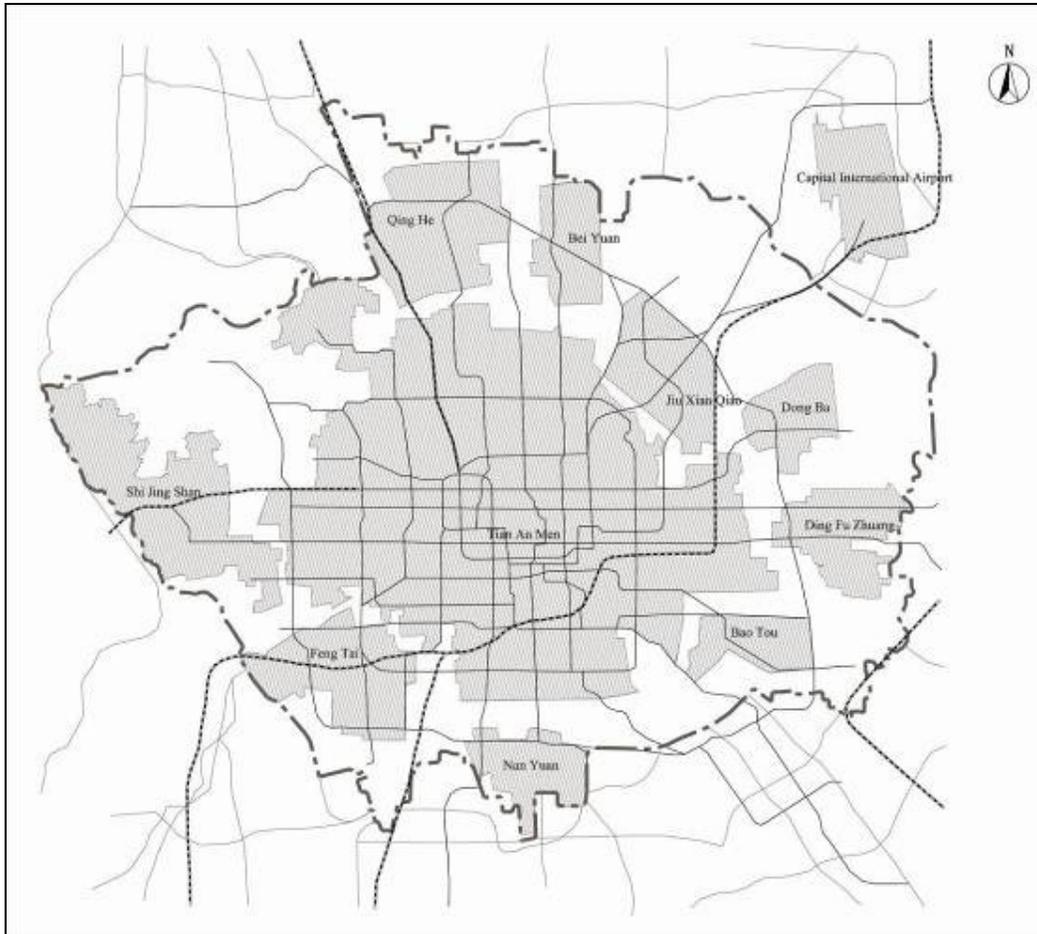


Figure 15 Greater Beijing Plan 2004-2020: central area

Further, in 2004 there were revisions to the National Constitution, bringing in a greater range of legal rights for individuals in China. According to Abramson (2007: 76) this led to court decisions against local government agencies including the Beijing Planning Bureau. Again, as for other countries in Asia and elsewhere, Urban Planning could not be undertaken without regards to the views and opinions of various interest groups of varying hues.

