



CONNECTIONS AND MISSING LINKS WITHIN URBAN AGRICULTURE, FOOD AND FOOD SYSTEMS

INSTITUTIONAL CREDITS

CONNECTIONS AND MISSING LINKS WITHIN URBAN AGRICULTURE, FOOD AND FOOD SYSTEMS

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The background of the page is a photograph of a rural landscape. It shows rolling green hills in the foreground and middle ground, leading up to a horizon line. The sky is filled with soft, grey, overcast clouds. The overall tone is muted and natural.

CONNECTIONS AND MISSING LINKS
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INTRODUCTION

So far Urban Agriculture - UA and food have been increasingly part of various research programs and activities and at the same time leading Portuguese institutions in these fields have been organizing scientific events with significant production. What seems missing though, and this is normal with such a vibrant dynamics, is to better connect the different fields of knowledge and disciplines that have been involved so far. Therefore the focus of this scientific event proceedings, and its expected added value, is to offer an open platform to engage debates on how to connect the various disciplines and different sectors that have been engaging on food and UA so far and that are contributing, from their own perspective and driving logics to a better understanding of the field. The event explored interconnected fields that structure the present e-book.

CONNECTIONS AND MISSING LINKS BETWEEN FOOD RELATED FIELDS OF RESEARCH

The scope of the papers presented during the first session was to discuss what are the must needed links and disciplines that should be articulated in order to think UA and food as part of the food system. As a potential approach to this question, authors were invited to address, primarily but not exclusively the following issues:

1. Challenges and opportunities to develop a multi-disciplinary approach for UA and food.
2. Significant linkages, connections and scales existing between food related fields of research.
3. Concepts and approaches to connect the missing links between UA and food related fields of research grounded on examples.

LINKING UP ACTORS AND SCALES

The scope of the papers presented during the second session referred to actors and spatial scales that should be articulated and linked up in order to include UA and food as part of the urban food system. As a potential approach to this question authors were invited to address the following issues:

1. Scales (and actors) that must be articulated in order to have UA and food as part of an urban food system.
2. Challenges and opportunities to make those links sustainable through time.
3. Methods and approaches to build and strengthen powerful and fluid links among actors and between spatial scales [from street to neighborhood, to city scale and city region].

SHIFTING FROM UA AND FOOD PROJECTS TO POLICIES

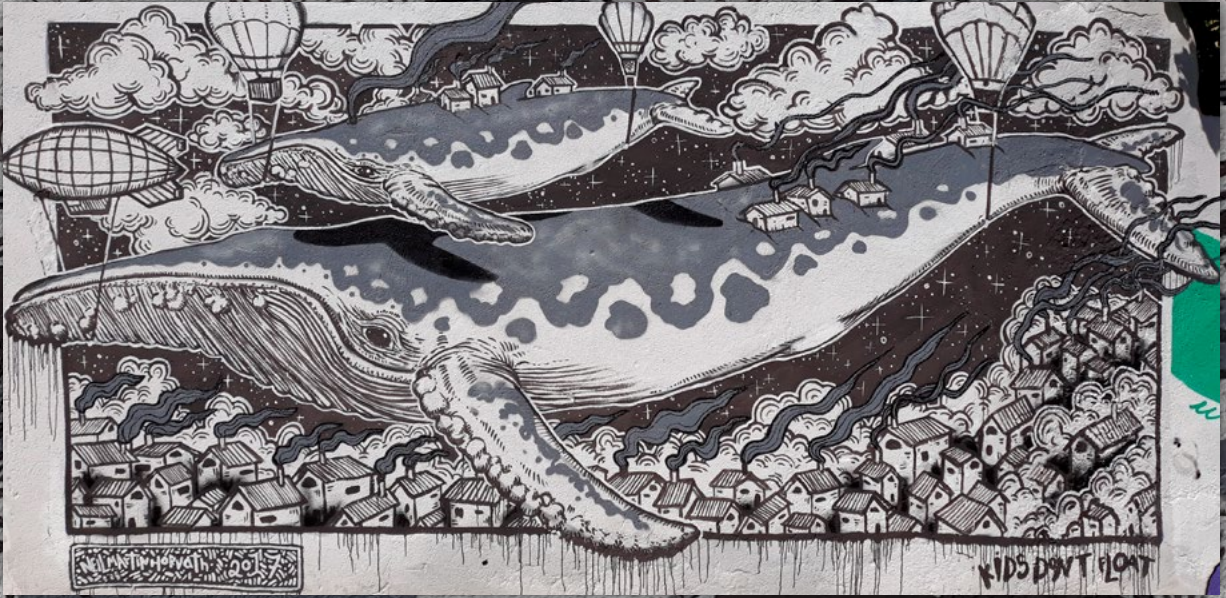
The scope of the papers presented during the third session focused upon the driving factors to develop a Food Policy, as a potential approach to this question, authors were strong invited to consider the following issues:

1. Critical points enabling the shifting from projects to policies.
2. Approaches to address the shifting from projects to policies.
3. Critical revision of existing food policies.





CONNECTIONS AND MISSING LINKS BETWEEN FOOD RELATED FIELDS OF RESEARCH



KIDS DONT FLOAT

Urban Agriculture Solutions: How can indoor vertical farming close the loop on the challenges of Urbanisation of urban food production?

G. Parkes, Michael — Author

Keywords

Efficient Urban Food Production

Introduction

The challenges of food production globally continues to be studied to understand the interconnection between public health, sociology, agriculture, food security and environmental impacts in urban settings. With more than 50% of the global population residing in urban areas and the total global population predicted to grow to 9.1 billion by 2050, additional efficiencies must be discovered to meet the expected future 70% increase in demand for food production (Lin *et al.*, 2014; Frediani *et al.*, 2016). In this context, there is still limited evidence about the interconnected impacts of farming or food production on social, ecological and economic aspects of sustainability simultaneously (Garibaldi *et al.*, 2017). This research plans to explore and validate how Urban Agriculture (UA) solutions can be used to address the missing links of these interconnected problems facing urbanization and urban food production.

The Global Food System

Due to the growth of global markets and international trade, multinational corporations continue to drive the mainstream messaging of food through advertising and addiction (Lustig, Schmidt and Brindis, 2012; Stuckler and Nestle, 2012). Populations now consume more salt, refined carbohydrates and sugar with an increased frequency of meals. In response, policies are being designed to boost proteins and calories consumed (Hawkes and Popkin, 2015). In contrast to the overall increased consumption of these unhealthy foods, research has found a modest increase in the consumption of healthy foods in countries of higher socio-economic means over the last 20 years (Imamura *et al.*, 2015). This small shift in dietary trends may not be enough as research points to an 80% increase of greenhouse gas (GHGs) production from global agriculture and food production by 2050 (Myers, Smith and Guth, 2017).

Globalized linear supply chain models of food production have emerged as a model to meet the demand and intensity

of consumption supporting the growth of urbanization; as a consequence, populations have become disconnected from food sources (Edwards *et al.*, 2011; Barthel and Isendahl, 2013; Biel, 2016). As one result, a food paradox has been created, whereby over 2 billion overweight people live at the same time as 1 billion people go without food, creating a complex double burden with undernutrition and malnutrition co-existing within the same populations (Shimpton and Rokx, 2012; Stuckler and Nestle, 2012). In some places this is a question of access to healthy foods, along with the influence of marketing and policy. Food deserts describe urban and peri-urban areas where access to healthy or fresh foods is limited in retail stores (Specht *et al.*, 2014). As part of smart city urban planning, accessibility of locally grown fresh produce can be included to improve healthy foods choices for urban dwellers (Maye, 2018).

Sustainable Development Goals

The Sustainable Development Goals (SDGs) were created to offer the world a way of viewing and potentially reducing the impacts of human activities pressure on the environment (Sachs, 2012). The Paris Accord created an international goal to limit carbon emissions in order to stay below a 2 C temperature increase by 2030 (UNEP, 2017). Global food consumption applies pressure on the environment due to private consumers and the SDGs provide a way for increasing awareness of these impacts; specifically, 'Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture and Goal 12: Ensure sustainable consumption and production patterns' (UNEP, 2017). However, SDGs do not address agricultural or food production practices and processes contributing the long term challenges of organizing healthier and sustainable food systems (Hawkes and Popkin, 2015). This is a challenge for agriculture to adapt in ways which do not contribute to environmental pressures of food production, while addressing the issue of population access to healthy foods and reducing waste (Moore, 2017).

The SDG's are forcing countries and cities to begin to examine how to apply each of the 17 goals in relation to the future populations of urban regions. This is important for public health and smart city planning, because urban centres are already contributing 78% of global carbon emissions (Lin *et al.*, 2014). Urban food production is at the centre of the complex intersection of 'food, energy and water nexus', creating an entry point for UA to raise awareness about the ability of UA solutions to reduce associated energy demand (Mohareb *et al.*, 2017). Identifying the metabolism of materials consumed and transformed in urban regions, UA can provide a bridge to close the loop on wasted materials and residues such as water or CO₂, for example City Region Food System projects by RUAF and the FAO (RUAF Foundation, 2015; Hampwaye *et al.*, 2016). By using technologically advanced UA solutions this research plan proposes to demonstrate how connecting the missing links between UA, food and the measurement of SDGs in urban areas is possible.



Urban Agriculture

Urban agriculture (UA) has emerged as a means of addressing some of the interconnected challenges of globalization and urbanization at a local level, such as food insecurity and accessibility to nutrient dense produce (FAO (Food and Agricultural Organizations of the United Nations), 2011). UA is the production of food within a city's boundaries or densely populated peripheral regions (Hirsch, Meyer and Klement, 2016; Mohareb *et al.*, 2017; Pollard, Ward and Koth, 2017). A long history exists in cities where food production by inhabitants has led to contemporary movements for growing a variety of foods on and in vacant lots, roof tops, balconies, community spaces, greenhouses and indoor spaces (Barthel and Isendahl, 2013; Despommier, 2013; Orsini *et al.*, 2013; Ackerman *et al.*, 2014; Thomaier *et al.*, 2015; Hirsch, Meyer and Klement, 2016). In 2018, community gardens are present in many shapes and sizes in major European cities, which in some cases has occurred out of necessity and in others out of policy-driven initiatives (Hirsch, Meyer and Klement, 2016; Pollard, Ward and Koth, 2017).

Beyond the known social benefits, UA has the potential to provide multiple benefits across current food supply chains, such as reducing environmental pressures and potentially mitigating some of these pressures created by urban food supply (Thomaier *et al.*, 2015; Benis, Reinhart and Ferrão, 2018). The challenge is that UA is often difficult to define because of the variation in farm scales, project sizes, production yields and growing technologies (Dimitri, Oberholtzer and Pressman, 2016). This has proven to limit the consistency of research into its efficacy to reduce GHGs when energy consumption is factored into production costs and compared with different technologies such as indoor or greenhouse growing (Benis, Reinhart and Ferrão, 2017). To understand and optimise how the interconnected dimensions UA can influence urban areas, we use as an example an indoor hydroponic initiative based on the input/output control offered by the climate controlled environments to gain data and assess its viability as a solution.

Methods

This research plan evaluates a project based on multiple dimensions related to urban food production to assess and demonstrate the efficacy of UA solutions in addressing food efficiency. The project, consisting of 3 stages, will seek to close the loop on waste products, such as wastewater, excess solar energy, CO₂ and bio-nutrients available as inputs into the growing technology. While measuring the energy and materials required through the growing processes, the UA solution will produce specific crops to supply consumer demand and is compared with the produce available at the urban location.

Stage 1

The selection of the location in Lisbon, Portugal is based on an assessment of the quantity and quality of urban residues available as inputs into the UA solution. Here, Urban Metabolism can provide a way to examine the linear input and output flows of materials through the economic activities happening in each area (Kennedy *et al.*, 2014). During this process, the materials are metabolised by the economic activity to produce a product, service or waste residues (Goldstein *et al.*, 2016). A selection criteria will determine the location based on the urban residues available in an area as growing inputs, such as Phosphorus which has been identified as an wasted urban residue, when it could be used as a key nutrient for growing plants (Treadwell, Clark and Bennett, 2017). These materials and resources are available in urban areas as outputs of the economic activities and can be utilized to grow food from within the city.

Stage 2

The sustainability of UA solutions is commonly evaluated using Life Cycle Assessment (LCA) (Seo *et al.*, 2017). LCA takes direct and indirect impacts into account, and is a well-tested environmental assessment tool. LCA is limited by the availability of quality, low-uncertainty data depicting environmental flows (emissions, etc.) from UA agricultural methods, practices, technology type and material sources (Notarnicola *et al.*, 2017). LCA also focuses on environmental damages and rarely addresses ecosystem services or social consequences of product systems and production processes (Petit-Boix and Apul, 2018). The LCA performed here will compare the impacts of the UA approach and of the supply of similar food items. This assessment will test how agriculture in urban areas using the solution proposed here compares with conventional agriculture supplying urban centres (Shiina *et al.* 2011; Hall *et al.* 2014). To overcome the main limitations identified in LCA studies of UA, the work will: (a) define early on all important processes and environmental flows for the UA technology, e.g. urban materials and residues, enabling an early start to the data collection (and/or creation) process and avoiding future data gaps; (b) take social aspects into account using social (and not just environmental) LCA.

Stage 3

The prototype will be built in Lisbon by a start-up organisation focused on developing an Urban Food Box (UFB) product and microbusiness model. Integrating a combination of sophisticated technologies working in a climate-controlled environment which allows for the food-growing process will be optimized for efficiency. The challenge for the prototype, duly factored into the business model, is the high costs associated with the initial investment to build the UFB when compared with other UA solutions (Lindsey, 2013). This can be offset by advantages of year-round crop production and

reduced risks of crop losses due to other environmental factors, while offering increased control and measurement for optimization of growing inputs, nutrient solutions, photosynthesis and photorespiration regulation as mapped in Figure 1.

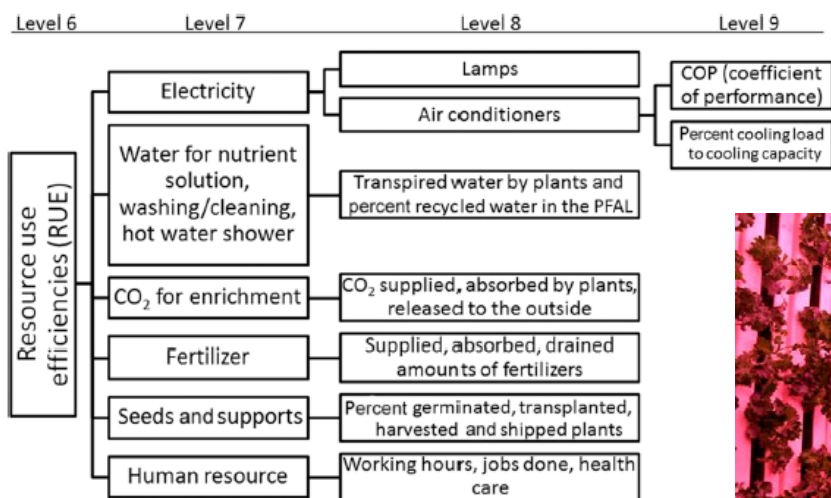


Figure 1: Resource use efficiencies demonstrate the functionality for measuring the inputs into the proposed UA solution for comparison with production outputs in this research. Source: Design and Management of PFAL, Ch22 Plant Factory: An Indoor Vertical Farming System for Efficient Quality Food Production (Kozai, Niu and Takagaki, 2016)



Figure 2 Source: Modular Farms onsite visit in September 2017 (<http://modularfarms.co/>)

Indoor Vertical Farming

Growing for urban regions on the vertical dimension has been undertaken on large scale and small scale project across the world with varying degrees of success and combination of technologies, both outdoor, in greenhouses and indoor controlled environments (Benis *et al.*, 2015; Aswath and Selvakumar, 2016; Benke and Tomkins, 2017; Pollard, Ward and Koth, 2017). The key principle is to increase the yield by using smaller surface area through different growing systems, control the volume of water and resources consumed (Touliatos, Dodd and Mcainsh, 2016). Specifically, this prototype will be designed using a vertical column system in an urban area of approximately 100sqm, using LED grow lighting, integrated climate control system and software management. Figure 2 was taken in a Modular Farms container using similar technology in shipping containers and Figure 3 is taken from Grow to Greens climate controlled unit are both example technologies. This type of agricultural engineering prototype in Lisbon will assist in addressing the gaps in research pertaining to UA solutions and their viability into the future.



Figure 3 Source: Grow to Green visit in March 2018 (<http://growtogreen.com/>)

The final stage in the project involves the evaluation of the food produced from UFB using the data measured throughout the growing process and comparing it against LCA results from Stage 2. This will allow for the analysis and validation of the efficiency of production using the UFB.

Conclusion

This type of research project is important to urban centres strategically aiming to become smart cities and find solutions which offer tangible data for reporting SDGs. Processes associated with urban food production cast a large net across the interconnected challenges facing the expanding



community of urban dwellers. UA solutions when compared to existing conventional agricultural outputs, have the potential to influence carbon emissions and GHGs from food production, address concerns of access to healthy foods in cities and close the loop on urban waste residues. The project will provide a full environmental assessment of a market tested prototype and is expected to provide results indicating the potential application UA in urban planning for sustainability and circular economies.

Results can be used for the analysis and future decisions taken by urban and city planners, because for cities similar to Lisbon geographically, reducing water consumption through agriculture by 90% for similar crops can support population grow into 2050. This is only one known variable where the growing technology can influence future resources, by undertaking this project UA can validate its importance in providing the missing links for GHG reduction, food and nutrition security; urban employment and efficient use of resources.

References

- Ackerman, K.** et al. (2014) 'Sustainable Food Systems for Future Cities: The Potential of Urban Agriculture', *The Economic and Social Review*, 45(2), pp. 189–206. doi: <http://www.esr.ie/issue/archive>.
- Barthel, S. and Isendahl, C.** (2013) 'Urban gardens, Agriculture, And water management: Sources of resilience for long-term food security in cities', *Ecological Economics*. Elsevier B.V., 86, pp. 224–234. doi: 10.1016/j.ecolecon.2012.06.018.
- Benis, K., Reinhart, C. F. and Ferrão, P.** (2018) 'Putting Rooftops to Use – a Cost-Benefit Analysis of Food Production vs. Energy Generation under Mediterranean Climates', *Cities*. Elsevier, (June 2017), pp. 0–1. doi: 10.1016/j.cities.2018.02.011.
- Benis, K., Reinhart, C. and Ferrão, P.** (2017) 'Building-Integrated Agriculture (BIA) In Urban Contexts: Testing A Simulation-Based Decision Support Workflow', in *Building Simulation 07*.
- Despommier, D.** (2013) 'Farming up the city: The rise of urban vertical farms', *Trends in Biotechnology*. Elsevier Ltd, 31(7), pp. 388–389. doi: 10.1016/j.tibtech.2013.03.008.
- Dimitri, C., Oberholtzer, L. and Pressman, A.** (2016) 'Urban agriculture: connecting producers with consumers', *British Food Journal*, 118(3), pp. 603–617. doi: 10.1108/BFJ-06-2015-0200.
- FAO** (Food and Agricultural Organizations of the United Nations) (2011) 'Food , Agriculture and Cities. Challenges of food and nutrition security, agriculture and ecosystem management in an urbanizing world', FAO, Rome, Italy, p. 48.
- Frediani, K.** et al. (2016) *Sustainable Food Production Using High Density Vertical Growing (Verticropj)*. doi: 10.17660/ActaHortic.2011.921.11.
- Garibaldi, L. A.** et al. (2017) 'Farming Approaches for Greater Biodiversity, Livelihoods, and Food Security', *Trends in Ecology and Evolution*. Elsevier Ltd, 32(1), pp. 68–80. doi: 10.1016/j.tree.2016.10.001.
- Goldstein, B.** et al. (2016) 'Surveying the Environmental Footprint of Urban Food Consumption', *Journal of Industrial Ecology*, 21(1), p. 151. doi: 10.1111/jiec.12384.
- Hall, G.** et al. (2014) 'Potential environmental and population health impacts of local urban food systems under climate change: a life cycle analysis case study of lettuce and chicken', *Agriculture & Food Security*, 3(1), p. 6. doi: 10.1186/2048-7010-3-6.
- Hawkes, C. and Popkin, B. M.** (2015) 'Can the sustainable development goals reduce the burden of nutrition-related non-communicable diseases without truly addressing major food system reforms?', *BMC Medicine*. BioMed Central, 13(1), p. 143. doi: 10.1186/s12916-015-0383-7.
- Hirsch, D., Meyer, C. and Klement, J.** (2016) 'Urban AgriCulture and Food Systems Dynamics: Urban Gardening and Urban Farming of the Bonn-Rhein-Sieg region, Germany', *International Journal of Food System Dynamics*, 2050, pp. 406–419. doi: 10.18461/IJFSD.V7I4.745.
- Imamura, F.** et al. (2015) 'Dietary quality among men and women in 187 countries in 1990 and 2010: A systematic assessment', *The Lancet Global Health*, 3(3), pp. e132–e142. doi: 10.1016/S2214-109X(14)70381-X.
- Kennedy, C.** et al. (2014) 'Developing a multi-layered indicator set for urban metabolism studies in megacities', *Ecological Indicators*. Elsevier Ltd, 47, pp. 7–15. doi: 10.1016/j.ecolind.2014.07.039.
- Kozai, T., Niu, G. and Takagaki, M.** (2016) *Plant Factory: An Indoor Vertical Farming System for Efficient Quality Food Production*. doi: 10.1017/CBO9781107415324.004.
- Lin, T.** et al. (2014) 'Managing urban nutrient biogeochemistry for sustainable urbanization', *Environmental Pollution*. Elsevier Ltd, 192, pp. 244–250. doi: 10.1016/j.envpol.2014.03.038.
- Lindsey, H. S.** (2013) 'Vertical Farms, Urban Restructuring and The Rise of Capitalist Urban Agriculture', in

International Institute of Social Studies, p. 37. Available at: <http://thesis.eur.nl/pub/15226/>.

