Urban Forestry Development in Beijing: A Historical Perspective

Urban forestry is often regarded as a key ecological asset of a city. Each year many efforts are put into urban afforestation in China to make its cities more attractive and liveable. In the case of Beijing, this is even more obvious, particularly since the city is aiming to host ‘green Olympics’ in 2008.

According to the city’s urban plan, the second green belt will be built before the Olympics in 2008. The first green belt is diminishing due to rapid urban sprawl. In this paper, we shall identify some threats to and opportunities for urban forestry development in Beijing from a historical perspective in an effort to throw some light on its future development.

TYPES OF URBAN FORESTERY
Beijing Municipality is surrounded by mountains to the west, north and northeast, and it has a typical continental monsoon climate. Annual rainfall is about 370mm, most of which occurs in the summer, and which is less than annual evaporation. Spring is very dry and windy, and the season when Beijing is most likely to be hit by smothering dust storms from the northern desert plains of Mongolia.

The Beijing urban area is rapidly sprawling concentrically. Given Beijing’s historically compact urban core, the spatial development pattern is continuous, rather than the leap-frog development often seen in other large urban centres in the developed countries. Planning and policy efforts in Beijing seek to control this type of expansion by promoting an urban spatial structure of “dispersed constellation” through green belt construction.

There are four types of urban forestry in Beijing in terms of topography and function. The first type consists of forests in the outer suburban mountainous area owned either by central or municipal government. The function of these forests is partly ecological (conservation forestry for land erosion) and partly economic (special fruit growing). The second type, located in the inner suburban plain area, consists of netted woods with the economic function of protecting local farm fields as well as some orchards from wind and sand storms. The third type of urban forestry is the green belts established immediately adjacent to the built-up areas for growth management and environmental improvement. This is a transitional zone, and therefore this type of forestry faces the biggest challenges related to planning, implementation and maintenance. The fourth type is the green space in residential areas. This latter type of forestation has changed dramatically over time. In the past, the green space in residential areas was usually dominated by large but few squares or parks, but nowadays more and more small gardens are placed in each neighbourhood to provide the elderly and children with more opportunities to make use of green space.

Central and municipal governments have so far played a leading role in Beijing’s urban forestry development due to the unique political system and common property nature of urban forestry. Much attention has been paid to urban forestry and great efforts have been made ever since the PRC was established in 1949. During the process of urban forestation, various factors, including the political system, economic situation, market condition and especially the awareness of the local authorities, influence political commitments and practice. The following analysis will focus on the vertical development track of urban forestry policy and practice in Beijing. The discussion on the evolution of the four types of urban forestry will highlight three phases, namely the pre-open period (1949-1978), post-open period (1978-2004) and the perspective period (2004-).

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BEFORE 1978
The government initiated several projects aiming to ameliorate the desertification and sand storms besetting northern cities. The most famous among them was the “Three-north” (Northeast China, North China and Northwest China) protective forest system, which was the largest ecological project in the world and is sometimes aptly called the “Green Great Wall”. As a part of this project, Beijing focused on forestation in its northern and western mountainous areas. In addition, forest networks were developed in the plains area. Cities such as Beijing and Shanghai are surrounded by farm fields, as part of a strategy of urban food security. But, unlike other foreign metropolises, for example Moscow, Paris and Berlin, where there are vast wild woods in the urban area, Chinese cities are densely populated and structurally compact. The most effective and economical (with regards to land) way to protect the farms in periurban and sub-urban areas from sand storms is to plant trees around plots. Generally, the network includes forests along main rivers and roads, as well as around towns and villages.

As early as 1958, the government put forward the idea that Beijing should adopt a “scattered” pattern. Ten small satellite towns were planned at the fringe of the mother town, the main body of Beijing city. Between mother and satellite towns, green spaces were developed in order to prevent the mother city from further growing and expanding. An accompanying but fairly valuable benefit was environmental improvement. The planning theory of the pre-open phase was very remarkable and innovative. However, despite the intentions expressed, there were no instructions or incentives for the implementation. The achievement was thus quite limited in reality.

Forests in Beijing’s mountainous areas were managed in the form of state-owned forest farms. For all costs, the project was fully dependent on central fiscal support, and plant choices and methods were also controlled by the central government. The policy instruments were nothing but political orders and documentation. Thus forestation was often viewed as a political task of local authorities and villagers. The forestation project failed to stimulate new initiatives, and didn’t provide local people with economic or other benefits.

OPENING-UP PERIOD (1978-2004)
The economic reform and the opening-up policy of the late 1970s were milestones in China’s development in almost all fields, including urban forestry development in Beijing, which was transformed from government-oriented to market-oriented. Peasants began to plant more economically beneficial fruit trees, such as apple and chestnut, in the mountainous or even plain areas. The market promoted the specialisation of several high-quality fruit production bases; and the output of dry and fresh fruit production in the city experienced a fast growth from 1988 (see figure 1) when the market-oriented forestry development policy was well implemented. The model proved to be successful both in forestry construction and in improvement of living conditions. The state-owned forestry farms also developed forest parks or country parks, which are very popular for weekend recreation and the vacation tourism market in Beijing.

The government continued to play a key role in forestry and ecological environment construction. In addition to continued forest network construction, projects with more explicit functions came to the fore, including the “Remediation Project of Five Blown Sand Hazardous Regions”, “Soil and Water Conservation Forest” in mountainous areas and “Water Conservation Forest” upstream of reservoirs.

