

PLANNING FOR URBAN AGRICULTURE PLANNING IN AUSTRALIAN CITIES

Victor Pires

Griffith University, Gold Coast, Queensland, Australia

INTRODUCTION

Cities have always been dependent on a variety of resources not only for their survival, but also to enable them to serve as places of innovation and civilisation. As those who in the past laid siege to cities knew all too well, one of the most important of these resources is food. Over the course of the last century cities have been supplied with their food from an increasingly wide range, indeed most Australian cities are now supplied with food from many different parts of the world as well as from different parts of Australia (Gaballa and Abraham 2008).

In Australia, food security has not been a major political issue, but there is evidence that in a relatively food secure country, some people do have limited access to a healthy diet. Conservative estimates indicate that food insecurity in Australia reaches at least 5% of the general population (Temple 2008). In more urbanised areas of the country this figure could increase many folds (Nolan, Rikard-Bell et al. 2006).

In response to actual and anticipated threats to the supply of food to cities, and in light of emerging threats from climate change, peak oil and economic crises, attention has focused in recent years on the potential to supply a greater proportion of the food requirements of cities by producing, processing and marketing more food locally, either within or close by the city in question. In this sense urban food security and urban agriculture have been seen as inextricably connected.

Theoretically, planning can play a significant role in addressing food security through urban agriculture, but it has failed to do so practically (Caldwell, Collett et al. 2011). Reasons for this discrepancy are numerous. Donovan and colleagues (2011) suggest that planners fail to consider food issues in their decision-making because of: lack of awareness of issues and responsibilities; lack of political will; time and financial constraints; conflict with other priorities; lack of planning recognition for food; and, their limited sphere of influence. Nevertheless, from a worldwide planning perspective, food is gaining prominence, especially after the publication of a *Policy Guide on Community and Regional Food Planning* and the *Urban Agriculture: Growing Healthy, Sustainable Places* by the American Planning Association and *Planning for Food* from the Royal Town Planning Institute.

Cities throughout the world are starting to realise the benefits of localising their food system through urban agriculture. In the last decade or so, local, state and federal governments have embarked on journeys to develop planning instruments to encourage, support and regulate urban agricultural practices. As a result, numerous programs, policies, provisions, resolutions, laws and ordinances have arisen internationally (Pires, forthcoming). In Australia, little scholarly attention has been given to the policy and politics of urban agriculture. And, regardless of its rise in prominence, urban agriculture is still a marginal land use in the sight of planning authorities.

Through an extensive analysis of land use planning instruments, this paper reviews the extent of urban agriculture planning in most Australian capital cities. A survey of local governments in Sydney, Melbourne, Brisbane, Perth and Adelaide provides a snapshot of urban agriculture planning in contemporary Australia – revealing that purposeful urban agriculture planning is almost non-existent.

AGRICULTURE AND CITIES

Urban agriculture can be viewed as an oxymoron: it is something that happens in rural areas, which, by definition, are not urban places (Mougeot 2005). However, agriculture has been a common practice in cities since the beginning of human agglomeration, frequently fostering positive outcomes, but some negative consequences may also arise.

Social, economic and environmental benefits allow urban agriculture to contribute to the multifunctionality and sustainability of cities. In terms of land use planning, multifunctionality is a great asset, and urban

agriculture can deliver a variety of potential benefits simultaneously (van den Berg 2000), making it a 'cheap' producer of public goods (Moustier and Danso 2006).

The multifunctionality of urban agriculture could be a result of its broad definition. Despite the fact that there are numerous urban agricultural systems and that an all encompassing definition may prove meaningless, Mougeot (2001; pg. 10) provides a concise definition that enlightens this multifunctionality.

Urban Agriculture is an industry located within (intra-urban) or the fringe (peri-urban) of a town, a city or a metropolis, which grows and raises, processes and distributes a diversity of food and non food products, (re)-using largely human and material resources, products and services found in an around that urban area, and in turn supplying human and material resources, products and services largely to that urban area.

Thus, urban agriculture represents a systemic approach to food, where food production is but one element on the scale. Similar to the food system described by Donovan et al. (2011), urban agriculture concerns the production, processing, transporting, marketing and sale of food as well as consumer access and utilisation, and the re-use and post-use management of wastes.