Lustig, R. H., Schmidt, L. A. and Brindis, C. D. (2012) 'Public health: The toxic truth about sugar', *Nature*. Nature Publishing Group, pp. 27–29. doi: 10.1038/482027a.

Maye, D. (2018) "'Smart food city": Conceptual relations between smart city planning, urban food systems and innovation theory', *City, Culture and Society*. Elsevier, (October), pp. 1–7. doi: 10.1016/j.ccs.2017.12.001.

Mohareb, E. et al. (2017) 'Considerations for reducing food system energy demand while scaling up urban agriculture', *Environmental Research Letters*, pp. 0–21. doi: <https://doi.org/10.1088/1748-9326/aa889b>.

Moore, R. (2017) 'Nasty Weather and Ugly Produce : Climate Change , Agricultural Adaptation , and Food Waste', *Natural Resources Journal*, 493(16), pp. 493–518.

Myers, S., Smith, M. and Guth, S. (2017) 'Climate change and global food systems: potential impacts on food security and undernutrition.', *Annual Review of Public Health*, 38, pp. 259–277.

Notarnicola, B. et al. (2017) 'The role of life cycle assessment in supporting sustainable agri-food systems: A review of the challenges', *Journal of Cleaner Production*, 140, pp. 399–409. doi: 10.1016/j.jclepro.2016.06.071.

Orsini, F. et al. (2013) 'Urban agriculture in the developing world: A review', *Agronomy for Sustainable Development*, 33(4), pp. 695–720. doi: 10.1007/s13593-013-0143-z.

Pollard, G., Ward, J. D. and Koth, B. (2017) 'Aquaponics in Urban Agriculture: Social Acceptance and Urban Food Planning', *Horticulturae*, 3(2), p. 39. doi: 10.3390/horticulturae3020039.

Sachs, J. D. (2012) 'From millennium development goals to sustainable development goals.', *Lancet*, 379(9832), pp. 2206–11. doi: 10.1016/S0140-6736(12)60685-0.

Seo, Y. et al. (2017) 'Environmental Impact and Nutritional Improvement of Elevated CO₂ Treatment: A Case Study of Spinach Production', *Sustainability*, 9. doi: 10.3390/su9101854.

Sherwood, J., Clabeaux, R. and Carbajales-dale, M. (7AD) 'An extended environmental input – output lifecycle assessment model to study the urban food – energy – water nexus An extended environmental input – output lifecycle assessment model to study the urban food – energy – water nexus', IOP Publishing.

Shiina, T. et al. (2011) 'Life Cycle Inventory Analysis of Leafy Vegetables Grown in Two Types of Plant Factories', *Acta Horticulturae*.

Specht, K. et al. (2014) 'Urban agriculture of the future: An overview of sustainability aspects of food production in and on buildings', *Agriculture and Human Values*, 31(1), pp. 33–51. doi: 10.1007/s10460-013-9448-4.

Stuckler, D. and Nestle, M. (2012) 'Big food, food systems, and global health', *PLoS Medicine*, 9(6), p. 7. doi: 10.1371/journal.pmed.1001242.

Thomaier, S. et al. (2015) 'Farming in and on urban buildings: Present practice and specific novelties of Zero-Acreage Farming (ZFarming)', *Renewable Agriculture and Food Systems*, 30(1), pp. 43–54. doi: 10.1017/S1742170514000143.

Touliatos, D., Dodd, I. C. and McCainsh, M. (2016) 'Vertical farming increases lettuce yield per unit area compared to conventional horizontal hydroponics', *Food and Energy Security*, 5(3), pp. 184–191. doi: 10.1002/fes3.83.

UNEP, U. N. E. P. (2017) *The Emissions Gap Report 2017* - A UN Environment Synthesis Report, United Nations Environment Programme (UNEP). doi: ISBN 978-92-9253-062-4.





The Importance of Interdisciplinary approaches to Urban Agriculture and Transitions in Food Systems: Research on Lisbon Metropolitan Area

Ferreiro, M. F. ; Marat-Mendes, T.; Salavisa, I.; Santos, S. — Authors

Abstract

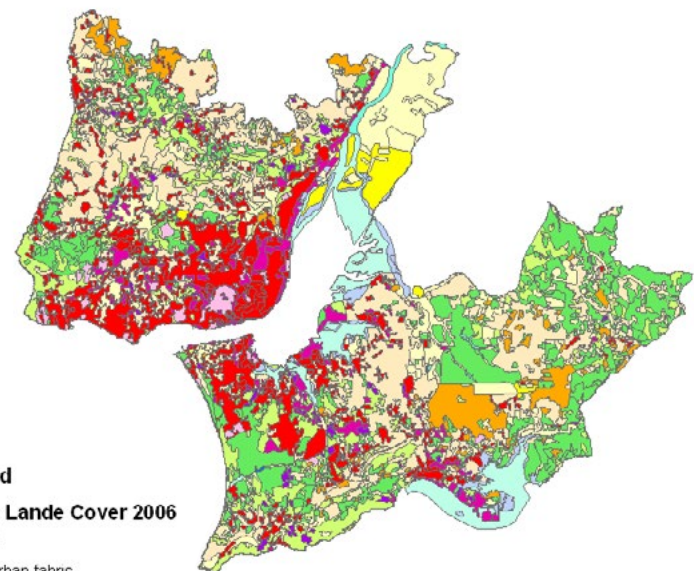
Metropolitan areas are strategic territories in the research on 'urban agriculture, food and food systems'. Land use categories and farm related activities constitute major indicators in this research. One of the main characteristics of periurban areas is the complementary nature of the relations between urban and rural systems. The paper presents and discusses the main findings of two research projects conducted in Lisbon Metropolitan Area, in relation with urban agriculture and food and the transition of the food sociotechnical system. This presentation and further discussion highlights the adequacy of interdisciplinary approaches regarding 'Connections and missing links within urban agriculture, food and food systems'.

Keywords

Urban food, interdisciplinarity, sustainability, Lisbon Metropolitan Area

Introduction

Lisbon Metropolitan Area (LMA) integrates the capital city of Portugal (Lisbon) and corresponds to an association of 18 municipalities (Alcochete, Almada, Amadora, Barreiro, Cascais, Lisboa, Loures, Mafra, Moita, Montijo, Odivelas, Oeiras, Palmela, Sesimbra, Setúbal, Seixal, Sintra, and Vila Franca de Xira). LMA has 2,8 million inhabitants (26% of the total national), and suffered a demographic decrease of its center during the last years related with a displacement of population to boarder municipalities and a consequent daily movement for working reasons (Ferreiro et al, 2016: 113). According to Corine Land Cover 2006, agriculture corresponds to the main land use of LMA, as it was already in the beginning of twentieth century (figure 1).



Legend

Corine Land Cover 2006

Level 2

Urban fabric	Scrub and/or herbaceous vegetation associations
Industrial, commercial and transport units	Open spaces with little or no vegetation
Mine, dump and construction sites	Inland wetlands
Artificial, non-agricultural vegetated areas	Maritime wetlands
Arable land	Inland waters
Permanent crops	Marine waters
Pastures	
Heterogeneous agricultural areas	
Forests	

Figure 1: Land Uses in Lisbon Metropolitan Area (2006)

Grounded on knowledge provided from land uses analysis, conducted within LMA, two research projects Periurban1 and MEMO2 (both financed by Fundação para a Ciência e a Tecnologia), have attempted to contribute, each of them in an interdisciplinary manner, to identify common links of interest among different disciplines in order to design a possible methodological approach towards a sustainable urban future for LMA. This paper, by taking profit of such knowledge, aims to bridge the gap among interdisciplinary studies, and discuss how the integration of the results of those two projects can effectively transcend their barriers and produce new knowledge. To do that, a brief analysis of each of the above-identified projects is provided, while identifying their main aims and methodological approaches, as well as the interdisciplinary contributes; secondly, it reflects on how an interdisciplinary exercise, focused on a transition towards a sustainable food sociotechnical system can contribute to new knowledge. Finally, some initial conclusions are here attempted for further discussion and development.

2. Interdisciplinarity in the approach to Agriculture and Food in Lisbon Metropolitan Area: lessons from two research projects

Periurban project was carried out by a multidisciplinary research team from two universities: Lisbon University (Instituto Superior de Agronomia and Instituto Superior Técnico)

1. Periurban areas facing the challenges of sustainability: scenario development for Lisbon Metropolitan Area. (PT/AUR/AQI/117305/20102012-2015).
2. MEMO-Evolution of the Lisbon Metropolitan Area Metabolism. Lessons towards a Sustainable Urban Future PTDC/EMS-ENE/2197/2012

and ISCTE - IUL. The 19 researchers were from 13 scientific areas (e.g. architecture, economics, sociology, spatial urban planning, ecology).

The development of research on periurban areas in the context of sustainability challenges beyond classical urban approaches, on one hand, and the analysis of the Portuguese case, on the other hand, were the main goals and the reasons behind the design and development of the project. It was also acknowledged that the opportunities of periurban areas should result from the integration of multiple policies and sectoral views related with territorial planning. The search of an integrated approach explains the interdisciplinary nature of the project. In fact, and besides the combination of multiple scientific areas, Periurban has drawn on the knowledge and perceptions of LMA stakeholders during all the process and main milestones. Besides experts, stakeholders included metropolitan, regional and local public administration, namely technicians responsible for urban planning, other public entities (e.g., schools, health entities), entrepreneurs, and local development associations. These socioeconomic and political actors were involved and actively participated, through participatory methodologies, in the design of the outputs of the project, that is, periurban typologies, scenario development and definition of sustainability indicators.

By assuming that the opportunities and challenges of periurban territories are related with the integration of visions, policies and the consideration of the diversity of these metropolitan areas, Periurban project proposed typologies based on 24 indicators aggregated in 5 distinct dimensions (economic, social, environment, mobility and land cover).

The findings related with socioeconomic dimensions of periurban territorial typologies reveal that periurban territories are 'spaces in transition' and "strongly marked by social and territorial recomposition", "eminently fragmented, and composed of changing communities with distinct identities" (Ferreiro et al, p.117). The importance of agro-forestry sector in LMA (57%) corresponds to one important characteristic of these areas and explains the "coexistence of a rural-agriculture matrix" (Ferreiro et al 2016, p. 116). In fact, agriculture still represents the main land use in periurban areas (figure 1) and despite its decline in economic terms: "the process of industrialisation, the improvement of transport infrastructures and technology involved in storage of agricultural products, concur to this decline. However, agricultural activities in periurban areas reveal also a changing nature related, for instance, with pluriactivity, the increase of subsistence farming and the presence of agro-food industry (idem, ibidem). The current importance of agriculture in terms of land use and activity in LMA constitutes a central figure in the reflection about food security and sustainability of metropolitan territories.

An Interdisciplinary approach was also adopted by 'MEMO'. The project was established over the expertise of two teams from Lisbon University (IST) and Lisbon University

Institute (ISCTE-IUL). The scientific areas involved Environmental Engineering, Architecture and Urbanism. The main objective was to develop a comparative analysis of the Urban Metabolism of LMA, in two historical periods (1900 and 1950). Aware of the growing restrictions on the availability of natural resources and the implications of urban growth over the territory and the urban environment, the MEMO Project seeks to contribute to a better understanding of the relationship between Urban Morphology and the metabolic behaviour of the territory, in order to support the development of guidelines for land-use planning that aim to optimize the use of natural resources through two specific methodological approaches: a Material Flow Accounting of food products; a Visual Characterization of water and agriculture uses. This innovative combination of methodologies aimed to surpass a common difficulty to non-engineering disciplinary areas-to approach metabolic analysis of the urban environments. Therefore, the adopted methodology included five specific steps: i) accounting of food production and food consumption; ii) identification of potential supply areas; and iii) a visual characterization of agriculture uses and water elements through historical cartographic sources. While adopting conventional methods of material flow accounting, as employed within Industrial and environmental engineering mostly, this project added a new component: a detailed visual characterization of the elements related to agriculture (land use) and water use (equipment and infrastructures) in the territory under analysis and that were deemed to justify LMA Metabolism (Marat-Mendes et al, 2015, Marat-Mendes et al, 2016).

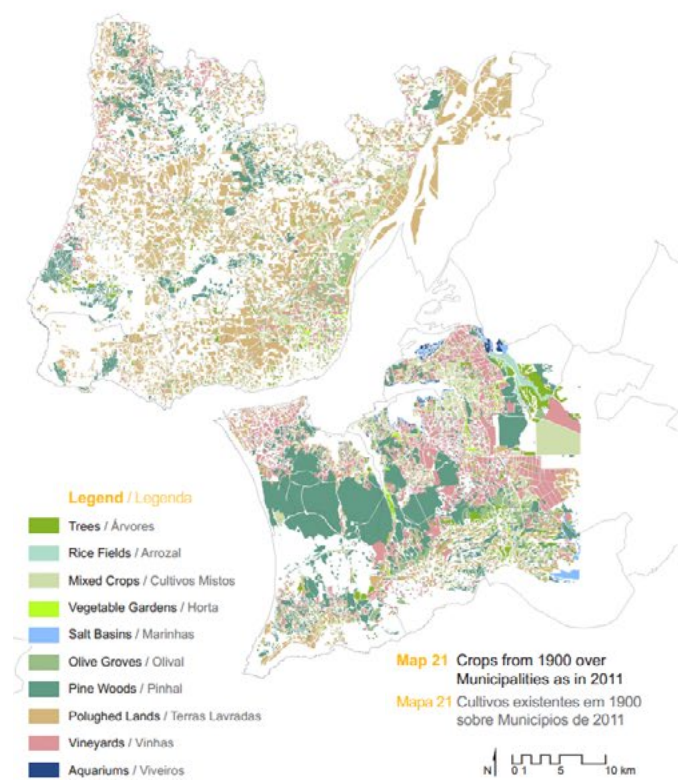


Figure 2: Crops from 1900 over Municipalities in 2011 in Lisbon Metropolitan Area

The main findings of MEMO Project have allowed accounting for the first time food consumption and goods produc-

tion in Lisbon, as well as the potential areas of production within Lisbon municipality (Niza et al, 2016). Vital sources for this assessment were the historical cartography produced for Lisbon region³, historical agricultural statistics⁴ and reported dietary habits of Lisbon citizens⁵. Finally, this project confirmed the value of integrating both historical and scientific sources in order to approach urban metabolism, while adding specific temporal and spatial settings. Historical data can be used to add a temporal and visual dimension to scientific understanding, wherein merging knowledge provided by social sciences and natural and technological sciences. Scientific data can also play a role in reconstructing the urban environments to which the study of urban metabolism depends upon greater understanding.

3. Connections and missing links on urban agriculture, food and food systems

The debates on urban agriculture, urban food and food systems, and transitions in food sociotechnical system in the context of Metropolitan Areas, should integrate views and express the diversity of these subjects, that is, more complete and realistic approaches. The findings of Periurban and MEMO projects are important at this realm and, therefore, can contribute to the design of a methodological approach envisaging the discussion of connections and missing links of urban agriculture, food and food systems within a sustainable framework.

Food systems are the outcome of a modernization process from WW II onwards (Grin, 2012), driven by targets of productivity increase and efficiency and implying the intensive use of agro-chemicals, energy and water. This process came along with the rationalization of commercial circuits (with the generalization of packaging, labelling, and branding), the increasing supply of conserved, deep-frozen and convenience food, and the rise of concern with hygiene and safety. New outlets were created – most notably the supermarkets -, where a diversified array of products is offered, often sourced from distant locations (Grin, 2012). In fact, the liberalization of global markets enabled the access to a much larger food assortment. In order to become environmentally friendly, the food system has to change: in production – reducing and replacing chemicals, energy and water -, but also in transportation and packaging along the distribution and retail chains. The current resurgence of local production, seasonal consumption and short chains illustrates this phenomenon (Salavisa and Ferreiro, 2016), contributing to decrease the ecological impact of the system. Proximity production and supply will affect the territorial and functional organization of metropolitan areas, with new usages of land around the big cities and the transformation of commercialization circuits.

³ CEM 1893–1932

⁴ MNF-DGE 1890–1900

⁵ MF-DGE 1915

The interdisciplinary approaches involved in these projects introduce useful insights envisaging the design and transition of food socio-technic systems by stressing the following aspects: i) the importance of land use devoted to agriculture and food production in LMA both in historical (MEMO) and current contexts (Periurban); ii) The acknowledgement of the diversity of land use and food production (Periurban and MEMO). Besides these insights, Periurban and MEMO can also contribute to the definition of a methodological approach to the research of the transition towards a sustainable sociotechnical system in food-related areas and activities. In fact, the adoption of a multiplicity of methods and techniques within those projects provided an opportunity to realize the importance of the combination of quantitative and qualitative methods as well as the visual and cartographic representation of land use and the inquiry to habits, sociodemographic dynamics and perceptions of urban population regarding territory and urban planning.

5. Conclusion

The paper presented and discussed main finding of two research projects on LMA envisaging the understanding of the transition of food sociotechnical system. It was proposed that interdisciplinary visions, both in theoretic and methodological terms, allow identification of connections and missing links of urban agriculture, food and food systems, because: i) they consider diverse dimensions of territories, establishing linkages between physical and socioeconomic dynamics of urban life (e.g., interface between urban planning and economic activities); ii) they reveal elements that are invisible to more conventional approaches (e.g., the diversity of types of rural territories and agriculture within metropolitan regions); they identify key actors of food systems in urban contexts. To sum up, interdisciplinarity, both in theoretical and methodological terms, provides a more holistic view on fundamental and complex aspects of metropolitan life related with agriculture, food and food systems.

References

Geels, F.W. (2004), *“From sectoral systems of innovation to systems”*, Research Policy, 33 (6-7), 897-920.

Grin, J. (2012), *“Changing governments, kitchens, supermarkets, firms and farms – The governance of transitions between societal practices and supply systems”*, in Spaargaren, G., Oosterveer, P. and Loeber, A. (eds.), *Food Practices in Transition – Changing food consumption, retail and production in the age of reflexive modernity*, New York and Abingdon, UK, Routledge, 35-59.

Ferreiro, M.F., Santos, S., Costa, P., Pinto, T., Colaço, C. (2016). *Socio-economy Of Peri-Urban Areas: The Case of Lisbon Metropolitan Area*. Maheshwari, Basant, Thoradeniya, Bhadrane (eds), *Balanced Urban Development*, Springer.



Marat-Mendes, T. (org.), Mourão, J., Bento d'Almeida, P., Niza S. (2015) *Water and Agriculture Atlas*. Lisbon Region in 1900-1940. Atlas da Água e da Agricultura. Região de Lisboa em 1900-1940 (Instituto Universitário de Lisboa ISCTE-IUL, Lisboa).

Marat-Mendes, T, Mourão, J., Bento d'Almeida, P. (2016) 'Access to water in the Lisbon region in 1900', *Water History* 8, 259-189.

Niza, S., Ferreira, D., Mourão, J., Bento d'Almeida, P., Marat-Mendes, T., (2016) 'Lisbon's womb: an approach to the city metabolism in the turn to the 20th century', *Regional Environmental Change* 16 (6), 1725-1737.

Salavisa, I., Ferreira, M.F. (2016). *Innovation and sustainability transitions: lessons from bottom-up initiatives*. 22nd International Sustainable Development Research Society Conference ISDRS Proceedings.