The pressures and strains of such issues as those noted here saw the introduction of a new Regulating Plan of 2004-2020. Introduced in 2004-5, the idea behind the plan is to rein in the worst excesses of Beijing's rapid growth. Instead:

“The direction of development, as the Plan of 2004-5 indicates, will be increasingly about aspects of a humanistic city, including ecological and habitable qualities, rather than grand projects and heroic changes. A micro, internal and intensified urbanity at a

human and walk-able scale is likely to be emphasized...the moment of 2008 may be remembered as the close of the first and the beginning of a new era in China's long march to modernization" (Zhu, 2009: 209-210).

Beijing will be built as the capital city of The People's Republic of China, the political centre, cultural centre, world-renowned ancient capital and modern international city. Beijing's future development targeting will be the national capital, an international city, cultural city, and liveable city.

In 2006 , the Beijing Municipal Government launched a document "features and evaluation of indicators on the counties and Districts in Beijing"; in this Beijing is divided into four parts: the core area, the development areas, the new urban area and the ecological conservation areas. The Ecological conservation areas, including *Mentougou*, *Pinggu*, *Huairou*, *Miyun* and *Yanqing* five districts and counties, is an ecological barrier for Beijing and a water resource area, with area of 11,299.1 square kilometers, accounting for 68.9% of the total area of the city.

3.3.3 Beijing Action Plan of 2002

Drawn up following China's successful bid for the Olympics in 2001 (Cook, 2007), this action plan specified that the preparatory work for the Games is 'Open to the nation and the world in all aspects with international regulations and modern standards'. The target is to 'raise the level of openness in all aspects of the city of Beijing, and to display to the world a new image of the nation after reform and opening-up'. This plan is important as it reveals the building of Beijing as it appears in 2008. According to the Plan, the strategic conceptions include the theme of 'New Beijing, Great Olympics', the organization of the Games based on 'green, science, and technology' and 'humanism' principles, and a commitment to showcase images of a 'renowned, historical, cultural city', and to build the city as highly modernized by 2008 with 'a framework of a large, modernized, international metropolis'. It also specifies that the event is organized with the whole nation. There are 'one center' and 'three other zones', the first being the Olympic Green on the northern section of the extended central axis, and the other three being located in the west and north. In the central Olympic Green are three primary buildings, the National Stadium, the National Gymnasium and the National Swimming Center, to accommodate 80000, 1800 and 1700 spectator respectively. Regarding ecological environment and infrastructure, the plan proposes extensive greening of the city with 'green barriers' between urban areas. The infrastructure projects include four subway lines, light rails around the city, a speed train to the airport, a second highway to the airport, the fifth and sixth ring roads, and an extension to

the Capital Airport. The Plan also includes the construction of a 'social environment', some buildings of 'modern cultural facilities' in the city such as a Grand National Theatre, China Central Television (CCTV) headquarters, Capital Museum and National Museum.

4. Innovations of China's Urban Planning in Transition

Over the past 20 years, as a result of environmental pollution and ecological damage, China had economic loss equivalent to 7 ~ 20% annual GDP. If high material consumption and high emissions does not change, sustainable economic growth is impossible to realize. Sustainable development includes multiple dimensions such as environmental, economic and social considerations. The development goals for a sustainable city are to changes in the mode of economic growth in recent years, to develop ecological economy, to reduce resource consumption and to recycle and re-use waste products and to accomplish the best among the social, economic and natural system.

In 2007, the Chinese government launched economic and social development 11th Five-Year Plan and proposed a target which includes unit GDP energy consumption in 2010 to be reduced 20% from the 2005 level. This continues the efforts set in as early as 1994, when energy consumption was taken as key in implementing the sustainable development strategy. Between 1980 and 2006, energy consumption per 10000 yuan GDP was reduced from 3.39 ton standard coal to 1.21 ton standard coal. The 11th five year plan aimed to further reduce energy consumption through economic restructuring, technological innovation, quality management, in-depth reform, law enforcement, residents' participation and international collaboration. In the same year, China launched National Climate Change Program. It is a comprehensive energy reduction program and a special action of Climate Change Science and Technology in China. A number of policies were formulated. These include a national plan to respond to climate change, a comprehensive work plan to reduce energy consumption and greenhouse emission, and specific actions in science and technology in response to climate change. The development of a low carbon economy has become a focus. China recognizes that low carbon economy does not mean to restrict the use of fossil fuel. Rather, energy efficiency is the focus. The unit consumption of energy has been used as an indicator for monitoring low carbon development. This has been approved a tough task as in 2006, only Beijing reached the target level of unit energy consumption among all the 31 provincial administrative units (NBS 2006).

