



WAGENINGEN  
UNIVERSITY & RESEARCH

## Creating a public policy framework to support urban agriculture

Achieving sustainable urban agriculture

Wiskerke, J.S.C.

<https://doi.org/10.19103/AS.2019.0063.02>

This article is made publicly available in the institutional repository of Wageningen University and Research, under the terms of article 25fa of the Dutch Copyright Act, also known as the Amendment Taverne. This has been done with explicit consent by the author.

Article 25fa states that the author of a short scientific work funded either wholly or partially by Dutch public funds is entitled to make that work publicly available for no consideration following a reasonable period of time after the work was first published, provided that clear reference is made to the source of the first publication of the work.

This publication is distributed under The Association of Universities in the Netherlands (VSNU) 'Article 25fa implementation' project. In this project research outputs of researchers employed by Dutch Universities that comply with the legal requirements of Article 25fa of the Dutch Copyright Act are distributed online and free of cost or other barriers in institutional repositories. Research outputs are distributed six months after their first online publication in the original published version and with proper attribution to the source of the original publication.

You are permitted to download and use the publication for personal purposes. All rights remain with the author(s) and / or copyright owner(s) of this work. Any use of the publication or parts of it other than authorised under article 25fa of the Dutch Copyright act is prohibited. Wageningen University & Research and the author(s) of this publication shall not be held responsible or liable for any damages resulting from your (re)use of this publication.

For questions regarding the public availability of this article please contact [openscience.library@wur.nl](mailto:openscience.library@wur.nl)

# Chapter 1

---

## **Creating a supportive public policy framework for urban agriculture**

*Johannes S. C. Wiskerke, Wageningen University, The Netherlands*

- 1 Introduction: the development of urban agriculture policy making
- 2 Dilemmas, challenges and tensions in urban agriculture policy making
- 3 Case studies
- 4 Conclusions
- 5 Future trends
- 6 Where to look for further information
- 7 References

### **1 Introduction: the development of urban agriculture policy making**

While the production of food has always been a social, economic and spatial urban practice – albeit that its importance has differed in time and across space – it has been largely absent from the urban public policy domain for many decades. Rooted in the historical process of urbanization, which led to the definition of certain issues as essentially urban and others as essentially rural, food and agriculture have become typical rural policy topics (Pothukuchi and Kaufman, 2000). Concomitantly, urban agriculture gradually became to be perceived as a remnant of the past and, as a result, policies and legislation about cultivating food in cities became to be considered as irrelevant and outdated. This persistent dichotomy between urban and rural policy has resulted in three shortcomings in food studies, planning and policy (Sonnino, 2009):

- The study of food provisioning is confined to agrarian and rural development studies, thereby missing the fact that the city is the space, place and scale where demand for food products is greatest.
- Urban food insecurity is seen as a production failure instead of a failure of availability, accessibility and affordability and this has restrained much-needed interventions in urban food security.

- Food policy has been viewed as a non-urban strategy, delaying research on the role of food and agriculture in sustainable urban development as well as on the role of cities as food system innovators and food policymakers.

However, in recent years a growing number of cities have become very active in the field of food and agriculture. Municipal authorities and city councils have appeared as new actors in the food policy arena (Moragues-Faus and Morgan, 2015), together with new urban social movements. A recent milestone in this respect has been the signing by over 100 cities in October 2015 of the Milan Urban Food Policy Pact – now over 200 by late 2019 (MUFPP, 2019) – in which they commit themselves to ‘develop sustainable food systems that are inclusive, resilient, safe and diverse, that provide healthy and affordable food to all people in a human rights-based framework, that minimize waste and conserve biodiversity while adapting to and mitigating impacts of climate change’ (MUFPP, 2015a). Key reasons why food policy is increasingly seen as an urban issue is the fact that many social, ethical and environmental problems of cities are food-related and understood as such by urban policymakers. These problems include: hunger, nutrition value and food insecurity, access to culturally appropriate food, diet-related ill health, carbon footprint, energy consumption, water contamination, loss of farmland and rural decline (Wiskerke, 2015). Nowadays there is a growing awareness that food is more central to many urban problems than urban planners, designers, and policymakers have realized in the past.

The growing recognition that food is as much (or even more) an urban issue than a rural issue has also spurred interest in the development of policies for urban and peri-urban agriculture (Van Veenhuizen, 2006). In the urban-rural policy dichotomy era, much of the political attention focussed on the tensions between urban development and farming close to and inside cities, as these two activities were thought to compete for the same space. More recently, the political interest is shifting towards urban agriculture and city development in terms of mutually beneficial relationships (Viljoen and Wiskerke, 2012). The short distance between urban farms and urban residents allows for positive interactions between farmers’ needs and urban citizens’ demands: locally grown freshly available food, authentic experiences, closeness to farms and farmers, protection of farm land in and around cities, public procurement of regional produce, facilitating farmers’ markets and so on. From an urban development perspective, urban and peri-urban farming can contribute to a city’s capacity to satisfy the basic needs of its citizens. Furthermore, there is growing awareness among local authorities that multifunctional urban and peri-urban green open spaces have a critical role to play in the environmental management of the city, such as storm water storage and infiltration and run-off reduction, lowering the ‘urban heat island’ effect and reduction of cooling costs, climate change

mitigation and adaptation, and recycling of nutrients from organic urban waste and wastewater (De Zeeuw and Drechsel, 2015).