From this multifunctionality, numerous land uses are associated with urban agriculture, including community gardens, city farms, verge farming, community composting, farmers' markets, rooftop garden, keeping of animals (e.g. poultry and bees), etc. As a result, there are numerous ways in which land use planning can encourage, support, regulate and hinder urban agricultural practices.

Through policies, zoning arrangements, programs and laws, cities can directly or indirectly impact on these different urban agricultural practices. Directly, city planning can impact on urban agriculture through the development and implementation of a specific policy or strategy (e.g. community gardens policy, or urban agriculture strategy). Indirectly, planning provisions developed to act on one issue could also impact on urban agriculture. The later can be seen with the animal keeping regulations on the Gold Coast, which has been developed "to ensure that animals do not create a nuisance, or a hazard to health or safety" (GCCC 1998), and in doing so it precludes most property owners in non rural areas of the city from keeping poultry and benefiting from its services (i.e. meat, eggs, manure).

Ideally, cities would have comprehensive urban agriculture provisions that encourages, supports and regulates different forms of urban agriculture simultaneously. Cities such as Bulawayo (Zimbabwe), Cape Town (South Africa), Southeast False Creek (Vancouver, Canada) and Minneapolis (Minnesota, USA) have gone down this path. Unfortunately, the reality is that urban agriculture planning is quite piecemeal, with cities acting upon individual practices (e.g. community garden, rooftop garden, farmer's market) rather than tackling it holistically (Pires, forthcoming).

From this multifunctional perspective, this research attempts to understand the state of urban agriculture planning in Australia by elucidating how local governments within most Australian capital cities plan, encourage and regulate urban agriculture and its associated practices.

STUDY APPROACH

The state of urban agriculture planning in Australia was elucidated through a critical review of policies, strategic plans and regulations currently in place at the local government level within the five most populated and urbanised regions of Australia – Sydney, Melbourne, Brisbane, Adelaide and Perth. All local government areas within Metropolitan Sydney, Melbourne, Brisbane, Adelaide and Perth were investigated, rendering a total of 121 local governments (43 in Sydney, 31 in Melbourne, 1 in Brisbane, 19 in Adelaide and 27 in Perth).

Policy Collection

Prior to conducting the analysis, extensive research was conducted to obtain relevant policies, strategic plans and regulations regarding urban agriculture. Most local governments make these documents available in their website, and all of the 121 local governments included in this research actively maintained searchable websites.

Within the website of each of the 121 councils, the policy register as well as web pages describing strategic plans and regulations were thoroughly searched for urban agriculture related policies. The multifunctionality of urban agriculture alerted the researches for the need to not only focus the search on specific urban farming policies but to also broaden it to documents that dealt with urban farming, composting, green roofs

(rooftop garden), keeping of animals, street/verge vegetation, markets (outdoor, public and farmers) and community gardens.

In addition to searching policy registers and specific web pages, these websites had a search engine feature, that, through the use of keywords, allowed the researchers to look for other documents and web pages that could explain a policy, program or rule, which could be used as a facilitating or impeding agent for urban agriculture. Numerous keywords were used relentlessly, including urban agriculture, agriculture, farming, green roof, rooftop, composting, keeping of animals, poultry, bees, street tree, garden bed, farmers market, outdoor market, market, public produce, local produce and community garden.

Furthermore, although most councils attempt to actively maintain their website, in some instances not all documents are available or accessible. For instance, draft policies are unlikely to be publically available. To circumvent these situations and to ensure that no relevant document has been overlooked, an email to each council has been sent. In that e-mail, a brief explanation of the research was given, and information regarding urban agriculture and its elements (e.g. community garden, animal keeping, composting etc.) was requested. Most councils replied to this e-mail very attentively, providing copies and/ or web links to relevant documents and making them available to clarify or expand any issue.

Policy Analysis

Following the collection of policies, strategic plans and regulations related to urban agriculture from local governments in Sydney, Melbourne, Brisbane, Adelaide and Perth, a critical analysis of these documents was conducted. This analysis aimed to understand how urban agricultural practices were being recognized, supported, regulated, encouraged or hindered.

