



# Peri-urban agricultural development in Beijing: Varied forms, innovative practices and policy implications



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## ABSTRACT

Agriculture in peri-urban areas is prone to dynamic changes due to urban influences. Previous studies have explored the impact of urban growth on peri-urban agriculture (PUA), but the active responses of the agricultural sector are rarely examined. This paper investigates recent agricultural development practices in peri-urban Beijing and explores approaches to agricultural transformation in the rapid process of urbanisation. The investigation finds that high-tech precision agriculture, down-stream processing and agro-tourism have emerged as major forms of PUA in Beijing. It also uncovers that the PUA developments are not only economically appealing, but also socially inclusive and environmental friendly. The findings contribute to a better understanding of PUA progress in China. The paper suggests policy implications in facilitating integrated development between urban and rural sectors, which would help improve economic development, spatial planning and local governance in peri-urban areas.

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## 1. Introduction

As an interface between city and countryside, peri-urban areas significantly affect urban transformation and expansion. In many countries, rapid urban growth has overshadowed progress in agricultural development (Lin & De Meulder, 2012). Agricultural sectors are usually disadvantaged when competing for labour and land, which inevitably leads to stagnation or even decline (Hamilton et al., 2014). The gap between urban and rural development has widened due to discrepancies in developmental goals, cultural identity and environmental circumstances (Hao, 2012). These discrepancies, if not properly addressed, could form an obstacle to sustainable growth in urban and peri-urban areas (Bezemer and Headey, 2008; Higgins, 1956). Agricultural sectors are discouraged from expanding or upgrading, while urban explosion has jeopardised food production and environmental

conservation. Under these circumstances, peri-urban agriculture (PUA)<sup>1</sup> has emerged as an innovative model of agricultural development, in which rural communities respond to urban growth and practice new agricultural activities, exhibiting the potential to fuse rural and urban economies (Broadway, 2009; Mougeot, 2006; Shillington, 2008).

PUA make multifaceted responses that coincide with many crucial needs related to the agricultural sector and rural land, including food production, rural restructuring, poverty reduction and environmental protection (Ellis & Sumberg, 1998; Saifi & Drake, 2008). Agriculture in and around urban areas is re-functionalised (Adeyemi, 2000) to provide spaces for improving agricultural practices and enhancing current urban-rural complementarity (Yang, Cai, & Sliuzas, 2010). However, we need to properly amend current rural and agricultural policies to respond to radical changes in PUA and incorporate the multiple goals into a rural development scheme (Marsden & Sonnino, 2008).

PUA differ considerably from place to place, because urban-rural relationships and farming systems in and around cities vary across regions (Dubbeling, 2014; Ellis & Sumberg, 1998; Hamilton et al., 2014). African PUA development is mainly focused on food and fuel production, which relates to alleviating hunger and poverty (Ellis & Sumberg, 1998; Lee-Smith, 2010). European PUA emphasizes the ecological values of green spaces and their associated

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<sup>1</sup> Abbreviations: PUA, peri-urban agriculture; FHSA, farmer-household-based sightseeing agriculture; ERAP, enterprise-based recreational agriculture parks; XGR, Xiedao Green Resort; MBFG, Mutual Benefit Food Group; XTS, Xiaotangshan; TIUAHTP, Tongzhou International Urban Agriculture High-Tech Park; GFVC, Green Fruit and Vegetable Cooperative.

social values such as recreation and therapeutic treatment (City Farmer, 2007; Holland, 2004; Milligan et al., 2004). Although economy and production have been much liberalized after economic reform, agriculture is strongly supported and controlled by the government to a large extent especially in Beijing and most inland cities where municipal governments are highly dominated even in economic development (Yang, Cai, & Ottens, Sliuzas, 2013). Thus, PUA accompanies penetration of urban economies into rural areas and the growth of farmer entrepreneurs. In return, the bottom-up development of PUA generates valuable policy implications for urban and rural development within rapid urban transition.

This paper examines the practice and innovations of PUA development in Beijing, China and contributes to the literature on agricultural development in rapidly transforming peri-urban areas. Owing to its capital status and high level of urbanisation, Beijing is a pilot city engaging in PUA development in China. According to the 2010 Census, Beijing municipality houses 21 million inhabitants, about 7 million of which are migrants (Beijing Statistical Bureau, 2011). The 16,808 km<sup>2</sup> territory consists of 11 urban districts and 1 county (Fig. 1). Xicheng and Dongcheng districts form the city proper, and other districts make up the rest of it and its rural peripheries. From 1978 to 2010, the proportion of urban population increased from 55% to 85% and urban development greatly outpaced and outweighed rural development.

Agriculture in peri-urban Beijing used to be marginalised (Tan, 2014), particularly from 1992 to 2004. The agricultural sector has declined steeply since 1992, losing 145,000 jobs and 65,000 ha of land (Beijing Statistical Bureau, 2013). Since the mid-1990s, PUA has emerged and gained popularity among farmers and urban residents.