The political interest in urban and peri-urban agriculture is also expressed by the following Milan Urban Food Policy Pact actions focussing on or related to urban and peri-urban food production (MUFPP, 2015b):

- Promote and strengthen sustainable urban and peri-urban food production and processing and integrate urban and peri-urban agriculture into city resilience plans.
- Seek coherence between the city and nearby rural food production, processing and distribution, focussing on smallholder producers and family farmers, paying particular attention to empowering women and youth.
- Apply an ecosystem approach to guide holistic and integrated land use planning and management in collaboration with both urban and rural authorities and other natural resource managers by combining landscape features.
- Protect and enable secure access and tenure to land for sustainable food production in urban and peri-urban areas, provide access to municipal land for local agricultural production and promote integration with land use and city development plans and programmes.
- Help provide services to food producers in and around cities, including technical training and financial assistance to build a multigenerational and economically viable food system with inputs such as compost from food waste, grey water from post-consumer use and energy from waste while ensuring that these do not compete with human consumption.
- Support short food chains, producer organisations, producer-to-consumer networks and platforms, and other market systems that integrate the social and economic infrastructure of urban food system that links urban and rural areas.
- Improve (waste) water management and reuse in agriculture and food production through policies and programmes using participatory approaches.

These actions are based on and have inspired urban and city-region agricultural policies and programmes in hundreds of cities around the world.

Based on a review of a large number of municipal food and agricultural policies, Baker and De Zeeuw (2015) state that urban food and agriculture policies address four areas of concern:

- To provide equitable physical and economic access for all citizens to safe, healthy, affordable and appropriate food;

- To secure adequate nutrition and public health (reduce diet-related ill-health);
- To stimulate sustainable urban and regional food economies;
- To contribute to urban environmental sustainability, diversity and resilience.

While many local and regional governments have developed or are in the process of developing urban or city-region food and agricultural policies that address one, several or all of these areas of concern, a review of literature on (cases of) urban food and agriculture policies shows that cities and city-regions face several dilemmas, challenges and tensions in the development and implementation of these policies and strategies. In the next section I will discuss the key dilemmas, challenges and tensions involved in creating policy frameworks for urban agriculture. After that several examples of cities that have developed an urban (food and) agriculture policy will be presented and discussed: Rosario (Argentina), Belo Horizonte (Brazil), Antananarivo (Madagascar) and Toronto (Canada). Based on the dilemmas, challenges and tensions faced by urban policymakers, as well as these four examples, conclusions will be drawn and trends and priorities for future research will be identified.

## **2 Dilemmas, challenges and tensions in urban agriculture policy making**

In recent years a significant number of papers and books have been written about urban and city-region food and agricultural policies. The majority of these publications focus on specific cases, such as Dar es Salaam (Schmidt, 2012), New York (Cohen and Reynolds, 2014), Mexico City (Dieleman, 2017), Toronto (Mulligan et al., 2018) and Rosario (Dubbeling and Bracalenti, 2018). Others are comparative analyses of several cases (e.g. Gore, 2018), reviews of multiple cases (e.g. Baker and De Zeeuw, 2015; De Bon et al., 2010; Halliday, 2019; Hamilton et al., 2014; Mok et al., 2014) and edited volumes (e.g. De Zeeuw and Drechsel, 2015; Viljoen and Wiskerke, 2012; Wiskerke and Verhoeven, 2018). Based on a review of these different kinds of publications, six key challenges for and tensions in creating and implementing a supportive policy framework come to the fore:

- 1 Who is leading and responsible for the process of making and implementing policies for urban agriculture? This dilemma refers to the role of the government and of other stakeholders in creating and executing urban agriculture policies. According to Cohen and Reynolds (2014) policy frameworks for urban agriculture have 'been

developed through a variety of government-driven approaches (...) with public agencies and legislative staffs taking the lead in making policy decisions. These decisions may take the form of regulations, agency programs, budgets, and local legislation, or nonbinding white papers, policy plans, and strategic planning documents that ultimately influence the development of laws, regulations, and programs'. The case of Belo Horizonte, introduced in the next section, is an example of this approach to policymaking and implementation. If the government is in the lead, it does not imply that non-governmental stakeholders are excluded from decision-making processes. On the contrary, quite often local public authorities engage other stakeholders in deliberations and collaborative decision-making (Moragues-Faus et al., 2013; Moragues-Faus and Morgan, 2015). There are, however, also many examples of policy frameworks instigated and developed by partnerships of entrepreneurs, NGOs, and community-based organisations, which sometimes also include public authorities (Moragues-Faus et al., 2013; Viljoen and Wiskerke, 2012). The activities and policy proposals of these multi-stakeholder partnerships 'also influence policy by generating knowledge, identifying problems, proposing solutions, and producing design prototypes that can guide the decision making of city officials' (Cohen and Reynolds, 2014). According to De Zeeuw and Dubbeling (2015) multi-stakeholder approaches to designing and implementing urban agriculture policies are highly recommended due to complexity of the agro-food system and its links to different sectors, such as public health, urban environmental management and spatial planning. The same authors state that while multi-stakeholder policymaking is a time-consuming and complex process, it contributes to more participatory governance, higher quality of decision making and better likelihood of successful implementation. The Toronto Food Policy Council, which features in the next section, is a typical example of a multi-stakeholder platform as a key driver of urban agriculture and food policies.

- 2 What is the appropriate scale or level of policymaking and implementation: local, regional, national or international? For many decades agricultural policymaking and implementation has been (and still is in many countries) a national-level task and responsibility. An exception to this is the European Union with its Common Agricultural Policy (CAP), resulting in an agricultural policy framework that all national authorities of the member states need to comply with. In the EU, urban agriculture appears to fall outside the scope of the CAP. Although member states are allowed to use the CAP's rural development programme for the benefit of urban agriculture, member states tend to view urban agriculture as either not sufficiently agricultural or as not

sufficiently rural to secure CAP support (McEldowny, 2017). As a result national-level policies to support urban agriculture are largely absent in the EU. This does not hold true for some Latin American countries that have policy frameworks in place that (in)directly support urban agriculture, as the examples of Rosario and Belo Horizonte will show. But in these countries, urban agricultural policymaking is also done at the local level. The locally specific nature of conditions and challenges affecting urban agriculture requires place-based policies (Halliday, 2019). And, last but not least, there is a general tendency - in the global North as well as in the global South - for decentralization of regulatory responsibilities and policy implementation: "In the areas of health, education, and poverty alleviation, many national governments have begun to allow (...) local governments to operate the levers of policy and programs" (Cohen, 2006: 74-5).

