CHAPTER 13

Urban Farming and Land Use Governance in Metro Manila

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1 Introduction

Metro Manila's unprecedented growth has brought a host of challenges and complex land use dilemmas that urban governance seeks to address. Land use planning, or the manner of allocation of land resources as equitably as possible among competing groups, has long been an important mechanism for resolving such dilemmas and securing urban development. In the Philippines, while many urban land use decisions have been devolved to the local government units as mandated by the Local Government Code of 1991 (RA 7160), the sustainability potentials of several aspects of the planning process remain unrealized. With

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increasing recognition of the need to balance the economic growth, environmental integrity, and social equity components of urban development, decision-making regarding land use requires moving away from dominant approaches of the past. Further engagement with participatory and inclusive planning and recognition of the importance of understanding social relations on the ground help to address land use dilemmas in a way that is more sustainable, inclusive, and sensitive to the needs of urban residents. This chapter takes the case of urban agriculture or urban farming to illustrate some of these intersecting issues of governance, urban growth, land use, sustainability and equity in the context of Metro Manila. It argues for the need to incorporate urban farming into the urban development agenda in a sustainable and equitable manner that would promote its benefits rather than contribute to further urban exclusion.

Working toward sustainable cities has long emerged as a framework for urban development in the Philippines, recently guided by the Sustainable Development Goal of making cities and human settlements inclusive, safe, resilient, and sustainable. The threefold goal of sustainable development, however, has been unevenly brought into urban land use planning, with the economic growth and environmental integrity components often overriding matters of social equity (Saguin et al. 2017). On paper, institutional support for strengthened equity in land use and urban development has been incorporated in various policies and urban agenda in the Philippines such as the Urban Development and Housing Act of 1992 (RA 7279) and the National Urban Development and Housing Framework (NUDHF) 2017–2022, which emphasized the concerns, participation, and involvement in decision-making of the marginalized and underprivileged (HLURB 2013, 2017). As part of a broader democratization movement that accompanied decentralization in the early 1990s, inclusive and responsible governance with a focus on social equity has become a way for the marginalized to articulate their basic urban needs (Hutchison 2007).

However, in practice, these strategies and principles of inclusive, participatory, and democratized urban land use planning have led to uneven and inconsistent results, where meaningful participation of the marginalized continue to be limited. The preparation of the Comprehensive Land Use Plan (CLUP), for instance, is time-consuming and requires technical knowledge that constrains grassroots involvement of the urban poor to tokenist participation in select stages of the planning process (Gera 2016; Saguin et al. 2017). The question of who gets to participate and represent

the civil society's interests in land use and other development planning processes—often those with established connections or aligned ideologies with the government—is also rooted in local patron-client relations between political elites and constituents (Porio 2017). Furthermore, the power of the private sector to influence or dictate development goals and strategies tend to be reinforced in certain planning principles, such as the highest and best use of land.

Many concerns of the urban poor and the marginalized rooted in land use are not addressed even with codified inclusive governance mechanisms. The challenge remains to bring focus on urban spaces as sites of social justice where the least advantaged groups benefit from preferential treatment in the actual practice of planning and decision-making, especially when confronted with complex urban land dilemmas pertaining to basic needs such as food and shelter. The concept of the right to the city moves toward this aim, providing residents with the right to make decisions that contribute to the production of space and to use urban space in a manner that satisfies the needs of its inhabitants (Purcell 2002; Shillington 2013). As a guide to adjudicating land use dilemmas, the right to the city presents a way of bringing back discussions of sustainability to what people need in their daily lives. It also presents a way to realize the promises of multilevel governance on the ground, while contributing toward more equitable forms of urban development.

This chapter builds on the frameworks discussed above to illustrate how the case of urban farming and its associated land use and governance dilemmas present opportunities for incorporating social equity and the needs of the marginalized more centrally into urban land use decisions. Urban agriculture is often a significant entry point to jumpstart food system planning (Cabannes and Marocchino 2018; Prove et al. 2019), which is currently lacking in urban land use planning in the Philippines. As a marginal and interstitial activity that has recently received more attention from the government owing to its sustainability and development implications, urban farming provides a good case study for linking inclusive and responsible governance with equitable development amid the context of decentralization in Metro Manila. Urban farming initiatives are place-specific and locally situated, but the question of their governance imbricates a wide variety of issues that go beyond the site and the activity. They therefore serve as venues to empirically examine issues of scale in multilevel governance and metropolitanization arrangements in the urban context.

Discussion for this chapter is informed by interviews with government officials and urban farmers from 17 Metro Manila local government units (LGUs) from 2016 to 2018[1] and a review of relevant legislation and policies related to urban farming. Because of the abundance (i.e., hundreds of projects) and diversity of urban agriculture forms and scales throughout Metro Manila, the chapter presents an overview and synthesis with examples drawn from various LGUs rather than focus on sustained analysis of individual empirical case studies. The subsequent discussion emphasizes the socio-environmental, institutional, and policy context of urban farming in Metro Manila, particularly in terms of how they relate to urban land use issues and their governance.

The chapter proceeds as follows. First, it introduces urban farming as understood in the literature and other contexts, before examining its place amid urbanization in Metro Manila, characterizing its types, location, participants, and governance. Then, it discusses various challenges in initiating and maintaining urban agriculture within issues of urban land use and environment, social relations of access, and scales of governance. Finally, it poses several considerations to incorporate urban farming in the urban development agenda and land use governance.

2 Urban Farming in Metro Manila

2.1 Urban Farming in Context

Urban agriculture or urban farming refers to the growing of food through the cultivation of plants and animal husbandry in cities, as well as their processing and distribution (Tornaghi 2014; WinklerPrins 2017). It includes a variety of activities (gardening, foraging) within different locations (vacant lots, rooftops, yards, greenhouses, parks) under various management regimes (residential, commercial, collective, institutional, non-profit) (McClintock 2014). Urban farming has long existed in cities, often in marginal or interstitial urban spaces. It has historically provided a means for many urban residents to survive in food shortage conditions and moments of crisis in cities, such as during economic recessions, pandemics, and other urban disruptions. More

[1] Data gathering on which certain sections of the chapter were based was supported by a Ph.D. Incentive Award under the Office of the Chancellor, University of the Philippines, Diliman.

recently, governments have recognized urban farming's importance in the city and have attempted to include it in various aspects of food systems planning and urban policy (Cabannes and Marocchino 2018; Prove et al. 2019).

Several multi-functional benefits of urban farming have been identified (McClintock and Simpson 2018). First, urban farming provides low barriers to entry and relatively easy access for many urban dwellers, thereby improving food security, nutrition, and livelihoods (Galt et al. 2014; Sonnino 2009). Because poorer households spend a considerable proportion of their incomes on food, urban farming presents a way of supplementing incomes while also addressing their nutritional needs (Crush et al. 2011; De Zeeuw et al. 2011; Zezza and Tasciotti 2010). It similarly plays an important gendered role in household livelihood strategies, especially given that many women are engaged in urban farming (Hovorka et al. 2009).

