



Green dreams Author(s): Agnes Kneitz

Source: *Global Environment*, Vol. 9, No. 1, The Country and the City (2016), pp. 256-271

Published by: White Horse Press

Stable URL: <https://www.jstor.org/stable/10.2307/26413054>

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Green dreams: Integrating agriculture into China's metropolises

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s metropolises with millions of inhabitants such as Beijing, Guangzhou and Chongqing, among others, attract more and more people from all over China, it seems that urban and rural could hardly be further apart. Both spatially and economically, this echoes the distinction described so beautifully by Raymond Williams in his work on the country and the city.² Of course, this

Global Environment 9 (2016): 256–271
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doi: 10.3197/ge.2016.090112

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phenomenon of monstrous cities that have alienated their inhabitants not only from nature, but also themselves, is hardly a uniquely Chinese problem. It is global, from Beijing to Detroit, Johannesburg to Delhi. Despite a visible and measurable distinction between the Global South and North, people everywhere have recognised the city's potential for economy and resources, environment and food security. Obviously the potpourri of impacts of these massive conurbations are social, economic, political and environmental, ranging from issues of energy efficiency, carbon footprints, ozone and particulate matter, soil decontamination, noise and light pollution, to nutrition and quality of food and thus health inequalities and food injustice, or environmental injustice more generally.

At the same time, the challenges faced by Chinese cities are particularly acute, given the extremely fast rate of growth and accompanying problems such as pollution, traffic and lack of space. And while the cities grow, it is at the expense of rural areas, which suffer from depopulation and lack of prospects for the future, causing the flow of migrants to the cities to continue. With the enormous growth of the few conurbations in which more than half of the nation's population is crowded together, and which are thus covering ever-larger areas with concrete, questions of how to green cities and how to integrate some forms of farming to supply residents with food become more pressing.

In response to these problems, there is an increasing desire to reconnect the city with the country, both in order to renew bonds with the land and find harmony with nature, as well as to improve quality of life and solve the problems of urbanisation. Consequently, ecological and sustainable cities are already beginning to bloom around the globe. China, too has embraced this trend.³ Ever since the Chinese government put environmental protection and urban

¹ All images by Agnes Kneitz, unless otherwise stated.

² Raymond Williams, *The Country and the City* (New York: Oxford University Press, 1973), p. 47.

³ Liu Ts'ui-jung, 'Case studies of eco-cities in coastal region of southeast China', paper presented at the Third Conference of East Asian Environmental History, Kagawa University, Takamatsu, Japan, 22–25 Oct. 2015.

Figure 1. Zhang Jia Kou, a village in Hebei Province, three hours north of Beijing.



reform on the agenda in its Sixth Five-Year Plan (1981–1985), new forms of urban living have begun to emerge. However, they also reveal the discrepancy between political decision-making and practical implementation. Although seemingly straightforward, and often already successful for smaller enterprises like Yi-Lan, Taiwan, the rapprochement, if not to say integration, of urban and rural, is particularly challenging for China's mega-cities.

In order to address the economy of scale, peri-urban agriculture has been promoted for larger habitats, like Beijing, since the 1990s. This is not only a part of including the national capital in the overall scheme of promoting 'eco-cities' nationwide, but also a part of building up China's ecological civilisation. In the face of rural depopulation and hardly controllable urbanisation, the scale of land loss and related consequences poses enormous problems.

Figure 2. The Galaxy Soho mall in Beijing.



Figure 3. Advertisement from the Chinese Ministry of Environmental Protection promoting 'ecological civilisation'.



Thus it seems only logical to integrate peasantry and agriculture as a support column for ecological civilisation. This, in turn, seems the logical consequence of adapting socialist modernisation to global environmental challenges. As early as 1980 criteria like 'a healthy vigorous human environment, a comfortable living environment, a sustainable ecological environment, and solid and effective building activities' became part of assessing city development.⁴ By continuously assessing progress towards these criteria, the government aims to ensure healthy and rapid development as part of this process of (planned) national urbanisation. Ideally this development should not only be limited to the mere construction of cities, but also en-

⁴ Zhao Jingzhu, *Towards Sustainable Cities in China: Analysis and Assessment of Some Chinese Cities in 2008* (New York: Springer, 2011), p. 18.

compass a material, political and spiritual enhancement of life, and thus contribute even further to economic growth and improving citizens' ideological character.