As expected, none of the researched local governments had an all encompassing document dealing holistically with urban agriculture. Therefore, the first stage of the analysis was to create subgroups where documents related to an urban agricultural practice could be grouped together. Six subgroups were created, including: animal keeping; community gardens; composting; green roof, markets and streetscape. Within each subgroup, a state wise division was kept as to identify any possible trend.

Analysis was conducted individually, where each document within each subgroup was thoroughly read and analysed. Throughout the reading exercise, the researchers were actively looking for descriptions of regulations, prohibitions, actions and any other condition surrounding the realisation of an urban agricultural activity. These were then used to understand the state and purpose of urban agriculture planning in Australia.

PLANNING FOR URBAN AGRICULTURE IN AUSTRALIA

Hundreds of potential urban agriculture related policies, strategic plans and regulations have been found. However, as mentioned earlier, none of the researched councils had a substantial document holistically addressing urban agriculture and all of its facets. This scenario clearly indicates the early developmental stage of Australian cities with regards to urban agriculture planning and reinforces the piecemeal approach to urban agriculture planning. Nevertheless, given the broad scope of the policy search, numerous documents dealing with individual elements of urban agriculture were obtained, and the following sub-sections present and discuss the most critical aspects of these provisions.

Animal Keeping

The keeping of animals in urban areas of Australia is firmly regulated. Animal keeping regulation is however not part of an urban agriculture strategy or policy, rather, councils are usually required by state legislation to adopt a regulatory framework, which could be pursued through numerous platforms - local laws, guidelines, plans of management. These frameworks however do not perceive animals as food or environmental service providers, instead, they mostly "recognise and promote the value of animals as part of the community; to encourage and facilitate responsible pet ownership and environmental responsibility and to maximise public safety" (Adelaide Hills Council 2006; pg. iii).

Given the confined spaces of urban environments, this research focused mainly on the keeping of poultry and bees. None of the researched councils prohibited the keeping of both poultry and bee, and in most cases both were allowed.

The analysis suggests that there is a state-wise distinction on the regulatory framework employed. That is, local governments in Adelaide have a 'two-tier' system, in which animal keepers must adhere to a set of guidelines aimed to minimise nuisance, however, upon non-compliance, councils can intervene. In Melbourne and Perth, animal keeping is generally regulated through local laws, be it a general local law that

addresses, among other things, animal keeping, or a specific animal keeping law. In Brisbane, the city council has a specific policy to the keeping of poultry, whereas in Sydney, keeping of animals is covered under state legislation.

Poultry Keeping

Poultry keeping was allowed in all of the searched local governments, but differences exist. In Adelaide, councils are mostly concerned with the nuisance that may arise from poultry keeping, and therefore require poultry keepers to follow strict guidelines. Generally, households in Adelaide do not have a limit on the amount of birds that can be kept and even the keeping of roosters is allowed for as long as there is no nuisance. The guidelines however stipulate stringent conditions – in particular with regards to the location and size of the poultry enclosure (see Unley City Council n.d.)

Brisbane and Melbourne provide a contrasting scenario to Adelaide. Poultry keeping is regulated by local laws, which specify the number of allowed birds depending on the size of the property. In Brisbane for example, the law identifies that properties with a total area of more than 800 m² can keep up to 20 fowl, while households with a total area of less than 800 m² can only keep six. It seems that the only additional requirements in Brisbane, apart from keeping poultry in a sanitary and nuisance free condition, is that poultry sheds must be set back at least one metre from a dividing fence and roosters are prohibited (Brisbane City Council 2010). In Melbourne, the majority of councils have a similar approach to Brisbane in terms of poultry regulation – whereby a local law stipulates the number of birds that are allowed to be kept within a specific property size. However, some councils do have additional regulatory requirements, similar to councils in Adelaide.

Keeping poultry in Perth follows a similar pattern to Brisbane and Melbourne. However, poultry keeping regulation in Perth displays two interesting features. Firstly, some councils have introduced in their local law the term “prohibited area”, whereby one or more regions of the local government area are prohibited from keeping poultry (see Fremantle City Council 1997). Secondly, numerous poultry regulatory ordinances in Perth allow properties of ‘affiliated persons’ to keep more birds than what is the norm. In the Town of Cambridge for example, an affiliated person can keep twice as many poultry as a ‘normal’ resident (Cambridge Council 2001; pg. 11).