Food & the City – the role of “green” UA and UG strategies in the urban food strategy movement

Mikkelsen, B. — Author

Abstract

There is a growing interest in place-based approaches to value creation in local and regional food economies in what has been referred to as the Urban Food Strategy (UFS) movement. Developing the identity of cities and regions turning them into arenas for sustainable innovation and at the same time involving citizens and enterprises in new ways has become a popular strategy in cities and regions around the world as a way to brand particular place. Urban gardening, urban farming and other green strategies constitutes important elements in these strategies. Creating innovative urban food eco systems however, requires well planned strategies and participation from a broad range of actors. The paper examines the content of some of the strategies that municipalities and regions have been using to develop the identity of these particular places and suggests a typology of urban food strategy actions including the “growing” components. It uses then the Campus’n Community and the Growing Blue & Green programs to examine how they have contributed to the urban food strategy development in the city of Copenhagen. It finally discusses some of the patterns and principles for how sustainable Urban Food Strategies are shaped and implemented in an interplay between multiple projects and actor.

Keywords

Urban Agriculture; Urban Food Strategies (UFS), policies, projects, stakeholders.

Table 1: Overview of Urban food strategy networks

NETWORK	FOCUS	LINK
Délice	Gastronomy, gastro tourism	http://www.delice-network.com/
Milan Food Pact	Developing sustainable food systems and promoting healthy diets	http://www.milanurbanfoodpolicypact.org/
UNESCO Creative Cities	Gastronomy as part of the creative arts such as Crafts & Folk Art, Design, Film, Literature, Music and Media Arts	https://en.unesco.org/creative-cities/home
Eating cities	Social Dialogue for a more Sustainable Food Supply Chains	https://www.eatingcity.org/
CPH food summit	Food waste, food safety, urban strategies, gastronomy	http://bfmp.dk/program-wfs-2018/

Introduction

There is a growing interest in place-based approaches to creating value for local and regional food economies and a growing number of cities has engaged in the Urban Food Strategy (UFS) movement (Moragues et al 2013, Lander et al 2017). The Milan food pact, the Delize multiple city gastronomy network and the Eating cities initiative are examples of such networks. The strategies cover a range of different policy components and deals with a broad range of the elements of food systems of cities such as growing, processing, public procurement and purchasing, distribution, preparation, eating and waste handling. Urban gardening (UG) and Urban Agriculture (UA) are examples of UFS components that aims at greening the city and at the same time contribute to food supply and the development of the identity of cities. Such efforts has led to the creation of an emerging set of dynamics and an intersectorial interplay between stakeholders, project makers and policymakers potentially leading to fruitful city based arenas for sustainable food innovation. So far, few efforts have been made to identify the components in policy and governance perspective. Urban agriculture and gardening as themes has been the themes in various research programs and have been dealt with from different viewpoints and disciplines. Also, there seems to be a gap when it comes to analyse how insight and achievement from different both city base and multiple city based projects have become turned into policies. Based on the some recent development project in Copenhagen the study examine how different actors, projects and policy components blend in to contribute to the formation of an overall food policy in the city of Copenhagen.

Methods

The point of departure is a preliminary analysis of five different international multi-city UFS networks. The five identified networks were: Délice, Milan food pact, UNESCO creative cities, Eating cities and CPH food summit urban food chapter as listed in table 1. All networks takes as a point of departure a place based approach to food strategy making.



A typology summarizing the most significant components were then created to allow for analysis of the most frequent UFS policy components as illustrated in table 2. As a second step the insights from two of food research & development programs - Campus'n Community program (Mikkelsen & Fjeldhammer 2015; Bardus et al 2018) and the Growing Blue & Green aquaponics program (Mikkelsen & Bosire, 2018) an analytical frame was developed for examining the interplay between projects and stakeholders in relation to the food policy development in the city of Copenhagen. In addition, field notes from the planning of the 2017 and 2018 versions of the CPH food summit was used. The analysis aimed at determining how the insights from these urban gardening project informed into the Urban Food Strategy (UFS) development in the city of Copenhagen. The - Campus'n Community program program has been developed in the local neighbourhood of Sydhavn (Southern Harbour) adjacent to Aalborg University, Copenhagen campus. The goal was to use insights from social marketing and participation to develop more sustainable and healthier food realities for the residents with a particular emphasis on a garden area that is shared between the school, 2 kindergartens and the senior house. The program contributes to the civic university strategy that the university has signed and the Municipality of Copenhagen has signed an agreement under the headline of Knowledge Neighbourhood Sydhavn. It aims at strengthening cooperation both in research and higher education. The Campus'n Community program is a contribution to that activity with a particular emphasis on the food environment.

Conceptually the study takes inspiration from three sources: the idea of a civic university, the idea of service learning and the idea of the applied knowledge triangle. The knowledge triangle approach argues that combining the power

of market, education & research can lead to progress in a particular field – in our case add to the dynamics of urban food system development. Building on the idea of the civic university the food studies research of the university aims to take the needs and demands from the local community into account. Finally using the concept of service learning the food studies engage in food projects that cater to the needs of the local community. Using this approach academia in return get the access to real life social problem such as that of the challenges of urban food systems development (Heffernan 2001).

Results

Urban Food Strategies targets a broad range of food related activities in the city. Table 2 list the components that was most frequently find in the activity listing of the different networks. The diversity of the actions taken also give some clue as to the complexity of the task and to the diversity and numbers of different stakeholders that needs to be taken into account – both terms of the development of pilots, projects and policies. Table 2: Urban food strategy policy components identified in the five networks

Table 2

COMPONENT	CONTENT	KEY STAKEHOLDERS
Public food procurement	Public engagement in establishing organic and short chain supply	Catering managers, procurement officials, civil servants, suppliers, wholesaler
Urban school gardening	School gardens as places for teaching. Food literacy training and sourcing of food	Teachers, students, janitors, headmaster, parents
Urban community gardening	Community gardening as a vehicle for social, intergenerational activities, better cohesion and for plant food sourcing. Mainly for leisure rather than economical reasons	Residents, community leaders, citizen groups
Urban farming	Farming activities brought into the city for the purpose of food production with an economical significance	Farmers, civil servants
Collective community dining	Social and commensality focused cooking and dining activities	Voluntary groups,
Street food	Food truck and street food type of dining with co-location of multiple catering outlets.	Caterers, costumers, patrons
Farmers market	Market stalls and infrastructures for the selling of fresh food sourced from peri-urban farmers	Farmers, costumers, civil society organisations, civil servants
Aquaponic installations	Facilities for the integrated aquaculture and hydroponics production	Growers, farmers
Food markets	Co-location of different types of food retailers	Shop keepers, customers
Urban food hubs & incubators	Infrastructure such as offices, labs and kitchens for innovation in the food sector	Start ups, entrepreneurs, knowledge providers, brokers
Food banks	Systems for re-distributing close to sell by foods for charity catering and canteens	Voluntary groups, charity organisations
Fine dining initiatives	Marketing initiatives aimed at branding particular areas and places for the gastronomic assets	Restaurant owners, chefs, cooks, tourism organisations
Food waste initiatives	Strategies and policies aimed at reducing food waste and for collecting and recycling	Retailers, commercial and institutional catering
Food sharing	Community initiatives for sharing close to sell by food	Voluntary groups, community groups, retailers

Discussion

The number of cities engaged in different forms of policy network clearly shows that there is a considerable and growing interest in place based – the tempo/spatial – approaches to understanding food systems. The study suggests that idea of placemaking (Schneekloth & Shibley, 1995) is useful for understanding the urban food strategy movement. Placemaking is an approach to the spatial design of public spaces where their supportiveness when it comes to developing good environments for everyday life activities such as those relate to food – is underlined. The findings also underline the large number of different actors that is and that needs to be engaged in such strategies. As it can be seen from the table, the number of different stakeholders having an interest and contribution to make in UFS development is high. These stakeholder comes from are broad range of different policy, academic and practices areas. Urban planning, educational area, gastronomy and experience and tourism economy and innovation local food economy are some of the fields. These stakeholders are not necessarily well connected across the city. Nonetheless, their cooperation is imperative. It is suggested that creating an eco system in which academia, municipality, small start ups and local community can engage informally can help facilitate the knowledge transfer form project to policies. What can be learnt from the study is that interdisciplinarity is key to successful policy development of urban food eco systems and implementation of city based food strategies. It can also be learnt that outreach from academia to the practitioner, business and policy level is crucial. In particular, it was found that the knowledge triangle trying to bring together young people at different educational levels with local community actors and policy makers can be a powerful strategy in developing urban food strategies and food strategy components. The study also show that there seems to be some tension created in the clash between “foodies” and generalists/strategy and policymakers. This challenge could be addressed for instance by training and capacity building in both types of professions. Also within the different governmental levels and administrative units dealing with food strategies there is a need for closer cooperation. For instance in the municipality studied there are four different municipal departments having a stake in food policy development underlining the need for inter-sectorial cooperation. The study findings also points to the need for participatory and citizen driven approaches. Since an urban food policy will and should affect the everyday life of citizens an inclusive approach is critical. In the study, we finally conclude that the innovation efforts in city based food strategies tend to create a whole eco system of projects. But since projects are both fragile and volatile there needs to be a conversion of the insights into concrete policy initiatives as well as some kind of mobility of the people involved in these projects.

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References

- Bardus, M; Domegan, C; Suggs, SC & Mikkelsen, BE** (2018): *Evaluating the Gaps and Intersections Between Marketing Education and the Marketing Profession. Chapter for the IGI Global (in press) book in Social Marketing (2018)*
- Goddard, J; Hazelkorn, E., Kempton, L & Vallance, P. The Civic University.** *The Policy and Leadership Challenges*
- Heffernan, K.** (2001). *Fundamentals of service-learning course construction. Providence, RI: Campus Compact*
- Landert, J; Schader, C; Moschitz, H & Stolze, M** (2017) *A Holistic Sustainability Assessment Method for Urban Food System Governance. Sustainability, 9 (4), pp. 1-21.*
- Mikkelsen, BE & Bosire, CM** (2018): *Food, sustainability & science literacy in one package? Opportunities and challenges in using aquaponics among young people at school, PART 5: AQUAPONICS AND EDUCATION*
- Mikkelsen, BE & Fjeldhammer, S** (2015): *Gardening during the life course – a Scandinavian approach. Proceedings from Agriculture in Urbanizing Society, Rome, September 2015, WG 11 Grass-root initiatives and community gardens*
- Moragues, A.; Morgan, K.; Moschitz, H.; Neimane, I.; Nilsson, H.; Pinto, M.; Rohtacher, H.; Ruiz, R.; Tisenkops, 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 (GA No. 265287). http://orgprints.org/28860/1/foodlinks-Urban_food_strategies.pdf*
- Schneekloth, LH & Shibley, RG** (1995). *Placemaking: The Art and Practice of Building Communities.*



A woman farms vegetables on a plot next to municipal offices in Cape Town, South Africa. The plot was donated by the city Urban Agriculture Unit, and the farmers are also provided with water and manure to assist in production.

Photo: Diana Lee-Smith, 2012



GETTING GOOD DATA vs POLITICAL PROBLEM-SOLVING: A GAP IN THINKING ABOUT DISCIPLINES

Diana Lee-Smith — Author

Keywords:

African urban agriculture, empirical research, multi-disciplines

Abstract

Scholarly food system research has been criticised for haphazard disciplinary overlap, sometimes not even addressing the same problems or questions, and for being “advocacy driven”. Data on urban agriculture (UA) and food systems have also been criticised as missing, weak, or out-of-date. In response, this paper looks at how interdisciplinary overlaps should be handled. It also presents an overview of quantitative data on households practising UA in Africa over several decades, yielding important empirical results.

Disciplines that measure and analyse (natural and social sciences) are distinguished from those that synthesise and prescribe (planning and design). The latter are problem-solving disciplines that address what are characterised as “wicked problems”. Unlike social science problems that can be rigorously tested, planning problems require participatory argument and balancing of different interests. Thus planning (and even day-to-day operation) of food systems are inherently political. Also, solutions vary from place to place.

Introduction

This paper addresses criticisms made of the field “food systems and urban agriculture”, responding specifically to one review of scholarly food system research (Brinkley 2013). It aims to untangle the term “multi-disciplinary”, so as to understand where key gaps are. It also attempts to fill a particular gap – in empirical data on urban agriculture – by presenting and analysing urban household surveys collected over time in some African cities.

The paper is relevant to the purpose of identifying gaps and missing links in the field of food systems in relation to urban agriculture (UA). It explores these gaps and links by examining the difference between empirical data (that establish facts on the ground) from studies that address planning interventions to change or improve food system and UA func-

tioning. The paper is relevant because few scholars have examined this question specifically, although the original “Cities Feeding People” book in 1994 tried to establish the field of enquiry by presenting empirical data on the scope of UA in Eastern Africa (Egziabher et al 1994).

Methods

This paper uses comparison between disciplines as a way to explain how data can be used to advance debate on the effectiveness of food systems and UA in different settings. It also uses research findings from studies over time, to make comparisons specifically on the proportion of urban households practising UA in different African cities.

In her review of scholarly research on food systems and UA, Brinkley (2013) found the literature haphazard in the way disciplines overlap. She observed that sometimes they do not even address the same problems or questions. Her focus is on the planning disciplines, and she finds UA a “self-limiting policy” with much of the literature advocacy-driven. I would like to suggest an alternative model to the one she proposes as a way to overcome this, going back to basics on how disciplines operate and interact.

Before lumping disciplines together and assuming this will provide consistent or even useful outcomes, disciplines can be separated into those that measure and analyse (natural and social sciences) and those that synthesise and prescribe (planning and design). It is also necessary to admit that things that work in one place (planning approaches and case studies of good practice) may not work in another, particularly when dealing with the global North and South.

The major disciplinary gap that I identify is basic social science statistics. Brinkley and others have pointed out that sound and comparable empirical data on UA are missing, weak, or out-of-date. I focus on quantitative surveys of households practising UA in the South, specifically Africa. I present an overview of the quantitative data that I have been able to identify and the questions that it suggests for further research and for the relationship of UA to food systems policy and planning.

This paper draws on my own and others’ research over several decades. These data are indeed uneven in quality of sampling in particular and most of them are indeed out of date. But they are still useful in building up a general picture because together their findings show certain patterns. This short paper does not permit evaluation of all the studies compared, but it is enough to say each uses a household survey of a particular town or city and counts the incidence of various types of UA.

I analyse these data by comparing key intervening variables that are available (household size and income, access to land, size of town in population terms, and where available nutrition and food security levels), to observe differences and trends.



Results

As shown in Table 1, households practising UA form a significant but highly variable proportion of urban African households. Analysis has shown that this proportion varies with size of town, household income and accessibility of land, with these variables interacting. Generally, the larger the town or city, the fewer households practise UA. The majority of households farm for their own consumption but also make savings and sell produce; some are predominantly commercial. An unexplained relationship is that UA households are consistently larger than the norm. The positive effect of UA on food security and nutrition seems established (Cole et al 2008; Wagner and Tasciotti 2017) although more studies would help.

Surprisingly, low income groups are less likely to practise UA than higher income earners. While the poor predominate over middle- and high-income groups in urban Africa, they are proportionally under-represented among urban farmers (Foeken 2006). This is probably because they live mainly in dense urban slums and tend to farm opportunistically in open spaces. Higher income groups are better able to farm, including the more profitable livestock keeping, because they have space. These can be called backyard farmers (Lee-Smith et al forthcoming). Food insecurity and malnutrition are at alarmingly high levels in African urban slums (Crush et al 2010; Kimani-Murage et al 2014).

Table 1 - Proportion of households engaged in UA in some African towns and cities

CITY / TOWN	COUNTRY	FARMING HOUSEHOLDS	SURVEY DATE	CITY POPULATION AT THAT DATE
11 in southern Africa	9 SADC* members	22% - crops and livestock (only poor households measured)	2008	varied
21 in West Africa		20-50% - crops and livestock	2006	varied
Kampala	Uganda	49% - crops and livestock	2003	1,200,000
Mbeya	Tanzania	93% - crops and livestock	2002	266
Morogoro	Tanzania	90% - crops and livestock	2002	228
Ibadan	Nigeria	45% - crops, 40% - livestock	2000	2,550,593
Nakuru	Kenya	35% - crops and livestock	1998	239
Dar-es-Salaam	Tanzania	36% - crops only	1995	2,500,000
Kampala	Uganda	30% - crops and livestock	1991	774
Nairobi	Kenya	20% - crops only	1985	1,000,000
Addis Ababa	Ethiopia	17% - vegetables only	1983	1,400,000

Table from Lee-Smith et al forthcoming

*Southern Africa Development Community

UA households are better off than the norm, with consistently higher than average urban incomes. Urban small-scale farmers earn at least twice as much as rural farmers on only about 20 per cent of the area, while both commercialization and higher incomes are associated with livestock production, with its opportunities for the sale of products

such as milk and eggs in addition to meat. These are mostly backyard farmers. Irrigated open-space urban vegetable farming can achieve an annual income two to three times that earned in rural farming (Lee-Smith et al forthcoming).

Discussion

The relationship between UA and income is not yet understood. Is there a causal link between UA and poverty alleviation? Longitudinal cohort studies are needed to understand the direction of the relationship: does UA alleviate urban poverty or does being better-off help a household engage in UA (Lee-Smith 2010; 2013)? Also, why are UA households bigger and what, if anything, needs to be learned from this? Then, more and better studies are needed on health impacts of UA, both positive and negative, following the work of Cole et al (2008).

Meanwhile the widespread nature of UA in African cities and its association with better food security, child nutrition and incomes suggests that supporting it as part of planning in these cities is desirable. However, planners would need to distinguish between residents of low-income informal settlements (most of whom do not farm but whose food insecurity and malnutrition have been measured) and backyard urban farmers who are clearly doing well. This is being

done in Nairobi through its UA Act of 2015 on allocating land and water for UA to households in slums. But different planning solutions may be needed in more developed cities with less malnutrition.

UA can never be proved a “right” or “wrong” policy, even though, as claimed in this paper, it is a well-established empirical fact in African cities. Policy makers have to decide whether the facts demonstrate that planning for UA is needed, and in what way. Policy goals are everything when it comes to deciding on a course of action and assessing its effectiveness. Alleviating hunger and malnutrition may be a higher goal than increased GDP. This has not been the case until recently, although the case for promoting UA may be argued citing human rights, as a way of alleviating hunger and malnutrition (that includes lack of dietary diversity causing obesity as well as stunting). Supportive policies for UA production of animal source foods and fresh vegetables can thus be advocated, as in Lee-smith and Lamba (2015).

Conclusions

There are not many comparative analyses of empirical data on UA that look at different studies as I tried to in earlier papers (Lee-Smith 2010, 2013). This paper goes a step further in examining empirical studies in relation to planning studies that propose or compare solutions in different contexts. Planning and designing for UA in food systems must rely on sound empirical evidence as well as the calculus of policy and urban land use priorities. They must also rely on artful solutions to what are characterised as “wicked” problems, meaning they are complex and without single solutions. They require choices by people involved. Unlike social science problems that can be rigorously tested, such planning problems require participatory argument and balancing of different interests. Thus food systems planning, and even the day-to-day operation of food systems, are inherently political.

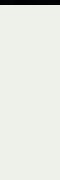
References

- Brinkley, C.** (2013): *Avenues into Food Planning: A Review of Scholarly Food System Research*, International Planning Studies, DOI:10.1080/13563475.2013.774150
- Cole, D. C., Lee-Smith, D. and Nasinyama, G. W. (eds)** (2008) *Healthy City Harvests: Generating Evidence to Guide Policy on Urban Agriculture*, CIP/Urban Harvest and Makerere University Press, Kampala, Uganda and Lima, Peru
- Crush, J., Hovorka, A. and Tevera, D.** (2010) ‘Urban food production and household food security in southern African cities’, *Urban Food Security Series*, no 4, Queen’s University and AFSUN, Kingston and Cape Town
- Drechsel, P., Graefe, S., Sonou, M. and Cofie, O. O.** (2006) ‘In-formal irrigation in urban West Africa: An overview’, *IWMI Research Report*, no 102, Colombo, Sri Lanka
- Egziabher, A.G, D. Lee-Smith, D. G. Maxwell, P. A. Memon, L. J. A. Mougeot and C. J. Sawio** (1994) *Cities Feeding People: An Examination of Urban Agriculture in East Africa*, IDRC, Ottawa
- Foeken, D.** (2006) *“To Subsidize my Income” Urban Farming in an East African Town*, Brill, Leiden, Boston
- Kimani-Murage, E.W, L. Schofield, F. Wekesah, S. Mohamed, B. Mberu, R. Ettarh, T. Egondi, C. Kyobutungi, and A. Ezeh** (2014) *Vulnerability to Food Insecurity in Urban Slums: Experiences from Nairobi, Kenya*, *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 91: 6 doi:10.1007/s11524-014-9894-3
- Lee-Smith, D.; Prain, G.; Cofie, O.; van Veenhuizen, R.; Karanja, N.** (forthcoming). ‘Urban and Peri-Urban Farming Systems (UPUFS): feeding cities and enhancing resilience’, in *Farming Systems and Food Security in Sub-Saharan Africa: Priorities for Science and Policy under Global Change*. Eds. John Dixon, Dennis Garrity, Jean-Marc Boffa, Tim Williams and Tilahun Amede, London, Earthscan
- Lee-Smith, D. and Lamba, D.** (2015) ‘Nutrition and urban agriculture in sub-Saharan African cities’, *Right to Food and Nutrition Watch*, Issue 07
- Lee-Smith, D.** (2013) ‘Which way for UPA in Africa?’ *CITY*, vol 17, pp. 69-84
- Lee-Smith, D.** (2010) ‘Cities feeding people: an update on urban agriculture in equatorial Africa’, *Environment and Urbanization*, vol 22, no 2, pp. 483-499
- Wagner N. and L. Tasciotti** (2017): ‘Urban agriculture, dietary diversity and child health in a sample of Tanzanian town folk’, *Canadian Journal of Development Studies / Revue canadienne d’études du développement*



LINKING UP ACTORS AND SCALES

PROVE vegetable box in Loures,
Photo: Ana Firmino, 2014



CSA in Portugal – missing links within urban agriculture

Firmino, A. — Author

Abstract

There are different schemes under Community Supported Agriculture, in different countries, under various designations, which often diverge in their organisation, but they all aim at linking producers and consumers and offer quality products, in a short cycle. In Portugal Community Supported Agriculture (in a broad sense) is a relatively recent concept; nevertheless there are already hundreds of initiatives, mostly known as Box Schemes.

