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Managing change and building resilience: A multi-stressor analysis of urban and peri-urban agriculture in Africa and Asia



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ABSTRACT

Urban and peri-urban agriculture (UPA) is increasingly being promoted as a multi-focal strategy for enhancing urban food security and advancing climate change adaptation and mitigation efforts in cities. The extent to which this potential can be realized is circumscribed by access to adequate land and water resources, the degree of recognition of UPA within the urban policy domain, and the ability of producers to effectively navigate the myriad risks associated with food production in urban and peri-urban environments. This paper argues that UPA faces significant interlocking stresses stemming from marginalization of land and water resources, increasing exposure to climate risks, and ineffective policies and poor governance that undermine its long-term potential to address urban food security and climate change adaptation concerns. This paper examines key environmental and governance dimensions of UPA in the context of rapidly growing cities in Africa and Asia, and advances understanding of how increasing urban pressures on land and water resources, and intensifying climate risks, are undermining the resilience of UPA in the face of rapid change. The paper's findings are drawn from a series of assessments on UPA that were recently conducted in nine cities spanning West and East Africa, and South Asia.

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1. Introduction

Rapid urbanization together with the extraordinary growth of cities is proceeding on a scale and at a rate that is unprecedented. Today, more than half the world's population resides in urban centers (UNDESA, 2013), and over the next several decades the pace of urbanization will accelerate. Much of this growth is expected to occur in urban centers of Africa and Asia (Montgomery, 2008; Revi et al., 2014; Taylor and Peter, 2014). These low and middle income regions face significant adjustment pressures, as poverty becomes increasingly urbanized, demand for urban services swells, and cities exert greater influence on peri-urban and rural livelihoods and environments (Forster and Escudero, 2014). For the poorer segments of society, the convergence of pressures brought about by the urban transition is exacerbating existing patterns of uneven development, informality, and deeply entrenched inequality. Thus, achieving international ambitions for sustainable development (eradicating poverty and hunger) will depend to a large extent on how developing-country cities are planned, managed and governed (Jabareen, 2013; Cohen, 2006; Allen, 2003).

The multiplicity of challenges and uncertainties associated with the growing urban footprint are accentuated by emerging risks from climate change. In developing countries, urban centers are particularly vulnerable to climatic extremes due to their strongly interlocking social and environmental stresses associated with rapid growth, systemic poverty, environmental degradation, and poor governance (Revi et al., 2014; Lwasa et al., 2014; Lwasa, 2014; World Bank, 2011a,b,c,d; De Bon et al., 2010; Zhao et al., 2010).

The concept of 'resilient cities', which is becoming increasingly prominent within the discourse on climate change adaptation, provides an important entry point for addressing urgent urban development needs while also considering longer-term implications of changes in the amplitude of risks that cities will face in the coming decades. Strategies for building urban resilience are most effective where they include a wide range of shocks and stresses, not just those attributed to climate change, and where they consider how resilience-building efforts can influence important equity issues associated with urban development (Kithiia, 2010; Leichenko, 2011; Moench et al., 2011; Satterthwaite and Dodman, 2013; Jabareen, 2013; Bahadur et al., 2013).

Concerns over urban food security are beginning to gain traction within the resilient cities and urban adaptation framework in large part because of the food price crisis that began in 2007 (Frayne et al., 2012; Revi et al., 2014). The consequences of the food price crisis continue to reverberate for the urban poor who typically devote more than half of their income to basic food purchases, and thus are highly sensitive to food price fluctuations (Cohen and Garrett, 2010; Crush and Frayne, 2010, 2011). In a number of developing-country cities, discrete episodes of social unrest, including violent protests and riots in 2008 and 2011 throughout Africa and the Middle East, coincided with large peaks in global food prices (Lagi et al., 2011; Holt Giménez and Shattuck, 2011).

Urban and peri-urban agriculture (UPA) resides within the current urban food security discourse, where it is viewed by some scholars as an important entry point for addressing both urban food security challenges as well as urban resiliency and adaptation goals (De Zeeuw et al., 2011; Dubbeling and De Zeeuw, 2011; FAO, 2012; Gerster-Bentaya, 2013; Lwasa et al., 2014). However, a central role for UPA in addressing urban food security is disputed by others who contend that UPA's importance to urban food security, especially that of the urban poor is overestimated (Battersby, 2013; Crush et al., 2010; Frayne et al., 2014; Mkwambisi et al., 2011; Webb, 2011). Recent, empirical studies on UPA's contribution to food security are few in number and therefore provide only a partial picture. One such study, of food security in 11 Southern African cities (Crush et al., 2012; Frayne et al., 2014), indicated that UPA had limited importance as a contributor to food security amongst poor households in these cities. Conversely, meta-analyses of UPA studies from across the developing world by Zezza and Tasciotti, 2008, 2010 described an equivocal link of UPA to urban food security whereby engagement in urban food production contributed significantly to household income and dietary diversity of the poorest quintile in some countries yet contributed very little in others. Both sets of studies warn against looking for universal success from UPA in helping the urban poor, but both also

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