Sydney presents a different approach to poultry keeping, where state legislation regulates the activity, although local governments can complement it. The Local Government (General) Regulation 2005 states in its Schedule 2 Part 5 that poultry must not pose a nuisance or health risk, and as such it dictates a number of rules regarding the siting, construction and maintenance of poultry enclosures (NSW Government 2005; pg. 212).

From this analysis, it is clear that poultry keeping is regulated by local governments in Australia for its potential to cause nuisance and not as a food source or a service provider. Consequently, although poultry keeping is allowed, there are numerous regulatory provisions that preclude urban residents from contemplating the practice. Of particular concern are the requirements referring to the location and specification of the poultry enclosure, which suggest that only very large properties (a minority in dense urban areas of Australia) have the physical capability of adhering to these specifications.

It seems that the one size fits all approach is mostly taken by local governments, and once poultry keeping is understood to be nuisance prone, strict regulatory provisions are enforced across the area, which ends up restricting the practice to most residents. The approach adopted in Perth is perhaps the one to be followed, where specific parts of the city have different provisions in accordance to their perceived purpose, allowing restrictions to be better tailored. In addition, by permitting affiliated persons to keep more birds than ‘regular’ residents could also bring positives, for people with poultry keeping training is more likely to look after the animals in a satisfactory and nuisance free manner.

Beekeeping

Beekeeping is an important element of urban agricultural practices, not only because it produces honey, but also because of pollination, which is essential for the production of most food crops. However, beekeeping seems not to receive much attention from councils, even though the nuisance that bees can cause is much more painful – literally.

In Adelaide, most councils do not have a policy or guideline on the topic. The analysis suggests that beekeeping in metropolitan Adelaide is generally allowed, however, given the anti-nuisance approach, local governments can obligate beekeeping households to have the hive removed.

In Brisbane, no information regarding beekeeping has been found and the council has not given any additional information on the topic. In Melbourne, beekeeping is regulated through the Victorian Apiary Code of Practice (1997), which states that beekeeping can take place in all zones without the need for a permit for as long as the practice conforms with the code. The code also stipulates the number of beehives permitted in accordance to tenement size (ranging from 1 to unlimited) and spells out numerous conditions for the placement of bee hives.

In Perth, beekeeping regulation is mostly done through specific or generic local laws. In most local government areas, residents are allowed to have up to two hives without a permit. However, some councils only allow beekeeping after a permit has been granted, and generally, as conditions on the approval of the permit, numerous restrictions are imposed on the sitting and keeping of bees (see Cockburn City Council 2010).

Many of the researched councils in Sydney do not have specific policies or guidelines that regulate beekeeping. Nevertheless a similar situation to Victoria exists, where the NSW Code of Practice for Beekeeping provides all the necessary information regarding the regulation of beekeeping. Although some councils can modify it slightly, particularly regarding the number of bee hives allowed in residential areas.

Generally, beekeeping is a permitted activity in local governments across Sydney, and usually 2 to 4 bee hives are allowed in residential lots. Legally, all beekeepers in NSW must be registered with NSW Department of Primary Industry and must comply with the *Apiaries Act*, 1995. The Code also establishes guidelines to the placement, maintenance and number of permanent bee hives. Additionally, local governments can, and have, imposed further restrictions to beekeepers. Bankstown City Council for instance has introduced supplementary regulations to the number of permitted beehives and their placement, probably as a measure to diminish potential nuisance complaints (Bankstown City Council 2007).

Beekeeping seems to be only perceived by local governments as an activity with high potential to cause nuisance rather than as an urban agriculture activity that can improve the food security of cities. As such, similar to poultry keeping, regulatory requirements may also preclude smaller households to keep bees in their properties. The development and application of a State code is perhaps a positive outcome to arise from this research, especially as these codes tend to perceive beekeeping as fruitful activity rather than a nuisance.