The scope of this paper is to understand the profile of the box scheme's users looking deeper into the functioning of an organic one in Loures, Portugal, point out the bottlenecks that hinder a larger diffusion of this concept, and identify approaches that may strengthen the links among the several actors and contribute to the sustainability of urban agriculture.

Keywords

CSA, Box Schemes, Loures

Introduction

Local economy, as synonymous of local scale, especially in Western thought, is often seen “as small and relatively powerless” (Herod, 2005, p.243). However, as emphasized by several authors short food supply chains may play a holistic role in contributing to sustainable development (Canfora, 2016; Smith, 2008; Sustain, 2002; Pretty et al, 2005). Food travels about 1500 kms on average before reaching the consumer and the emissions of carbon gas are 100 times higher than those resulting from a local sustainable production (Taipa, 2014). CSA may contribute to fight back climate change and protect the environment (water, soil, air), prevent fires, since the herds of sheep and goats not only supply the cheese industry but also control the dry mass, as it is the case in Loures; improve biodiversity and provide tasty and healthy food, safeguarding local varieties, by boosting local agriculture (FLFI, 2003), and last but not least linking producers and consumers.

Besides, as presented by Renting and Dubbeling (2013) for the urban farmer, CSA may play other roles not so common such as recreation, therapy and education. Paül et al (2013) refers to “holeriturisme” in Barcelona, which promotes weekly specific vegetables to consumers.

In 2012, a group of experts (GEVPAL) was created to elaborate the “Strategy to value the local agricultural production”, where it emphasized the need to invest more in its promotion, divulgation, training and organization of farmers. Nevertheless, even among educated people, who should have more access to information, only a few are aware of the contribution of Urban Agriculture “to improve security, livelihoods, environmental quality and overall social justice in our cities” (Mougeot, 2005, 278).

Methodology

The study area is located in the municipality of Loures, North of Lisbon (167 km² and 207 567 inhabitants, INE, 2016).

In order to know better the motivations of both farmers and consumers of a PROVE organic vegetable box in Sacavém, Loures, an inquiry was launched between July and September 2014, which followed the structure presented by Jackson (2005) in order to know better consumers’ motivations to engage in these new consumption models; what factors shape and constrain their choices and actions; why (and when) do people behave in pro-environmental or pro-social ways; and finally how can we encourage, motivate and facilitate more sustainable attitudes, behaviors and lifestyles.

In total 32 consumers were interviewed, 14 men and 18 women (75% of the active members). This box scheme was created in the framework of a PROVE project, an “inter-territorial co-operation project between eight Local Action Groups located around Portugal that provide continuity to the experience and methodology developed as part of the IC EQUAL initiative which is intended to resolve issues related to the marketing of local products and to take advantage of the proximity of producers and consumers in peri-urban areas” (<http://www.prove.com.pt/www/english.T9.php>).

Two of the three farmers who supplied this project in Loures were also interviewed. The first version of the vegetables box was interrupted in July 2015, due to divergences among the producers and a new scheme only started on the 30th January 2017, with 10 farmers and 4 delivery sites (<http://www.prove.com.pt/www/sk-pub-nucleos.php?dst=2>). One of these farmers was interviewed in March 2018.

Results

Those interviewed were predominantly young: 43% were under 40 years old, 31% were in their forties, 25% were in their fifties and less than 1% were older than 60. The oldest were not the direct purchasers of the boxes, they picked them up for their children.

These are middle class consumers: four public servants who work for the municipality of Loures, which is part of the project, four informatics, three entrepreneurs and other jobs (nutritionist, geographer, biologist...).



All those interviewed considered the price of the box as reasonable (15 Euros for a box with 7 to 8 kgs; 10 Euros for the small size, 4 to 5 kgs). The majority purchased the box twice a month, less than 40% picked it up every week.

In terms of proximity, some did not live in the vicinity of the distribution point (one lived 80 kms away) but in this case they worked nearby or, for some reason, had to cross the area in Sacavém.

Discussion

By the end of September 2014 this Organic Vegetables Box had 43 active members and 8 in stand-by (some had to travel to work abroad or moved temporarily to another region, or had their own production for a certain period of the year). Since the start of the project (September 2013) 135 people had participated in this initiative, some of whom for a short period (Fig.1). Thus, in total, 84 members had withdrawn!

The three farmers involved in the project were able to keep more or less the same number of active members in the first year of existence but there was a relatively high percentage of new adherents and excluded members, which caused some concern (for how long is it possible to attract new members, that balance those stepping out?).

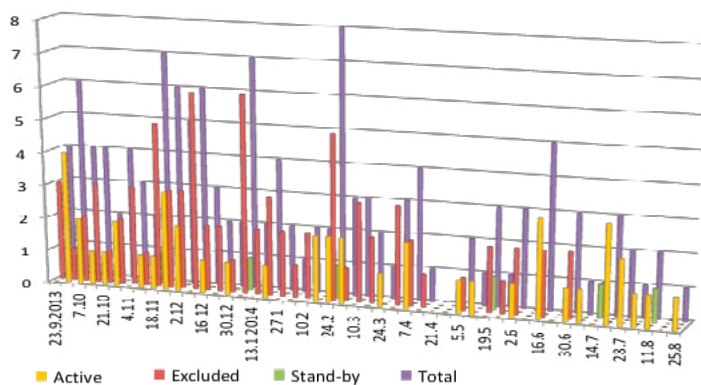


Fig. 1 - PROVE Box Adhesions by clients admitted, excluded and in stand-by between 23.9.2013 and 31.8.2014 in Sacavém/Loures

The reasons to give up the box are mainly because it is difficult to coordinate their routines with the day and hours to pick up the box. Although it is possible to get it delivered at home, it will be more expensive. Some have financial restrictions and others do not need to buy products so often and or so regularly, because they also have their own production or have a small family and thus some share the box with friends.

It may be a constraint the fact that they have to adapt their meals to the ingredients available, which are seasonal (86 different products) and not always known by many clients.

The disadvantages were mainly due to the difficult access to the place of distribution, that even for those living in the area was not easy to find the first time, distance to the con-

sumers living in the northern part of the municipality, lack of parking places for cars or not much fruit available.

In terms of advantages of purchasing the boxes, the consumers emphasized the connection to the farmer, who taught them the names of the products such as Swiss chard (*Beta vulgaris* var. *cicla*) and Mizuna japonese (*Rapa nipposinica*) and how to prepare them. Food security is an important issue (particularly if they have children, and often these products are only for the youngest) also the quality and diversity, the freshness, flavours and smells of the products (particularly the herbs) and proximity to their dwelling.

In general those interviewed valued the boxes scheme more for the fact that they do not need to worry about what to buy (no need to "burn the neurone" as one said!), nor lose time looking for the ingredients in the supermarket.

The environmental concern and all the rest that we read about the theory related to local and proximity economy, apparently did not play an important role in their decision to purchase the box, probably because some respondents had not been the contractors. It was often the father or the husband who picked up the box. The women were in charge to pick up the children from school or are at home preparing dinner.

From the perspective of the farmers, although this represents much work, they seem satisfied with the results. The average income at the national level of the farmers who sell the boxes was about 500 Euros/month, which was the minimum wage in Portugal. Since they have other sources of income, selling in other markets, this is acceptable for most of them, as states Teresa Pouzada, coordinator of Local Action Group ADRITEM, in North Portugal (O Regional, 19.4.2012).

These data were updated last March, in an interview with the organic farmer responsible for the supply of a new delivery site (since end of February 2018) at the Hospital of Loures (only for collaborators) and for the original one at Sacavém (restarted on the 30 January 2017). At Sacavém he sells between 12 and 19 boxes per week. At the hospital, after a certain initial "boom", he sells between 4 and 9 boxes/week, mainly to doctors.

Today, according to this informant, it seems that the clients are better informed but the adhesion is yet relatively low.

It is important to point out that the small box was eliminated, and the large keeps the same price (15 Euros) but has less quantity (5 to 7 kgs, formerly 7 to 8). The Municipality has shown much endeavour in responding to consumers' complaints, offering several delivery sites and divulging these initiatives, but it is not yet sufficiently visible. This is a general problem as a survey among 20 students of Geography, at Universidade Nova de Lisboa, last March, shows: none of them had ever heard about box schemes!

Conclusions

The findings show that there is a high volatility among adherents to the studied box scheme in Loures, which may be explained by the fact that being a member of a CSA “requires a different consumer attitude” with more commitment and responsibility which people often do not want to accept (Kinga, 2001, 66).

This work allowed a better knowledge of the consumer’s profile of a box scheme. Some of the identified bottlenecks can be solved with more and better information diffusion.

In line with Marsden et al (2000, 426) who evokes as a critical issue that “product reach the consumer embedded with information”, mailing a flyer, involving citizens into a participatory approach and organizing visits to the farms and delivery sites, as it is already the case with schools, could eventually bring more people into the project. In Loures a certain variety of purple broccoli could be promoted through “holeriturisme”, also among local restaurants, which would benefit from a link to Slow Food Movements.

The links along the supply chain could also be strengthened by creating a label, which would identify the production with the local “salioio” culture (“hortas saloias”, for instance) as there was already an attempt in the past. Saloios are the Moorish people, who settled in the region and stayed after the conquest in the 12th century. They were excellent farmers, known for the quality of their agricultural products, and although there is no certification, a “salioio” product is still today acknowledged as a quality product.

The creation of more delivery sites at large employment centers (as it is already the case at the hospital) would also contribute to diversify the client base and reach out to other institutions and businesses.

The success of the box scheme is an added value for urban agriculture, contributing to keep the idyllic landscapes of the past (Firmino, 1999), as it is the case in Loures, but it may be restrained by the lack of land to extend the activities, especially in peri-urban areas (EIP-AGRI, 2015). Thus it is a challenge to combine all these factors, link producers and consumers to reach some food supply autonomy, back up the local economy and maintain a healthy environment.

Acknowledgement

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References

Canfora, I. (2016) *Is the short food supply chain an efficient solution for sustainability in food market?*, Agriculture and Agricultural Science Procedia 8, 402-407.

EIP-AGRI Focus Group (2015) *Innovative Short Food Supply Chain Management*, Final Report, EIP-AGRI, Brussels

Firmino, A. (1999) *Agriculture and Landscape in Portugal*, Landscape and Urban Planning, 46 (1-3), 83-91.

FLFI [Foundation for Local Food Initiatives] (2003) *Feeding the Future: Policy options for local food*, SUSTAIN, London.

Herod, A. (2005) *Scale: the local and the global*, chapter 12, Holloway, S. et al Editors, Key Concepts in Geography, SAGE Publications, London, UK, 229-247.

Jackson, T. (2005) *Motivating Sustainable Consumption - a review of evidence on consumer behavior and behavioral change*, University of Surrey, UK.

Kinga, M. (2001) *A Consumer’s Perspective*, Hayes, M.; Kinga, M., *Community Supported Agriculture (CSA)*, Open Garden Foundation, Gödöllo, Hungary, 65-67.

Marsden, T. et al (2000) *Food Supply Chain Approaches: Exploring their Role in Rural Development*. Sociologia Ruralis 40 (4), 424-438.

Mougeot, L. (2005) *Neglected Issues on Form and Substance of Research on Urban Agriculture*, Mougeot, L., Editor (2005) Agropolis, Earthscan, London, UK, 267-279.

Paül, V. et al (2013) *Alternative Food Networks or Agritourism? The “Vegetable Tourism” Experience in the Barcelona Peri-Urban Area* (Catalonia, Spain) Kim, D-C.; Firmino, A.; Ichikawa, Y., Editors, Globalization and New Challenges of Agricultural and Rural Systems, CSRS/IGU, Nagoya, Japan, p. 114-128.

Pretty, J. N. et al (2005) *Farm costs and food miles: an assessment of the full cost of the UK weekly food basket*. Food Policy. 2005;30:1–20.

Renting, H.; Dubbeling, M. (2013) *Synthesis report: Innovative experiences with (peri-) urban agriculture and urban food provisioning – Lessons to be learned from the global South*, RUF Foundation, Leusden, Netherlands.

Smith, B. G. (2008) *Developing sustainable food supply chains*, Philosophical Transactions, Royal Society of London, Biol Sci. 2008, Feb 27; 363(1492): 849–861.

Sustain (2002) *Sustainable food chains*. Briefing paper 2, Public Sector catering; opportunities and issues relating to sustainable food procurement, London, UK.

Taipa (2014) *Manual Horta Recíproco no Pré-Escolar*, Taipa, ADL, Odemira, Portugal.

Other Sources

O Regional, 19.4.2012



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Inclusive and exclusive processes surrounding the development of an urban farm in Geneva

Viallon, F.-X.; Bombenger, P.-H.; Cherqui, A. — Authors

Abstract

Urban agriculture (UA) can be conceived as a mean to densify and ecologise cities. However, the deployment of new uses may enter into conflict with existing ones. The present article considers the deployment of professional UA in an urban park in Geneva (Switzerland) from the perceptions of users and in regard to their imbrication with public policies. Drawing from a survey among an urban farm's clients and the park's users, we observe limited spatial rivalries, but exclusionary processes among the farm's clients, whose majority belong to the dominant social class. The imbrication of UA into planning, education and agriculture policies occurs within the programs, but the measures taken on the field either lack proper funding, have more common priorities, or face opposition by established actors. We conclude by stating that the observed UA processes reveal several contradictions identified in the literature, but also reflect new practices that shape the city and require further analysis.

Keywords

urban farm, use rivalries, territorialisation

Introduction

Over the past decade, the ecologisation of urban development has gained attention both in practice and research. In particular, the resurgence of the urban food question has put forward urban agriculture and its multifunctional character on the forefront (Morgan, 2014).

At the same time, numerous cities face growth dynamics that foster urbanization and the densification of urban uses. This is particularly the case in urban Switzerland, where the 2012 revision of the federal spatial planning act aims to limit the consumption of agricultural land through the densification of urban areas (Federal Council, 2013).

Our paper discusses these often concomitant dynamics and the subsequent policy objectives under the angle of use rivalries produced by UA, their perceptions by users, and the insertion of UA into broader food related policies. For doing so, we first question the social representations of an urban farm project by its users, neighbours, and city inhabitants.

Second, we analyse the links between UA projects and planning, education, and agriculture policies in Geneva, an urban city-canton subject to high demographic growth on a small territory.

Our assumptions are that 1) the deployment of an urban farm in town is perceived as compatible or non-rival with existing uses and has a positive connotation, because UA is associated with virtues in terms of landscape, quality of life, and environmental protection, and provides ecological as well as economic goods and services (Pölling et al., 2016; Torre, 2014; Wegmuller and Duchemin, 2010). However, 2) urban farms also induce exclusionary processes: the food they sell corresponds to the expectations of the dominant social class, because it has symbolic values (local, organic and non processed food) which correspond to the expectations of a class with a high cultural capital (Andrieu et al., 2009; Bourdieu, 1979). Finally, we assume that 3) such newly established relations between actors and spaces within a region are progressively integrated into policy design and implementation processes (Brand, 2015; Chiffolleau et al., 2016).

Context and methods

The object of analysis is an urban park including a historical farm building owned by canton Geneva and located in the city of Geneva. The site is surrounded by ten-floor buildings in co-ownership and built in the 1960s, when the domain was sold. The broader neighbourhood is primarily dedicated to mixed housing and local shops, as well as international organizations.

A residual farming activity and a small shop subsisted in the farm until 2009, when the farm was taken over by young professional farmers. They cultivate 0.4 hectare of land within the park and sell their own production in one of the farm's buildings, together with a wide range of regional food products and some imported non locally grown products. The farmers also receive school classes and deliver courses on plants, crops and food to children and young adolescents.

A survey of 306 users of the urban park's users and the urban farm's clients accounts for the test of the assumptions on perceptions and uses of the park and the farm. The third assumption on the imbrication of urban farms in cantonal policies is tested through a document analysis and eight semi-structured interviews of policy actors, such as the park's farmers, administrative representatives of the analysed policies, and third parties (planner, agriculture consultancy, and the association "farm to school").

Results and discussion

Over the last four years, several land use changes occurred within the urban park: additional 650m² of land were cultivated in the park's centre, the historical access road to the



farm was reopened and transformed into a regular path for pedestrians, thus allowing users to cross the farm buildings, and sheep have been grazing around the cultivated area on a regular basis. Within the farm, new tenants with new production methods (low level of mechanisation, seasonal production) and a new range of food products (mostly organic) launched their business.

The vast majority of the respondents considered the occurred changes (product supply, site configuration, site attendance, farm personnel) positive, but only a minority of the surveyed individuals users have noticed use changes (1 out of 5), which reveals a rather low level of attention to the site's overall transformations. Part of the explanation is provided by the increased permeability of space. The extension of cultivated surfaces and the new path have re-embedded the farm and its garden into the park. In fact, most of the responses referred to the sensorial and symbolic values provided by the changes, such as the diversity of product supply within the farm, the extension of the cultivated surfaces, the betterment of the farm's access, the watching of the garden and of the sheep, and conversations with the farmers and sellers. These perceptions confirm the first assumption on the compatibility of new agricultural uses in an urban environment.

Among the farm's clients, 7 out of 10 have an academic degree, whereas they are only 4 out of 10 in the overall population of canton Geneva. As shown by the survey, the clients put forward the symbolic services provided by the farm's products (local, seasoned and organic). But clients also want to diffuse what they perceive as a virtuous consumption model to the broader population, and justify the reproduction of the urban farm's model with a better access of the population to seasonal, fresh, and organic food. Hereby, they neglect the importance of their own privileged status in the economic and social equation.

The integration of UA actors into policy design and implementation processes is considered in the farm's case and on a policy-design level. On a micro-local level, we noted the importance of the modalities of the infrastructure present on site, in particular of the amount of the farm lease, and of the park management rules, both set by the cantonal administration, in order to deploy urban agriculture in an already built environment.

On a policy-design level, urban agriculture and its actors are marginally integrated. In a planning perspective, there have been clear intentions to develop urban farms within neighbourhoods, but the realisation of the necessary infrastructure depends on communal and farmers' funding, and is perceived with scepticism by the conventional agricultural sector. Further, the farms' long-term management depends on farmers to provide the necessary know-how, and future clients' propensity to buy their products.

In terms of education, the mediation function of (urban) farms in increasing the population's awareness on food and

agriculture is broadly recognized. This is shown both by the responses to the survey, and the increasing success of associative educational programs such as "farm to school" and the one of the urban farm analysed. This mediation function is also being progressively recognized in official educational programs, but the education office's priorities are more rudimentary and focus on the fight against dental caries and the prohibition of unhealthy snacks.

In regard to agricultural policy, a cantonal food label applying to raw and processed food was established in 2004. Among the conditions for its obtention are the geographical perimeter of production and the provision of ecological services required for obtaining agricultural subsidies. The urban farm analysed has the highest product labelling rate in the canton, but most of its products are also organic, an aspect that the label only considers through the mandatory mention of the production type on the product label. This reveals a rift in terms of practices between urban agriculture and conventional farming. Such rift is also ideological, as public funding of agricultural infrastructure remains until now directed towards conventional production. In fact, federal authorities contest the financing of agricultural infrastructure within the urban area, and cantonal plans to publicly finance "alternative agriculture" are met with strong opposition by the farmer lobby.