Second, urban farming is viewed as contributing to healthier urban dwellers because it increases diversity of diets, provides for nutritional needs, encourages physical activity and improves overall well-being for those who practice it (De Zeeuw et al. 2011). At the level of the community, it is also promoted as a way of building communities and strengthening relations of trust and support (Carolan and Hale 2016; Sonnino 2009; Saguin 2020).

Third, urban agriculture as green infrastructure contributes to urban ecological goals of sustainability in cities. It improves urban resilience in the context of increased vulnerability, disasters, and climate change (Colding and Barthel 2013; De Zeeuw et al. 2011; Sonnino 2009). Urban farming through the growing of plants increases areas for green space while also aiding in the reduction of urban wastes and wastewater through composting and reuse (De Zeeuw et al. 2011; Hara et al. 2011; Sonnino 2009). It provides vital ecosystem services in the city, including carbon sequestration, flood mitigation, temperature regulation, and biodiversity promotion (Cameron et al. 2012; Lwasa et al. 2014; Lin et al. 2015).

Despite its multiple benefits, urban farming in various parts of the world face a variety of challenges rooted in conflicting demands for urban land and questions of access. Access to land and other necessary inputs remains an important factor in the success and sustainability of urban farming initiatives. Several systematic studies in Africa and elsewhere have shown that because of access limitations, only a few households have

been able to engage in urban farming, thereby diminishing its nutritional impacts, with wealthier households deriving more benefits than poorer ones (Badami and Ramankutty 2015; Crush et al. 2011; Zezza and Tasciotti 2010).

Improving access to land, inputs, and resources by the poorest is necessary to realize the nutritional and income benefits of urban farming. Beyond this, access to participate in decision-making and governance promotes procedural forms of justice and contribute to realizing components of the right to the city and urban citizenship (Barron 2017; Crossan et al. 2016; Prove et al. 2019; Shillington 2013; Travaline and Hunold 2010). However, there is a need to also recognize that urban farming participation may provide avenues for exclusion and conflict among particular stakeholders (Ghose and Pettygrove 2014; Neo and Chua 2017). Addressing questions of access would require understanding the diversity of urban agriculture and its context within broader urban development, social and environmental change and governance (Tornaghi 2014; Prove et al. 2016).

2.2 Who Farms, How, and Where?

The expansion of the built environment in Metro Manila has led to the conversion of remaining vacant, open or farming spaces to other types of land uses, especially in its outer fringes. The 1990s showed intense urban land change both through expansion of the built-up areas and infilling of open spaces, reflecting decreasing available land for urban development in Metro Manila (Estoque and Murayama 2015). The cities of Caloocan, Valenzuela, Las Pinas, Taguig, and Muntinlupa, in particular, have lost the remaining agricultural lands that existed as late as the early 2000s. Loss of these lands to residential and commercial land uses has magnified competition among different land uses and has implications for the future of existing urban farming activities and plans for expanding such spaces.

Urban farming practices have been driven by the expansion of the built environment of Metro Manila and by the decentralization of several functions to the local government, such as decision-making regarding environmental and agricultural practices. All 17 LGUs host some form of urban agriculture project that vary in scope, scale, and degree of participation. Many state-sponsored farming projects are located in government lands, including schools, parks, offices, open spaces, and demonstration farms. Demo farms include showcase farms, usually managed by the city

government, where techniques and technologies of farming are displayed for residents and visitors (see Fig. 1). They seek to demonstrate the possibilities of farming within constrained land but they also serve as sites of technical skills sharing. These are often located in city or barangay halls both for greater visibility and easy access and also because of land availability. Many demo farms are self-sustaining ventures, as they are able to earn income from their operations through their own labor. School gardens have also become very common in Metro Manila as part of the National Greening Program as well as the government's nutrition and feeding programs. Other institutional farms include gardens in parks and other government-owned spaces.

Urban farming also occurs in private lands in subdivisions and residential lots. Homeowner associations promote their own community gardens, and households practice various forms of gardening in communal, vacant, rooftop, or backyard lots. Pockets of agricultural lands that have been surrounded by built-up developments still remain, such as vegetable gardens along the shores of Laguna Lake in Muntinlupa and Taguig, rice farms in Valenzuela, and melon farms in Taguig.

Fig. 1 Demonstration farm and nursery in Marikina (Photo by Mark Angelo Cagampan)

Given the diversity of urban farming activities in Metro Manila, gardening technique types also differ. They range from space-constrained techniques like vertical farming, container or receptacle farming, hydroponics, floating, and rooftop, window and wall gardening (Fig. 2). More extensive farming techniques involve using plots of land through horizontal gardening in backyards or larger farming spaces. Harvested crops from these farms are mostly consumed by the farmers or are sold in markets or in nearby communities, which could potentially meet a significant portion of household vegetable demand in the area (Hara et al. 2013).

Fig. 2 Urban farming using plastic container bottles in Caloocan (Photo by Mark Angelo Cagampan)

There are a diverse variety of people who farm, varying across class, gender, and age. Mostly, however, those who engage in urban farming tend to be women and senior citizens, owing to constraints in time and interest from other groups. The urban poor has also been actively targeted by urban farming activities but participation has been uneven owing to a variety of factors. Especially in the fringe cities of Metro Manila, many residents derive additional income from growing and selling vegetable crops, such as pechay, camote tops, and kangkong in nearby markets or in neighborhoods. In Taguig, where the largest remaining pocket of agricultural land remains, around 80 farmers still derive significant income from cultivating melons during periods when Laguna Lake water levels are low enough to allow farming.

Urban farming and gardening projects are organized in a variety of ways, ranging from formal and registered associations, such as cooperatives and homeowners and senior citizen associations, to less structured community-based and individual household initiatives. How decisions are made at the level of the farm or garden in terms of planting crops, dividing labor, and sharing harvests then also varies significantly across projects (Saguin 2020).

2.3 Governing Urban Farming in Metro Manila

All local government units currently have an existing urban agriculture, farming or gardening project in one form or another. These projects differ in areas covered, beneficiaries targeted, year instituted, and so on, but share certain common characteristics. Government-initiated projects are also distinct from emergent, non-government-related urban farming initiatives that are managed by private individuals or groups, often informally and occasionally with government support and linkages.

Within LGUs, City Agriculture or Environmental Management Offices often spearhead or manage urban farming activities, in coordination with several departments that cover various urban issues such as nutrition, the urban poor, schools, solid waste management and greening (Table 1). The role of specific officials, such as mayors, vice mayors, and councilors are significant, ranging from budgetary approval and support to actual projects initiated by their offices. Notable examples of the latter are in Quezon City (Joy of Urban Farming and *Halamanan sa Bakuran* from the Offices of the Mayor and the Vice Mayor) and Paranaque (Food Always in the Home from the Office of the Mayor).