- 3 How to create and safeguard space for urban food production? One of the big problems for practicing urban agriculture is the availability of space for food production, due to competing claims on and the value of land in and around cities. Space in cities for food production is scarce and expensive, while direct economic revenues from food production are much lower than real estate. As a result urbanization (and in particular urban sprawl) often goes at the expense of urban and peri-urban space for agricultural production (Hamilton et al., 2014; Mok et al., 2014). And even if land is (made) available for agricultural activities it is quite often only a limited number of years. Creating and protecting space for urban and peri-urban agriculture in a systematic way, or at least for longer periods of time, is important for urban food growers to invest in the development of urban farming (Baker and De Zeeuw, 2015). While protecting and enabling secure access and tenure to urban and peri-urban land for sustainable food production is one of the actions of the Milan Urban Policy Pact, many local governments do not (yet) have policies and regulations in place to do so. The cases that feature in the next section are, however, examples of cities where protection of space for urban and/or peri-urban agriculture is legally safeguarded.
- 4 How to deal with food safety and health impacts of food produced in urban environments? Perceived health risks have caused city authorities to be reluctant to acknowledge urban agriculture as a legitimate form of urban land use. However, neglecting or tolerating urban agriculture does not mean it is not practiced. Failing to regulate urban agriculture may then lead to negative impacts on public health (De Zeeuw et al., 2011). Food safety and public health risks include issues such as the impact of air and soil pollution on food safety (Meenar et al., 2017; Mok

et al., 2014), the contribution of urban agriculture to communicable diseases (Hamilton et al., 2014; Meenar et al., 2017) and microbial and chemical contamination of urban waste and wastewater used as fertilizer and for irrigation (Drechsel et al., 2015). Given the variety of (potential) health risks associated with urban food production, it is important to have policies that actively manage these risks (De Zeeuw et al., 2011).

- 5 Should the focus be on urban agriculture policies or on urban food policies? Ever since food and agriculture have re-appeared on the urban policy agenda, there seems to be a tendency to develop support measures, regulations and legislation for urban and peri-urban food production as part of a broader urban or city-region food policy framework rather than through a specific policy framework for urban and peri-urban agriculture (Baker and De Zeeuw, 2015). The production of food in an urban environment cannot be separated from questions and challenges regarding food and nutrition security, access to affordable, safe and healthy food for all, food distribution and reduction and recycling of food waste. The Milan Urban Food Policy Pact is a clear example of this. At the same time, broadening the scope from agriculture to food may make the creation of a policy framework more complicated and more difficult to govern, depending on regulatory responsibilities at different government levels, and this may also delay actions to support urban and peri-urban agriculture.
- 6 Is it important to link urban agriculture to other urban policy domains? The urban-rural dichotomy in policymaking has, for many decades, resulted in defining food and agriculture as non-urban issues. As a result the links between agriculture and food, on the one hand, and urban policy domains such as public health, education, transport and employment, on the other hand, remained invisible. In the past two to three decades, with agriculture and food appearing on the urban policy agenda, the links between these 'new' urban domains and traditional urban domains are gradually becoming clear (Van der Schans and Wiskerke, 2012). This is especially true with new urban challenges that are now arising. These include: the effects of climate change (flood risks and urban heat island effects), diet-related ill-health (malnutrition and obesity), growing socioeconomic inequalities, traffic congestion in cities and the need to move from a linear towards a circular economy (Wiskerke, 2015). The (potential) role of urban agriculture in addressing these challenges is gradually becoming clearer. At the same time, this multifunctionality of urban agriculture makes the creation of a supportive framework for urban agriculture more difficult. It requires interdepartmental policymaking or other innovative forms of urban



food governance. But this can be done, as some of the examples in the following section will show.

### **3 Case studies**

The dilemmas, challenges and tensions discussed earlier can be found in many cities around the world, where urban agriculture is being practiced and where municipal governments (with or without support from regional and national policy frameworks) are designing and implementing actions, programmes and policies to support the development of urban agriculture. In this section four cases will be presented, two from Latin America (Rosario and Belo Horizonte), one from Africa (Antananarivo) and one from North America (Toronto). These four cases have been chosen as they differ with regard to (some of) the six dilemmas, challenges and tensions, but also because they have a relatively long history, going back to the early 1990s (Belo Horizonte and Toronto) or early 2000s (Rosario and Antananarivo). This means they represent 15 to almost 30 years of experience with policymaking and implementation for urban agriculture from which useful lessons can be learned for other places.

#### ***3.1 Rosario's multifunctional agriculture: from poverty alleviation to climate change adaptation***

In Rosario, the third largest metropolis in Argentina, urban agriculture has been supported since the early 1990s through government policies that were initially introduced through the National Institute of Agroecological Technologies (INTA) and, from 2002 onwards, through the city's urban agriculture programme as a response to the economic crisis in 2000 (Dubbeling and Bracalenti, 2018). The goal of Rosario's urban agriculture programme was to combat poverty and simultaneously create more jobs. Unemployed people could sign up with the municipality. In order to earn 150 pesos (US\$50) per month they had to work in gardens created from vacant land for at least 4 hours per day. The programme started with around 10 000 gardeners and grew, within 2 years, to 800 gardens with an estimated 40 000 participating gardeners (Thomas, 2014). A large number of people left the programme, as they found jobs in other sectors that started to grow again after the crisis. Others joined and those that stayed expanded their urban agriculture activities into full-time jobs providing for their families. The programme grew from a focus on food cultivation for self-sufficiency to a focus on creating viable commercial channels for gardeners to make an adequate living.

