Urban Forestry & Urban Greening 34 (2018) 154–165

Contents lists available at ScienceDirect

Urban Forestry & Urban Greening

journal homepage: www.elsevier.com/locate/ufug

Constructing community gardens? Residents' attitude and behaviour towards edible landscapes in emerging urban communities of China

Baojie He, Jin Zhu*

Faculty of Built Environment, University of New South Wales, Kensington, NSW, 2052, Australia

ARTICLE INFO

Keywords:
Community gardens
Edible landscapes
Emerging urban communities
Perceived attitudes and behaviours
Developing countries

ABSTRACT

Community gardens are very popular in developed countries, providing multiple benefits to inhabitants. In developing China, residents in many emerging urban communities of China have been appropriating and reclaiming public open spaces intentionally as a leisure opportunity and transforming their entertainment functions into vegetable plots, which has caused a series of conflicts and disputes. However, this issue of informal community gardening has rarely been discussed formally at community level. Therefore, this study aims to learn and better understand what factors motivate residents to reclaim existing public open spaces for gardening and cultivating plants. The approach was to select and study informal community gardens in three urbanizing communities in Hangzhou, China. These emerging communities consist, to a significant extent, of people with farming experience, who have relocated here from previously rural areas during the urban expansion from the year 2000 to the current day. The informal community gardening takes place in the context of lack of community management, neglected public infrastructure and a disregard for resident's living needs such as their personal sentiment, social activity, food quality and saving expenses. While most people are willing to participate in community gardening and those who do not want to contribute are not substantially against the activity. In the conclusions, suggestions are made about how to fulfil resident's requirements and are presented at both community and city levels so that they may inform to the growth of emerging communities in other cities and countries undergoing rapid urbanization.

1. Introduction

Green infrastructure has been highlighted as a resilient and robust approach to coping with various challenges during rapid urbanization (Gill et al., 2007; Benedict and McMahon, 2012), e.g. urban heat island mitigation (Zhao et al., 2017), stormwater management (Berland and Hopton, 2014), natural biodiversity maintenance (Lovell and Taylor, 2013). Of specific interest, edible landscapes, mainly in the form of community gardens, have become popular in many developed countries (Guitart et al., 2012), such as the US (Lovell, 2010; Corrigan, 2011; McLain et al., 2012; Poulsen et al., 2014; Gittleman et al., 2017), Canada (Baker, 2004; Wang et al., 2014; Shan and Walter, 2015), Australia (Middle et al., 2014; Guitart et al., 2015; Laidlaw et al., 2018) and the UK (Bohn and Viljoen, 2011; Speak et al., 2015; Genter et al., 2015; Scott et al., 2018), since edible landscapes generate new functions in providing food for local communities, compared with their singular use for ornamental designs (Guitart et al., 2012; Çelik, 2017). For example, community gardening emerges as a feasible strategy for tackling the issue of food insecurity in two ways, namely, supplying urban dwellers with nutritious food and also offering cost-effective and high-quality food new rural-to-urban migrants (Corrigan, 2011; Evers and Hodgson, 2011). Meanwhile and especially in many European countries, community gardening is a practice, benefiting social and cultural cohesion, maintaining physical health, enhancing education, improving environmental equity and maintaining biodiversity (Bell and Keshavarz, 2016; Corrigan, 2011; Guitart et al., 2012; Hartwig and Mason, 2016; Krasny and Tidball, 2017).

The community garden has been defined as a type of open space that is planted collectively with either vegetables or flowers by local members (Holland, 2004; Kingsley et al., 2009; Guitart et al., 2012). It emphasizes its nature as communal conduct on public lands, instead of individual behaviour in private backyard gardens. A typical community garden case, the Duncan Street Miracle Garden, in Baltimore, Maryland of in the US, emerged from people collectively cleaning up an illegal dumping site and then turning it into a planted garden with vegetables and flowers (Corrigan, 2011).

People's interests in reclaiming public spaces for their personal use, reflects the social prediction of space (Lefebvre, 1991). This is a decline

* Corresponding author at: Room 6007, Red Centre West Wing, Faculty of Built Environment, University of New South Wales, Kensington, NSW, 2052, Australia.
E-mail address: jin.zhu@unsw.edu.au (J. Zhu).

https://doi.org/10.1016/j.ufug.2018.06.015
Received 9 March 2018; Received in revised form 2 June 2018; Accepted 19 June 2018
Available online 20 June 2018
1618-8667/

of the public realm, where traditional functions of public spaces have been usurped by more private realms (Carmona et al., 2010). Similarly, Ellin (1999: 167) observes '… *there has been a corresponding decline in meaningful space and a desire to control one's space, or to privatize*.' Although community gardens in the West are most often public spaces, most activities in the gardens require collaboration and negotiation (Eizenberg, 2016) since every member acts as a participating and contributing actor in the process of space production. The Chinese community gardens discussed in this paper are rather informal and full of conflict, as the gardens have been reclaimed by residents from existing public open spaces which is not permitted by local states. It is nevertheless a manifestation of how individuals claim their 'rights to the city' (Purcell, 2014) and produce their favourable spaces (Lefebvre, 1991).