Community Gardens

Community gardens are, for most local governments, the only urban agriculture related land-use purposely recognised and fostered. Nevertheless, only 15% of researched councils have endorsed or drafted a community gardens policy. Of these, local governments in metropolitan Sydney are overly represented, being responsible for over 60% of all community gardens policy found. A total of eighteen community gardens policies or strategic directions were found, being three from Adelaide (Burnside, Norwood and West Torrens), two from Melbourne (Frankston and Yarra), two from Perth (Stirling and Subiaco) and eleven from Sydney (Blue Mountains, Hawkesbury, Kogarah, Manly, Marrickville, Randwick, Ryde, Sydney, Waverley, Willoughby and Woollahra).

Setting policy directions for community gardens in Australia seems to be a new venture for local governments. The earliest document found is the "Community Gardens: Policy Directions for Marrickville Council" which was endorsed in 2007. Norwood, Kogarah and Woollahra councils soon followed, releasing their intentions in 2008. However, over 60% of policies have been released in 2010 or 2011, further suggesting the early developmental stages of urban agriculture planning in Australia, but also indicating the greater acceptance that it is receiving.

councils tend to define community gardens differently, but generally community gardens are understood to be public open spaces operated by the community for personal food production, and to serve as sites for environmental activities and community education. Also, community gardens in Australia are exclusively not for profit, and sale of produce is often prohibited.

Despite similar definitions, there seem to be different impetus for developing community gardens policies. Frankston City Council for instance aims to promote council's role in local food security and in social inclusion as well as support local food production initiatives (Frankston City Council 2010). The city of Yarra focuses on community empowerment, by encouraging "local groups to initiate, design and self manage community gardens ... [that are] effective, enjoyable and safe for all" (Yarra City Council 2010; pg. 1). On the other hand, numerous councils have devised policies with the sole intention of stating the necessary regulatory requirements for the establishment of community gardens, where the aim of the policy is to

“document and standardise processes and procedures and clarify the rights and responsibilities of all stakeholders” (Ryde City Council 2010; pg. 1).

These differences in motivation may elucidate how local government perceive urban agriculture. This analysis suggest that, while some councils value and foster the food security and social benefits of community gardens, others simply identify community gardens (and urban agriculture) as ‘another community thing’ that council needs to cope with every so often.

Another similarity is that most local governments define their role as “enabler”, “facilitator” or “supporter”, clearly indicating that they do not take the lead in establishing community gardens. However, councils do facilitate the establishment of community gardens and their continuation through advice, training and workshops, marketing, financial and in-kind support, and education (Woollahra Municipal Council 2008; Blue Mountains City Council 2010; Hawkesbury City Council 2010).

A concern raised by the analysis refers to the long term viability of community gardens, which is often interlinked with its financial viability. Most community gardens policies indicate that community groups are to be responsible for income generation. Where, unless in the exceptional circumstances surrounding the “urgent repair of items that pose a significant safety risk and cannot wait for a grant; public signage and educational materials for the community garden; and, a limited supply of mulch, manure, soil and plants to community gardens” (Manly City Council 2010; pg. 5), no financial commitments are made by councils.

Also, although some councils do have specific funding arrangements for community gardens – as is the case of Brisbane through its “Cultivating Community Gardens Grant” (Brisbane City Council 2010) and the city of Stirling through its “Community Food Garden Grant Program Policy” (2011) - it is relevant to point out that many, if not all local governments, prohibit community gardens from selling produce, even as a form of fund raising. This action precludes community gardens from gaining extra resources that could be used for the development and long term viability of the garden, and also limits the opportunity for community members to obtain quality and fresh produce at very affordable prices.

Gaining access to public land is another issue covered in community gardens policies. Local governments either use a licensing system or lease agreements to grant access for public land while maintaining ownership of the land. These arrangements are initially granted for 12 months with a renewal option for a further three years. In addition, numerous conditions are attached to these agreements, often requiring community gardens to become an incorporated entity and to hold a public liability insurance of \$10,000,000. These additional conditions may however be an impediment to the creation of community gardens, as insurance premiums are expensive and community members may not be able, or willing, to commit to the requirements of an incorporated entity.

Overall, the finding that numerous councils in Australia have developed their own community gardens policy is reassuring, indicating that urban agriculture is slowly creeping into mainstream planning. However, there seems to be a long way to go before community gardens become a widespread practice. This is mainly because of the number of barriers that community groups need to jump before the establishment of a garden, which include insurance, incorporation, funding and often a long approval process. Thus, councils need to recognize all the benefits that community gardens bring to the community, and must ensure that they act as a facilitator and enabler rather than another obstacle.