What is remarkable here is that economic incentive was integrated with policy implementation. In 1994 the government decided to open the green belt to private commercial development in response to rapid agro-land draining. In 1958 when the first green belt was planned, the area was 314 km². But by 1983 it had decreased to 260 km² and further to 244 km² by 1993 (Yixing and Yanchun, 2000).

With an historically tightly compressed core, the urban area of Beijing kept sprawling outward contiguously beyond the built-up areas. The location of the first green belt is between the third and fourth ring road, which by 1994 was undergoing rapid transition as the frontier of new development and suffering from unstable management. This was also a time when the real estate market was hectic and chaotic.

However, the green belt policy effort proved to be not fully successful. The area of the first green belt kept decreasing and by 1999 had become as small as 241.37 km². Urban land use occupied almost half of the total area.

The reasons for green belt loss are numerous. First of all, the implementation procedure was problematic. The aim to rebuild villages on the remaining land within the planned green belt was actually unrealistic. As the housing and other industrial construction increased, the forest area thus inevitably decreased. The decision by the municipal government to transfer part of the land to real estate developers and manufacturers made things even worse.

Secondly, local officials tend to pursue short-term economic profit without considering the long-run effect. In China, officials are not elected locally, but are appointed by higher level government. So in order to obtain promotions, local officials need to show political performance and local economic growth during their term, which usually runs four years, instead of seeking sustainable development. Land transfer to commercial housing offers a shortcut to visible economic improvements. Thirdly, huge profits from development in this desirable area further stimulate the rent-seeking activities of both enterprises and governmental officials, resulting in problems of corruption and a drain of state-owned assets. The result is thus that green land is converted for other – more profitable - uses.

ONGOING SITUATION (2004-)
Nevertheless, urban forestry development in Beijing has achieved remarkable progress after decades of effort. According to a recent survey organised by Beijing Forestry Bureau, the total value of the forestry assets in Beijing
is 231.3 billion RMB (28 billion US$), if one takes into account the direct value (wood), ecological value, water and soil conservation value, environmental value, etc. By 2002, the overall urban forestry coverage ratio was 45.5%, while in mountainous areas the corresponding figure was 62% and in plain areas 25%. 39% of the urban area was covered by green space, or roughly 42 m² per capita. The problem of sand and dust storms has been noticeably ameliorated and more and more green spaces are seen in various residential areas.

More importantly, in 2004 the authorities put forward a detailed scheme for the second green belt. There are many similarities between the first and the second green belts. They are analogous in form, function and background, and in morphological terms they are both ring belts with several wedges that limit construction in forestry areas and thus aim to prevent the city from sprawling uncontrollably (see map). The new green belt will be located between the fifth and sixth ring roads, again the most dynamic region of Beijing. While the first green belt segregates constellations from the main mass, the second belt will attempt to restrain the expansion of satellite cities and central towns in inner periurban areas.

The differences between the two green belts reflect the differences between the past and the future. Experiences and lessons can serve as excellent references in constructing the second green belt, and as a result, many amendments in the implementation measures have been made. The first amendment is that raising funds for local revenue will not solely depend on the transfer of land for commercial housing development, since this proved to be a dangerous approach. A new and more sustainable means has thus been devised to ensure that the local farmers can get real benefit from their protection of the green land through various job opportunities.

Another critical difference between the implementation plans of the two green belts is the maintenance of administrative titles for involved towns and villages. In the first green belt the names of former villages were converted directly to urban districts, whereas in the second green belt administrative classifications will remain constant. As a result, farmers can choose for themselves whether to transfer their land to urban use and acquire the agreed upon compensation, or to manage new green industries individually or collectively.

Farmers are exposed to many more opportunities for creating profitable businesses in the new economic situation, compared with when the first green belt was established. On the one hand, the successful experience of the mountainous areas can be cited. The land use limitations established at that time can be viewed as a turning point in promoting agricultural industrialisation and urban agricultural development, e.g. economic forests, fruit trees and agricultural sightseeing. The latter is noticeable in the emergence of the “experience economy” pertinent to mega-cities and market economics. On the other hand, with the improvement of citizen’s living standards and the emergence of a new consumers’ market, it is wise to develop outdoor recreational and tourism facilities including sport parks, country parks and amusement parks for skiing, excursions, etc..

Real estate development remains a feasible option as previously stated. A case in point is Wenyu River, a low-density villa community in Northeast Beijing between the third and fifth ring roads. It resembles green belts in Australia, which formed spontaneously and consisted of well-planted, high-income communities. The upper classes pay for environmental amenities, resulting in a green belt that is built up steadily without governmental funding.

In conclusion, only by associating development with sustainable economical or amenity benefits can we effectively facilitate the implementation of urban planning. The story of two green belts in Beijing provides us with a good example of the importance of economic considerations in city planning and urban forestry development. The second green belt in Beijing can have a promising future if the current policy is well implemented and the local economy is developed through optimal utilisation of the forest. Otherwise, the same threats that gradually undermined the first green belt, i.e. real estate development and other land uses, will also threaten the viability of the second one. In fact, successful development of the green belt or forests depends on maintaining their diversified functions.

**REFERENCES**


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