HOW URBAN AGRICULTURE IS RESHAPING PERI-URBAN BEIJING?

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Abstract

In Beijing, urban agriculture (UA) experienced a corkscrew development with its role changing in decades: It has evolved from the purely production mode to multi-functional urban agriculture, fulfilling both social and ecological demands. At present, the practice of UA as well as the number of rural to urban migrants is growing rapidly in peri-urban Beijing. Through Multi-stakeholder Process for Action planning and Policy Design (MPAP) methodology and four in-depth case studies, we can see that UA activities are playing very important roles in reshaping peri-urban Beijing. Socially, UA induces the emergence of new migrant communities. While migrants rebuild their social network, they are changed by the city as well, which has also changed the local community. The new comers are on their way to creating a new balance. Physically, urban and peri-urban farmland limits urban sprawl, supplies agricultural products for everyday life, and reserves urban green spaces for recreation and leisure for citizens in Beijing, which has changed the landscape and land use and land cover (LUCC) pattern greatly. Under Beijing’s land policy, the concentric configuration spatial allocation through multi-functional UA is formed, which at the same time due to migrants’ UA activities are creating harmful and low efficient land use pattern which should be of concern.

Keywords: Urban Agriculture; Migrant Communities; Peri-urban Beijing; Social Impact; Physical Restructuring.

Land use in 1980s and 2004
INTRODUCTION

As in most of other developing countries (Maxwell, 1995; FAO, 2001; de Zeeuw, 2004), urban agriculture (UA) is an ancient practice. In China, that has recently become the focus of attention for a wide range of professionals associated with urban management, urban planning and agriculture in this country (ETC-RUAF, 2001). Since the economic reforms, which took place in China after 1980s, the unusual urban-rural income gap lead to an amazingly rapid increased migration from rural to urban areas with a dominant pattern of family migration and circular migration in response to the relaxation of long-standing restricting residential policy (Zhao, 1998). It has been estimated that over the past 30 years, more than 300 million people have successfully transferred their residence and have a job in one of the rapidly growing cities of China, and it is expected that this trend will continue in the coming 15-20 years (Cai et al., 2007). Moreover, quite a number of migrants to cities have been found staying in the peri-urban areas that have turned to UA for survival.

Gradually, UA, as an active outcome in the process of urbanization, and agricultural development and interaction between them, has begun to play important roles in reshaping peri-urban areas economically, socially as well as physically (Nugent, 2002). On one hand, it provides stable high income especially to migrants in peri-urban areas after local farmers turn to non-agricultural jobs in cities which they think are more profitable. In doing so new migrant farmer communities continue to emerge, leading to social network re-integration issues (Ramirez, 1997). On the other hand, it changes land use and land cover (LUCC) pattern when new and expanding businesses and residential areas push the urban boundaries far into the areas surrounding the city, especially by reserving green spaces for recreation, in large tracks of farmland.

Social and economic development in peri-urban Beijing also leads to the changing of farming system. At present, peri-urban agriculture in Beijing is mainly undertaken by migrant farmers bringing great social and physical changes to the peri-urban area as well. Taking UA development in peri-urban Beijing as an example, especially from the perspective of migrant farmers, this paper aims at giving a brief picture of how urban it impacts and reshapes peri-urban Beijing socially and physically.

BACKGROUNDS AND METHODOLOGY

As the capital and one of the biggest cities in China, Beijing is one of the most favorite destinations for migrants, the municipality of which is divid-
ed into 16 districts and 2 counties, covering an area of 16,808 sq. km. Millions of people have migrated to Beijing in search of jobs and economic security. A one percent sampling population survey in 2005 found that there were nearly 3.6 million migrants in Beijing, of which 80,000 were directly involved in agricultural activities, and up to 524,000 were engaged in related activities. In Beijing, UA experienced a corkscrew development and its role evolved in decades (Cai, 2006a). Key actors and functions of UA in the four steps by the timeframe are different accordingly (See Tab. 1).

Four villages in Chaoyang and Shunyi district as part of the RUAF (resource centers on urban agriculture and food security) project were selected for case studies especially for the social impact analysis. Chaoyang district is near to built-up area and under intensive peri-urban process. Its land use type varied greatly. Shunyi district is located in middle suburb, about 40 km away from the center of Beijing. It is the traditional bread basket, where the land use is relatively stable. There are a certain number of migrants in each case study villages (Tab. 2). The number of migrant farmers in Chaoyang is bigger than that in Shunyi. For example, Huangguang village has more than two times migrants to local people.