Conclusion

The present paper aimed to show that the deployment of green urban uses, such as UA, are perceived positively and considered non rival with the existing urban uses. However, in accordance with the critical geography thesis (Daly and McClintock, 2017), the effects produced by UA are ambivalent, in the sense that the urban farm analysed distinguish itself from conventional farming and distribution through the sale of mostly local organic food stemming from alternative producers, but at the same time its beneficiaries are largely composed of the dominant social class. In a policy perspective, the continuity of UA projects depends upon their imbrication into the broader political-administrative context. The institutional support in terms of infrastructure enabled the projects in the first place, and its withdrawal would put the projects at risk. Therefore, our case also exemplifies what R. Nunes (2017) called a "pragmatist ethics" in agricultural food production and distribution, i.e. co-evolutionary entrepreneurial practices that overcome fixed principles and traditional political cleavages and insert themselves in a post-political order. Numerous other urban food enterprises exist around Geneva lake, and further research is required in order to accurately define and generalise on their conditions of failure and success, and to better qualify their role in shaping urbanism.

References

Andrieu, E., Caillavet, F., Lhuissier, A., Momic, M., Régnier, F., 2009. *L'alimentation comme dimension spécifique de la pauvreté. Approches croisées de la consommation alimentaire des populations défavorisées.* DREES - ONPES, Paris.

Bourdieu, P., 1979. *Les trois états du capital culturel.* *Actes de la Recherche en Sciences Sociales* 30, 3–6. <https://doi.org/10.3406/arss.1979.2654>

Brand, C., 2015. *Alimentation et métropolisation: repenser le territoire à l'aune d'une problématique vitale oubliée.* Géographie. Université de Grenoble Alpes.

Chiffolleau, Y., Millet-Amrani, S., Canard, A., 2016. *From Short Food Supply Chains to Sustainable Agriculture in Urban Food Systems: Food Democracy as a Vector of Transition.* *Agriculture* 6, 57 <https://doi.org/doi:10.3390/agriculture6040057>

Darly, S., McClintock, N., 2017. *Introduction to Urban Agriculture in the Neoliberal City: Critical European Perspectives.* *ACME: An International Journal for Critical Geographies* 16, 224–231.

Federal Council, 2013. *Argumentaire. Révision de la loi sur l'aménagement du territoire: la position du Conseil fédéral.* DETEC, Bern.

Morgan, K., 2014. *Nourishing the city: The rise of the urban food question in the Global North.* *Urban Studies* 52, 1379–1394. <https://doi.org/10.1177/0042098014534902>

Nunes, R., 2017. *Rethinking Justice in City-regional Food Systems Planning.* *Built Environment* 43, 447–459. <https://doi.org/doi:10.2148/benv.43.3.447>

Pölling, B., et al., 2016. *Creating added value: societal benefits of urban agriculture,* in: *Lohrberg, F., Licka, L., Scazzosi, L., Timpe, A. (Eds.), Urban Agriculture Europe. jovis, Berlin, pp. 92–101.*

Torre, A., 2014. *L'agriculture de proximité face aux enjeux fonciers. Quelques réflexions à partir du cas francilien.* *Espaces et sociétés* 158.

Wegmuller, F., Duchemin, E., 2010. *Multifonctionnalité de l'agriculture urbaine à Montréal: étude des discours au sein du programme des jardins communautaires.* *Vertigo* 10, 1–18.



Cooperative supermarkets: a hybrid model to reinforce the re-territorialisation of food systems.

Giacchè, G. — Author

Abstract

This article investigates the emergence of cooperative supermarket in France. It aims to understand their organisational models besides the values and principles proposed. A qualitative methodology was adopted drawing on analysis of content of speeches, documents, social networks and through a direct experience of participation in the “Wolf” supermarket. Five supermarkets are already functioning and twenty-five projects are in development stage. The model of collaborative and participatory supermarkets emerged as an alternative of current food offer and is based on economic (reasonable price), social (accessibility, creation of a space to exchange and share) and environmental (local and organic products) issues. The survey contributes to demonstrate that these cooperative supermarkets are a hybrid model that is inspired by a large-scale retail trade functioning but include a promise of “difference” that distinguishes the alternative food systems.



Figure 1 - Localisation of cooperative supermarket already functioning (in green in the map) or in development stages (in orange in the map)

Keywords

cooperative supermarket, food supply, and sustainable food system

Introduction

Some researchers theorise the affirmation of a new integrated territorial agro-food paradigm (Wiskerke, 2009). This paradigm is characterised by the relocation of production and consumption systems through short or direct supply chains, in opposition to an agro-industrial paradigm that regards the disconnection between producer and consumer, as well as the de-territorialisation of production. This dual approach is disputed by other authors, who interpret short supply chain as a hybrid model that does not constitute a real alternative to the conventional system (Watt et al., 2005; Dubuisson and Le Velly, 2008). Rastoin and Gherzi (2010) state that it is necessary to organise the transition to a new model of “sustainable” food development, which can only have a hybrid form by combining modern configurations (based on globalisation) and post-modern configurations (based on territorial connection) that valorise the historical heritage specific to each society and territory with the scientific and technical knowledge of this century.

Rouget et al. (2014) detect the O’TERA network as a hybrid model. This is a private participant of large-scale retail trade that applies the sale techniques of large and medium stores to short chains. It achieves a goal of relocating food production; $\frac{2}{3}$ of selected fresh products is local and belong to short chain, changing the scale of distribution by ensuring a range of supply, accessibility, service rapidity and longer opening times, all aspects that are characteristic of large-scale retail trade. The authors state that this model plays the role of an interface between the city and the rural world by reconciling economic and socio-territorial logics. Bouré (2017) describes gardening, the participation of Community Supported Agriculture or cooperative supermarkets as the result of the hybridisation process of spaces or activities. According to the author, this hybridisation allows the development of these forms of reappropriation by citizens that contribute to the construction of urban food Commons. The author claims also that it is up to the citizens themselves to build these Commons, to multiply them, to foster cooperation, and share these good practices, thus building a new food system by and for humans that is respectful of nature, ethical, and sustainable.

This article aims to investigate these models, focusing on the emergence of cooperative supermarkets in France. The media very successfully reported the emergence of cooperative supermarkets in Europe, especially in France, but thus far only a few academic articles have sought to understand the structure of these initiatives (El Karmouni and Prévot-Carpentier, 2016; El Karmouni and Béji-Bécheur, 2016; Defourny, 2017). El Karmouni and Prévot-Carpentier (2016) state that cooperative supermarket models emerged to constitute an alternative while conforming to usual plans, in particular as for the surface area of the future store, the

number of references in stock, the type of indispensable products, the level of prices to obtain for the “stall” promised by the cooperative to be real, and so on. At the same time, these cooperatives, inspired by the Park Slope Food Coop¹, re-propose the concept of 19th century consumer cooperatives such as the Bellevilloise, based on the idea of paying the right price for quality food, and eliminating middlemen. Furthermore, the contemporary model differs from previous ones because it tends to democratise quality rather than change society, and the consumer is both owner and volunteer-worker (El Karmouni and Béji-Bécheur, 2016), and is finally lodged in the ecological concern which favours short circuits and the sale of seasonal fruits and vegetables (Toucas-Trouyen, 2017).

The main objective of this article is to better understand the functioning of cooperative supermarkets and the values proposed as an alternative to the dominant model. The main questions are: What do these supermarkets propose that is different to the current offer? Which values and principles they propose? How do they structure themselves?

Material and method

A qualitative methodology was used to examine the emergence of cooperative supermarkets in France, drawing on analysis of content of speeches (interviews, presentation), documents (statutes and charters), social networks (internet supermarkets website) and through a direct experience of participation in the “Wolf” supermarket since autumn 2017. A grid of analysis was drawn up to analyse the documents and the field notebook so as to understand the organisational model of cooperative supermarkets and the values and principals that founded this model, focusing on the ecological, social, and economic dimensions.

Around 80 articles (online newspaper or blog from January 2017 to March 2018) have been collected but in this article it will not be deepened the representation of these models by the media.

The emergence of cooperative supermarkets in France

In France, 5 supermarkets are already functioning and 25 projects are in the developmental stage, more or less advanced in their reflections and steps. Some years and several steps are required to concretise the idea. Based on analyses regarding setting up supermarkets, several steps emerge as fundamental. First of all, a group must be composed to create an association, to gather the first members and working groups essential to the advancement of the project. The second step is to move to temporary premises,

setting up a purchase group or a small store directly in order to better organise the work, supply chain, governance and maturation of the supermarket idea. These intermediate steps are essential. The number of working groups varies from 5 to 11. Usually the most important include: supply, fundraising and communication followed by the legal aspect, location research, IT. Then there are initiatives that focus on environmental issues and others on social issues as well as the management of members and the activities to be proposed by the association. The final step is the creation of the cooperative and the opening of the supermarket. This step requires the achievement of a minimum starting point of 2000 members, necessary both to achieve minimum capital and to ensure a workforce to keep the supermarket open 6 days/week. As highlighted in the project websites or during promoter interviews, these supermarkets emerge as an alternative to the current food offer. Two main statements emerge: the large-scale retail trade offers a wide range of products from the agri-food industry, which implies relatively low prices but questionable quality, traceability and environmental impact. On the other hand, several initiatives offer excellent quality products that are often organic or local, but the majority of the population does not use these channels for their daily shopping because of limited ranges of products, the high prices or logistical complexity (time schedule, organisation, accessibility, etc.). So these supermarkets would propose another type of offer, combining the best of the two previous structures, proposing a wide range of quality products, large enough to respond to the daily needs of most households, at affordable prices because they are based on the voluntary participation of members.

These supermarkets are mostly characterised as being cooperative and participatory. Participatory because each member has to devote 3 hours of volunteer work per month to ensure supermarket functioning (shelving supply, product packaging, cash desk services, etc.) and cooperative because the supermarkets belong to its member-customers who own 10 shares of capital and have the right to vote and make decisions about product selections or other aspects related to the organisation or functioning.

The main objectives concern both social issues (quality products accessible to everyone, food sovereignty) and economic issues (non-profit organisation, fair remuneration for producers, affordable prices for consumers). Some initiatives also refer to environmental issues (joint development of transparent and sustainable and local food chains, promotion of consumption habits that respect people and the environment). At the same time, the values and principles expressed prioritise respect for the environment and the creation of a climate of sharing and trust. Environmental respect is achieved explicitly both in privileging products from local and sustainable agriculture and in promoting some practices within the supermarket to reduce the environmental impact (such as limiting packaging and reducing food waste). The latter clearly emerges by taking care to establish good relations with producers (based on trust, ethics, honesty) and between members as consumers (based

1. Cooperative supermarket created in 1973 in New York City in the Brooklyn district.

on quality, transparency, traceability, etc.) and as workers (sharing, cooperation, accessibility).

The objectives, values and principles stated shape the “concept” of these supermarkets, which is to propose a more equitable and inclusive food offer while focusing on the creation of a place of sharing, exchange, conviviality and learning (regarding a healthy diet).

Product selections are based on several criteria such as taste, quality, proximity, environmental and social impact, and the fairest price for the consumer and the producer. Besides prices, quality is the most frequently reported. Furthermore, the promotion of local development by supporting local and organic producers is also emphasised as an important selection criteria. At the same time, the importance of considering the diversity of buying power and cooking habits and preferences clearly emerges. For these reasons, the offer is based on several variants of the same product to let everyone make their own choices based on their priorities and resources. In almost all projects, it is emphasised that the idea of basing the food supply on local and organic products is therefore not realistic, considering both sides: consumers and their differentiated purchasing power, and producers who are not able to cover all the supermarket needs in terms quantity and diversity of products² and logistical issues. The product price is established by reducing the margins that correspond to 20% or 17% on all products and with the idea of reinvesting any profits in the supermarket.

The size expected in terms of surface area is around 1000 m² (the Louve supermarket occupied 1450 m²) and, in terms of human resources, around 2000 co-operators and 3-4 employees are needed to set up the supermarket.

Discussion

These cooperative supermarkets are a hybrid model that is inspired by a large-scale retail trade functioning but include a promise of “difference” (Le Velly, 2017) that distinguishes alternative food systems. As with other supermarkets, these supermarkets invest considerable surface area with daily opening hours six days a week and offering a variety of products. They propose a wide selection and type of products that reflect a global market (chocolate, coffee) but also the diversity of habits based on territorial (e.g. wine, cheese, delicatessen) and cultural (tapioca, manioc, etc.) tendencies. At the same time, these supermarkets are places of sharing, discussion and learning besides being places of consumption and work. A social project that proposes another way of looking at food consumption, proposing a more inclusive and sustainable system. They involve looking for “quality” products that respond to several criteria in terms

of economic (price, accessibility), social (quality, taste, preferences) and environmental (organic) aspects, knowing the difficulty of finding a balance between all these dimensions. The main goal is to propose a “quality” product to everyone. The five existing supermarkets are located in neighborhoods quite close to the city centers characterized for quite interesting socio-economic diversity. For example the SuperQuinquin supermarket is located in the Fives district and the Louve in the 18th district, establishments chosen for the strong social mix.

We should be asking ourselves: Would everyone like to support this kind of initiative?

For the moment we do not have access to socio-economic data that can better characterize the members of the cooperatives. It could be a very interesting topic to deepen the socio-territorial anchoring of those models. Even if at a social level their impact has to be verified after this survey we can advanced the hypothesis that these models could assume a real role in the territorial food system. As pointed out by Billon et al. (2016), the central position of distribution stakeholders in food systems as well as their specific competence can give them a privileged role within the territory to promote consumer access to local food. Furthermore, as demonstrated by Cappelli et al. (2016), by making it possible to involve consumers with a ubiquitous status (both internal and external stakeholders), the cooperative model determines a higher overall quality of the ideas proposed by consumer-members, who are considered to be relatively more innovative, feasible and wider sources of benefits than non-members.

Final Remarks

The literature on this topic is quite scarce and the emergence of these supermarkets is quite recent for coming to any conclusions. Based on the analysis, two considerations can be made regarding the future of these initiatives. These cooperative supermarkets could propose innovative solutions and open new challenges and opportunities to reshape the food system, reinforcing the linkage among agriculture, food and ConsumActors. Furthermore they could allow a relevant up-scaling democratising the access to quality and local food promoting the territorial anchoring of food system. Only deepening this topic and observing the phenomenon during time these statements will be verify.

2. For example, the Supercoop of Bordeaux proposed around 1000 different items that vary from food products (fruits, vegetables, cereals, wine, meat, and so on) to non-food products (such as cosmetics and household cleaning products).

References

Billon C., Baritaux V., Lardon S., Louiyi S., 2016, *Les acteurs de la distribution. Quel rôle dans la gouvernance alimentaire territoriale?*. In: Mundler P., Rouchier J., 2016, dir., *Alimentation et proximités. Jeux d'acteurs et territoires*, Transversales, Educagri Editions : 345-363.

Bouré M., 2017, *Réappropriation des systèmes alimentaires par les citoyens : une logique de Communs urbains*, Netcom, 31-1/2: 175-192.

Cappelli S., et al., 2016, *Co-innover avec ses consommateurs : oui, mais lesquels ? De l'intérêt d'impliquer les consommateurs-membres dans le processus d'innovation des entreprises coopératives*, Gestion 2000, N° 4, Vol. 33 : 117-141

Defourny J., 2017, *Les conditions d'émergence et de développement des coopératives*, Revue en Question Sens et engagement, N°123 : 24-32

Dubuisson S., Le Velly R., 2008, *Les circuits courts entre alternative et hybridation*, In Marechal G. (dir.), *Les circuits courts alimentaires. Bien manger dans les territoires*, Dijon, Educagri : 105-112

El Karmouni H., Prévot-Carpentier M., 2016, *L'idéal coopératif dans une organisation contemporaine. Le cas de la coopérative de La Louve*, RECMA, N° 340 : 78-92.

El Karmouni H., Béji-Bécheur A., 2016, *La louve coop: vers les coopératives des prosumers?*, Communication Orale au Sommet International des Coopératives, 2016, Quebec

Le Velly R., 2017, *Sociologie des systèmes alimentaires alternatifs. Une promesse de différence*, Paris. Presses des Mines, 200 p.

Rastoin J.-L., Ghersi G., 2010, *Le système alimentaire mondial : concepts et méthodes, analyses et dynamiques*, Editions Quae, Versailles

Rouget et al, 2014, *L'entrée de la grande distribution dans le marché des circuits courts: vers un modèle hybride? Le cas du magasin O'TERA dans la métropole lilloise*, POUR Dossier Agricultures Urbaines n° 224, GREP Editeur: 185-193

Toucas-Truyen P., 2017, *En Bref*, RECMA N° 343: 13-16

Watt D.C.H., Ibery B., Maye D., 2005, «*Making recon-nections in agro-food geography: alternative systems of food provision*», Progress in Human Geography, 29 (1): 22-40

Wiskerke, 2009, «*On places lost and places regained: Reflections on the alternative food geography and sustainable regional development*», International Planning Studies, 14(4): 369-387



Short supply chains scaling-up: considering the farmer's constraints for the development of new outlet

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Abstract

Enthusiasm for short food supply chains is characterized by emergence of a wide diversity of initiatives (Aubry and Kebir 2013) motivate by the farmers as well as the consumers who aspire to new way of consumption (Chiffolleau 2008). In this context, new actors position themselves as intermediary between farmers and consumers. The originality of this paper is the better understanding of short supply chain farmer's constraints to adopt new outlets. What does this say about difficulties for short supply chains up-scale? The investigations with farmers for the new logistic and commercial option from "La Poste" (French mail Distribution Company) shows firstly needs of compatibility between the La Poste solution and the production organization of the farm and finally needs of coherence between the nature of intermediary and the value system of the farmer.

Keywords

short supply chains, up-scale,

Introduction

Short supply chains knew a strong popularity. According to the French Ministry of Agriculture (2009) they are a form of commercialization that involves no more than one intermediary between farmers and consumers. Currently in France, one of five farmers commercializes by short supply chains. The renewal of interest in a geographical and relational proximity between producers and consumers is accompanied by a wide variety of innovative initiatives (Aubry and Kebir, 2013). They respond in Europe to new expectations from consumers on social, environmental and economic issues (Chiffolleau 2008). If data concerning the consumer's demand and its evolution lacks, the current major issue concerns more the offer organization. As demonstrated by the literature a real issue regards the technical management of those farms (Aubry, Bressoud, and Petit 2011), who combine production activities, logistic and sale management. In addition, new actors with variable economic size position themselves as intermediary between farmers and consumers more or less successfully, using digital tools. Based in this fact this paper proposes to question the prospective of

short supply chains and their up-scaling. The originality of this paper is the characterization of farmer's constraints to adopt new outlets based on digital tools and proposed by an intermediary actor. What is the nature of these constraints? What reasons are conjured up? What guarantees are asked for? Which insights they provide concerning the constraint to short supply chains up-scale?

Method

The survey has been carried out between February and March 2017 in two cities (Nantes and Grenoble). The main goal was to test a new outlet proposed by the French mail distribution company La Poste (figure 1) identifying farm's constraints to its adoption. This objective is based on La Poste request, the commercial and logistic offer developed by La Poste. This new outlet is based on an on-line shop that allows the consumers to order (T0) products from farmer's member and settled in specific area to define. Everyday La Poste proposes to collect the products from farmers, organize the food baskets and delivering them at home (T+2 days).

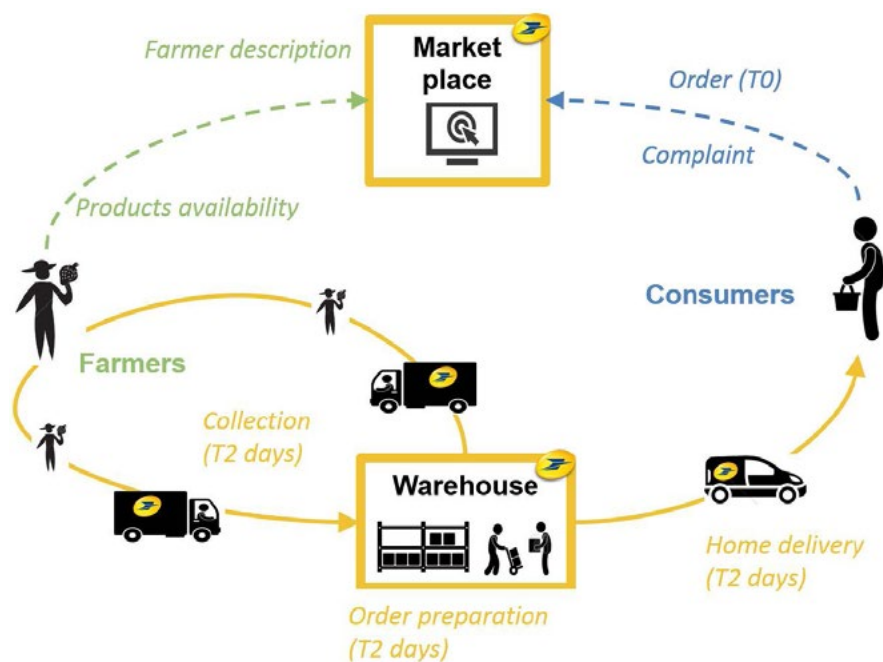
The city of Nantes (285 000 inhabitants, located on the Loire's mouth in the West coast) and Grenoble (155 000 inhabitants, located in Alps) were chosen by La Poste in order to test the offer. Both cities seem relevant considering the numbers of farmers located less than 80 km from the city center (2360 farmers in Nantes and 3140 in Grenoble (Agreste, 2010)) which providing a part of products in short supply chain. The short food supply chains are significant ensuring the quantity and quality of products for the experimentation.