Such ideas of holistic urban development are, of course, not new; we can find parallels from Europe and the United States, as societies in the nineteenth and twentieth centuries were faced with similar new challenges resulting from rapid urbanisation. In his study of environmental movements in an industrialising Germany before the First World War, William Rollins⁵ suggests that the promotion of *Heimatschutz* (homeland protection), for example, provided a way to make environmental issues more accessible for uneducated and conservative parts of the population. As he shows, this early movement of environmentalism was much less fed by anti-modernist romantic ideas (such as would arise later during the Nazi period), but instead offered a more practical approach to conservation in the context of a rapidly changing society and economy. Of course, the comparison with China is particularly interesting, as it leans towards the other end of the political spectrum. Yet the integration of moral and ethical aspects into the discourse of nation-building and improving society seems only a natural consequence, as in its materiality it reflects the social challenges brought by urban construction in general, independent of political ideology.

For today's cities in Asia and the Global South, one major challenge is not so much population density but rather the density of the built landscape: the earth becomes sealed beneath a layer of concrete, preventing both the absorption of water and the growth of plants, which has measurable effects on both the micro- and macroclimate. Urban agriculture, whether the traditionally horizontal form or new vertical varieties, can provide the possibility of breaking this seal and ultimately bring humans and nature back in contact within their artificial habitats. This takes multiple, often overlapping forms, including farmers'

⁵ William Rollins, *A Greener Vision of Home: Cultural Politics and Environmental Reform in the German Heimatschutz Movement, 1904–1918* (Ann Arbor: University of Michigan Press, 1997). For the US see Hou Shen, *The City Natural: Garden and Forest Magazine and the Rise of American Environmentalism* (Pittsburgh: University of Pittsburgh Press, 2013).

markets, small-scale subsistence agriculture and peri-urban agriculture. The concept of peri-urban areas originates from French *périurbanisation*, which is used by the French statistics agency (INSEE), for example, to describe spaces – between the city and the countryside – that are shaped by the urbanisation of former rural areas in the urban fringe, both in a qualitative sense (e.g., diffusion of urban lifestyle) and in a quantitative one (e.g., new residential zones).

For Beijing this concept seems particularly interesting and applicable, because its urban sprawl is spreading ever further into former outskirts, villages and rural areas that have actually and factually become integrated into the city, although bureaucratically they have not. Yet the city's administration has constructed an official artificial boundary – the Beijing Green Belt – to prohibit territorial diffusion and delineate a manageable size for the metropolis. Although the attitudes of residents towards this green ring sometimes differ from the official propaganda about it, there seems to be general agreement that it contributes to a more liveable environment. Spatially connected to the large parks of the old and new summer palaces, the green belt now contains new parks and agricultural enterprises.

Besides its main function as green border and breathing space, Beijing's green belt functions as a green shelter for residents in the immediate neighbourhood as well as its larger catchment area. Some Beijingers describe it in an abstract sense as an emerald void: precious but a waste of space. In fact, however, it is a space of production and not really an 'empty space' at all. This leafy gem has long been veined by settlements and fields, and these scattered enterprises have not been eradicated, but rather transformed or enriched by new enterprises that together make the area a space of rich social and cultural experience for urban dwellers. There are orchards where residents can pick fruit, ponds and streams for fishing, fields where crops or gardens may be planted.

Arguably commercial orchards or fishponds are highly artificial forms of interaction with nature, and perhaps in this sense they do not offer the authenticity that would allow us to completely overcome our alienation from nature. But it is better than nothing, and an interesting example of how to transform an already existing but

Figure 4. Reconnecting with nature: children picking fruit in an orchard outside Beijing.



traditional – and thus ‘outdated’ – activities into ones that are perceived as ‘modern’ and catering to the needs of an emerging urban middle class. Yet it is also an example of the cultural construction and arbitrary definition of the ‘peri-urban’: Where does the city actually end and the country begin? Large conurbations like Chongqing and Beijing struggle with the blurring of the boundaries between city and hinterland – not just in terms of geography, but also in the perception of the inhabitants. These cities will most likely continue to grow far beyond the areas of their green and peri-urban areas. And in the end the capital’s green belt might become less an enclosure demarcating the city’s boundaries, and more a girdle running through its centre, like the Parc des Buttes-Chaumont, called the ‘green lung’ of Paris. In a sense, then, it may be not just a green belt but a security belt too.