Composting

Composting is an integral part of urban agricultural systems. Composting is the mechanism that closes the loop, allowing nutrients to go back into the system and facilitate the growth of the next crop. Unfortunately, none of the researched councils have endorsed a policy, regarding the practice of composting in their community. Nevertheless there are positive initiatives being pursued informally.

Councils generally seem to recognise the value of composting, in particular the role that composting plays in reducing the amount of waste being diverted to landfill and not necessarily as an urban agriculture strategy. Without exception, local governments in metropolitan Australian cities provide incentives for their community to pursue composting practices. Commonly, workshops are offered by city councils to teach community members on the science and practice of composting and worm farming. Also, councils provide incentives for their community to acquire composting gear, either through donation, at cost sale or rebate schemes. The West Torrens Council in Adelaide for instance offers a 50% rebate on any worm farm or compost bin purchased from a local hardware store (West Torrens City Council 2011), while Blacktown City Council offers a \$25 rebate to buyers of composting bins, worm farms or bokashi bins, and also incentivise residents to attend composting workshops through the donation of composting bins (Blacktown City Council n.d.).

Another composting initiative is the addition of a 'green bin' to the waste service collection system. Numerous local governments have introduced, in addition to the regular red and yellow 'wheelie bins' (designated for general and recyclable waste), a green organics bin, in which households can dispose their grass clippings and other gardening remains. The green bin is then collected fortnightly and taken to a composting and mulching centre for processing. Mulch and compost are then sold back to the community at affordable rates. Even better is the Compost Mates Neighbourhood Pilot Project from Yarra City Council, which advances composting by partnering food related businesses with 'compost mates'. In that program, food businesses separate their compostable waste and compost mates collect this waste to be composted at home or at a nearby school (Yarra City Council 2010).

Clearly, composting is on the local government's agenda, more likely as a financial strategy (to reduce costs associated with waste management) rather than an urban agriculture one. Consequently, even though some initiatives exist they seem very superficial and with minimal government participation. The introduction of green bins is probably the easiest (but most expensive) approach to increasing composting, allowing large quantities of food and garden waste to be composted. Education is also key, and councils across Australia are providing this service. However, more can be done, such as introducing community composting sites, dropping off stations or even allowing residents to trade their organic waste for food – truly closing the loop.

Green Roof

Green roofs provide an important alternative to land-based agriculture, and given the amount of buildings in Australian cities, there is enormous potential for rooftops to be put to productive use. However, generally, local governments in Australia are only starting to realise the benefits of green roofs, and no specific policies exist. Nevertheless, there are some encouraging signs.

Adelaide City Council is promoting green roofs through brochures and through its Environmental Sustainability Strategy, which aims to encourage the development of green roofs and green walls in the city as a response to climate change and water shortages (Adelaide City Council 2009). On a similar note, Frankston City Council, in Melbourne, recognises the numerous benefits of green roofs and suggests their (voluntary) inclusion in the design of buildings (Frankston City Council 2010).

Brisbane's Plan for Action on Climate Change and Energy also recognises the benefits of green roofs (Action 13), and acknowledges the need to conduct relevant research on the feasibility of adopting green roofs throughout the city (Action 30; Brisbane City Council 2007).

Markets

The provision of markets is paramount to the development of a robust urban agriculture cycle. Within this markets community members can benefit from locally produced fresh food at affordable prices, and urban farmers can market their produce directly to consumers without unnecessary packaging and transport. These markets also provide avenues for community building through farmer-consumer interactions that educate consumers on the origin of their food and instruct farmers on the needs of consumers.

Despite its significance, local governments in metropolitan cities of Australia do not have policies or regulatory incentives to facilitate the occurrence of community and farmers markets. In fact, most local governments seem to manage their market proposals on an ad-hoc basis.

Streetscape

Streets, verges and nature strips provide an almost endless supply of opportunities for cities to embrace food production. Be it through edible fruit trees, garden beds or the cultivation of species as wood sources, city streets can significantly increase the food resilience of cities. However, once again, local governments do not recognise the value of streetscapes for local food production, and even though most councils do have a street tree, verge, or nature strip policy/plan, virtually none of them encourage the planting and growth of edible varieties – actually the contrary is usually found.