Table 1 Metro Manila local government units and current urban agriculture offices, ordinances, and projects

LGU	*Ordinances and relevant provisions*	*Primary office in-charge and selected projects/initiatives/activities*
Caloocan		City Agriculture Office • Establishing techno-demo farm for vegetable production • Conducting seed dispersal and capacity building • Buhay sa Gulay (Life in Vegetables) prohect in Barangay 167
Las Pinas		City Agriculture Office • Providing farming inputs and seminars on urban gardens • Establishing nursery and composting facilities • Providing urban farming materials
Makati		Department of Environmental Services • Conducting seminars on urban gardening for 4Ps beneficiaries • Establishing urban gardens/nurseries in several barangays
Malabon		City Environment and Natural Resources Office • Identifying idle government lots suitable for urban agriculture • Providing agriculture inputs such as fertilizers and seedlings to schools • Establishing urban farming sites using vertical and floating methods

LGU	*Ordinances and relevant provisions*	*Primary office in-charge and selected projects/initiatives/activities*
Mandaluyong	**City Ordinance No. 794, s. 2020: An Ordinance Institutionalizing Urban Agriculture in the City of Mandaluyong**: Available open spaces in subdivisions and public areas are to be converted into urban gardens, with these lands entitled to idle land tax exemption (Sec. 4-8). A City Urban Agriculture Council will be created to manage urban farming activities (Sec 10-13) and barangays are encouraged to initiate their own programs with budget allocation in their Annual Investment Plans (Sec. 22)	City Environmental Management Division • Establishing urban garden in schools to complement their feeding program for students • Providing agriculture inputs such as soil, fertilizer, and seedlings to city residents • Transforming ornamentals in community parks in barangays to urban gardens for food production
Manila		Not indicated • Establishing the urban farming project *Buhay sa Gulay* in Tondo • Distributing vegetable seeds and seedlings to jumpstart the urban agriculture project in Tondo under DA's Plant, Plant, Plant Program

(continued)

Table 1 (continued)

LGU	*Ordinances and relevant provisions*	*Primary office in-charge and selected projects/initiatives/activities*
Marikina	**City Ordinance No. 15, s. 2016: Ordinance Institutionalizing, Promoting, and Developing Urban Gardening in Marikina City and Providing Funds Therefor**: Converting available open spaces in private and government lands into urban gardens in coordination with homeowner associations and enjoining community participation through submission of tree saplings for those availing government services and benefits	City Environmental Management Office • Establishing pilot demonstration gardens in the vacant lots in La Consolacion Village and Concepcion Subdivision • Conducting information, education, and communication activities and campaign in settlement areas complemented with the *Lakbay Aral* of community associations members in pilot demonstration areas • Providing agriculture inputs including plant seedlings and maintaining plant nursery and storage facilities
Muntinlupa		Department of Agriculture - Extension Office • Promoting vertical farming systems and container gardens to complement waste segregation measures. Vegetable seeds are distributed while technical assistance in setting up the farm is provided • Utilizing around 8,000 square meters of vacant lot in Elsie Gatches Village for urban agriculture activities of 4Ps beneficiaries • Signing of Memorandum of Agreement for urban agriculture of DA with the city LGU under the PPP Program

LGU	*Ordinances and relevant provisions*	*Primary office in-charge and selected projects/initiatives/activities*
Navotas		City Agriculture Office • Distributing vegetable seeds, supporting the establishment of urban gardens/greenhouse and providing lectures on urban farming techniques in schools and barangays • Distributing boats and fishnets to fisherfolk through DA-BFAR and conduct of seminars on value adding activities for fishery products • Opening the tallest urban vertical farm (tower greenhouses) in Metro Manila in Barangay Tanza
Paranaque		City Agricultural, Fisheries, and Aquatic Service • Food Always in the Home (FAITH) Gardens, the city government's food security program that aims to establish gardens in 16 barangays • Conducting livelihood training programs focused on urban gardening, and fish, meat, and vegetable processing for the city's indigent residents • Distributing agriculture inputs such as soil and seeds, and fishing equipment

(continued)

Table 1 (continued)

LGU	*Ordinances and relevant provisions*	*Primary office in-charge and selected projects/initiatives/activities*
Pasay	**City Ordinance No. 5631, s. 2014: Recognizing and Institutionalizing Family-based Ecological Diversion and Recycling Of Waste (FEDROW):** FEDROW aims to equip low-income families with home-based skills training to become entrepreneurs through the conversion of garbage produced at home	City Environment and Natural Resources Cooperative Development Offices • FEDROW activities include promoting urban farming through demonstration farms in public and private areas managed by barangay officials, community associations and households, and producing vermi-compost for organic fertilizer and homemade organic pesticides
Pasig		City Environment and Natural Resources Office • Conducting training programs/activities for various community sectors on urban gardening, including DIY techniques • Providing agriculture inputs such as soil, fertilizer, seeds • Establishing gardens in schools and enjoining them to practice waste segregation and composting in all barangays
Pateros		Municipal Environment and Natural Resources Office • Inspecting vacant lots/spaces as possible urban farming sites • Promoting vertical gardening as primary method of urban farming particularly in schools as the municipality has very limited land area

LGU	*Ordinances and relevant provisions*	*Primary office in-charge and selected projects/initiatives/activities*
Quezon City	**City Ordinance No. SP-2972, s. 2020: An Ordinance Amending Section 11, Article VI of Ordinance No. SP-91, S-93, As Amended, Otherwise Known as the Quezon City Revenue Code of 1993, Promoting Urban Agriculture by Granting Exception from Idle Land Tax:** Land owners will be exempt from idle land tax if they improve and promote use of their idle land through urban agriculture	Office of the Mayor/Office of the Vice Mayor • The Joy of Urban Farming activities since 2010 include establishing urban farms for vegetable production in different public and private open spaces in the city; providing learning sessions, seminars,C and orientation, as well as farm inputs and gardening tools for various sectors; and maintaining a farm demonstration site with greenhouses in the Quezon Memorial Circle and Quezon City Hall grounds • Forging partnerships with selected barangays and the DA under the PPP Program to *Greenhouse Village* or a communal garden • Buhay sa Gulay (Life in Vegetables) project and Luntiang Paraiso urban vegetable farm in Barangay Bagong Silangan

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Table 1 (continued)

