



Perspective essay

Evolving landscape-urbanization relationships in contemporary China

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ABSTRACT

The lack of interaction between ecological science and landscape practice has directly contributed to the many challenges related to the unprecedented urbanization of China. However, powerful political support for addressing landscape change with ecological knowledge makes this an opportune time to merge these two approaches. Focusing on the clear and critical knowledge gap regarding landscape–urbanization relationships in contemporary China, this article examines the fundamental role of landscape in China’s urbanization over the last four decades, highlighting administrative, economic and political changes as underlying drivers. Four dominant and evolving roles are observed: landscape as a byproduct of urbanization, landscape as city-image infrastructure for urbanization, landscape as regional growth infrastructure for urbanization, and landscape as potential ecological infrastructure. Compared with what has occurred in the developed world, these roles are analogous in certain aspects, but fundamentally different. The purpose of this essay is not to pass definitive judgment on the role of landscape in urbanization, but to provoke discourse on the complexity of landscape–urbanization relationships at different times under different social–political contexts. Toward this end, the essay asks: “Can landscape play a more effective and beneficial role in affecting sprawl and urbanization?” China’s current landscape–urbanization relationship positions China as a global laboratory for sustainable landscape innovations to be explored and monitored.

1. Introduction

The global impact and many challenges of unprecedented urbanization in China have gained worldwide attention. China’s demographic urbanization rate increased from 19.4% in 1980–52.6% in 2012 (NBSC, 2012) at an unrivaled growth rate. Land urbanization (physical and spatial manifestation of China’s urbanization particularly land expansion) progressed even more drastically compared to demographic urbanization in the last two decades (Bai, Chen, & Shi, 2012; Du, Thill, Peiser, & Feng, 2014; Lin & Zhang, 2015). During the process of rapid urbanization, China’s development was characterized by high-energy consumption and a high emission rate of pollutants (Liu, & Raven, 2010), both of which are directly linked to numerous health and environmental problems including the loss of arable land (Larson, 2013), lost biodiversity and increased landscape fragmentation (Liu et al., 2003; Xu et al., 2009), air pollution (Wang, 2013), deteriorating water quality and water shortages for two-thirds of Chinese cities (Xie et al., 2009), and increasing respiratory diseases and cancer rates (Chen, Wang, Ma, & Zhang, 2013; Liu, 2010a, 2010b). Unfortunately, the “pollute first, then clean up” practices that developed countries adopted during industrialization and urbanization have been (and are being) repeated in contemporary China. The effects of China’s urbanization also are recognized to have had consequences on a global scale. Chinese

carbon pollution contributes significantly to global warming (IEA, 2008). Studies have demonstrated that China accounts for 80% of the world’s rise in CO₂ emissions since 2008, and 25% of the global carbon dioxide emissions in 2011 (Peters et al., 2012). Air pollution from China regularly reaches to neighboring countries and even North America. River pollutants also impact downstream oceans and areas in other countries (Bawa et al., 2010; Liu, 2010; Liu, & Raven, 2010). With China currently making up 21% of the world’s population, there is a rising concern whether the resources on earth can be sustained if China’s per capita consumption and energy use reach developed-world standards. In a globalizing world, China’s challenges are also those of the entire world (Liu and Diamond, 2005).

The gap between ecological science and landscape practice (planning and design of physical environment) accounts, in part, for the environmental and health problems associated with urbanization. The plentiful findings of ecological science have yet been fully applied in landscape practice and the science–practice interface for sustainability is a worldwide challenge (Musacchio, 2009; Nassauer and Opdam, 2008; Nisbet and Mooney, 2007; Opdam et al., 2013). Its effects in China are more intensive because China’s urbanization is progressing at an unprecedented rate. Research in urban ecology and environment conducted in China since the 1980s has achieved impressive progress over three periods: an emergent period from 1983 to 1989, an early

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growth period in the 1990s, and a rapid development period after 2000 (Wu, Xiang, & Zhao, 2014). However, numerous problems have accumulated in landscape practice even as urban ecology and other ecological sciences have advanced. Poor communication between ecological science and landscape practice hindered the accessibility and relevance of the science to landscape-based decision making. The numerous ill-designed places all across the country that display a common phenomenon known as “planning/designing without ecology” are evidence of this poor communication (Wu et al., 2014). This has created a bumpy road for sustainable urbanization in China.

In addition, a critical knowledge gap about the role of landscape practice in contemporary China’s urbanization further impedes effective communication between ecological science and landscape practice. With its historic focus on the relationship between humans and nature, landscape architecture in China could ideally play an important and unique role in applying ecological science and maintaining sustainability across different scales (Chen and Wu, 2009). One obstacle to landscape architects playing this role in China is that contemporary landscape theories have focused on concepts applied in the Western world, with little reference to China. Contemporary landscape development in China is an enigma not only to the rest of the world, but also domestically. Landscape architecture in China has been struggling to establish its identity as a discipline, partly because urbanization occurs too hastily for critique by design scholars. And landscape practice in China involves multiple disciplines including urban planning, landscape architecture, art, and horticulture etc. Unlike contemporary landscape design and planning in Western society, which has been examined in many books and articles, most English literature about the Chinese landscape practices discusses traditional gardening or garden history (Johnston, 1991; Keswick, 1978) or the ancient Chinese design philosophy of the “unity of man with nature” (Chen and Wu, 2009). Current Chinese landscape practice is much less studied or understood. This is a clear and critical knowledge gap, especially given that contemporary China is heavily influenced by, and has the potential to influence and inspire, the rest of the world.