A sample of 33 farmers (11 from Nantes and 22 from Grenoble) has been selected in two steps. First the local agricultural institutions (Chamber of Agriculture and Organic Farmer Group) proposed a group of farmers and then following the snowball sampling technique. The sample is composed by a large range of farms permitting emergence of wide diversity of constraints. The diversity in production systems (fruits and vegetable, meat, eggs and milk) and food processing equipment (cold meat, dairy products, preserves) has been taken into account.

This survey was conducted by exploratory research approach and the data were collected using semi-directive interviews. The interviews were carried out in 2 phases. First we proposed to farmers to describe their farms including their production system (crops and livestock) and commercialization system with outlet's details. Then the commercial and logistic offer elaborated by La Poste was presented with the support of a diagram (figure 1). The farmers are led to express potential interest in this offer with the aim of highlighting current needs of new outlets as well as reaction concerning technical characteristics of the offer. We collect the speeches avoiding to influence farmer's answers. The spontaneous farmers' answers vary and during the analysis different topics and subjects have been identified.

A spreadsheet was used to categorized, counted and hierarchized their comments and opinions.

1. The organizational and technical impacts of adopting La Poste's outlet



First of all, the farmer's reactions questioned the possibilities for rapid integration of this new outlet. They vary according to the profile of farms (stability of commercial outlets, volumes marketed and remaining marketable) but also according to the margins for manoeuvre for production and commercialization planning.

Thus, some productions scheduling exclude the rapid integration of new outlet. While the horticultural growers or breeder could increase their productions this nevertheless induces a minimum of anticipation of the order of the season or of the year, variable according to products (cultural cycle more or less long, variable duration for fattening livestock). Farmers underline coherence between planning needs and the delayed of the on-line release for upload product offer. Especially as daily 4

Figure 1 presentation scheme of La Poste outlet



Figure 2 scheme of new outlet adoption strategy

Results

The analysis of the interviews reveals two main categories of farmer's opinions to La Poste outlet. The first category includes the farmers' reactions that focus on the impacts (positive or negative) in farm work (organizational and technical) and the second concerns the outlet transparency and the intermediary's nature.

For these last ones, two strategies, sometimes concomitant, are observed: consider the substitution of one outlet by another without modification of production capacities or schedule an increase of volumes as soon as possible. The stability of commercial outlets and the wish to develop the short supply chains are thus mobilized to react to this new outlet. Whatever the farm profile, it is how the new outlet will impact the farm's organization that is approached. These reactions are particularly interesting because they show the extent of the technical, productive or organizational changes generate by a new outlet. According to 9



producers, they concern order deadlines and question the two-day deadline considered irreconcilable with the production period mentioned above. This particularly concerns breeders like farmer G21 "To make an order on Thursday, you have to order the week before, it is necessary." or the farmer N4 that point out that "The products are available from Wednesday evening (back from slaughterhouse)". Moreover, 6 producers (mainly breeders) concentrate their worries on product losses risks, especially for pieces that are less appreciated by consumers. "My cow doesn't have 50 fillets and consumers don't want slow-cooking pieces." (Breeder G9).

The obstacles identified by producers are coupled with reactions highlighting the gains and benefits of this offer. They are mostly organizational, allowing economic or time savings. 10 producers thus highlight the potential time savings for certain tasks offered by La Poste, in particular order preparation and home delivery. "It's ideal if La Poste prepares orders because it takes a long time." (horticultural growers N9). The time saving appears as a particularly attractive argument. On the other hand, the respondents do not hesitate to express few reservations about the tasks to be set up for this new 5 outlet, considered too time-consuming and the cost, such as the management of a digital interface, as underlined by 4 farmers, and the need to package products per piece for 5 others.

2. A need for transparency for the outlet's characteristics and the nature of the intermediary

Our investigations show that the adoption of this new outlet is also conditioned by the compatibility of the outlet according to questions posed by producers. The answers that La Poste may provide will influence the representation that the producers have of this intermediary and could impact their intention to collaborate based on organizational or technical consequences mentioned above.

Some reactions to the outlet proposed by La Poste reveal a set of specific interest points to producers in short supply chain. Many comments concern the need for transparency in the outlet. For example, 21 farmers out of 33 spontaneously question the intermediary's margin. They need more transparency about the intermediary point out as important is also for the consumers: "Transparency is required and the consumer must know the producer price and La Poste price" (Goat breeder G8). We find the need to identify the consequences of this outlet on the commercial image conveyed by the intermediary, particularly through the digital channel: does the outlet coherent with my marketing strategy (fair price to the consumer, distribution to a wide and not exclusively privileged public, transparency of the margin and reasonable margin of the intermediary)? Does the quality of my products will be promoted among a set of offers whose content I do not know (long circuits, conventional channels, labelled or not)? Does this marketing system will generate competition between producers? 8 farmers thus express

worries about La Poste's ability to limit the competition between products resulting from divergent agricultural practices, "I do not want to be in competition with people who fatten "young cattle", products of poor quality" or with a too distant source (Bovine breeder G9).

Other farmers are more inclined to question this outlet in terms of the transition from direct sale to one intermediary. They point out the disadvantages of losing the direct connection with the consumers, the loss of flexibility, the trust in the intermediary, the regularity of payment, etc. 6 producers wonder the guarantees on La Poste's ability to offer quality service, particularly in handling agricultural products, complying with health rules and managing customer's complaints. "The service must be irreproachable, especially with fresh products. Every piece of meat is a part of me!" (Bovine breeder G9) or "when you see how packages are handled on conveyor belts..." (horticultural growers G13). Finally, 5 farmers question the link that La Poste will create with the consumer, "Our job is to enlighten, explain and answer customers' questions, takes part of production process" (Goat breeder N2).

While some of these reactions may be associated with the values conveyed in certain local distribution channels, we observe that they are not in the majority. At the same time, there are 10 producers who spontaneously express indifference for those subjects of competition and image and don't question the intentions of the intermediary towards the consumer. A dichotomy appears concerning the essential prerequisites for the integration of its products on an online store.

Discussion

Question the future of short supply chains and its up-scaling boil down the analysis, among other things, the possibilities of increasing the volumes of current producers. The survey shows that this can be achieved if the constraints of producers are taken into account, or even minimized by the provision of appropriate logistical solutions. In this sense, the new outlet allows the farmers to project themselves into this dynamic of new short supply chains adoption.

La Poste's logistics outlet is a novelty in France, relying on major logistics equipment, manpower and a good network throughout the country. Offering a complete logistics service remains rare and can meet producers' expectations at a time when their organizational difficulties are highlighted and the livability of farms questioned. However, this offer seems less appropriate to individual farms than to farmer's groups, which are able to manage irregular orders and withdrawals of goods through a common organization of production and logistics (delivery, storage).

Moreover, the logistics service offer is applied throughout

the supply chain, while the consolidation of existing initiatives by logistics services is a major issue, which was widely raised during the surveys in Grenoble and Nantes. This requires support and a better knowledge of transport and logistics professionals, coupled with support for the emergence of producer groups wishing to invest more heavily in short supply chains.

References

Aubry, Christine, Frédérique Bressoud, and Caroline Petit. 2011. "*Les Circuits Courts En Agriculture Revisitent-Ils L'organisation Du Travail Dans L'exploitation ?*" *Le Travail En Agriculture : Son Organisation et Ses Valeurs Face À L'Innovation* Béguin P., Dedieu B., Sabourin E. (Dir.), 19–35.

Aubry, Christine, and Leïla Kebir. 2013. "*Shortening Food Supply Chains: A Means for Maintaining Agriculture close to Urban Areas? The Case of the French Metropolitan Area of Paris.*" *Food Policy* 41: 85–93. <https://doi.org/10.1016/j.foodpol.2013.04.006>.

Chiffolleau, Yuna. 2008. "*Les Circuits Courts de Commercialisation En Agriculture : Diversité et Enjeux Pour Le Développement Durable.*" *Settling the Shared Uncertainties: Local Partnerships between Producers and Consumers*, 21–30. <http://prodinra.inra.fr/?locale=fr#!ConsultNotice:28403>.



SHIFTING FROM URBAN AGRICULTURE AND FOOD PROJECTS TO POLICIES

Allotment garden on the roof of the Paris city council house. Potager de l'Hôtel de Ville (in French).
Photo: Cecilia Delgado, 2017



Critical keys to understand the emergence of a strong U.A. movement in Paris

Delgado C. Author

Abstract

The city of Paris has been extremely active on programmes and projects concerning biodiversity, greening, urban agriculture [UA] and food initiatives. Our leading question in this paper is: which are the critical points that explain such a lively process? In order to address this, 22 actors and initiatives were either consulted or visited and a semi-open questionnaire was applied.

Findings are showing that UA and food growing importance results from a unique combination of, at least, four critical factors: A facilitating policy framework; A highly qualified professional and institutional profile of the promoters; A holistic and inter-disciplinary approach to UA that helps in including and connecting a larger number of actors and gain a critical mass; A very conscious consumer mindset that increased the demand for local food. In a nutshell, those critical factors contribute to UA and food emergence, and make the city a unique research case to understand UA future models, at least in European countries.

Keywords

Urban Agriculture; City-based policies; Urban Agriculture and food promoters; Paris

Introduction

This paper presents an exploration on the key critical factors enabling the shift from Urban Agriculture [UA] and food related projects to city-based policies using Paris as a paradigmatic case. Having as main focus UA the city developed several initiatives, namely the “innovative greening” (Mairie de Paris, 2013) or more recently the programme Parisculteurs (Mairie de Paris, 2016). In addition, Paris Local Urban Plan considers UA mandatory in new housing developments¹. With those initiatives Paris aspire to have 100 hectares of green spaces until 2020, including 33 hectares of UA. It’s an ambitious policy that deserves attention, as

¹ Paris UA and food blowing up initiatives are also under the scope of “Environment and Sustainable Development” governmental issue – more information on Mayor’s network in France. <http://www.amf.asso.fr/dossiers/index.asp?MENU=4> (accessed on March 2018)

lessons learned can be useful for other countries and cities notably in Portugal. Which are the critical factors that explain such a lively process? Based on existing literature (IPES-FOOD, 2017, RUAF-ICLEI, 2013) we argue that political support for UA, and multi-actors processes participation are critical. However we don’t know if those both factors do exist and are sufficient to explain the blowing process in Paris.

How we did it?

In order to understand UA Paris scenario, 22 actors and initiatives were either interviewed or visited from July to August 2017. The selection of the initiatives and actors considered as much as possible all the UA diverse perspectives from social to environment, including as well economic one’s. To select actors and initiatives several methods were used: literature review; a list of UA partners provided by Paris municipality; systematic and repeated UA related web site searches; contacts provided by the platform actors for Paris sustainable; and the official list of community gardens in Paris. Finally a list of potential visits and contact was settled based on a wide sort of UA activities from: production for distribution; honey production and distribution; production for self-consumption; production for pedagogic events; food governance and advocacy (from private and public sector); short circuits; composting; UA financing; and UA and food correlated events.

Initial contacts with promoters were made by email. After agreement, interviews were carried out face to face along with visits. During visits and interviews a semi-open questionnaire was applied covering different perspectives and actors profiles. This paper considers part of the information collected, nevertheless special emphasis is given on lessons learned and reasons that explain the success achieved so far.

In order to define who are the stakeholders involved on this large-scale process we adopted the actor profiles proposed on the report “Paris food state of art” (Mairie de Paris, 2016b), notably: 1) citizen’s initiatives and entrepreneurs from the social economy and solidarity sector; 2) private sector initiatives; 3) public and administrative sector’s ones.

The list, of initiatives visited and their related promoters, is presented on the table below. Even if not representative of all initiatives, it is a fair starting point to characterize the current trends of UA in Paris.



Table 1: Projects and initiatives visited and actor's interviewed

A	B	C	D		
INTERVIEW (I) AND VISIT (V)	ASSOCIATION (A) OR ENTERPRISE (E)	INITIATIVES	ACTORS PROFILES		
			CITIZENS, SOCIAL ECONOMY AND SOLIDARITY SECTOR	PRIVATE DOMAIN INITIATIVES	PUBLIC DOMAIN AND ADMINISTRATIVE
I.1	Marie of Paris	Programe Parisculteurs	X	X	x
I.V.2	CityBzz	Ruche Recyclerie	X	x	
V.3	Sinnu & Ooko	La Recyclerie	X	x	
V.4	Marie de Paris + Jardizneuf	Jardins passager – La Villete	x		x
I.5	CERVIA	Mangeon Local		X	x
IV.6	AEROMATE *	RATP - Toit		x	x
V.7	Marie de Paris + Aurore + Plateau Urbain + Yes we camp	Grands Voisins	x	x	x
IV.8	UrbAgri*	Potager de L'Hôtel de Ville		x	x
IV.9	Pepins production	Grand Voisins	x		x
IV.10	MUGO*	Jardin Arenes de Lutece		x	x
IV.11	Espaces	CULTICIME	X	x	
IV.12	Jardin Santerre	Jardin Santerre	x		x
I.13	Ville Ouverte	François Dealle-Facquez		X	
	AFAUP, Association				
I.14	Française d'AU Professional		x	x	
IV.15	La Boite à Champignons	La Boite à Champignons Design Vegetal + atelier La Boite à		X	
V.16	Cité de la Mode et Design	Champignons			x
V.17	Marie Paris + Citizens	Vila Fertile - Vincennes	x		x
I.18	Natureparif	Mission Agriculture Urbaine			x
V.19	Marie de Paris	La Maison du jardinage	X		x
I..20	Platform MIMOSA	Platform MIMOSA	X	X	
I..21	AMAP - Île de France	AMAP - Île de France	X	X	
I.22	La ruche qui dit oui	La ruche qui dit oui		x	

* Winners of Parisculteurs first season (2016/2017). Only 3 of a total of 32 Parisculteurs sites were open to visits* in Summer 2017 when our fieldwork was done.

Source: Author elaboration

Table 1 gives a brief overview of the initiatives and programs visited as well as actor's profiles involved directly or indirectly in them. It clearly shows that nearly every initiative comprises actors from distinct sectors (private, public and social economy) i.e. initiatives are happening in a context of strong connection among actors from different sectors and disciplines.

Findings so far: what we observed

Based on our qualitative survey, Paris UA swift expansion can be explained by four critical factors, which could be grouped as follows: A facilitating policy framework [CP-A]; Unique promoters profile [CP-B]; UA initiatives as a holistic setting [CP-C]; A very conscious citizens and consumers mindset [CP-D];

A brief clarification on the reasons behind each critical point can be found below. The descriptions do not intend to be exhaustive however they help to open a much-needed debate:

A facilitating policy framework [CP-A]

1. There is a juridical window of short-term subsidized contracting of people that facilitates UA labour at low cost;
2. Paris public administration is fostering UA expansion through numerous programs, media visibility, charters and above all networking among actors;

3. UA is part of the Paris Local Urban Plan;
4. There is a UA diagnostic being done through the UA Observatory (NATUREPARIF) sponsored by the Ile de France region;
5. The region of Paris is also encouraging UA and local agriculture development through CERVIA, (see Mangeons Local). Other example, Regional Agency for Digital Innovation (Agence numérique d'Ile-de-France) opened in 2015 a contest to raise connectivity among UA initiatives.

In summary, they have a positive impact on Paris as such there is political support and commitment either at municipal level (Paris) or at the Regional level (Ile de France), which creates windows of entrepreneurship opportunity. There is, as well, a clear political effort on better connecting actors. An illustrative example of this is the platform "Acteurs du Paris durable", or the meet-up page created by the city council under Parisculteurs programme. Lastly, public administration has political comprehensible and quantitative tangible objectives to achieve: e.g. 50% sustainable municipal food supply; 100 hectares of green spaces including 33 of UA; are examples that point up some of the goals that must be achieved until 2020 (Mairie de Paris, 2016.b).

Unique promoters profile [CP-B]

1. Promoters are extremely skilled scholars and professional;
2. Most of them come from academic and professional backgrounds not necessary close to Agriculture related disciplines. They are managers, web designers, environmental engineers, landscapers, urban planners, and former bankers;
3. Partnership among promoters is a mainstream practice based on complementary expertise
4. They are generally extremely young, empowered and highly motivated
5. They stand for a new generation of entrepreneurship that merges social, environmental and business approaches.

In brief, they are able to work in “discomfort areas”, open to change, plus extremely well connected. Some examples can be given as illustrative: founders of CityBzz, *La Boite à Champignons*, Platform MIMOSA, Jardin Santerre compost leader, among others, come from backgrounds far from Agriculture related disciplines. They recognize UA as a multidisciplinary field that needs complementary expertise. At Culticime the technical assistance of the roof is done by Topager, but human resources management, production and distribution is made by Espaces. The “Potager de l’Hôtel de Ville” is a partnership between Nadiplast Siplast that works with innovative solutions for roofing, the Loiseleur group is in charge of the development, whilst the management is under UrbAgri accountability. Need as well to underline INRA-Paris academia crucial role on the scaling up of processes: INRA implemented the first productive research rooftop in Paris: and, was the incubator of the French professional association of urban agriculture, that gathers today a considerable number of UA enterprises ensuring UA critical mass.

UA initiatives as a holistic setting [CP-C]

1. Initiatives are tested on a small scale before large investments are made (star-up model);
2. UA is considering its wide spectrum of activities: production, distribution, technical support, pedagogical events or even research;
3. Initiatives are balancing complementary activities e.g. linking production and services;
4. Initiatives keep being social and environmental but are strongly rooted on economic sustainability;
5. UA is essentially a collaborative task, involving partnership and federation;

6. UA initiatives are deeply rooted in innovation and research along with strong communication;

Our observation leads to conclude that resilient UA initiatives are based on complementary and collaborative activities what makes them more adaptable to challenge. For example Pépins Production is doing pedagogical workshops along with selling baby plants. Aeromate is producing aromatic plants along with drying them. *La Recyclerie* merges a café and restaurant with a social association that develops UA events. Mugo does beekeeping, landscape as well as pedagogical workshops, etc..

In addition, they use partnerships to gain scale and skills; e.g. Culticime et *le Potager de L’Hotel de Ville* are joint-ventures between Topager, who manage the technical part of the roof and Espaces and UrbAgri respectively. Another example, Mimosa and “*La ruche qui dit oui*” with other enterprises founded a platform called “*La ferme électronique*”. Finally the AFAUP (*Association Françaises d’Agriculture Professionnelle*) is the best example of UA partnership approach.

A very conscious citizens and consumer mindset [CP-D]

1. Consumers are sensitive to agro-ecological consumption not only but also, because of ongoing food crisis;
2. Consumers have relatively high purchasing power, at least in Paris;
3. Consumers recognize local products best nutritional and flavour quality, preferring whenever possible, these to products sold in large commercial chains;
4. Citizens’ share ideological values concerning the support of local agriculture an local production;
5. Civil society is well informed and able to struggle for better supportive food and urban agriculture policies.

There is a significant number of consumers, from individual ones to catering, which are keen to local consumption and able to pay for it. This explains the significant expansion of food short circuits as AMAPs or “*La Ruche qui dit Oui*”. Moreover consumer’s expectation for more health food short circuits is growing, according to the report on food state of art in Paris (Mairie de Paris, 2016). Last but not least civil society, either organized or not, is truly committed in UA development and protection. The collective memory filed under the public inquiry for Paris Local Urban Plan (2015) clearly demonstrates citizen’s awareness.



Discussion:

Back to our research question: which are the critical points that explain such a lively process? Findings underline that political support and commitment exist, and is actively promoting processes of collaborative governance with local actors [CP-A], which is aligned with existing literature (IPES-FOOD, 2017, RUAF-ICLEI, 2013).

On a second level there is clear evidence that initiatives and projects are being upheld by a unique promoters profile from various backgrounds [CP-B] with a holistic vision [CP-C]. Why is this important? We believe that those actors' distinct profiles are feeding UA holistic vision generating a critical mass. This strengthens actor's influence and ability to negotiate with decision-makers, notably by insuring that long-term political commitment to initiatives is guaranteed. Finally, need to underline consumer's mindset keen to buy UA local production, which we believe is critical to close the loop and ensure a successful food policy [CP-D].

Preliminary Conclusions

Lessons learned from Paris can be summarized as follow: Political support and commitment seems again to be the critical factors needed to shift from projects to policies. However an empowered civil society, able to add value to UA and food products along with consumer purchasing power, closes the loop, which is critical to its success. Important for Portugal those lessons are showing that UA sustainability need to be a collaborative multi-actors and multi-disciplinary process, supported by political long-term commitment. In summary the first critical step for Portugal could be to place UA in the political agenda.