LGU	*Ordinances and relevant provisions*	*Primary office in-charge and selected projects/initiatives/activities*
San Juan		City Environment and Natural Resources Office • Establishing urban gardening sites for ornamental plants and vegetables in various barangays with participation of 4Ps beneficiaries • Recognizing "Envirokids" for the best schools in urban gardening • Establishing plant nursery within the Pinaglabanan Memorial Shrine • Redeveloping the banks of Ermitanyo River as linear park with plots for ornamental plants and vegetables • Signing of Memorandum of Agreement for urban agriculture of DA with the city LGU under the PPP Program
Taguig		City Agriculture Office • Transforming the city into an agri-aqua business corridor through the *Multi-Agency Agricultural Government Assistance Program (Maagap) Para sa Kinabukasan sa Taguig* in coordination with DA • Providing technical assistance by conducting lectures, seminars, and training on urban farming/gardening and distributing inputs • Establishing urban farm demonstration sites in schools

LGU	*Ordinances and relevant provisions*	*Primary office in-charge and selected projects/initiatives/activities*
Valenzuela		City Agriculture Office • Establishing an integrated community food production program in Disiplina Village, an in-city relocation site • Conducting seedling dispersal and seminars on urban agriculture in barangays, with 4Ps beneficiaries mostly attending

Source Interviews and secondary data sources, 2016–2021

In a few local governments where they are employed, professional city agriculturists serve as an important node for disseminating knowledge of urban farming practices to city residents through their technical expertise. Inter-city educational visits also provide knowledge and best practices transfer across various urban farming projects. Barangay officials play a crucial role in managing projects at the barangay level, with some directly involved in the daily maintenance of gardens by providing labor and financial support. Farming or gardening projects are organized in diverse ways, ranging from top-down forms in government projects where officials lead to associations whose leaders are elected or chosen by members.

As mentioned earlier, decentralization brought about by the Local Government Code devolved many functions and offices to city and municipal governments, such as environmental management and land use planning. This devolution has enabled the emergence of local government urban farming projects that we see today. However, national government agencies still provide active support and coordination with local governments. Three of the most significant offices are the Department of Agriculture (DA), the Department of Environment and Natural Resources (DENR), and the Department of Science and Technology (DOST), all of which provide farm inputs (e.g., soil, fertilizer, seeds or seedlings) and seminars or technical assistance to local governments.

Outside of government-initiated urban farming projects, other gardening activities take place with varying linkages with local governments. While certain gardening projects receive some support from the government—for example, community-initiated projects recognized as part of a broader city-wide farming project in Quezon City—others remain hidden or beyond the purview of the government, particularly those activities in interstitial or temporary spaces. The private and civil society sectors, such as corporations through their corporate social responsibility arm and non-government organizations, are also involved by providing funding and training for farming activities. In terms of organizations beyond the government that is most actively involved in urban gardening, homeowner associations are perhaps the most significant. In gated subdivisions, in particular, they are able to conduct their projects independent of government intervention.

No existing national legislation or policy framework covers urban agriculture in the Philippines. However, various versions of the Integrated Urban Agriculture Act, a bill that sets the framework for urban farming in the Philippines, are pending in Congress. Despite this, other existing

laws and policies guide urban farming in Metro Manila (see Table 2). These include the Local Government Code discussed earlier; the National Greening Program and its expansion (EO 26 and EO 193), which mandates local government units to establish nurseries that often serve as source for seedlings for garden projects; and related environmental legislation such as the Ecological Solid Waste Management Act (RA 9003). Urban agriculture is also central to programs such as the Department of Education's *Gulayan sa Paaralan* Program and the Department of Social Welfare and Development's *Pantawid Pamilyang Pilipino* Program (4Ps). The COVID-19 pandemic has also brought attention to the importance of ensuring food security, which the Plant, Plant, Plant program of the DA aims to address.

Despite all local governments hosting some form of state-initiated urban gardening project, only Marikina, Mandaluyong, and Quezon City have institutionalized urban agriculture through an ordinance (Table 1). Marikina passed the first Metro Manila ordinance in 2016, which promotes urban farming through community participation, bringing together the two connected activities of gardening and greening, and has become a template for other ordinances passed or in development. All three cities with urban farming ordinances also promote the use of idle lands by providing tax exemptions. Pasay has similarly passed an ordinance on family-based solid waste management that intersects with some components of urban farming. The remaining local governments are at various stages of developing ordinances. The lack of institutionalization of urban agriculture presents challenges to government-initiated gardening activities, as will be discussed in the following section. Land, however, remains the most significant constraint to attempts to adopt and expand urban farming in Metro Manila.

3 Key Challenges to Urban Farming in Metro Manila

3.1 Urban Land Use and the Urban Environment

Urban farming in Metro Manila encounters a host of challenges tied to urban land use and development. Due to the sustained conversion of vacant or agricultural lands to other land uses in the last three decades, space for urban agriculture has been dramatically reduced. This restricts

Table 2 Selected national policies, plans, and programs related to urban farming

Title	*Description and relevant provisions*
Republic Act (RA) No. 7160: Local Government Code (LGC) of 1991	This law devolved the control and responsibility of delivering basic services, including those related to agriculture, from the national government to LGUs to improve resource allocation efficiency and enhance service provision at the local level. Urban farming is under the provisions of the LGC ordering the devolution of agricultural services (Section 17) and the optional creation of an office for the agricultural services (Section 482). Considering that the establishment of such an office is not mandatory, few Metro Manila LGUs have their own agriculture offices
RA 9003: Ecological Solid Waste Management Act of 2000	This law provides a comprehensive solid waste management program that grants the LGUs the primary responsibility in management of solid wastes and implementation of local plans on feasible reuse, recycling, and composting programs (Sections 17 and 32). In several Metro Manila LGUs particularly at the barangay level, recycling and composting initiatives integrate and/or complement urban agriculture efforts, and sustain community and household gardens, and demo farms

Title	*Description and relevant provisions*
Executive Order No. 26, s. 2011 and No. 193, s. 2015: National Greening Program (NGP)/Enhanced NGP (E-NGP)	This DENR national banner program (extended until 2028) aims to contribute to reducing poverty among upland and lowland poor households, including those residing in urban areas, promote food security, and enhance climate mitigation and adaptation by planting 1.5 billion trees in 1.5 million hectares of lands in public domain. Urban and suburban areas under the greening plan of the LGUs are covered by the NGP/E-NGP, including projects such as nursery establishment and seedling production, technical support and extension services and provision of certified seeds of agronomic crops
Updated Philippine Development Plan (PDP) 2017–2022	The plan aims to lay down the foundation for inclusive growth, a high-trust and resilient society, and a globally competitive knowledge economy. Under the *Pagbabago* (inequality-reducing transformation) pillar, Chapter 8 aims to ensure food security through sustainable and resilient food production and availability. The priority strategies to achieve this outcome include the intensified promotion of urban agriculture and household gardening, and the establishment of community gardens as sources of nutritious food and livelihood

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Table 2 (continued)