Questionnaire and deep sample survey, and Multi-stakeholder Process for Action planning and Policy Design (MPAP) method were used in the research. MPAP framework is a methodology including Participatory Rapid Assessment (PRA), action plan and M&E. PRA is to know the physical situation of study area, in which GIS method was used to compare UA’s impact ton the land use pattern. Literature review and field study also helped in illustrating the land use change. The PRA diagnoses directly and indirectly stakeholders, then by using questionnaire and interview stakeholders’ issues and concerns are noted. Based on that the most important issues for all were diagnosed and the action plan (policy advice) was put forward through multi-stakeholder forums. In this whole process, built-in monitoring and assessment was used. The framework of MPAP in this research is shown in Fig.1. Besides these, GIS software and LUCC analysis were also used for physical impact analysis.
UA ACTIVITÉS’ IMPACT

Social changes
UA activity’s impact on the social structure of peri-urban Beijing could be seen in two areas: The emerging communities of migrant farmers and the consequent problem of their changing relationship with local communities. As the import participator of UA activities, local farmers are disadvantaged group compared to urban citizens due to national historical macro policy. Compared to the migrant farmers the local farmers are vested interest group for they own the land rights. They are hostile to migrant farmers who may derive profits from them. But, the close-to-city advantages bring them more chances to get a higher-paid job. This relieves the contradiction between local and migrant farmers to some extent (Zhang et al., 2007b). As the migrant farmers come to city, new communities have been built up, and the relationships among different communities are changing or evolving.

The status of emerging migrant farmers’ community
After coming to the city, migrant farmers face the challenge of building a new community and a new social network. They encounter several difficulties such as building dwellings and finding their position in the production chain. They usually build their humble dwellings beside the rented farmland or greenhouses. Their homes are small, usually measuring between 20-40 square meters, and are barely furnished. Kitchens and toilets are very simple and usually located outside. The homes have no heating, and many residents use firewood and coal either out of tradition or to keep down costs. With regard to agricultural waste, rotten vegetables are used by the majority as most migrant farmers plant vegetables in the case study areas. Over 70% of them are discarded around or composted. A series of environment problems were brought about, such as infestation of mosquitoes and contagion, which worsen the air quality and living environment.
One of the reasons for these poor living conditions is that many migrant farmers initially do not see this "city lifestyle" as a long-term situation. But as their incomes improve, they start investing in their homes for example, by adding LPG and electricity.

Access to financing is also difficult for migrant farmers. Most farmers rely on informal private loans, which have been affected by the reform of the rural banking system in China, further weakening the uncertain position of migrant farmers. Both when buying inputs for their farms and when selling their produce, migrant farmers are almost always at a disadvantage, because of their lack of money and information. Initially, the city had a restrictive registration policy for migrants, but this situation has improved considerably. Other major problems migrant farmers (and other migrants) now face include the high cost of education and the relatively low quality of schools.

The process: Social conflict or social inclusion?
After arriving in the city, new migrant farmers need to build a network to protect themselves and strive to earn profits in an unknown environment. This includes uniting with other migrant farmers from different provinces, compromising to satisfy local stakeholders and strengthen their original networks. Under current government policy, it is possible for innovative migrant farmers, in cooperation with local existing farmers' cooperatives, to improve the relatively weak ties among migrant farmers into strong cooperatives to enhance the process of integration and as such facilitate the migration of more farmers to Beijing (Zhang et al., 2007a).

Though they work and live in the urban centers, migrant farmers do not have formal connections to the city. They often live at a distance from the local communities and keep on their original lifestyles. Ties with their home towns are quite strong and most of the migrant farmers go back home one to two times each year, have regular contact with their relatives, and send home remittances. Because of the high education costs in the city, some children attend school at home and are taken care of by their grandparents, so often families are dispersed.

The incomes of most migrant farmers are higher after migration to the city, increasing on average from 350 to 500 euros per person per year, but still lower than the average of local farmers 800 euro. The cost of living in the city is higher than in the rural areas. The average "daily-life" expenditure per year is about 400 euros, which is substantially lower than the average expenditures on production of about 1,500 euros and savings/remittances 1,000 euros.

Figure 3. Migrant children may grow up confused
Usually migrant farmers send a big part of their earnings back home and thus they save very little for their own expenses in the city. The resulting lack of funds makes it difficult for them to buy inputs in the growing season. Migrant farmers have three main sources from which to borrow money:

People living in Beijing who come from the same region. This is very common since migrant farmers’ social networks as defined by Chinese rural tradition are based on and strengthened by familial and local ties.

Other migrant farmers. This is possible because the farmers live in close communities (and are often rather isolated from the local community).

Local farmers. This is only an option if the borrower and lender know each other well and trust each other, i.e. after the migrant farmer has been in Beijing for several years and is thus more integrated.

Migrant farmers sell their grains, vegetables and fruits in the following ways: (i) retailing door-to-door, which is the most popular way; (ii) directly at wholesale markets; (iii) to re-sellers or restaurants; (iv) through farmers’ organisations; and (v) through agro-tourism arrangements (field picking). For instance, migrant farmers in Shunyi sell their grains directly to the nearby grain storehouse. In some cases, migrant farmers organise themselves in a cooperative, as in Chaoyang, where the migrant farmers jointly acquired access to farmland and distributed it among themselves. Such cooperatives also organise their production and seek marketing channels. In this process, some “elite” migrant farmers emerged playing the role of leaders to organize the gang in each production sectors. For the return, they can get some benefit, like agency fee for seeking available farmland.