This change of focus also meant that the municipal government's urban agriculture policy turned more towards support for capacity building in farming techniques and for the development of commercialization channels. In addition,

Rosario's urban agriculture programme has been devoted to developing and valorising the multiple functions of urban agriculture (Dubbeling and Bracalenti, 2018). From the start the municipality has prioritized the social aspects and benefits of urban agriculture, such as social inclusion and creating income and employment opportunities for poorer sections of the population that were most severely hit by the economic crisis. After the Argentinian economy gradually recovered, the programme continued to support the further development of a social economy in Rosario. Furthermore, the urban agriculture programme has created a successful approach in making vacant and often unused public spaces accessible for productive use in combination with a wide range of other social and ecological functions. This approach has turned production spaces, which were developed as part of the urban agriculture programme, into public spaces that are also spaces of social encounter, training and leisure as well as places providing various ecological functions, such as biodiversity and adaptation to climate change.

A key to the success of Rosario's urban agriculture programme is, according to Thomas (2014: 84), 'a solid political and institutional commitment, from national to local level' and the full incorporation of urban agriculture into the city's spatial planning and urban development policies. Under its Metropolitan Strategic Plan 2008–2018, Rosario has created a green and productive landscape through and surrounding the city, 'consisting of family and community gardens, large-scale, commercial vegetable gardens and orchards, multifunctional garden parks, and "productive barrios", where agriculture is integrated into programmes for the construction of public housing and the upgrading of slums' (ibid: 86). Recently the municipality has implemented, in conjunction with neighbouring municipalities and the Ministry of Family Farming, the Rosario Green Belt project. This plan safeguards 800 ha of productive peri-urban land from urban expansion and is to be used for the agroecological production of fruits and vegetables (Battiston et al., 2017)

### **3.2 Belo Horizonte: reducing hunger and malnutrition**

Belo Horizonte is Brazil's sixth largest city, with a population of 2.5 million. Like many cities in Brazil it had, and still has, high levels of socioeconomic inequality (Mendonça and Rocha, 2015). In the early 1990s around 40% of adults and children were living in poverty and close to 20% of children under the age of 3 years were malnourished (Rocha, 2001). Improving food security became one of the main goals of the new municipal government that took office in 1993. The food security programme that was developed has become renowned worldwide and served as a model for Brazil's national 'Fome Zero' (Zero Hunger) policy that was implemented from 2003 onwards. Key to Belo Horizonte's food security programme was that all citizens have the right to an adequate quantity

and quality of food throughout their lives, and that it is the duty of governments to guarantee this. This public responsibility supporting the right to food has been a key factor in putting a coordinated, system-wide municipal policy for food security into practice (Rocha, 2018).

A first and important step in the development of the food policy was the creation of the municipal Secretariat for Food Policy and Supply (SMAAB), which became responsible for preventing and reducing malnutrition and hunger among vulnerable groups (Rocha and Lessa, 2009). The uniqueness and strength of SMAAB is that it worked cross-departmentally with all relevant city authorities, thereby avoiding compartmentalization of food security within the municipality. This allowed for an integrated approach to food security. To implement Belo Horizonte's food security programme SMAAB not only worked across and with different departments, but also involved key civil society organizations. Nowadays, SMAAB has grown into the Municipal Secretariat for Food and Nutrition Security (SMASAN). Although its approach has evolved over the years, its basic mandate remains the same: ensuring food and nutrition security by providing access to food and increasing urban and peri-urban agricultural production

SMASAN has organized its programmes along six lines of work (Girioli, 2008):

- 1) Subsidized food sales;
- 2) Food and nutrition assistance;
- 3) Supply and regulation of food markets;
- 4) Support to urban and peri-urban agriculture;
- 5) Education for food consumption; and
- 6) Job and income generation.

Given the scope of this chapter, some activities focussed on enhancing urban and peri-urban agriculture will be briefly discussed. One example is the 'Straight from the Country' and 'The Country Store' programmes that seek to enhance direct interaction between small peri-urban and rural producers and urban consumers by giving producers direct access to urban food markets, thereby excluding the middlemen. In addition these farmers also receive support through public procurement. According to federal law at least 35% of the ingredients of meals served in public canteens, such as schools, must be procured from smallholder family farms (Lozano Torres, 2019). These actions are intended to increase incomes and improve livelihoods of family farmers and artisan processors and still offer high-quality products to consumers at lower prices.

In Belo Horizonte, urban and peri-urban agriculture is considered to be an important social urban activity as well as a legitimate form of urban land

use. SMASAN's programme for urban and peri-urban agriculture has created almost 200 vegetable gardens and close to 50 orchards across Belo Horizonte (Rocha, 2018). This includes gardens in schools and day-care centres, fully commercial gardens, and non-commercial gardens in health and social welfare centres, nursing homes, shelters and other public facilities. Furthermore, approximately 100 000 children are involved in school gardening. SMASAN's orchard programme distributes fruit tree seedlings free of charge to schools, institutions and community groups, primarily in low-income *favelas* on sloping land, where trees are also needed to prevent soil erosion. Recent plans of SMASAN are to guarantee urban farmers the use of public land for at least five years and to zone parcels of urban land specifically for agriculture in order to reduce intense competition for land for real estate development (Thomas, 2014).