In response to the challenges posed by climate change, a number of initiatives are taken in strategic planning of the mega urban regions. The Pearl River Delta strategic plan formulated by Guangdong Province in 2008, how to address the issue of sustainability. In

recent years, there are some new master plans to build a low carbon economy, low carbon city in the Yangtze River Delta and the Jing-Jin-Tang areas. For example, Dongtan Eco-City, Shanghai Chongming Island, is probably the first to build a zero-carbon city. The Eco-city in Tianjin is another international collaboration project in developing new generation sustainable cities. The Chinese government in collaboration with the Singaporean, planned the Tianjin eco-city project on a new land reclaimed from the coast of Binhai New District in Tianjin. It has a land area of 4 sq km, and used the principles of ecologically and environmentally friendly, energy efficiency, and harmony between man-made and natural environment. In Tangshan, the Caofeidian international eco-city is experimenting zero-pollution economy, which will place Tangshan on the track of sustainable development. The development plan of this area, endorsed by the provincial government, include the use of a range of renewable energy sources, such as wind, solar, tidal and thermal. A resource management centre is also planned to deal with garbage and waste water, 25% of the waste will be used to generate power. Conventional heating and air conditioning systems will be replaced by new products powered by renewable energy. In addition, the river network and the green belts will make the city a quality living environment. The World Wide Fund for Nature (WWF) launched a low-carbon city development projects in Shanghai and Baoding in 2008. In order to improve building energy efficiency, this project will work with relevant departments such as building energy consumption in Shanghai. It is property management training that enhances its ability to operate in energy-saving. The development of eco-building policy research will reduce the eventual realization of the living carbon emissions. Baoding WWF will work with relevant departments to promote investment in renewable energy, construction of new energy production base for residents with low carbon emissions of new energy.

The Climate Group issued "China's low-carbon leadership: the city in January 2009, and selected 12 different size cities as case studies. It tries to find China's low-carbon economy model, including policy incentives and institutional arrangements, technological innovation and application of investment and financing mechanisms and multi-cooperation. The Asia Society Center on US-China Relations and the Pew Center on Global Climate Change jointly issued A Roadmap for US-CHINA Cooperation on Energy and Climate Change in 2009, put forward a sustained high-level bilateral contacts and grass-roots project implementation of specific recommendations, mainly related to low-emission coal technology, energy efficiency measures, development of advanced power grid to promote renewable energy, for low-carbon financing.

5. Discussion and Conclusions

Based on the above description, it is easy to find out that China master planning exist

four stages and has some weakness now. First of all, urban planning is a management science to artificial environment and natural environmental in transition. Secondly, urban planning not only involves strategic ideology, but also policy and project implementation, including countryside planning. Thirdly, urban planning process is not simply a process of pure science technology, but administration capability and coordination between different interest groups. Fourthly, urban planning does not only require initiative and creativeness for finding solutions, but also ability to evaluate these solutions. Fifthly, urban planning is taking place within a complicated system framework. Thus, it needs acuminous discernment to the issues of politics and morality. In recent years, the course of globalization and climate change give new conceptions to urban planning, which mainly shows that many cities want to be planned to be metropolis, so urban competitiveness becomes especially important. Low-carbon city and Eco-city also become new urban models. It is very important to make a adapting plan for environmental transformation and global change. New trends of the China's master plan will be establishing "Ecology-Living-Production Spaces" framework for urban planning. However, the planning method still needs to be modified in the planning practice for further improvement.

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