On UA Paris sustainability some questions remain open and need further exploration: 1) Are those critical factors enough to ensure UA processes long-term sustainability?; 2) Is the current collaborative governance model working for the actors involved today the most appropriate for a long term perspective?; Those are some critical questions to feed upcoming debate.

Keywords

Urban Agriculture; Food Policies; Paris

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References

IPES-FOOD, 2017. What makes urban food policy happen? Insights from five case studies. Online: http://www.ipes-food.org/images/Reports/Cities_full.pdf (Accessed on March 2018)

Mairie de Paris, 2013 Communiqué de Presse – Paris, terrain d'expérimentation pour la végétalisation innovant. Online : https://acteursduparisdurable.fr/sites/default/files/kl_-_communiqu%C3%A9_de_presse_-_paris_terrain_d%27exp%C3%A9rimentation_pour_la_veg____.pdf (Accessed on March 2018)

Mairie de Paris, 2016. État des lieux de l'alimentation à Paris – Carnet des enjeux. Direction des Espaces Verts et de environnement. Agence d'Écologie Urbaine. Online : <https://api-site.paris.fr/images/91142> (Accessed on April 2018)

Mairie de Paris, 2016b. Les Parisculteurs. Des lieux et des projets pour cultiver à Paris - Dossier de Presse. Mairie de Paris. Online : http://www.parisculteurs.paris/data/presse_3f9e4/accueil/4/dp-parisculteurs_finale_41dc2.pdf (Accessed on March 2018)

RUAF-ICLEI, 2013. Cityfood: Linking cities on urban agriculture and urban food systems. Online : http://resilient-cities.iclei.org/fileadmin/sites/resilient-cities/files/Full_papers/RUFS_2013_CITYFOOD_12pages_FINAL_hq.pdf (Accessed on March 2018)



Community Urban Food Gardens policy design: a study case with Almada (Portugal) and Paris (France)

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Abstract

Worldwide, community urban food gardens (CUFGs) are becoming important elements in metropolitan ecosystems and in spatial urban planning (SUP) policy frameworks towards socio-ecological sustainability. CUFGs growingly play a significant role in social-wellbeing, in climate change adaptation measures, in ecosystems services provision and biodiversity promotion. Consequently, throughout the European Union multiple cities have been experimenting with CUFG implementation. However, existing policy solutions differ extensively and comparative research efforts are still scarce. In this light, we engage an exploratory brief analysis of two European cities, Almada and Paris, addressing the contextual factors that underpin local CUFG policy design and community engagement possibilities.

Keywords

Climate change, land scarcity, spatial planning, community engagement

1. Introduction

Community urban food gardens (CUFGs) are becoming key elements in metropolitan ecosystems and increasingly relevant in spatial urban planning (SUP) strategies towards resilience (Touliatos 2011; Torquato Luiz & Jorge 2012). At the socioeconomic level, CUFGs positive impacts include: (i) promotion of outdoor activities (Firth et al. 2011); (ii) greater community engagement in the production and consumption of their own nutriment, (iii) employment opportunities (Hagey et al. 2012); and (iv) local capacity building of food production challenges, aggregating value to agriculture activities (Benis & Ferrão 2017); At the ecological level CUFGs inputs encompass the: (i) promotion of absorption surfaces; (ii) contribution to Climate Change (CC) adaptation such as heat island effect attenuation (Lemonsu et al. 2015; Oliveira et al. 2011; Cleveland et al. 2017); (iii) and overall promotion of biodiversity and support of ecosystem services (Goddard et al. 2010). Within the European Union (EU) local policy responses, although highly heterogeneous in scope, are beginning to tap into CUFGs CC adaptation potential. To this day there aren't many comparative analysis about CUFGs policy design and implementation. Thus, we engage a brief

analysis of two European cities; Almada and Paris, illustrating how local policies integrate CUFGs and support communities in food gardening and which contextual factors determine both policy design and implementation strategies.

2. Methodology

The study selection rationale is twofold: (1) Paris and Almada have a strong historical agricultural background and a dynamic contemporary advocacy movement for food gardens (Almada 2008; Caggiano 2010); (2) Both local authorities have distinct land use regulations promoting CUFGs, enabling a rich discussion of public policies design possibilities.

Data was collected through literature review crisscrossing multiple scientific domains, using keywords such as: "spatial planning", "urban food gardens", "public policy", etc. Two instruments (Table 1) emerged as fundamental, as they are most recent and the main channel linking city councils to citizens, regarding public land use for food gardening in these cities

INSTRUMENT NAME	COUNTRY/CITY	MAIN PURPOSE	YEAR OF PUBLICATION
CUFG Normative Proposal (São João)	Portugal/Almada	Permit issuing & regulation	2014
Permis de Végétaliser Parisien	France/Paris	Permit issuing & regulation	2015

Table 1. Instruments used for analysis (Almada 2014; Mairie de Paris 2015a).

3. Almada food gardens: steering from the top

Regarding CUFGs, Almada holds a strong record of urban agricultural activities, fed by migrants growing their sustenance. Such activities were implemented legally, mainly, in private land. However, when most migrants arrived in Almada (1960), large areas of public property were unattended and therefore were occupied. As these weren't claimed back until the beginning of this century, illegal food gardens proliferated. Today, the city holds a bigger portion of illegal CUFGs, when compared to the size of legal gardens (Almada 2015a).

In 2013, the council called citizens to participate in their first official CUFG (São João), within their land, rules and administration. The area has 8500 m² with 73 individual plots (30-124 m²). The call was open to all citizens, from July 8th to 26th (Almada 2014). Main objectives outlined were: social inclusion; maintenance of agricultural activities; food subsistence; green corridors promotion; urban spatial valorization; and organic farming. Candidature was submitted via email, posted mail or in loco. Documents required were: form, identification, residency proof and employment declaration. Selection criteria pondered proximity, employment status and under a thigh, registration date was considered. Selected individuals formalized their acceptance and had to pay a 1,5 €/m² per year fee. A second call opened from March to April (2017), for another CUFG, with 64 plots (Almada 2014).



In hindsight, it's critical to underline that candidates must be: literate, resident, and willing to pay and to go across the selection process. Furthermore, the nature of gardens' design is individualistic, as people don't share land but instead, are attributed a individual plot and a gate key. This structure choice may be privilege of a city with land available and lower population densities, but in Paris, one of the most expensive m² in the world (United Nations 2015), this may not be an option.

4. Paris: Food gardening in a shoebox

Parisian Food Gardens go way back. As in other countries, war and post-war periods brought urgency in securing sustenance during uncertain times (Firth et al. 2011). Nevertheless, CUGs that date from the nineties have proven equally popular (Caggiano 2010), with structures created to enable an encouraging atmosphere, as citizens must leave gates open to passers, at established working hours (Paris 2015a). Historically, Paris suffered an intense process of urbanization, overpopulation and rising real estate prices, which led people to small housing units with no garden. Nevertheless, it may have had an unexpected positive side effect. Not only CUGs are increasing in numbers, but are becoming an extension from home, where inhabitants don't perceive themselves as users or consumers from society. This sense of belonging and commonality has led to a growing interest in local politics and a broader understanding of citizens' power (Caggiano 2010). As CUGs spread out, self-organization is transforming initial individual designs in shared and more inclusive ones (Caggiano 2010).

In 2015, the "Permis de Végétaliser Parisien" (Mairie de Paris 2015b), encouraged people to implement food gardens everywhere, even in a shoebox located by a sidewalk. Three were the main objectives outlined: participatory approach; social engagement; and environmental awareness. Through a website, creativity is strongly stimulated: "Installing a planter on the corner of the street to grow tomatoes, using a tree bottom part to spread flowers, running climbing plants on a wall, transforming a post into a planter" (Mairie de Paris 2015b). This policy authorizes people to temporarily occupy public areas for gardening and to use imaginative ways to plant. Technical support is provided including a biodiversity species' list (Mairie de Paris 2015b) and gardeners have to compromise to keep it aesthetical, clean and pesticide free. Submission is done online and the required information includes: 1) Location; 2) Exact dimensions; 3) Project details. On the negative side, one must also be literate and have access to a computer, but on the other hand there is much less bureaucracy than Almada's application process. The permit is granted within one month by the City Council after favorable opinion from the affected boroughs. The permit is free and issued for a period of three years.

5. Paris and Almada: An unavoidable contrast in CUG policymaking?

Both policies (Table 1) have similar purpose but their design contrasts greatly. Despite their structural, political, administrative and institutional differences, the recognizable divergence may be a response to land availability. Paris has scarce land resources while Almada still has a sizeable unused land bank. These differences undoubtedly reflect both cities historical urbanization dynamics. Paris is an urban centre since before the 19th century whereas Almada started to be densely populated, in the 1960s. Therefore, Paris has almost reached its full capacity for green areas and Almada might face a similar scenario in the long run, if we consider the rise of real estate speculation within Lisbon's Metropolitan Area. Therefore, while Paris is already reacting to land scarcity, Almada is not. In this light, this paper's rationale focuses on the discussion of a potential preemptive policy shift in Almada, towards a more sustainable and less restrictive land use strategy.

6. The role of spatial urban planning policies in food gardening

CUGs hold relevant policy integration potential and contribute to wider ecological network implementation and management, to community-led initiatives, urban health policies, and local food production upscale in urban areas. In this perspective, Paris opted for greater flexibility and a wider geographic scope, promoting a more holistic approach when compared to the Almada. Parisian gardeners can make a proposal of method and location for their CUGs, becoming directly responsible for their project. Almada's approach, on the contrary, has preselected areas and relies on the city council's assessment in most of its CUG's procedural steps from application to implementation. This frames Almada's policy design as a more top-down technocratic take on food gardens implementation and citizen engagement, which in direct comparison to Paris, slows the process down while reinforcing the notion of state-led policy.

Contrastingly, Paris (Mairie de Paris 2015b) promotes a more bottom-up community-led strategy, as Parisian SUP works as an adaptive policy framework, focusing after each round of applications, on speeding the greening of the city over spots suggested by locals. In sum, we witness a dynamic community-led policy implementation approach. Procedurally, another key novelty aspect is the permanently open application process for CUGs. In other words, any citizen, at any time, can engage the process; and speed and deadline settings are therefore, transferred to the municipality. This creates, even if superficially, a different power relation and cooperation platform between citizen and local authority. Consequently, we perceive Paris' approach as more inclusive and encouraging regarding community engagement, enabling personal momentum to react to the policy. On the other hand, from a social engagement standpoint, Almada's restrictive and lengthier selection procedure and low number

of available plots' may result in a demobilization of the local community, delaying a wider CUFG up scaling strategy. To some extent these approaches are exponentiated by digital interface tools from the cities. Parisian citizens' submission is done via digital questionnaires while the Portuguese solution requires a form that needs download, filling out, scanning, and then its upload on an email. Moreover, Almada's charging per m² may push people away, namely gardeners from more deprived communities, seeking to complement their household food stocks (Torquato Luiz & Jorge 2012; Delgado 2015). On the other hand, Paris' process is free of charge and upcycled pots are encouraged (e.g. milk carts, plastic bottles, etc.), directing people to also think about

waste management and the reusing potential of solid waste in their daily routine. So, with many more uncomplicated, innovative and decentralized models such as Paris, Berlin (Muller, 2007), Wisconsin (Hagey et al. 2012), and many others to be inspired by, we question why is Almada following a more bureaucratic and restrictive approach? There is certainly no single answer to this question. If we refer to the wider literature on the challenges of policy mobility (Temenos & McCann 2012), some potential explanations come to mind. In detail, we expand on the role and impact of institutional barriers for municipal policy culture change. These can be separated between internal and external institutional constraints (Crabbé & Robin, 2006). In CUFGs, we believe that internal barriers hold the key to better understand the reviewed different policy approaches.

If we fall back on the traditional interdependent barriers for institutional adaptation, capacity building, decision-making and policy innovation (William & Baumert 2003), we must take into consideration the: 1. Skills and performance of individual actors; 2. Organizational management capacity; 3. Networking capacity between relevant actors and/or organizations, in the form of horizontal and vertical cooperation; 4. Regulatory framework, i.e. laws, rules and regulations for public governance; and 5. Social norms, values and practices that can either support or challenge policy change. In this light and revisiting Almada's approach, we don't believe in a deficit in terms of the institutional skill set nor in terms of organizational management capacity.

Nor is there, to the best of our knowledge, a statutory obstacle in Almada' legislative or policy framework to put a Paris-like solution into practice. We find that the core obstacle lies with the predominant social norms, values and practices of municipal institutions, decision-makers and citizens. This local ethos can potentially hinder both networking capacity and community mobilization. Traditional values like the property individualization and the lack of effective and inclusive conflict management mechanisms, may well play an essential obstacle to the collective CUFG implementation philosophy promoted by Paris' context. This lack of a tradition in local community engagement governance may apply to Almada's decision and policy-makers, when it comes to engage on a Paris-like holistic community arrangement. Cumulatively, accounting that the proximity ef-

fect on policy mobility has been widely proved (Temenos & McCann 2012), we considered that the Lisbon City Council had already designed and implemented its instrument for CUFGs (CML 2011), when Almada was outlining its own. At this stage, and without the necessary set of interviews to validate our assumption, we can only but speculate whether Almada may have followed Lisbon's experience as a guideline in the development process. We have no intention of sounding judgmental of Almada's policy development choices. We understand that "truly novel policy inventions are very rare and that most of the time policy change involves only marginal or "incremental" alterations of the status quo" (Howlett 2014). And when facing a risk of failure (Howlett 2012) decision and policy-makers tend to avoid it, if there is a slight chance of leading them to be blamed for it (Howlett 2014). Hence, the barriers that prevent public institutions from innovating may be reflected by many factors, that are not the core of this discussion, and that deserves more deep investigation in future governance research.

Regarding links of CUFGs and SUP from policies design perspectives, we believe that local food production outputs, in both policies, could be better explored through alternative institutional arrangements, focusing on possibilities for bridging to other policy areas. In other words, CUFGs implementation and policy design holds a clear available potential. Moreover, it could assist the problematic nature of conventional food systems, from economic and environmental standpoints for example, linking existing parts to other systems, such as land occupation and use. So, as Almada and Paris have already identified available land with prospective for urban agriculture, with the help of GIS tools, the bottleneck for SUP remains on the integration of multidimensional areas to other public sectors, such as social, climate change, ecosystem services provision and food systems planning. Therefore we emphasize urban agriculture as an important tool for urban analysis (Pothukuchi & Kaufman 1999) and policymaking, to guarantee more resilience and positive social impacts within urban metabolisms.

7. Conclusion

Both cities are taking a big step towards CUFGs implementation locally, throughout distinct land use policies and frameworks. While interests shared by these city planners include public participation, diversity promotion, food production, among others, inclusion and mobilization of local knowledge in policy formulation were clearly distinct. Paris brings more innovative and uncomplicated procedures, empowering locals to create and implement their own project ideas, while Almada has opted for a more state-led process. However, Almada's efforts must be acknowledged and its room for improvement is clear in terms of procedural speed, wider social engagement and policy integration. Moreover, both policies provide public land and facilities to citizens, across programmes that support urban agriculture increasing benefits associated with its implementation, as well as it reaches many urban agenda goals locally.



Multiparty agenda objectives, namely the Amsterdam Pact, SDGs, etc., could be worked by cooperation from different stakeholders, whenever possible, through the sharing of experiences and the improvement of policymaking. Consequently, SUP policies shift to innovative, participatory and more decentralized frameworks, could be aligned to local governance agencies, allowing some experimentation based in other successful models, such as the case of Almada and Paris. CUFs implementation provides multidimensional positive outcomes, speeding up cities transitions and CC adaptation measures, therefore would benefit from multilevel participatory approaches, in order to pursue social inclusion while attending other objectives, such as local food production.

Lessons learnt by Paris bring flexible and less bureaucratic policy designing, towards resilient cities and social engagement promotion. In that context, Almada could benefit by similar models, to plan and upscale CUFs local policies, becoming more active and less bureaucratic to citizens and to city council' employees. That being said, the concerning issue of land transformation could also be explored, preventing green areas edification in the long term perspective; throughout SUP policies that consider future land scarcity and degradation of existent green areas.

Also, having citizens working in the land, making it productive and supporting local food production, among other outcomes abovementioned, may reduce costs from public budgets, enabling it to be allocated to other policy initiatives. Furthermore, climatic and environmental awareness and adaptation measures could be transversely placed, exploring CUFs educational potential. In sum, SUP policies have an essential part in cities' resilience and through CUFs, may support social well being, biodiversity conservation and CC impacts attenuation, without a substantial financial commitment, as the Paris example well illustrates.

8. References

- Almada.** 2014. Normativo Hortas de Almada, Câmara Municipal de Almada, 10pp. In: http://www.malmada.pt/portal/page/portal/AMBIENTE/DESTAQUES/DETALHE/?ambiente_destaquas_detalhe=149944867&cboui=149944867 Accessed on: 05 jan 2018.
- Almada.** 2008. Relatório de avaliação da execução do plano director municipal e de identificação dos principais factores de evolução do município. Câmara Municipal de Almada, 55 pp. In: http://www.malmada.pt/xportal/xmain?xpid=cmav2&xpgid=genericPage&genericContent-Page_qry=BOUI=325624467 Accessed on: 07 nov 2017.
- Benis K, Ferrão P.** 2017. Potential mitigation of the environmental impacts of food systems through urban and peri-urban agriculture (UPA) ??? a life cycle assessment approach. *Journal of Cleaner Production* 140:784–795.
- Caggiano M.** 2010. Les “ Jardins Partagés ” in Paris : cultivating visions and symbols. Pages 1214–1221 in INEA, editor. 9th European IFSA Symposium. Vienna, Austria.
- Cleveland D a. et al.** 2017. The potential for urban household vegetable gardens to reduce greenhouse gas emissions. *Landscape and Urban Planning* 157:365–374.
- CML.** 2011. Câmara Municipal de Lisboa: Parques hortícolas municipais. In: <http://www.cm-lisboa.pt/viver/ambiente/parques-hortcolas-municipais>. Accessed: 23 nov 2017.
- Crabbé, P. & Robin, M.** 2006. Institutional adaptation of water resource infrastructures to climate change in Eastern Ontario. *Clim. Change*, 78 (2006), pp. 103-133. Available from <http://dx.doi.org/10.1016/j.landurbplan.2016.07.008>.
- Delgado C.** 2015. Answer to the Portuguese Crisis : Turning Vacant Land into Urban Agriculture Answer to the Portuguese Crisis : Turning Vacant Land into Urban. *Cities and the Environment*.
- Firth C, Maye D, Pearson D.** 2011. Developing “community” in community gardens. *Local Environment: The International Journal of Justice and Sustainability* 16:555–568. In: <http://www.tandfonline.com/doi/abs/10.1080/13549839.2011.586025>.
- Goddard M a., Dougill AJ, Benton TG.** 2010. Scaling up from gardens: biodiversity conservation in urban environments. *Trends in Ecology and Evolution* 25:90–98.
- Hagey A, Solana R, Flournoy R.** 2012. Growing Urban Agriculture: Equitable Strategies and Policies for Improving Access to Healthy Food and Revitalizing Communities. PolicyLink Press. 1-52pp.
- Howlett M.** 2014. Why are policy innovations rare and so often negative? Blame avoidance and problem denial in climate change policy-making. *Global Environmental Change* 29:395–403. Elsevier Ltd. In: <http://dx.doi.org/10.1016/j.gloenvcha.2013.12.009>.
- Howlett, M.,** 2012. The lessons of failure: learning and blame avoidance in public policy-making. *International Political Science Review* 33 (5) 1–17.
- Pothukuchi, K. & Kaufman, J.L.,** 1999. Placing the food system on the urban agenda: The role of municipal institutions in food systems planning. *Agriculture and Human Values*, 16, pp.213–224.
- Lemonsua., Vigiú V, Daniel M, Masson V.** 2015. Vulnerability to heat waves: Impact of urban expansion scenarios on urban heat island and heat stress in Paris (France). *Urban Climate* 14:586–605. Elsevier B.V. Available from <http://dx.doi.org/10.1016/j.uclim.2015.10.007>.

Mairie de Paris. 2015a. Charte de végétalisation de l'espace public parisien. Pages 1–3. France. In: <https://api-site.paris.fr/images/72313>. Access on: 23 fev 2018. Mairie de Paris. 2015b. Permis de végétaliser - List de plantes. Paris, France. In: http://www.mairie08.paris.fr/mairie08/jsp/site/Portal.jsp?document_id=15027&portlet_id=1268.

Muller, C. 2007. Intercultural Gardens. Urban Places for Subsistence Production and Diversity. *German Journal of Urban Studies*, 46(1).