Title	*Description and relevant provisions*
Ahon Lahat, Pagkain Sapat Kontra sa COVID-19 (ALPAS COVID-19) or the Plant, Plant, Plant (PPP) Program	Spearheaded by the DA, this is a national program that seeks to increase productivity and ensure food availability and accessibility amid the COVID-19 pandemic. Urban agriculture, which aims to empower city dwellers to grow their own food to attain household food security and provide extra income, campaigns for the establishment of community gardens in open spaces at the barangay level. The DA, through the Agricultural Training Institute (ATI), Bureau of Plant Industry (BPI), and other units, provides agriculture inputs, gardening modules, and technical assistance through training/webinar activities to ensure the maintenance and sustenance of the community gardens
Gulayan sa Paaralan Program (GPP)	This program's objective is to promote food security and mitigate hunger among children in public elementary and secondary schools nationwide through self-help food production activities among the learners. Established by the Department of Education's Bureau of Learner Support Services-School Health Division through the issuance of DepEd Memorandum No. 293, s. 2007, this program serves as the source of nutrient-rich food that sustains School-Based Feeding Programs. This program covers the establishment of vegetable gardens and other related activities. The harvested produce is primarily used for feeding and food nutritional information are taught to students

Title	*Description and relevant provisions*
Pantawid Pamilyang Pilipino Program (4Ps)	Institutionalized through RA 11310, this is the national poverty reduction strategy and human capital investment program that provides conditional cash transfer to poor households to improve their health, nutrition, and education dimensions. Household-beneficiaries are required to comply with a set of conditions, including attendance in family development sessions (FDS) that also includes urban gardening as a module. *Gulayan sa Barangay* sites are also implemented in areas with 4Ps beneficiaries

expansion of current farming and introduction of future projects, particularly those of the more extensive farming practices. Land availability has been identified by respondents as the most important and immediate challenge to urban farming in Metro Manila.

In Metro Manila's outer fringes, former agricultural lands where rice farms and fruit trees used to be have been converted to housing, such as in Caloocan, where 100 ha of former rice fields have given way to residential land uses, and in Valenzuela, where vast tracts of agricultural lands dedicated to rice farming have been reduced to a mere 19 ha In Taguig, a city that promotes a hybrid "Probinsyudad" identity, expansion of residential land uses have come at the expense of rice farming. Beyond demand for land, the planning philosophy of allocating "best use" of land for built developments and of the exclusion and invisibility of agricultural land uses in urban contexts also contribute to the continued loss of open spaces for urban farming.

The lack of available lands poses a challenge for local governments to find space for urban farming. Many make the most use out of existing open spaces, including publicly owned parks and vacant lots. A few local governments also borrow lands from national agencies for urban farming, but these tend to be on a temporary basis as they are expected to be returned when new plans for these spaces emerge. Another strategy that local governments, such as Malabon and Navotas, employ in securing lands is striking an agreement or memorandum of understanding with private landowners. This is often brokered by an official, with an understanding that the owner can take back the land if needed. Both strategies create opportunities for urban farming in a space-constrained environment, but prevent further expansion or long-term planning given the uncertainty of land tenure.

Other arrangements with private actors include using vacant lots in subdivisions for urban farming. Homeowner associations in cities like Las Pinas, Marikina, Muntinlupa, Quezon City, and Valenzuela have approved versions of these arrangements. There is however, some hesitation from these associations of letting outsiders, most notably informal settlers, enter the subdivision to farm on these vacant lots. In a few cases, there have been direct conflicts between subdivision residents and informal settlements in the use of vacant lands for farming, such as in Quezon City. It is more common, however, to find informal arrangements between the two groups, wherein subdivision management, individual landowners, or

security guards allow nearby settlers access to these lands until they are needed.

Because of the scarcity of land, government urban farming projects have promoted specific types of urban farming that require limited space to address this problem. Newer farming techniques like vertical farming, rooftop, wall, window and container gardening, and other space-saving practices use a lot less land than horizontal or extensive gardening, and are therefore preferred in project design. They also involve a different set of challenges, requiring more inputs per unit area.

The dominance of the imaginary of farming in small spaces, however, has led to the exclusion or invisibility of other types of urban agriculture, notably traditional farming practices that require more land. Such spaces then are more vulnerable to pressures of land conversion and are seen as eventually giving way to other land uses. Discourses around urban agriculture often revolve about the possibilities of growing food despite the constraints of the urban built environment. This is often accompanied by the idea that urban farming is that which exists at the interstices of other, more profitable uses of land, and should complement, rather than compete with built-up spaces.

Availability of farm inputs has not been a particular source of challenge in Metro Manila, especially for government-initiated urban farming projects. Seeds, water, soil, and compost are often provided for by local government units or national agencies. Water is sourced from deep wells or drawn from the municipal network. Compost is available in several LGUs that have composting facilities integrated with their waste management projects. Integrating urban agriculture and waste management at a larger scale is an important but still an unrealized potential for many LGUs.

Suitability of land for farming is however an issue given that soils in many parts of Metro Manila are not ideal for farming. This problem, however, is usually addressed by importing garden soils from elsewhere. Environmental conditions surrounding urban farming are important considerations as well. At least two local governments have explicitly warned farmers not to extract water from polluted waterways due to the possible contamination of crops by heavy metals and coliform. The built environment also constrains availability of sunlight, which limits plant growth. Respondents also attribute air pollution as a secondary challenge of farming in the city. Pests like insects and worms cause crop damage,

although these are often minor and can be resolved using homemade organic pesticides.

3.2 Social Relations of Access to Urban Farming

Issues of access and the social relations that surround urban farming practices illustrate that physical challenges posed by land and the environment are not the only drivers of urban agriculture. Access to inputs is not often a problem, particularly for government-supported projects. However, access to technical know-how in farming can serve as a barrier for entry in urban agriculture. Building knowledge and skills in farming is crucial in projects, given that many urban residents have limited experience with crops or gardening. Those who have prior experience tend to be migrants from rural areas who brought with them experiential knowledge of farming. However, rural farming tends to be different in many respects from urban farming, requiring constant experimentation and adjustments to the urban context.

Free training and seminars are held several times in a year all over Metro Manila to encourage residents to take up urban farming. While often well-attended, these are not reliable indicators of eventual uptake or sustainability of farming activities. Many individuals and communities in several local governments for example take up a farming project, only to be abandoned later due to a variety of reasons. Respondents attribute an interest or background in farming, ample time and patience, and strong community spirit to sustain many gardening projects. Projects where participants had hands-on involvement in initiating and maintaining the gardens and where they felt they had a stake in its success tended to be more successful and sustainable in the long run. Farming projects also do not operate in a vacuum, and the nature of existing social relations among individuals and communities play a role in their eventual trajectories.

For urban farmers not part of government garden projects, issues of limited or lost access to existing open or vacant lands remain key concerns. Especially in the fringes of Metro Manila where extensive or leftover forms of farming have existed for decades, the changing urban context and governance transformed the ability of residents to gain access to land for farming. What used to be communal or household lands used for farming have been taken away for other uses. In one barangay in Quezon City for example, the vacant lot used by informal settlers and recent migrants for vegetable gardening from the mid-1980s to the late 1990s was cleared

to make way for a more formal barangay farm. In the same barangay, informal settlers who used vacant lots in nearby subdivisions lost access when a fence was constructed to keep them out. These had significant effects on residents who depended on access to these lands for food or income.