### **3.3 Antananarivo (Madagascar): multifunctional urban and peri-urban agriculture**

In Antananarivo, the capital of Madagascar, people traditionally live on the hills, leaving the plains and lowlands to agriculture. Urban and peri-urban agriculture accounts for 43% of the city's total area (Aubry et al., 2008). Rice is the main staple food and urban and peri-urban rice production accounts for 15-25% of total urban consumption (Aubry et al., 2010a and b). Rice cultivation mainly takes place in peri-urban areas, in particular in the northern and southern plains. Rice is also produced in the intra-urban lowlands, mainly for family consumption. In the northern plain, farmers alternate several kinds of crop and other products on the same field throughout the year: rice from July/August (mid dry season) to December/January (mid rainy season); fishing and duck rearing after the rice harvest (end of rainy season) and brick production, which starts as soon as the fields are drained (beginning of dry season) (Renting et al., 2013).

The rice fields have an important function as regulators of floods and storm water: rice is harvested before the hurricane season so that the empty fields serve as a retention basin for excess water (Aubry et al., 2012). In the absence of functioning sanitation infrastructure, urban liquid waste flows to agriculture areas on lower land, benefiting crops with water and nutrients, though also potentially negatively affecting yields, depending on pollution levels. Given its high landscape value, the northern plain was turned into a protected agricultural area, where construction (through embankments) is prohibited (Renting et al., 2013).

Tomatoes are grown on the foothills of the paddy fields during rainy seasons, but also increasingly in the intra-urban valleys all year round on former rice fields. Many (peri-)urban farmers are diversifying their production and tomato is a quite

profitable crop when grown close to the urban consumer. Urban and peri-urban tomato production in Antananarivo meets up to 90% of the urban demand. Another crop that is cultivated in the intra-urban valleys and that has become very profitable is watercress (Aubry et al., 2012). Urban watercress production almost entirely meets urban demand. It grows on land unsuitable for buildings and infrastructure due to flood risks. It also grows in former rice fields where, because of the level of pollutants from wastewater used in irrigating the fields, rice cultivation stopped and led urban farmers to switch to leafy vegetables (Renting et al., 2013). Even if the use of wastewater to irrigate and wash the produce raised health concerns, as did the high quantity of chemicals used for pest control, the findings showed that the level of pollution in these vegetables is rather low after being rinsed with clean water and cooked (Aubry et al., 2010b).

Overall four clusters of multiple functions fulfilled by Antananarivo's urban and peri-urban agriculture can be distinguished (Aubry et al., 2012; Renting et al., 2013):

- Food supply as a main function, considering the high share of urban and peri-urban production in meeting urban consumption;
- Flood management during rainy seasons;
- Income generation and job creation for urban and peri-urban farmers; and
- Use and valorisation of untreated urban wastewater through agricultural activities.

To maintain and protect the multiple functions of urban and peri-urban agriculture Antananarivo's 'Urban Development Master Plan Horizon 2015 underlines the need for more structured and sustainable urban planning to conserve the city's cultural and natural habitat and improve living conditions in the city' (Renting et al., 2013: 12). Key policy priorities are:

- (a) Protection of the agricultural and green zones as they protect the city from floods and are an important income source for lower-income families;
- (b) Improved waste(water) management, including establishment of composting units.

In 2004, the mayor of Antananarivo deferred construction licenses in the northern rice plain, a decision that remains in force until today. Two years later the Green Plan was developed to operationalize parts of the urban development plan. One of the key policy decisions has been the creation of a protected agricultural area of 2000 ha in the northern plain to maintain its role as a buffer zone protecting the city against catastrophic floods (Renting et al., 2013: 13).

### **3.4 Toronto: linking food and agriculture to various urban policy domains**

Together with Belo Horizonte, Toronto is seen as a world leader in municipal food policymaking. It has a long history of working to ensure access to healthy, affordable, sustainable and culturally acceptable food. The Toronto Food Policy Council (TFPC) was established in 1991 as a subcommittee of the Board of Health to advise the City of Toronto on food policy issues (TFPC, 2019). Since its start the TFPC has contributed to a variety of municipal food and food-related policies, such as the Urban Agriculture Action Plan, the Toronto Food Strategy and the Toronto Environmental Plan. The TFPC is a typical example of a multi-stakeholder partnership as shown by its diversity in members including: council members, doctors, gardeners, activists, social workers, academics, farmers, immigrants, nature conservationists and urban planners (Blay-Palmer, 2009). The TFPC builds partnerships with business and community groups to develop policies and programmes promoting food security. The aim is a food system that fosters equitable food access, nutrition, community development and environmental health. Towards this end, the TFPC focusses on the following themes (Baker and De Zeeuw, 2015; Blay-Palmer, 2009; Mulligan et al., 2018, TFPC, 2019):

- Food and nutrition security, because of the social costs and injustice of hunger;
- Public health, because of long-term costs to a public healthcare system when large numbers of people go hungry, are poorly nourished or eat unsafe foods;
- Agricultural land preservation and urban planning, because long-term food security means that farmland in and near the city is needed;
- Economic development, since 10% of city jobs are in the food sector;
- Urban agriculture and food waste recovery, because the separation and distance between producers and consumers create many problems, from the pollution associated with long-haul transportation to the collection and processing of food waste;
- Community gardens, because they grow neighbourhoods, skills, fitness and leadership as well as food; and
- Communications, capacity building and public education, because public information is critical to the community capacity needed for food security.

Characteristic for the TFPC is the integrated approach to food (Mulligan et al., 2018). Sustainable and healthy food is a lens through which all urban policies are assessed, that is, all new policies have to contribute to (or should at least not negatively impact) a food system that encourages equitable food access,

nutrition, community development and environmental health. In addition the TFPC tries to identify urban development goals that overlap with food security and more sustainable and healthy urban food provisioning practices.