Regardless of where one draws the boundaries of the city, the

Figure 5. View from Beijing towards the mountains, showing the green belt surrounding the city.



Beijing approach to utilising its green belt has potential both for reducing the environmental stress of its population and as a source of fresh produce for the urban centre. It offers a way to bring croplands back into the city, spatially and mentally. And it is precisely one of its limitations – the small size – that contributes to the social value of this agricultural space: it discourages large-scale enterprises and instead supports subsistence and small-scale local farming; it reduces food miles and supports livelihoods. Peri-urban farming provides occupations for a variety of social groups. It includes those with low incomes who are skilful enough to work the land, but also senior citizens who have relocated in order to care for their grandchild and grow vegetables as a natural activity to fill their free hours.

Fresh produce is sold on the spot, next to tourist sites and their feeder roads, as well as at farmers' markets in the suburbs or the city

Figure 6. Vegetable seller in Suzhou.



centre. These activities may fall rather short of a Western expectation of a farmers' market; stalls and booths often consist of blankets on the ground, and a 'market' might be limited to a single truck. However, the function is the same: selling fresh local produce to the urban consumer. And here the Eastern version impresses in its effectiveness, for these sellers form a dense, easily accessible network and offer affordable prices for locally grown produce. In the context of China's eco-city movement, this way of securing demand and supply has the potential to be economically sustainable, by making it possible for cities to support their urban dwellers almost 'naturally' by keeping them connected with healthy food. Especially in areas where residential compounds for multiple thousands of people appear almost overnight, the supply net is denser, at least where supermarkets do not crowd out the local farmers' booths.

However, there are structural limitations: these areas are already at the fringes of the city, spatially close to the agricultural production

sites and thus close enough for subsistence farmers to self-promote their goods. And these areas are still surrounded by or even veined with fallow land, which is turned into private fields when arable. But before long, such areas will be replaced by the next compound or skyscraper. Resembling the shock wave of a volcanic eruption, the concrete of a conurbation incessantly pushes agricultural production of all sorts further and further away. But its supply networks seem to resemble the invisible branching threads of a fungus: lying dormant and protected underground, they re-emerge and mushroom out whenever conditions are favourable.

From a certain size onwards the idea of securing food supply through peri-urban agriculture is no longer viable due to the increasing transport distances. Therefore it seems necessary to develop new visions of reintegrating food production into people's lives. One stepping stone is the mental connection with and visual acceptance of agricultural sites, in order to rebuild a connection between humans and their living environments.

Here, social attitudes towards gardening may stand in the way. Some modernists regard subsistence farming or even private gardening as a sign of poverty and backwardness. Changing the way that farming is thought about is a great challenge for supporters of peri-urban and urban farming. But maybe a slight change in design would be enough to make the growth of food in a city seem part of the urban design. Many smaller cities and settlements in China are often literally overgrown with gourds (see figure 7). This, however, is an old tradition, and despite its special charm is certainly frowned upon by certain lobbyists. Nonetheless, food growing has already made its way back into cities large and small, including Shanghai, Shenzhen and other high-tech monsters. Much as in many cities of the Global North, community gardening, green spaces and private vegetable and flower patches are enjoying a revival. On the other hand urban gardening is also connected to the vision of a healthy and modern urban lifestyle that includes fresh locally grown vegetables, green smoothies, smart eco-friendly design and environmental awareness. At the forefront of this movement is the slowly-emerging Chinese middle class, which is conversant with Western ideas and

Figure 7. Sign of poverty or hope for the future? Traditional forms of agriculture – like these gourds in an alley in Kaifeng – are looked down upon by many Chinese. But they could also transform the city into an attractive and productive green space.



possesses the necessary monetary resources. Yet it is not clear how they relate to the noble government objective of constructing sustainable cities for an ecological civilisation. Greening cities has become an integral part of research at many prestigious universities, and several enterprises have taken up the challenge of developing and promoting green roofs and facades; even eco-suburbs have been brought up in debate.⁶

As described by Wang, Liu and others, one of the distinctive features of development schemes for eco-cities in Asia in general is their

⁶ Bo Miao and Graeme Lang, 'A tale of two eco-cities: Experimentation under hierarchy in Shanghai and Tianjin', *Urban Policy and Research* 33/2 (2015): 247–263.