There is a noticeable trend among migrant farmers to develop and organise themselves from the first stage of selling their products directly to the consumers, through the next step of using intermediaries and finally to selling through cooperatives, thereby consistently increasing their profits and saving time. In this way migrant farmers are connected to the city and contribute to the building of communities.

Migrant farmers have strong links to their home towns and only gradually develop connections to other migrants and to local communities in the new city. Some older migrant farmers would like to go back home when they get more aged, but young people in the survey mentioned that they would like to continue farming in the city. Migrant farmers develop a relationship with local communities initially only through the market, as it is difficult to develop new social contacts. Farmers often sell products jointly and generally collaborate to a high degree, though they may quarrel over things such as the order of using well for irrigation. Migrant farmers’ situation makes them keep houses and land both in the city and in their home towns, which is a waste of social resource.

**UA IMPACT: PHYSICAL RESTRUCTURING**

UA not only changes the relationship among migrant farmers and their host and guest communities, but also restructures the physical land cover, and in the process reshapes peri-urban Beijing. Fig. 5. Illustrates this LUCC change from 1980 to 2004.
in Beijing. The three main aspects of physical restructuring impact are as follows.

Firstly, it can clearly be seen that the urban sprawl occupies farmland in the margin region and progressively reduces the available area for UA activities. Fig.8 points out where used to be a lake with hydrophyte on a part of the site of the current Olympic park.

However, the Beijing municipal government adopted sustainable development as its main strategy after 1995. It also unofficially included (multi-functional) urban agriculture in its land use policy, since all land in Beijing was zoned and given a specific function, such as grain production, agro-tourism, ecological protection, food processing, and so on. The 1995 Land Use Policy is based on the conviction that agricultural land in and around the city cannot be effectively protected by the local government, unless its economic return is comparable and competitive with other types of urban land uses. The enhancement of the value of agricultural land in urban and peri-urban Beijing, therefore, became a key objective of the municipal and district governments of Beijing, both by stimulating changes in the agricultural production structure as well as by promoting other functions of peri-urban agriculture like agro-tourism and ecological management (Cai et al., 2006b).

Secondly, through multi-functional urban agriculture development (see Fig.8) and urbanization process, a concentric configuration spatial structure is formed. Various belts (i.e. the inner city belt, the inner suburban belt, the outer suburban belt, the mountainous area, and surrounding rural areas) have different agricultural assets, such as land and water, which has led to the development of different types of agriculture and other activities. The Beijing Urban Agricultural Policy identifies a specific strategy for the development of urban agriculture in each zone (Cai et al, 2006b).
At last, it should also be seen that the land use pattern could be of low efficiency due to migrants’ UA activities. In 1980s, the character of suburban agriculture was mainly big-scale production to serve urban residents’ basic living. However, the UA nowadays is multi-functional, with migrant households’ participation by the way of renting small plots. The advantage of this special way is easy to see—the function of each small plot is enhanced and diversified—but it also causes a disorder and could result into low efficiency land use pattern, due to lack of long-term planning and well-organized migrant farmers communities and activities.

The reason for this low efficiency and harmful land use pattern is linked to how migrants get access to land. Farmland in Beijing is owned by village committees. The only way for a migrant farmer to get access to land is to rent it directly from the local village committee or through one of the local farmers. Since June 2004, the Beijing government has been promoting “the transfer of the contractual right of land” to make it easier for migrants to lease land. In reality, though, migrant farmers’ right to land is not clear, and most often control remains with the land owner, and therefore, they do not like to invest more and improve the efficiency because of unclear tenure (Zhang et al, 2007a).

CONCLUSIONS AND DISCUSSIONS

In Beijing, UA has proved to be a powerful development force and significant influential factor for peri-urban areas. Along with Beijing’s social and economic development, UA experienced a corkscrew development with its role changing in decades: moving from the purely production mode to multi-functional urban agriculture, fulfilling both social and ecological demands.

At present, UA is significantly contributing to peri-urban development, and city markets. In addition, people’s lifestyles benefit a lot from it. Nevertheless, there are still many risks and chal-
Challenges that need to be appropriately recognised and minimized. For instance, the production is often associated with health risks through the use of polluted urban water (Cofie, 2003). And the challenge for UA also derives from it being in most cases in a status of semi-official recognition with limited active support from city government, or even in conflict with city planners or health authorities with respect to land tenure and water use (Mireria, 2007). The coming in of migrant farmers leads a sensitive relationship with local community, some other issues such as how to deal with and guide this relationship are worth studying to help the process of integration. All these should be studied further, especially from the view of urban authorities, policy makers and planners, to adapt their policies to the growing role of multifunctional UA to ensure its role in reshaping peri-urban Beijing.

ACKNOWLEDGEMENTS

This research was supported by RUAF-China foundation, and the authors would like to thank Prof. Liu Shenghe, Drs. Yuan Hong and An Jiwen, at the Institute of Geographical Sciences and Natural Resources Research for sharing ideas and former data. Our special thanks to the local and migrant farmers in villages we surveyed and to Mr. Zhang Lincheng at Shunyi Initiative of Agriculture, Countryside and Farmers Research in our MPAP practice in peri-urban Beijing.

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