Farmers who have long practiced rice or melon farming along the shores of Laguna Lake in southeastern Metro Manila have also experienced increasing threats of land conversion owing to residential, reclamation and infrastructural pressures. Land values have multiplied by 200 times since the 1960s due to increased demand for land, which has been aided by speculation regarding road infrastructure and expressway projects to be built near the area. In Muntinlupa, the informal settlers who farm vegetables along the shore have also expressed concern about the livelihood impacts of these infrastructure projects.

While the urban poor are often the target beneficiaries of urban agriculture projects, the lack of land in densely built informal settlements often poses a problem and dampens interest among many. It is vital therefore to identify spaces elsewhere for such activities. However, the insecurity of tenure of many residents who are at risk of displacement, particularly if they are located along waterways, would limit sustainability of such initiatives. Land tenure and access therefore remains a crucial concern especially for farmers who are not part of government-initiated or recognized urban agriculture projects. The lack of emphasis or recognition of their type of urban agriculture has meant that their claim and access to lands or spaces for farming are more tenuous.

3.3 Scales of Urban Farming Governance

Several challenges in governing urban farming in Metro Manila exist, relating to vertical and horizontal multilevel governance issues and the constraints of implementing metropolitan governance. As there are no legislation or integrated frameworks that guide urban agriculture, there tends to be multiple and overlapping projects and offices responsible for urban farming at the local level. While coordination is often necessary to manage a multidimensional project like urban agriculture, differences among local government units (e.g., some have agricultural offices while others environmental management offices, often with different thrusts) make integrating these projects difficult. Because local government units have their own individual urban agriculture projects with different goals

and strategies, scaling up urban farming to a metropolitan scale remains a challenge. Spaces that extend beyond one LGU may be managed differently by adjoining cities. The case of the foreshore lands of Laguna Lake is instructive, as the cities of Taguig and Muntinlupa, despite sharing the same shoreline, have different approaches to farming in these spaces.

In the absence of an institutionalized framework or an ordinance for most local government units, urban agriculture projects tend to be led on a project basis that may or may not be sustained by succeeding administrations with a different agenda or goal (see Table 2). It is therefore highly dependent on the personal thrust of local officials from the barangay to the city level. In Muntinlupa, for example, early attempts to introduce urban agriculture projects in the 1990s were thwarted by a change in administration. On the contrary as in one Quezon City barangay, political dynasties create a continuity in certain farming projects, especially if these are a core project of officials.

Urban agriculture is often not included in most local planning documents, such as CLUP and local development plans. This reflects the secondary importance given at the planning stage to urban agriculture and the general invisibility of farming in the city. In practice, many farming projects are initiated without requiring land use guidelines or are incorporated in existing classifications and greening initiatives. There is also a lot of potential in including urban farming in attempts to integrate food into urban planning (Cabannes and Marocchino 2018). Because many farming activities are informal or are not seen by the state, planning for such spaces becomes tricky.

Government-initiated projects tend to be planned from a top-down approach, where officials design projects for adoption by their constituents, even when codified as for example in Marikina's city ordinance. While this works in several cases, many farming projects that are sustained and perceived to be successful in the 17 LGUs tend to be those initiated by communities or households that received adequate support from the government. This highlights the importance of involving urban farmers in actual decision-making about land use dilemmas. While farmers and gardeners are active in making daily decisions about the farming process, their ability to participate in urban governance often ends at the boundaries of their farms when their roles are constrained as merely recipients or beneficiaries of government projects. The broader issues of land and land use have been predetermined for them by higher-level authorities through land use and development plans, city policies, or personal

brokering. Promoting the equity and justice component of urban sustainability requires extending such spaces of participation in decision-making to citizens involved in urban farming.

Urban farming governance is therefore a fundamental issue of scaling (Prove et al. 2019). In current practice, urban farming projects are formulated, designed, and administered at the level of city governments by officials and experts, with objectives and values that may not necessarily align or match with those of the residents and urban farmers at the local level. Urban farmers encounter different and particular sets of relations at the scale of the farm, and their local concerns should be acknowledged and recognized through appropriate mechanisms of political participation.

Urban agriculture in the city exists in diverse types of forms, goals, values and participants, and diversity should be recognized in governance while avoiding one-size-fits-all solutions formulated at one scale (Piso et al. 2019). Similarly, decision-making and conduct of projects at the level of individual LGUs create a patchwork of disjointed urban farming initiatives that do not cohere framing- and policy-wise at the metropolitan level. Urban land use and environmental processes often transcend local government boundaries and broader issues of urban sustainability need to be addressed at a holistic metropolitan scale.

4 Governing Urban Farming for Urban Development: Outlining Opportunities Amid Decentralization

Given its benefits and challenges, there are a number of considerations to incorporate urban farming into the urban sustainability agenda amid existing and proposed structures of Metro Manila governance. There is a need to emphasize its place in land use and development plans. Given persistent discursive associations of farming as a rural activity, promoting urban farming as a vital element of the urban landscape is necessary. This requires a different approach to urban farming by seeing it as a permanent fixture, rather than a temporary use of land that is expected to give way to other, more productive land uses, an imaginary that undermines future sustainability and discourages urban residents from farming. Along with parks, green spaces, and other green infrastructure, valuing urban farming spaces need to transcend the focus on the built-up areas as an indicator of urban development. Furthermore, many types of urban farms could easily

be integrated into and are not necessarily incompatible with other land uses, such as green spaces and housing, given that they often have parallel goals.

National and local governments have the opportunity to recognize the diverse types of urban farming in the city beyond vertical farming as the default model. While demo farms and training seminars extol the benefits of farming in constrained space, other types of farming should not be rendered invisible or excluded from support or recognition. Practices in remnant agricultural lands in the fringes and in household and communal lots continue to provide similar benefits and sustain livelihoods. The existence of multiple types of urban farming practices suggests that different strategies may be developed for each of these practices, which in turn requires a mapping and identification of their extent and scope.

Consequently, idle and vacant lands in Metro Manila may be identified, surveyed, and determined for possible use in urban farming activities. This can also be incorporated within a similar survey of vacant lands for socialized housing. Urban farming can be practiced in interstitial spaces and even on lands considered as risky for structures. Because of this adaptability and versatility of urban farming, the potential lands for farming spaces could be significantly greater than currently imagined.