By comparison, conventional agriculture is less competitive than urban sectors in terms of economic returns and product diversification. This is perhaps a weakness for the economic justification of agriculture, and much agricultural land is replaced by urban uses (De Zeeuw et al., 2011, van Veenhuizen, 2006). Therefore, this paper examines three related questions: (1) What kind of agricultural activities recently emerged due to urban-rural interactions? (2) Are these activities economically competitive and sustainable? (3) To what extent do these activities contribute to strengthening urban and rural integration? Also, the paper examines whether Chinese practices differ from African hunger and poverty alleviation programmes or European services and recreation-oriented exercises.

In order to fulfil these, an investigation was conducted through surveys and in-depth interviews with farmers, migrants and entrepreneurs during 2004–2013. More specifically, in August 2004, May 2005, September 2008, and September 2012, a series of surveys were made with firms, agro-parks, farmers, farmer co-operatives, and governments. In addition, we frequently contacted with them by emails and telephones to keep tracking their progress during 2004–2013. Discussions with government officials from Beijing Municipal Agricultural Bureau, Beijing Agricultural Committee, and Shunyi and Huairou District Agricultural Bureaus helped to gain understanding of the policy-making process at different levels of agricultural authorities. The questions are summarised in Appendix 1, which documents the time, stakeholders and key questions. Relevant policies, statistical data and enterprise documents were reviewed to supplement the primary data. These surveys and interviews help (1) to understand local PUA innovation; (2) to evaluate the performance of PUA activities in terms of economic, social and environmental outcomes, and; (3) to determine whether these activities contribute to rural and urban development. To illustrate the variety in PUA practices, four representative cases from different genres were examined with respect to macro

policy changes in this article.

## 2. Peri-urban agriculture and its multifunctionality

PUA involves territorial, industrial and institutional dimensions. It implies an inherent connection between urban spaces and agriculture, two entities that seem incompatible. However, agriculture in and around urban areas is influenced by urban development. Geographical proximity allows peri-urban areas to develop new forms of agriculture to secure an alternative local food supply (Jarosz, 2008) and preserve the rural landscape (Clark, Jones, Potter, & Lobley, 1997, Daugstad, 2008).

Multifunctionality features PUA and makes it different from conventional agriculture, enabling vigorous development of PUA in a rather urbanised society (De Zeeuw, Van Veenhuizen, & Dubbeling, 2011; Zasada, 2011). “Multifunctional agriculture” refers to agriculture-related activities that create commodity and non-commodity outputs to satisfy market demands and public requirements (Bjørkhaug & Richards, 2008; Buller & Morris, 2004). Besides food production, PUA also enriches the social and ecological values of agriculture, including the rural landscapes (Ortiz-Miranda, Pérez, & Faus, 2010) and cultural identity of the rural idyll (Hoggart & Paniagua, 2001). Generally, PUA addresses a wider spectrum of production through multifunctional development (Wilson, 2007).

For PUA, the multifunctionality pinpoints the association between peri-urban and urban development. A high level of multifunctionality occurs at an advanced level of urban development (Wilson, 2007). Changes in the values of agricultural production, consumption and environmental protection are largely driven by changes in the urbanised world (Yang, Cai, Dunford, & Webster, 2014). As Holmes (2006) argues, multifunctional agriculture arises for various reasons, including agricultural overcapacity, the emergence of alternative amenity-orientated uses and changing societal values, such as the valuation of biodiversity, ecological sustainability and social justice.

The multifunctional trend in agriculture has plenty of implications for urban and rural development. In contemporary society, agricultural depression has been observed in many regions (Hoggart & Paniagua, 2001). Although it faces great pressure from urbanisation, agriculture is still essential to maintaining and promoting rural development with high added value by providing social and environmental goods. The OECD (1998) claims that ‘beyond its primary function of supplying food and fibre, agricultural activity can also shape the landscape, provide environmental benefits such as land conservation, the sustainable management of renewable natural resources and the preservation of bio-diversity, and contribute to the socio-economic viability of many rural areas’. The multifunctional trend transforms conventional farming and enhances agriculture’s vitality and contributes its social and environmental values to society. Thus, it connects agriculture and the development of modern cities.

Researchers often focus on food production and its related rural economy (Cole, Lee-Smith, & Nasinyama, 2008, Lee-Smith, 2010), downplaying the social and environmental aspects and neglecting the significance of rural-urban interactions in determining PUA opportunity and performance (Ellis & Sumberg, 1998). Although the roles of multifunctional agriculture are often a topic for European rural and agricultural policy, who can benefit from it and how are seldom discussed (McCarthy, 2005). Also, with the multifunctional transition, farmers face increasing uncertainties and complexities of economic diversification (Hoggart & Paniagua, 2001). It remains a big step forward to innovate farming in rural development and translate the multifunctional discourses into concrete, implementable policies (Clark, 2006; Marsden & Sonnino, 2008).

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