## 4 Conclusions

In this section I want to briefly reflect on the six dilemmas, challenges and tensions introduced and discussed earlier in this chapter, taking into account the lessons learned from the four cases described in the previous section:

- 1 Who is leading and responsible for the process of making and implementing policies for urban agriculture? Regardless of whether the (local) government takes the lead or a multi-stakeholder partnership, the cases presented here (as well as other examples) show that a government cannot design and implement an effective policy framework without involvement of civil society organisations and the private sector. But the same holds true for actions led by civil society organisations and/or the private sector. They cannot do without support and participation of public authorities. The cases of Belo Horizonte and Toronto show that creating effective policies for urban agriculture is a multi-stakeholder process that requires the active involvement and commitment of all 'corners of the governance triangle': the government, the private sector and the civil society (Moragues-Faus et al., 2013; Wiskerke, 2009). According to MacRae and Donahue (2013) multi-stakeholder approaches involving government departments and urban food and/or agriculture policies created with formal municipal support and commitment are the most effective and durable, due to the 'blending of local government interests, expertise, procedures and the interests and expertise of private and civil society actors, better access to financing and supportive staff during diagnoses and planning (...) as well as for the implementation' (De Zeeuw and Dubbeling, 2015: 58).
- 2 What is the appropriate scale or level of policymaking and implementation: local, regional, national or international? All four cases, and this is supported by comparative analyses of multiple cases (Baker and De Zeeuw, 2015; Halliday, 2019; Moragues-Faus et al., 2013), show that the municipal level is the most appropriate scale for creating a supportive policy framework for urban agriculture. This has to do with the specific place-based characteristics of urban agricultural activities, as well as with the overall trend of decentralization of regulatory responsibilities in domains that directly or indirectly relate to urban agriculture (Wiskerke, 2015). However, as the Latin American examples also show, the impact and effectiveness of urban agricultural policies

may be strengthened if they are embedded in policy frameworks at higher levels of government.

- 3 How to create and safeguard space for urban food production? Spatial planning and designating areas for urban and peri-urban agriculture, as the municipalities of Rosario, Belo Horizonte and Antananarivo have done, are key interventions to safeguard space for urban food production. This becomes somewhat easier if the multiple benefits of urban agriculture are taken into account, such as storm water retention and flood risk reduction (Antananarivo), increased access to affordable food for urban consumers and improved livelihoods for urban and peri-urban farmers (all ) and climate change mitigation and adaptation (Antananarivo and Rosario).
- 4 How to deal with food safety and health impacts of food produced in urban environments? This seems to be a topic in need of more attention. The case of Antananarivo refers to the health risks related to the use of untreated wastewater as fertilizer, yet specific legislation to reduce associated health risks seem to be lacking or underdeveloped.
- 5 Should the focus be on urban agriculture policies or on urban food policies? The global trend of cities developing urban or city-region food policies is a clear indication of the emerging preference to focus on food rather than on agriculture (Baker and De Zeeuw, 2015; Wiskerke, 2015). The four cases that featured in the previous section are examples of cities that have developed their urban agriculture policies as part of a broader municipal or metropolitan food policy. It does, however, help if this food policy is developed and executed by an interdepartmental organisation (see Belo Horizonte) or by a multi-stakeholder platform like a food policy council (see Toronto) as this makes it possible to connect and create synergies between urban agriculture and other urban food topics and activities.
- 6 Is it important to link urban agriculture to other urban policy domains? In order to see and treat urban agriculture and food as an urban policy issue, it is of the utmost importance to make the connections between these topics and traditional urban policy domains visible (Moragues Faus et al., 2013; Viljoen and Wiskerke 2012; Wiskerke and Verhoeven, 2018). The food and nutrition security programme of Belo Horizonte is essentially a social justice and poverty alleviation program, one of the policy areas that traditionally belong to the responsibility of municipal governments. The urban agriculture programmes of Rosario and Antananarivo have a similar starting point, complemented by a focus on employment and income generation and, later on, adaptation to climate change. Toronto's food policy has its origins in the public health domain, complemented with links to community development, employment, environmental



management and social justice. These and many other examples make clear that there is a need and opportunity to embed urban agriculture and food policies in the urban policy domain and focus on the development of integrated food policies for sustainable and inclusive urban development (De Zeeuw and Drechsel, 2015; Halliday, 2019).

## **5 Future trends**

Given the rapid increase in cities developing and implementing urban or city region food policies, combined with the diversity in approaches to and conditions for policymaking, it is important to better understand the process of urban food and agriculture policy making. A particular issue in need of further research is the dynamics of multi-stakeholder governance processes and the design and implementation of appropriate mechanisms of governance and institutional support for urban agriculture (Hamilton et al., 2014: 66).

In order to develop evidence-based policy frameworks for urban food and agriculture, it is imperative to do more research on the social, economic and environmental outcomes and impacts of urban and peri-urban agriculture (Meenar et al., 2017). This will help to explore if the costs of designing, implementing and monitoring urban agriculture policies are worth the investment from a social, economic and/or environmental point of view. A better understanding of the multifunctionality of urban agriculture can also make clear how urban agriculture is related and can contribute to goals and objectives that municipalities are responsible for (and have been responsible for in the last decades). Linked to this is the call for further research on the effectiveness of different urban agriculture models (such as community gardens, private allotments and public allotments) in terms of their strengths, weaknesses and sustainability outcomes and impacts (Contesse et al., 2018). This is important for the development of integrated urban food (and agricultural) policies.

A third line of future research concerns the food safety and health risks of food production in urban and peri-urban areas and, following from that, the policies and regulations needed to increase food safety and reduce public health risks (De Zeeuw et al., 2011; Drechsel et al., 2015; Hamilton et al., 2014; Meenar et al., 2017; Mok et al., 2014). This should focus on the effects of air pollution and soil contamination on the safety of food produced in urban environments. A second topic of research is the risk of microbial and chemical contamination of food when using urban organic waste (compost), urban wastewater and human faeces and urine as a source of nutrients.