Unlike the Chinese case where community gardens manifest a bottom-up illegal spatial transformation, community gardens in the West are often legitimized by local governments as open spaces accessible for all individuals. For example, in Australia, public open space is operated and managed by local councils and utilized for multiple recreational purposes, while a community garden is a parallel but separate form of open space self-managed by the community for food production (City of Sydney, 2016). In the UK and in other European countries, community gardens differ from allotment gardens, since allotments are organized by local authorities and leased to individuals for food production (Jodie, 2012), while in contrast, community gardens mostly originate on wastelands or abandoned or vacant sites, which are, nevertheless, sometimes managed by local authorities. In the US, local actions reclaiming wasteland around the city of Detroit for community gardening were also thought as illegal, before these agricultural zones were legitimized by the government (Foltz et al., 2012). These remarks indicate that both "bottom-up" approaches for establishing and maintaining community gardens and formally approved community gardens following the "top-down" approach exist in parallel (Fox-Kämper et al., 2018). For instance, many community gardens have been initiated and managed under national calls for cheaper or/and healthier food, especially in some low-income areas with high perinatal mortality rates in England, Scotland, Wales and North America. Such gardens are operated by professionals, with no management by local community representatives, to respond to concerns of local health authorities, central government and/or institutional bodies (Corrigan, 2011; McGlone et al., 1999).

In developing countries, such as Mexico, Brazil, Philippines and some African countries, urban dwellers' strong preference for planting vegetables and flowers have been fulfilled via government-supported community gardens (Wade, 1987; Madaleno, 2000; Guitart et al., 2012). Likewise, in China, during the period of rapid urban expansion, many newly arriving urban dwellers who may have been rural peasants, maintain their behaviour in cultivating food. However, a special feature is that many residents have transformed public open spaces that are intentionally reserved for leisure and entertainment into vegetable plots in urban communities, instead of enhancing brownfield lands. Either illegal behaviour or informal community gardening, then leads to numerous conflicts amongst people having different interests, such as new dwellers and community officers, and people who prefer to exercise in the open space rather than plant food.

In practice, very little is known about the characteristics of these informal community gardens and how they are generated and operated, which is a barrier to balancing residents' interests and alleviating conflict. To fill this gap, a number of research questions should be addressed: 1) What are the characteristics of informal community gardens in the newly developed communities in China? 2) What are the factors that drive residents to appropriate public open spaces for gardening? 3) Are there any barriers deterring their motivation to carry out informal gardening? 4) Will formal community gardens be a solution to this illegal behaviour in these communities? Answering these questions will be of value for urban planners, landscape architects, community officers and local governments and provide a clearer understanding of perceived attitudes and the behaviour of inhabitants in communities emerging in the era of rapid urbanization.

This study, therefore, aims to learn and better understand what factors motivate residents to reclaim existing public open spaces for planting. The investigation of informal community gardening was carried out in three emerging communities in Hangzhou, the capital city of Zhejiang Province, China. The specific objectives of this study are 1) to characterize informal community gardens in terms of spatial distribution, existing configuration and vegetable species; 2) to interview people who are full of enthusiasm about cultivation, determining their corresponding motivation, the existing barriers and the challenges of their behaviour; and 3) to further identify the possible conflicts caused by informal community gardens, especially between gardeners and non-gardening residents and present suggestions which might help to solve these disagreements. This study can provide references for the construction of many emerging communities in China or other developing countries undergoing rapid urbanization.

2. Research methodology

2.1. Study area

Three communities in Hangzhou City were selected in this study to objectively look into the issues of informal community gardens in China, as shown in Fig.1. Hangzhou ((120.2 ° E, 30.3 ° N), the capital city of Zhejiang Province, is also a sub-provincial city, functioning as the political, economic, cultural and financial centre of Zhejiang Province. Hangzhou is one of the most developed cities, forming the core of the Hangzhou metropolitan area, which is the fourth largest in China, following Shanghai, Guangzhou and Beijing metropolitan areas. With its strong economic power and early modernization, Hangzhou is more urbanized compared with the overall urban ratio of China, as indicated in Fig.2 (BHS, 2017; NBSC, 2017). For this reason, the investigation of informal community gardens in Hangzhou will be instructive for most cities with relatively lower urban ratios.

To accommodate China's rapid urbanization, the built-up areas of Chinese large cities have been expanded significantly to provide residences for new citizens and support industrial development (Zhu and Tang, 2018). Former rural villages at the urban fringe or peri-urban areas have been gradually demolished, and meanwhile, new residential communities with complete functions are emerging rapidly. In Hangzhou, for example, many previously existing rural villages including the study area were gradually transformed into urban residential communities after 2000. Now there are many kinds of communities in this area, including relocated housing communities, affordable housing communities, normal commercial housing communities and high-end commercial housing communities. The first three types of residential community with relatively loose community management have witnessed the phenomena of some dwellers illegally taking over public open spaces and transforming them into vegetable gardens. In particular, the study covers three communities with normal commercial housing and some relocated housing, experiencing rather severe issues around the illegal establishment of community gardens. The criteria for selecting these three communities followed three principles: 1) the presence of an informal community gardening phenomenon, which was confirmed by our pre-exploration fieldwork; 2) a diverse composition of residents living in selected communities, including a certain ratio of rural-to-urban migrants; 3) the location of the community in or adjacent to the central city where residents growing vegetables was uncommon, as opposed to the outer suburbs.

The study area indicated in Fig.1, is surrounded by Gucui Road (East), Wensanxi Road (North), Fengtan Road (West) and Taimushan Road (South). Furthermore, a north-south main street has divided the study area into two parts, namely the east area known as the Gudong community and the west area the Gubei community and Gunan