China exercises immense influence over many surrounding nations, although it still lags far behind many developed nations (Ikenberry, 2008). With increasing strength and influence, China has developed landscape practice that may easily be introduced to other nations. One such example is China’s clear and powerful presence in Africa (Niu, 2014). The trajectory of China’s previous development, and the role of landscape in urbanization processes, can be a reference point for the world to reflect upon the future of China’s domestic development and its latent external influences. Unfortunately, what China has accomplished in its contemporary landscape-urbanization relationships is still relatively unexamined.

In addition, a deeper understanding of landscape-urbanization relationships in contemporary China can considerably expand the range of knowledge in landscape theory and history within varied social-political contexts. The phrase “socialism with Chinese characteristics” used by many Chinese authors (Chan, 2010) is far beyond a cliché. Recently, Florida, Mellander, and Qian (2012) concluded, after a sophisticated analysis, that urban development of China is disconnected from conventional wisdom about driving factors of urbanization because neither talent nor technology is associated with the phenomenal growth of China. China’s rapid rise has recently provoked arguments about whether it is already a developed country, although China’s top leaders still publicly insist it is a developing country considering the low per-capita income induced by the highly uneven development process.

Many factors may contribute to the uniqueness of China’s growth, particularly fundamental characteristics of its governance structures (Wang, Tan, Zhang, & Nassauer, 2014). One of these is land ownership. While private lands in developed nations can be offered freehold, such lands are typically offered on a leasehold system in China. According to the *China Land Management Law (1988)*, all land and natural resources in China are nationally or collectively owned with land usage rights to

be leased for a fixed period for different land uses. Also, China has a dominating top-down decision-making process in land usage compared to strong bottom-up processes in many other developed nations. Government agencies and bureaus in China control land usage decision-making, with only marginal input from public citizens and private parties. In contrast, in many developed nations, local people may manage land development processes with designers as facilitators (Primdahl & Kristensen, 2016). Considering all these disparities, a discussion of landscape’s role in China’s urbanization may reveal how a landscape approach is flexible enough to solve urban problems during evolving growth across differing governing structures and social contexts since landscape has been suggested as a shared boundary object for urban solutions in the West (Nassauer, 2012).

Taking into account the increasing global presence of China along with contextual differences between China and developed nations in the West, this paper examines two critical questions: What is the role of landscape in China’s urbanization process and how does this role differ from what has occurred in the developed world? In this paper, landscape refers to specifically planned/designed physical environment and landscape practice is used as an umbrella term covering all actions of planning and design with physical landscape as a medium. The answers to such questions may offer some insight into an otherwise tightly-sealed Chinese urbanization and landscape practice, while also potentially offering clues for developing nations seeking to emulate China’s process.

2. Landscape–urbanization relationships in China

Phases in China’s urbanization have been widely discussed with varying conclusions. Most research has primarily focused on demographic urbanization and economic development of contemporary China from 1949 without reference to phase changes (Lin, 1998, 2007; Shen, 2005; Shen, Zhiqiang, & Kwan-Yiu, 2006; Zhang & Song, 2003). Regarding phases of China’s urbanization, Chen, Liu, and Tao (2013) used statistical analyses of demographic and economic changes to propose three distinct phases: a rapid decline stage (1960–1978); a stable phase of ascension (1979–1995); and a phase of rapid promotion (1996–2010). This categorization was proposed without much reference to drivers of change. Yeh, Xu, and Yi (2006) did address drivers of change to identify four phases of contemporary China’s urbanization. Industrialization-oriented urbanization characterized Phase I (1949–1977), where the urbanization level was lower than 20%. Fast urbanization with faster industrialization happened in Phase II (1978–1989) when China transitioned from a planned economy to a socialist market economy. Rapid urbanization with urban landscape re-configuration characterized Phase III (1990–1999), which saw extensive land expansion. High-quality and healthy urbanization was then emphasized in Phase IV from 2000 onwards. This characterization successfully addressed the periods before 2000, but the time afterwards was simplified as healthy urbanization.

Beyond demographic urbanization and economic growth, land urbanization has drawn attention in academia only recently (Bai et al., 2012; Du et al., 2014; Lin & Zhang, 2015). Land urbanization describes a physical and spatial manifestation of China’s urbanization from the perspective of land expansion rather than demographic urbanization since urban land expansion has been identified as a driver of economic growth in Chinese cities. Based on granted land parcels and areas in Beijing, (Du et al., 2014) proposed four stages of land market development: initial experimentation with the land market (1992–1996), rapid growth of the land market (1997–2001), enhanced land marketization (2002–2004), and land policy as a macro-economic control tool (2005–2008). These land urbanization phases gave little consideration of what happened before 1992. In general, current discussions of urbanization stages in China are either purely statistical, or limited to demographic and economic changes before 2000, or just about land urbanization after 1992. Most importantly, none of the phase

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