## **6 Where to look for further information**

More information about this topic can be found on the websites of the Milan Urban Food Policy Pact (<http://www.milanurbanfoodpolicypact.org/>),

the Global Database for City and Regional Food Policies (<http://foodsystemspanning.ap.buffalo.edu/resources/global-database-for-food-policies/>), the COST Action Urban Agriculture Europe (<http://www.urban-agriculture-europe.org/>), the African Food Security Urban Network (<https://www.afsun.org/>), City Farmer News (<https://cityfarmer.info/>) and the RUAF Foundation – Global Partnership on sustainable Urban Agriculture and Food Systems (<https://www.ruaf.org/>). The RUAF website also has a large online repository with a large variety of scientific and professional publications about (policy frameworks for) urban agriculture and food security (<https://www.ruaf.org/ruaf-publications>).

## 7 References

- Aubry, C., Ramamonjisoa, J., Dabat, M. H., Rakotoarisoa, J., Rakotondraibe, J. and Rabeharisoa, L. (2008), L'agriculture à Antananarivo (Madagascar): Une approche interdisciplinaire. *Natures Sciences Sociétés*, 16(1), 23-35.
- Aubry, C., Ba, A., Dabat, M. H. and Ramamonjisoa, J. (2010a), Urban agriculture and sustainable urban landscape. An applied research on two case studies (Madagascar and Senegal). *9th European IFSA Symposium*, 4-7 July 2010, Vienna.
- Aubry, C., Dabat, M. H. and Mawois, M. (2010b), Fonction alimentaire de l'agriculture urbaine au Nord et au Sud: Permanence et renouvellement des questions de recherche. *ISDA Proceedings 2010*, Cirad-Inra-SupAgro.
- Aubry, C., Ramamonjisoa, J., Dabat, M. H., Rakotondraibe, J., Rakotoarisoa, J. and Rabeharisoa, L. (2012), Urban Agriculture and land use in cities: An approach with the multifunctionality and sustainability concepts in the case of Antananarivo, Madagascar. *Land Use Policy*, 29, 429-39.
- Baker, L. and De Zeeuw, H. (2015), Urban food policies and programmes. In: H. de Zeeuw and P. Drechsel (Eds), *Cities and Agriculture: Developing Resilient Urban Food Systems*. Routledge, pp. 26-55.
- Battiston, A., Porzio, G, Budai, N., Martinez, N., Pérez Casella, Y., Terrile, R., Costa, M., Mariatti, A. and Paz, N. (2017), Green Belt Project: Promoting agroecological food production in peri-urban Rosario. *Urban Agriculture Magazine*, 33, 52-4.
- Blay-Palmer, A. (2009), The Canadian pioneer: The genesis of urban food policy in Toronto. *International Planning Studies*, 14(4), 401-16.
- Cohen, B. (2006), Urbanization in developing countries: Current trends, future projections, and key challenges for sustainability. *Technology in Society*, 28(1-2), 63-80.
- Cohen, N. and Reynolds, K. (2014), Urban agriculture policy making in New York's 'New political spaces' strategizing for a participatory and representative system. *Journal of Planning Education and Research*, 34(2), 221-34.
- Contesse, M., Van Vliet, B. J. and Lenhart, J. (2018), Is urban agriculture urban green space? A comparison of policy arrangements for urban green space and urban agriculture in Santiago de Chile. *Land Use Policy*, 71, 566-77.
- De Bon, H., Parrot, L. and Moustier, P. (2010), Sustainable urban agriculture in developing countries. A review. *Agronomy for Sustainable Development*, 30(1), 21-32.
- De Zeeuw, H. and Drechsel, P. (2015), *Cities and Agriculture: Developing Resilient Urban Food Systems*. Routledge.

- De Zeeuw, H. and Dubbeling, M. (2015), Process and tools for multi-stakeholder planning of the urban agro-food system. In: H. de Zeeuw and P. Drechsel (Eds), *Cities and Agriculture: Developing Resilient Urban Food Systems*. Routledge, pp. 56-87.
- De Zeeuw, H., Van Veenhuizen, R. and Dubbeling, M. (2011), The role of urban agriculture in building resilient cities in developing countries. *Journal of Agricultural Science*, 149, 153-63.
- Dieleman, H. (2017), Urban agriculture in Mexico City; balancing between ecological, economic, social and symbolic value. *Journal of Cleaner Production*, 163, S156-S63.
- Drechsel, P., Keraita, B., Cofie, O. O. and Nikiema, J. (2015), Productive and safe use of urban organic wastes and wastewater in urban food production systems in low-income countries. In: H. de Zeeuw and P. Drechsel (Eds), *Cities and Agriculture: Developing Resilient Urban Food Systems*. Routledge, pp. 162-91.
- Dubbeling, M. and Bracalenti, L. (2018), Rosario: Participatory design of spaces for multifunctional urban agriculture. In: J. S. C. Wiskerke and S. Verhoeven (Eds), *Flourishing Foodscapes: Designing City-Region Food Systems*. Valiz, pp. 191-7.
- Girioli, M. A. (2008), Secretaria Municipal Adjunta de Abastecimento: Promovendo a Segurança Alimentar e Nutricional. Summary text prepared for a visit by the delegation from the Ontario Secondary School Teachers Federation.
- Gore, C. D. (2018), How African cities lead: Urban policy innovation and agriculture in Kampala and Nairobi. *World Development* 108, 169-80.
- Halliday, J. (2019), Cities' strategies for sustainable food and the levers they mobilize. In: C. Brand et al. (eds), *Designing Urban Food Policies*. Springer, pp. 53-74.
- Hamilton, A. J., Burry, K., Mok, H. F., Barker, S. F., Grove, J. R. and Williamson, V. G. (2014), Give peas a chance? Urban agriculture in developing countries. A review. *Agronomy for Sustainable Development*, 34(1), 45-73.
- Lozano Torres, C. E. (2019), *Understanding Food Systems' Change: The Making and the Practicing of the School Food Reform in the City of Porto Alegre, Brazil*, PhD thesis, Wageningen University.
- MacRae, R. and Donahue, K. (2013), *Municipal Food Policy Entrepreneurs: A Preliminary Analysis of How Canadian Cities and Regional Districts Are Involved in Food System Change*. Toronto Food Policy Council.
- McEldowny, J. (2017), *Urban Agriculture in Europe: Patterns, Challenges and Policies*. European Parliamentary Research Service, European Union.
- Meenar, M., Morales, A. and Bonarek, L. (2017), Regulatory practices of urban agriculture: A connection to planning and policy. *Journal of the American Planning Association*, 83(4), 389-403.
- Mendonça, M. and Rocha, C. (2015), Implementing national food policies to promote local family agriculture: Belo Horizonte's story. *Development in Practice*, 25(2), 160-73.
- Mok, H. F., Williamson, V. G., Grove, J. R., Burry, K., Barker, S. F. and Hamilton, A. J. (2014), Strawberry fields forever? Urban agriculture in developed countries: A review. *Agronomy for Sustainable Development*, 34(1), 21-43.
- Moragues-Faus, A. and Morgan, K. (2015), Reframing the foodscape: The emergent world of urban food policy. *Environment and Planning A*, 47(7), 1558-73.
- Moragues-Faus, A., Morgan, K., Moschitz, H., Neimane, I., Nilsson, H., Pinto, M., Rohrer, H., Ruiz, R., Thuswald, M., Tisenkopfs, T. and Halliday, J. (2013), *Urban Food Strategies: The Rough Guide to Sustainable Food Systems*. Document developed in the framework of the FP7 project. FOODLINKS, <http://foodlinkscommunity.net/filea>