acknowledging the necessity of finding individual solutions based on the needs of different cities. Urban greening projects seem especially successful in the south of China, where water is abundant. Here, rather than struggling to encourage plants to grow, cities instead have the problem of how to prevent their buildings from being colonised by unwanted climbing plants. It is thus only a small step to making the green actually edible, and thus adding another level of value to it. As China includes an incredible diversity of biomes, the challenge of greening cities cannot be disconnected from considerations of what types of vegetation would actually be 'natural' in a certain area, and how much 'artificial' natural green can be supported by the local climate. Water supply is also important; arid regions may have to find creative solutions for artificial sources of water, like using condensation from air conditioning units, for example. 'Greening' may be the wrong word, as in some places cities may actually end up 'browning' themselves as they look for alternatives to lush but water-hungry plant varieties in order to reduce their water consumption.

Another question underlying the successful transformation of cities into eco-habitats is how to motivate people to support urban greening projects. The conceptual framework of ecosystem services might be a viable incentive. Although it has been heavily criticised as a reductionist approach and in itself alienating humans from nature and possibly devaluing both, it may, in fact, be a compelling argument for many in a global capitalist economy, and especially in a country like China where half of the population are trained as economists. Ecosystem services provide a monetary and even growth-oriented incentive, making sustainability more socioculturally appealing and thus more sustainable in an ecological sense. This is especially important in China, where eco-city projects have encountered the problem that enthusiasm and public support for eco-city projects often vanishes overnight when the initial media attention and financial support are no longer present.

Another way to make eco-cities appealing is to embrace the cities' own visions of themselves. In this way, the individual character of a city becomes a way to foster personal involvement of the residents, not only as stakeholders but also as active participants. In China this

Figure 8. Urban gardens in Taipei. Residents use the fallow parcels to grow vegetables before the next row of houses is built.



idea has become part of the much celebrated Chinese Dream, which prominently involves the construction of an ecological citizenship. In the context of this goal, the categories of urban and rural seem to function as rhizomes in a Deleuzian sense. Since the 1980s China has explored and approved a variety of urban models which directly respond to the nation's heterogeneity and the individual challenges of the urban landscape. These have been developed under various banners and different foci as the 'civilised city', 'eco-city', 'hygienic city', 'ecological garden city', or 'liveable city'. Such projects are already beginning to show results, particularly in smaller communities, like Jianyang in the province Fujian, as Liu Ts'ui-jung has shown. Improvements include a reduction in mining activities and overall pollution, support of ecological orchards and organic agri-

culture, and construction of biogas plants, as well as administrative, legal and educational reforms. Jianyang would over the years grow into a county-level city within the framework of national ecological model zones. Its development plan was specifically designed to reflect local features such as the area's mountainous and forested environment, demonstrating the necessity of ecological construction. And thus it exemplifies the official goals for eco-city development: eco-industry, eco-scape and eco-culture.⁷

Imagining and designing green futuristic cities as new 'ecological' human habitats is a creative, even playful, approach to city planning. Urban gardening, farming and agriculture can assume widely diverse forms, much like natural biomes. They can be lateral and vertical on facades or rooftops; they may include animal husbandry, aquaculture, agroforestry, beekeeping and horticulture; they can be private, semi-private or commercial. Spatially, as well, the options are not limited to peri-urban areas: as a result of new technologies, gardens are beginning to creep back into the very centres of cities, even the business districts. They have stabilising and balancing effects for micro- and macroclimate, their mere green presence has positive effects on the mental health of the residents and they can provide possibilities for urbanites to reconnect with a nature that has become so remote. The influx of peasants who have migrated to cities from rural areas in search of new opportunities may provide an important foundation for urban agriculture: they can contribute their farming expertise to make rooftop gardens successful and become part of a flourishing ecological citizenship. While the association between private urban vegetable patches and poverty is not entirely ungrounded, it means that greening the cities also offers an opportunity for social change. A successful concept of securing affordable fresh produce in close proximity to the producers is naturally connected to the humanitarian objectives of sustainable urban development: the fight against pauperisation, care for local neighbourhoods, improvement in the sanitation of cities and support

⁷ Wang Rusong and Ye Yaping, 'Eco-city development in China', *Ambio* 33/6 (2004): 341–342.

of public health will bring social justice in through the back door. Taken together, all of these efforts might just be a practical exercise of imagining a greener vision of home. Because this is what humans seem to be trying to accomplish in the end: we are protecting our home – locally, nationally, globally. And with our instinctive love for nature, we are bringing back the wonders of gardens not only in horizontal but also vertical form.