There is also a need to enhance access by the urban poor to these vacant lands, especially given the lack of space in densely packed informal settlements. Arrangements brokered by the local governments may be made to ensure access to vacant lands, particularly with private landowners and homeowner associations for particular periods of time. Providing greater incentives will also encourage subdivisions with unused lots to dedicate to urban farming, whether practiced by homeowners or outsiders. This recommendation has already been institutionalized in LGUs with urban agriculture ordinances, such as Marikina, Mandaluyong, and Quezon City, all of which provide tax exemptions to encourage conversion of idle lands to productive uses. As in San Juan, existing parks could also be utilized to host urban farming activities, while ornamental plants could be replaced by fruit-bearing trees or other crops.

Urban agriculture requires a stronger institutional underpinning beyond piecemeal and often disjointed projects by local governments. This fits within efforts to create a metropolitanized approach to urban governance and to strengthen the institutional framework of local governance concerning service delivery and urban development. Intra-LGU coordination and planning is necessary to ensure spatial continuity

and encourage mutual learning of good practices and innovative urban farming schemes among different cities. Similarly, agreements with rural LGUs could also be made to supply inputs for urban farming or even land where farmers could grow food that will be brought back to the city. This however should not replace the need to dedicate space in Metro Manila for urban agriculture. A national policy on urban farming, still in the works, is vital to integrate the diverse components of urban farming and harmonize the overlapping and unclear responsibilities and mandates of various offices. Inter-agency coordination, with the DA as the lead implementing agency, for example, has been identified in the most recent House Bill on urban agriculture. Opportunities also exist in integrating urban farming and urban land use concerns in the proposed National Land Use and Management Act. Incorporating urban agriculture with parallel or related goals, such as in green infrastructure, disaster risk reduction, and climate change adaptation could strengthen its place in urban LGU planning. Similarly, urban farming may be included within a broader approach to planning food systems, recognizing the multiple scales and spatial interrelations involved in food provisioning (Prove et al. 2019).

The links between decentralization, metropolitan governance structures, and land use need require a more serious consideration. The case of Metro Manila is unique in many aspects, wherein a highly urbanized region is composed of 17 local government units. This individualized planning in the absence of an overarching urban regional framework or governing body tends to lead to the fragmentation of plans and decisions about metropolitan-scale concerns that extend beyond a city's border, such as land use and urban farming. Similarly, while land use, environmental and local development planning functions have been decentralized to local governments, they could extend further and provide more resources to the barangay level, the scale at which many of the urban farming projects are actually being implemented. This may help to facilitate the integration of the concerns of the marginalized with the planning process. The LGUs could also ensure continuous allocation of sufficient financial and human resources for urban farming projects as priority development interventions. This should contribute to achieving the objectives set in local development plans and sustaining the gains from these initiatives in the long term. Furthermore, the creation of a formal body such as a food council, which is composed of local stakeholders (Cabannes and Marrochino 2018) at a regional or city level might help bring urban farming and other related issues more centrally.

Taking advantage of the strengths of horizontal multilevel governance frameworks, participatory and bottom-up approaches to designing and planning urban farming initiatives should complement top-down government projects. These can take the form of cooperatives, neighborhood associations, and people's organizations given the right and leeway to plan the use of land for farming in their vicinity. However, these should be seen as a bundled and multi-scalar process that is tied to other decisions with respect to land use (Prove et al. 2019). Integrating urban farming in land use planning would necessarily involve participation from multiple interests in the planning process at various stages and levels. It also requires building capacity of associations and communities to undertake the different components of such a task, while cognizant of potential forms of cooperation and conflicts that may arise in the process of decision-making. While knowledge of urban farming techniques is relatively easy to share, capacity to construct and execute such a plan or to engage in the planning process remains limited. Activities such as participatory mapping are not only useful planning tools for identifying spaces for farming for instance, they also help communities to understand the spatial and interrelated nature of urban problems, which is an important entry point in involving people in the planning and governance process (Saguin et al. 2017).

At the level of local governments, opportunities exist for barangays to dedicate a piece of their land, including rooftops and walls, for urban farming. This proposal however should be sensitive to local differences and to the work and social relations that go into the maintenance of gardens. In practice, many of the demo farms and barangay farms are manned by officials, many of whom work in the gardens out of a strong interest and stake in the success of the project. Enjoining further participation from residents of the barangay needs to take into account these practical considerations of day-to-day management.

Incorporating urban farming into the urban development agenda requires a more holistic and systematic planning that includes other related urban issues such as food security, poverty, health, waste, and climate change. This is due to the multidimensional and multi-functional character of urban farming and to its interaction with other urban land use issues that are both social and environmental in nature. Compost production, for instance, plays a crucial role in providing inputs to urban agriculture, while simultaneously helping to reduce organic wastes in the city. While urban farming may reduce incidence of hunger in the city, it

cannot replace adequate food systems planning at a metropolitan scale because urban inhabitants will still depend on food produced elsewhere.

Finally, urban farming needs to be explicitly situated within broader discussions of sustainability, food sovereignty, right to the city and urban land tenure. These issues extend beyond technical matters and must be addressed in their proper political venues. Urban land tenure, in particular, is at the heart of the land dilemma in urban farming. If access or right to urban space is not guaranteed for all, especially for the urban poor and marginalized, urban farming will remain a marginal activity that may benefit the better-off urban residents instead.

5 Conclusion

Responsible urban governance toward sustainable and inclusive cities need to respond to shifting urban demands and configurations. Guided by the multilevel governance and metropolitanization frameworks, this chapter presented the case of urban farming in Metro Manila to illustrate the challenges of urban land use dilemmas while exploring potentials for improving its governance amid the context of decentralization. The multidimensional and multi-scalar nature of urban agriculture—as with urban processes in general—requires understanding and contextualizing how it operates on the ground as both a technical and social activity rooted in land use.

The potential benefits of urban farming are manifold but without meaningful participation from grassroots actors or their access to land and other inputs, these will continue to remain unrealized. Evaluating existing governance mechanisms and strengthening institutional structures, therefore, must consider that urban farming is not an isolated activity that is primarily technical but is embedded in broader urban political questions of equity and right to the city.

Bibliography

Badami, Madhav G., and Navin Ramankutty. 2015. "Urban Agriculture and Food Security: A Critique Based on an Assessment of Urban Land Constraints." *Global Food Security* 4: 8–15.

Barron, Jennifer. 2017. "Community Gardening: Cultivating Subjectivities, Space, and Justice." *Local Environment* 22 (9): 1142–1158.

Cabannes, Yves, and Cecilia Marocchino, eds. 2018. *Integrating Food into Urban Planning*. London: UCL Press.

Cameron, Ross W. F., Tijana Blanuša, Jane E. Taylor, Andrew Salisbury, Andrew J. Halstead, Béatrice Henricot, and Ken Thompson. 2012 "The Domestic Garden–Its Contribution to Urban Green Infrastructure." *Urban Forestry & Urban Greening* 11 (2): 129–137.

Carolan, Michael, and James Hale. 2016. ""Growing" Communities with Urban Agriculture: Generating Value Above and Below Ground." *Community Development* 47 (4): 530–545.