- admin/documents\_organicresearch/foodlinks/publications/Urban\_food\_strategies.pdf (accessed 10 October 2019).
- MUFPP (2015a), *Milan Urban Food Policy Pact Text*, <http://www.milanurbanfoodpolicypact.org/text/> (accessed 4 October 2019).
- MUFPP (2015b), *MUFPP Recommended Actions - Food Production*, [http://www.milanurbanfoodpolicypact.org/mufpp\\_food-production/](http://www.milanurbanfoodpolicypact.org/mufpp_food-production/) (accessed 4 October 2019).
- MUFPP (2019), *Signatory Cities of the Milan Urban Food Policy Pact*, <http://www.milanurbanfoodpolicypact.org/signatory-cities/> (accessed 4 October 2019).
- Mulligan, K., Archbold, J., Baker, L. E., Elton, S. and Cole, D. C. (2018), Toronto municipal staff and policy-makers' views on urban agriculture and health: A qualitative study. *Journal of Agriculture, Food Systems, and Community Development*, 8(Suppl. 2), 133-56.
- Pothukuchi, K. and Kaufman, J. L. (2000), The food system: A stranger to the planning field. *Journal of the American Planning Association*, 66, 113-24.
- Renting, H., Naneix, C., Dubbeling, M. and Cai, J. (2013), *Thematic Paper 3: Innovative Experiences with Multifunctional Urban and Peri-Urban Agriculture in City Regions in the Global South*, Deliverable 3.4 SUPURBFOOD, <http://www.supurbfood.eu/scripts/document.php?id=70> (accessed 14 October 2019).
- Rocha, C. (2001), Urban food security policy: The case of Belo Horizonte, Brazil. *Journal for the Study of Food and Society*, 5(1), 36-47.
- Rocha, C. (2018), Belo Horizonte: World pioneer in reducing hunger and malnutrition. In: J. S. C. Wiskerke and S. Verhoeven (Eds), *Flourishing Foodscapes: Designing City-Region Food Systems*. Valiz, pp. 75-81.
- Rocha, C. and Lessa, I. (2009), Urban governance for food security: The alternative food system in Belo Horizonte, Brazil. *International Planning Studies*, 14(4), 389-400.
- Schmidt, S. (2012), Getting the policy right: Urban agriculture in Dar es Salaam, Tanzania. *International Development Planning Review*, 34(2), 129-45.
- Sonnino, R. (2009), Feeding the city: Towards a new research and planning agenda. *International Planning Studies*, 14(4), 425-35.
- TFPC (2019), Toronto Food Policy Council, <http://tfpc.to/> (accessed 14 October 2019).
- Thomas, G. (2014), *Growing Greener Cities in Latin America and the Caribbean*. Food and Agricultural Organization.
- Van der Schans, J. W. and Wiskerke, J. S. C. (2012), Urban agriculture in developed economies. In: A. Viljoen and J. S. C. Wiskerke (Eds), *Sustainable Food Planning: Evolving Theory and Practice*. Wageningen Academic Publishers, pp. 245-58.
- Van Veenhuizen, R. (2006), *Cities Farming for Future, Urban Agriculture for Green and Productive Cities*. RUAF Foundation, IDRC and IIRP.
- Viljoen, A. M. and Wiskerke, J. S. C. (2012), *Sustainable Food Planning: Evolving Theories and Practices*. Wageningen Academic Publishers.
- Wiskerke, J. S. C. (2009), On places lost and places regained: Reflections on the alternative food geography and sustainable regional development. *International Planning Studies*, 14(4), 369-87.
- Wiskerke, J. S. C. (2015), Urban food systems. In: H. de Zeeuw and P. Drechsel (Eds), *Cities and Agriculture: Developing Resilient Urban Food Systems*. Routledge, pp. 1-25.
- Wiskerke, J. S. C. and Verhoeven, S. (2018), *Flourishing Foodscapes: Designing City-Region Food Systems*. Valiz.