The analysis of streetscape and related policies revealed that the objective of these documents relate primarily to the management, maintenance, replacement and improvement of street vegetation to minimise the risk of injury and damage, while reinforcing the character of cities as desirable places to live and visit. It is acknowledged that street vegetation provide local governments and their community with many benefits, and "these benefits are the drivers for species selection" and management options (Bayside City Council 2008: pg. 8). An explanation for the lack of supportive measures towards edible street vegetation comes from the analysis of perceived benefits of street vegetation, which often include: shade; value add; noise softening; wildlife habitat; visual amenity; environmental services; and education and research purposes.

Curiously, with the exception of Bayside City Council, no other local government has recognised the benefit of street trees as source of food or wood in their plans or strategies. Consequently, edible species are often overlooked – particularly fruit trees. This is further reinforced by selection criteria employed in these documents. Repeatedly, streetscape documents elucidate that tree selection will depend on numerous factors, one of which being trees that are known to bare fruits are not to be encouraged, for these trees could eventually drop their fruit and become a nuisance.

This lack of incentive for edible street trees (particularly fruit trees) is briefly explained by Cambridge City Council's Treescape Plan (Cambridge City Council 2010; pg. 13), which suggest that the management of edible plants is difficult to achieve due to their higher maintenance requirement. However, local governments do not seem to grieve the very maintenance, chemical and resource intensive practice of cultivating lawn, which, apart from looking tidy, does not bring many benefits to communities.

On a good note, some local governments do recognise the value of edible species in public places (although not through their street tree policies) and encourage residents to plant and care for them. Yarra City Council for example has acknowledged the potential values that urban agriculture can bring to the city and have developed and adopted detailed guidelines for the cultivation of nature strips by its residents (Yarra City Council 2011; 2011; 2011). City of Sydney, through its community gardens policy, also permits the cultivation of verges for food by its community (City of Sydney Council 2009). Additionally, many councils have acknowledged that residents, upon successful application, can plant and maintain the nature strip, thus opening up a small door for the cultivation of edible species in their streets and public lands.

Streets can be an immense resource for local food production if governments realise their potential and start thinking outside the box. Understandably, the maintenance requirements of edible vegetation are higher and more complex than lawns, but its products are also of higher and more complex benefit. If maintenance is the main concern, there are numerous ways around it, such as partnering with community groups or charitable institutions, which would be more than happy to harvest and look after these species. Alternatively, council could harvest the produce and sell it to recover the maintenance costs. Solutions abound, it is just a matter of seeking them.

CONCLUSION

Planning for food security is a new duty for local, state and federal governments in Australia and worldwide. In urban regions food planning is becoming paramount, due to a higher proportion of its residents being more likely to be food insecure, and cities becoming more vulnerable to shocks the current industrialised and centralised food system. Urban agriculture provides tools for cities to remedy this situation and increase their resilience to economic, social and environmental crisis. However, as any other land use, urban agriculture needs to be recognised, planned, encouraged, supported and regulated.

In Australia, intentional urban agriculture planning is at a very early developmental stage, with no comprehensive policy or strategy and only a small proportion of local governments in capital cities having community gardens provisions. Furthermore, this analysis suggests that most of the regulatory arrangements impacting on urban agriculture practices are unintended, often hindering rather than encouraging it.

Perhaps the main hurdle to be overtaken is to recognize urban agriculture and all of its practices as a desirable land use, rather than an incidental one. Through recognition and understanding of its practices, existing regulatory provisions could be altered to facilitate urban agriculture development. In particular, this analysis suggests that most urban agriculture practices are regulated from a nuisance-causing perspective, which results in prohibitions, obstacles and impracticable conditions. To facilitate urban agriculture recognition local governments should invest in education, in particular on educating decision-makers, planners and the community on its practices, benefits and risks.

Despite the accidental nature of urban agriculture planning in Australia, this study revealed that there are numerous encouraging signs. In general, urban agriculture practices are well regarded and councils seem to be starting to grapple with issues like green roofs, composting, animal keeping and food production. But as it is often the case, more needs to be done, and there are many avenues to be taken.

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