Colding, Johan, and Stephan Barthel. 2013. "The Potential of 'Urban Green Commons' in the Resilience Building of Cities." *Ecological Economics* 86: 156–166.

Crossan, John, Andrew Cumbers, Robert McMaster, and Deirdre Shaw. 2016. "Contesting Neoliberal Urbanism in Glasgow's Community Gardens: The Practice of DIY Citizenship." *Antipode* 48 (4): 937–955.

Crush, Jonathan, Alice Hovorka, and Daniel Tevera. 2011. "Food Security in Southern African Cities: The Place of Urban Agriculture." *Progress in Development Studies* 11 (4): 285–305.

De Zeeuw, Henk, René Van Veenhuizen, and Marielle Dubbeling. 2011. "The Role of Urban Agriculture in Building Resilient Cities in Developing Countries." *The Journal of Agricultural Science* 149 (S1): 153–163.

Estoque, Ronald C., and Yuji Murayama. 2015. "Intensity and Spatial Pattern of Urban Land Changes in the Megacities of Southeast Asia." *Land Use Policy* 48: 213–222.

Galt, Ryan E., Leslie C. Gray, and Patrick Hurley. 2014. "Subversive and Interstitial Food Spaces: transforming Selves, Societies, and Society–Environment Relations Through Urban Agriculture and Foraging." *Local Environment* 19 (2): 133–146.

Gera, Weena. 2016. "Public Participation in Environmental Governance in the Philippines: The Challenge of Consolidation in Engaging the State." *Land Use Policy* 52: 501–510.

Ghose, Rina, and Margaret Pettygrove. 2014. "Urban Community Gardens as Spaces of Citizenship." *Antipode* 46 (4): 1092–1112.

Hara, Yuji, Takashi Furutani, Akinobu Murakami, Armando M. Palijon, and Makoto Yokohari. 2011. "Current Organic Waste Recycling and the Potential for Local Recycling Through Urban Agriculture in Metro Manila." *Waste Management & Research* 29 (11): 1213–1221.

Hara, Yuji, Akinobu Murakami, Kazuaki Tsuchiya, Armando M. Palijon, and Makoto Yokohari. 2013. "A Quantitative Assessment of Vegetable Farming on Vacant Lots in an Urban Fringe Area in Metro Manila: Can It Sustain Long-Term Local Vegetable Demand?" *Applied Geography* 41: 195–206.

Housing and Land Use Regulatory Board. 2013. *CLUP Guidebook: A Guide to Comprehensive Land Use Plan Preparation*. Quezon City: HLURB.

Housing and Land Use Regulatory Board. 2017. *National Urban Development and Housing Framework 2017–2022: Abridged Version*. Quezon City: HLURB.

Hovorka, Alice, Henk de Zeeuw, and Mary Njenga. 2009. *Women Feeding Cities: Mainstreaming Gender in Urban Agriculture and Food Security*. Rugby: Practical Action Publishing.

Hutchison, Jane. 2007. "The 'Disallowed' Political Participation of Manila's Urban Poor." *Democratization* 14 (5): 853–872.

Lin, Brenda B., Stacy M. Philpott, and Shalene Jha. 2015. "The Future of Urban Agriculture and Biodiversity-Ecosystem Services: Challenges and Next Steps." *Basic and Applied Ecology* 16 (3): 189–201.

Lwasa, Shuaib, Frank Mugagga, Bolanle Wahab, David Simon, John Connors, and Corrie Griffith. 2014. "Urban and Peri-Urban Agriculture and Forestry: Transcending Poverty Alleviation to Climate Change Mitigation and Adaptation." *Urban Climate* 7: 92–106.

McClintock, Nathan. 2014. "Radical, Reformist, and Garden-Variety Neoliberal: Coming to Terms with Urban Agriculture's Contradictions." *Local Environment* 19 (2): 147–171.

McClintock, Nathan, and Michael Simpson. 2018. "Stacking Functions: Identifying Motivational Frames Guiding Urban Agriculture Organizations and Businesses in the United States and Canada." *Agriculture and Human Values* 35 (1): 19–39.

Neo, Harvey, and Cheng Ying Chua. 2017. "Beyond Inclusion and Exclusion: Community Gardens as Spaces of Responsibility." *Annals of the American Association of Geographers* 107 (3): 666–681.

Piso, Zachary, Lissy Goralnik, Julie C. Libarkin, and Maria Claudia Lopez. 2019. "Types of Urban Agricultural Stakeholders and Their Understandings of Governance." *Ecology and Society* 24 (2).

Porio, Emma. 2017. "Citizen Participation and Decentralization in the Philippines." In *Citizenship and Democratization in Southeast Asia*, edited by Ward Berenschot, Henk Schulte Nordholt and Laurens Bakker, 31–50. Leiden and Boston: Brill.

Prové, Charlotte, Joost Dessein, and Michiel De Krom. 2016. "Taking Context into Account in Urban Agriculture Governance: Case Studies of Warsaw (Poland) and Ghent (Belgium)." *Land Use Policy* 56: 16–26.

Prové, Charlotte, Michiel PMM de Krom, and Joost Dessein. 2019. "Politics of Scale in Urban Agriculture Governance: A Transatlantic Comparison of Food Policy Councils." *Journal of Rural Studies* 68: 171–181.

Purcell, Mark. 2002. "Excavating Lefebvre: The Right to the City and Its Urban Politics of the Inhabitant." *GeoJournal* 58 (2–3): 99–108.

Saguin, Kristian. 2020. "Cultivating Beneficiary Citizenship in Urban Community Gardens in Metro Manila". *Urban Studies* 57 (16): 3315–3330.

Saguin, Kristian Karlo, Christopher John Chanco, Aildrene Israel Tan, and Arnisson Andre C. Ortega. 2017. "Reclaiming Social Equity in Land Use Planning for Sustainable Cities." *Public Policy* 18: 99–126.

Shillington, Laura J. 2013. "Right to Food, Right to the City: Household Urban Agriculture, and Socionatural Metabolism in Managua, Nicaragua." *Geoforum* 44: 103–111.

Sonnino, Roberta. 2009. "Feeding the City: Towards a New Research and Planning Agenda." *International Planning Studies* 14 (4): 425–435.

Tornaghi, Chiara. 2014. "Critical Geography of Urban Agriculture." *Progress in Human Geography* 38 (4): 551–567.

Travaline, Katharine, and Christian Hunold. 2010. "Urban Agriculture and Ecological Citizenship in Philadelphia." *Local Environment* 15 (6): 581–590.

WinklerPrins, Antoinette M. G. A., ed. 2017. *Global Urban Agriculture*. Oxfordshire: CABI.

Zezza, Alberto, and Luca Tasciotti. 2010. "Urban Agriculture, Poverty, and Food Security: Empirical Evidence from a Sample of Developing Countries." *Food Policy* 35 (4): 265–273.