Oliveira S, Andrade H, Vaz T. 2011. The cooling effect of green spaces as a contribution to the mitigation of urban heat: A case study in Lisbon. *Building and Environment* 46:2186–2194. In: <http://dx.doi.org/10.1016/j.buildenv.2011.04.034>.

Temenos, C. & McCann, E. 2012. The Local Politics of Policy Mobility: Learning, Persuasion, and the Production of a Municipal Sustainability Fix. *Environment and Planning A: Economy and Space* 44, n. 6: 1389–1406. <https://doi.org/10.1068/a44314>.

Torquato Luiz J, Jorge S. 2012. Urban gardens cultivated by cape verdean population in the lisbon metropolitan area: between food production and sociability in the illegal urban space. *Miradas en Movimiento*:142–158. Available from <http://dialnet.unirioja.es/servlet/articulo?codigo=4422570&info=resumen&idioma=P>.

Touliatos D. 2011. Growing Urban Agriculture: Using social practice theory to assess how Transiton Norwich can upscale household food gardening in the City of Norwich. Available from http://www.cityfarmer.org/MSc_Dionysios_Touliato.pdf.

United Nations. 2015. Transforming our world: the 2030 Agenda for Sustainable Development. Page General Assembly 70 session.

United Nations. 2015. Transforming our world: the 2030 Agenda for Sustainable Development. General Assembly 70th session.

Williams, S. and Baumert, K. (2003) Institutional Capacity and Climate Actions, OECD, Paris.

Fabio Marzi. Valle dell'Amaseno (Frosinone, Italy). Photo contained in the volume "AgriCulture: tutela e valorizzazione del patrimonio rurale del Lazio", a cura di Sara Carallo e Giorgia De Pasquale.
- Sustainable Development Goals (UN, 2017).



Linking food policies and Sustainable Development Goals

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Abstract

The increasing concerns about sustainability of human action has taken as a result the integration of this issues within the arguments around food systems. Given the worldwide proliferation of food policies experiences, the article intends to draw the connections between food policies objectives and global sustainable development goals. The main aim is to highlight the synergies that food policies produce in terms of sustainable development and management of natural resources, as well as the benefits in terms of human well-being.

We have compared an exhaustive list of food policies objectives with the actions that, at a global level, have been identified as necessary to achieve a sustainable development. The results show that placing food policies on the urban agendas has manifold positive outcomes in terms of economic, environmental and social sustainability and that a monitoring framework is necessary to set up a food policy and to evaluate its progresses during time.

Keywords

food policies; sustainability goals; urban agenda

Introduction

In a context of growing attention to the issue of feeding the city, urban food policies receive more and more attention from scholars, planners and city administrators. In the last decades, more than 90 local food systems strategies have been released by city and regional administrations in the Global North (Ilieva, 2016) and the number of food policy councils has risen from less than a dozen to more than 280 in North America alone, each of them pursuing different objectives according to many factors: the geographical area, the more urgent issues, the socio-economic context, the political objectives, the civil society expectations, etc. Often, these cities adhere to networks of cities that pursue sustainability goals (e.g. 100 Resilient Cities; Milan Urban Food Policy Pact) or are signatories of pacts, agreements or urban agendas on a national or international scale (e.g. the United Nations Urban Agenda; the EU Urban Agenda). Furthermore, in the face of the global challenges affecting our planet health, cities are today expected to comply with the sustainability objectives set by the Sustainable Development

Goals 2015-2030. At the same time, the need to evaluate the effectiveness in the implementation of these programs, with particular reference to the objectives of sustainability of food systems, led to the emergence of evaluation methodologies supported by monitoring plans and indicator systems.

Food policies, trying to organize the food system in a sustainable way, pursue at the same time objectives related to land use change, landscape preservation, urban metabolism and, in general, to goals included in urban agendas and international programs of sustainable development. In order to understand the real possibilities of food systems and food chains to contribute to main global challenges, we have identified the synergies between food policy objectives and those related to international sustainability programs. The results show on the one hand that the positive effects of a well-constructed food strategy are manifold and are synergic with other important sustainability programs, and that an evaluation framework is needed to verify its effectiveness in achieving the objectives, on the other.

International sustainability programs

The main international urban agendas are addressing issues related to food systems and food planning, aiming at food systems' environmental, economic and social sustainability. This interest embraces a dense group of themes related to territorial management, such as public health, social justice and inclusion, economic vitality, urban resilience, and environmental mitigation, showing all the complex interlaces of food with economy, society and the natural environment. The problems related to the sustainability of food systems reverberate on a wide range of typically urban themes. Two of the main programs working on the three dimensions of sustainability (environmental, social, and economic) consider food as a tangible and intangible asset for the sustainable management of global issues. The New Urban Agenda of the United Nations (UN, 2017/a) contains a series of objectives related to the social, environmental and economic sustainability of urban settlements, and the role of urban food systems is present on many points of the agenda. The UN Sustainable Development Goals (SDGs) (UN, 2017/b) are a collection of 17 global goals, 169 targets and 232 indicators covering a broad range of social and economic development issues¹. These include poverty, hunger, health, education, climate change, gender equality, water, sanitation, energy, environment and social justice, touching some relevant issues generally integrated in food policies. It has to be noticed that 9 of the 17 goals are directly or indirectly connected with farming, conferring a special multi-dimensional status to agriculture.

¹ For the complete list of SDGs goals, targets and indicators, please visit the following link: <https://sustainabledevelopment.un.org/content/documents/11803Official-List-of-Proposed-SDG-Indicators.pdf>



Methods: Synergies between food policies and sustainability goals

City governments are increasingly interested in measuring their progress towards the design of a more sustainable and secure urban food system. This constitutes a crucial step to maximize the efficiency of resource investment at a time of austerity, improve urban food security, and provide informed advice to food policy makers at the local, national and international levels (Prosperi et al., 2015). In order to provide a useful framework for policy makers to identify the potential impact of a food policy in terms of sustainability, we have tried to understand how fostering sustainable food systems responds to the main global challenges we are facing today. We have gathered the main experiences of assessment of the sustainability of food systems, internationally and at different scales, reaching a list of 10 goals and 54 objectives, possibly exhaustive of all the possible objectives that can be pursued in an urban food policy. The list is the result of the analysis of 14 initiatives, programs and publications, operating from local to international scale, varying from FAO's SAFA Guidelines to local/urban policies, from the Barilla Sustainability Index to city networks for the evaluation of their food sustainability.

Table 1. Programmes analyzed for the extrapolating of the "average" objectives

PROGRAMME/REPORT/PUBLICATION	SCALE
The Vivid Picture Project	Urban/Local
City Region Food Systems - FAO & RUAF Foundation	Urban/Local
Sustainable Food Cities Community	International
A Road Map for City Food Sector Innovation & Investment	Urban/Local
Assessing the San Diego County Food System: Indicators for a More Food Secure Future	Urban/Local
Sustainable food system indicators for the UK (UK Department for Environment, Food & Rural Affairs, DEFRA)	National
Charting Growth to Good Food The Sustainable Cities Index One Planet Living Framework	National
Sustainable Consumption and Production Indicators for the Future Sustainable Development Goals	International
Metrics of sustainable diets and food system	International
The Sustainable Cities Index	National
One Planet Living Framework	International
CURSA (Agriculture, Food and Cities)	National
SAFA guidelines	International
Barilla Sustainability Food Index	International

Source: our elaborations

The list represents an "average" of objectives, that reflects the differences between geographical areas and institutional levels, and contains all the objectives that, in a systemic approach, can be put together to form a food policy. It cannot be representative of one specific city, however has two strengths: it allows to help recognizing and making explicit the synergies between food policies actions and the sustainability programs mentioned above; it can be taken as a benchmark grid for the comparison of the objectives of a given food policy.

The list has been compared with the Sustainable Development Goals framework. In particular, in order to be as accurate as possible, the 54 objectives identified by us as representative of an "average" food policy have been matched with the 169 SDGs targets. We have marked a connection whenever there are synergies in terms of pursuing a common objective. Then,

Results

The results offer a significant integration between the "average" food policies objectives identified through the review process and the goals and the main actions of the two programs. In particular, 61 connections have been found. The food policy's objective with the most numerous number of connections is by far the number 6 "Create a lively economic model around the food system, guaranteeing an adequate income for all the actors in the supply chain", that presents 13 connections. Watching at the UN SDGs targets' side, the most linked one is the number 8 "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" (12 connections), followed by the targets 2 and 12 (respectively, "End hunger, achieve food security and improved nutrition and promote sustainable agriculture" and "Ensure sustainable consumption and production patterns").

Discussion

It is valuable to recognize the manifold positive outcomes that a food policy can have: given the challenges affecting today's society, food systems play a paramount role in driving transition through livable and resilient cities. In some cases, food systems sustainability arguments are reduced to mere calculations of a product's food miles or ecological footprint. Without wanting to belittle these important aspects, and watching at the results of this research, sustainable food policies can be the driver of a new way to conceive food as an economic, environmental and social framework that involves many aspects that are traditionally dealt by urban planning.

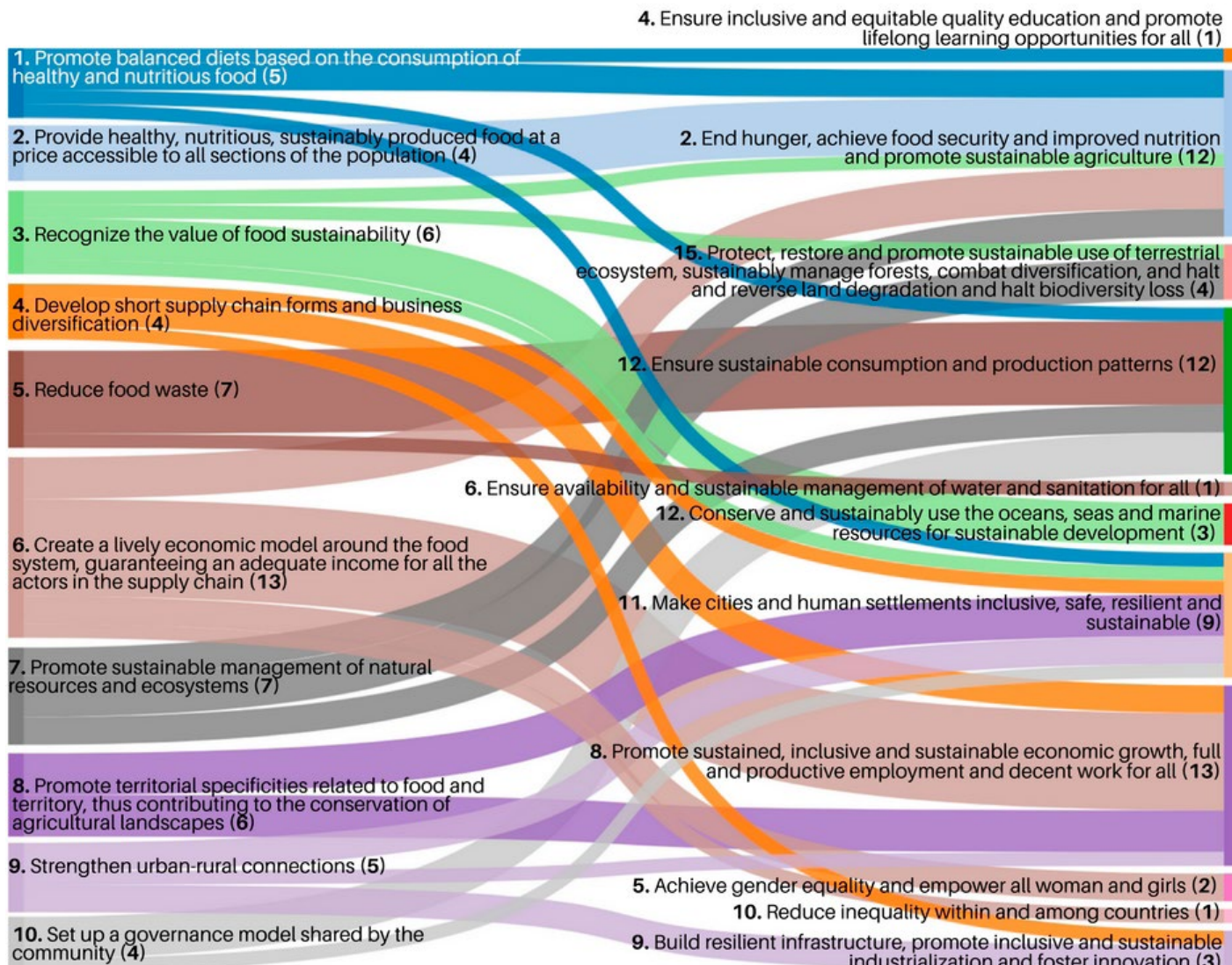
Drew connections clearly show that food policies objectives can be synergic with the sustainability goals that, at a global level, have been identified as priorities to be achieved in the next two decades. The connections show that food policies play the role of a complementary strategy to reduce urban poverty and food insecurity and enhance sustainable natural resources management. In terms of policy making, they offer the possibility to reduce the burden due to the implementation of sectorial policies, through a holistic approach that considers urban agriculture, food security, urban-rural linkages, management of natural resources as parts of a comprehensive strategy. Through a complex network of specific actions, food policies can facilitate sustainable development objectives, guaranteeing a coordination function with respect to policies and projects belonging to

different thematic areas, often designed and implemented independently from one another.

tion and distribution create distortions to the detriment of producers; public health, in which the role of healthy and accessible food plays a major role.

FOOD POLICY OBJECTIVES

UN SUSTAINABLE DEVELOPMENT GOALS



Picture 1. Identified connections between food policies objectives (on the left side) and UN Sustainable Development Goals (on the right side). In brackets the number of connections identified for each objective/target.

Source: our elaborations

The processes underlying today's food systems are predominantly controlled by the private sector (Steel, 2009), while the public sector has gradually lost the ability to manage food flows and the resulting implications in terms of public health, sustainability in the use of natural resources and relations between cities and surrounding agricultural areas. In these themes there are many questions regarding the challenges that cities are facing today: the uncontrolled urban sprawl that puts natural and semi-natural areas at risk, compromising their ability to provide ecosystem services that are fundamental for the life of human beings; the sustainability of food supply chains, from the production phase to the reuse of urban waste in agriculture; the world of distribution, in which monopolies in the phases of transforma-

In this context, urban and peri-urban agricultural areas, due to their proximity to the urban core, represent territories that are particularly subject to two types of contrasting dynamics: on the one hand, they are subjected to pressures linked to the city's progress towards the countryside (land use changes, loss of ecosystem services); on the other hand, the new spatial configurations resulting from the processes of urban expansion towards the countryside have begun to highlight a "re-territorialization" dynamic offering a series of opportunities linked to the proximity between the places of agricultural production - and the goods and services related to it - and the city. These advantages concern both the private aspect of agricultural entrepreneurs (proximity to the outlet markets, diversification of business activities, multifunctional agriculture), as well as some public issues that should interest the municipalities (access to geographically close quality products, maintenance of green areas, quality of life in rural areas, increased trust between consumers and producers and the sense of community). For this reason, the planning of food systems is increasingly at



the center of the international debate, involving institutions, researchers and policy-makers around a theme that seeks to make the food system sustainable internally to the city (urban agriculture, infrastructure green, urban gardens) and externally to it (support for new farms' strategies based on proximity, management of natural resources, reduction of land consumption).

Conclusions

Food is a theme that involves many aspects - from the management of agricultural areas to waste reduction - that are expected to be managed in an increasingly sustainable manner.

The Habitat III conference in 2016 presented the New Urban Agenda document as an extension to Agenda 2030, of which the Sustainable Development Goals represent another element. It contains a series of objectives related to the social, environmental and economic sustainability of urban settlements, and the role of urban food systems is present on many points of the agenda. Without going into detail, we have extrapolated from the New Urban Agenda 17 suggested action and targets related to food planning, rural development, agriculture and urban-rural connections. Following the same method adopted for the SDGs, we found 40 connections between food policies "average" objectives and those concerning the New Urban Agenda. The results show, once again, the potential synergies that adopting a food policies can have on the human well-being, also in a program focused on rethinking how we plan, manage and live in cities.

Agriculture will play a crucial role in addressing the planet's future needs – whether on food production, health or the preservation of the environment. Rural development policies make a substantial contribution to the farm economy and vital rural livelihoods in various ways. The European Commission communication "The future of Food and Farming" declare that "EU is strongly committed to action on the COP21 Paris Agreement and the UN SDGs" (EC, 2017, p. 7) and that a modernized CAP should enhance its EU added value by reflecting a higher level of environmental and climate ambition, and address citizens' concerns regarding sustainable agricultural production.

The "average" food policy package that we presented is a tool that help us understand the connections and synergies between the management of food themes and the Sustainable Development Goals. We are aware that the distance between the theoretical and the practical level can be considerable when we talk about sustainable development (Waas et al., 2014), but we are equally convinced that the recognition of the value of food policies is the first step towards their integration in urban agendas and that the theoretical framework offers guidance for practice and should be further operationalized within a given socio-environmental context.

Main references and further information

For further information about the complete list of connections between food policies objectives and SDGs and New Urban Agenda goals, please contact gia.mazzocchi@gmail.com

European Commission (2017). The Future of Food and Farming. Communication from the Commission to The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions.

Brussels, 29.11.2017 COM(2017) 713 final Ilieva, R. T. (2016). Urban food planning seeds of transition in the Global North. Routledge, London.

Prosperi, P.; Moragues-Faus, A.; Sonnino, R.; Devereux, C.; (2015). Measuring progress towards sustainable food cities: Sustainability and food security indicators Report of the ESRC financed Project "Enhancing the Impact of Sustainable Urban Food Strategies". Access: <http://sustainablefoodcities.org/getstarted/developingindicators>

Steel, C. (2009). Hungry City. How food shapes our lives. Random House, UK. ISBN: 978-0-099-53168-5

United Nations (2017/a). New Urban Agenda. ISBN: 978-92-1-132731-1

United Nations (2017/b). Report of the Inter-agency and Expert Group on Sustainable Development Goal Indicators, Annex IV. Economic and Social Council, Statistical Commission.

Waas, T.; Hugé, J.; Block, T.; Wright, T.; Benitez-Capistros, F.; Verbruggen, A.; (2014). Sustainability Assessment and Indicators: Tools in a Decision-Making Strategy for Sustainable Development. Sustainability 2014, 6, 5512-5534; doi:10.3390/su6095512

GOALS	OBJECTIVES
1 PROMOTE BALANCED DIETS BASED ON THE CONSUMPTION OF HEALTHY AND NUTRITIOUS FOOD	1.1 Improve public procurement regarding purchases in companies with quality certifications
	1.2 Increase the share of quality products in canteens (schools, hospitals, companies, residences for the elderly)
	1.3 Investing in awareness programs on the topics of food quality and the importance of food
	1.4 Reduce the number of cases of undernutrition, overeating and obesity
	1.5 Promote the consumption of greater quantities of fruit and vegetables, while reducing the quantities of junk food and highly processed products
	1.6 Set awareness programs on food
2 PROVIDE HEALTHY, NUTRITIOUS, SUSTAINABLY PRODUCED FOOD AT A PRICE ACCESSIBLE TO ALL SECTIONS OF THE POPULATION	2.1 Calm the prices of quality agri-food products at the base of the food pyramid (fruit and vegetables)
	2.2 Provide forms of food assistance for the needy through the supply of nutritious agri-food products
	2.3 Satisfy the potential demand for ethnic and culturally distant food from local ones
	2.4 Prevent the formation of Food Deserts
3 RECOGNIZE THE VALUE OF FOOD SUSTAINABILITY	3.1 Retain higher share of added value in the hands of operators upstream of the supply chain (farmers and producers)
	3.2 Encourage the use of agronomic techniques aimed at increasing organic matter and soil biodiversity
	3.3 Provide a management and regulation plan for urban gardens and other forms of urban, hobbyist and productive agriculture
	3.4 Recognize the important role of urban agriculture in spatial planning
	3.5 Identify plans for the sustainable use of marine resources through cooperation with the main national and European marine strategies
4 DEVELOP SHORT SUPPLY CHAIN FORMS AND BUSINESS DIVERSIFICATION	4.1 Identify places and infrastructures for the development of farmers' markets
	4.2 Communicate the benefits of Alternative Food Networks through awareness campaigns
	4.3 Supporting direct sales on farms
	4.4 Inventing the creation of networks for the purchase and involvement of citizens at local farms (SPG, CSA, Box Schemes)
	4.5 Promote social farming and educational farms
5 REDUCE FOOD WASTE	5.1 Support the reuse of food waste at some stages of production
	5.2 Incentive forms of recovery, for food purposes, of food products discarded during the supply chain due to lack of aesthetic requirements
	5.3 Reduce food waste at all stages: cultivation, harvesting, processing, distribution and consumption
	5.4 Reduce the amount of supercharging compared to the daily per capita needs
	5.5 Reducing drinking water losses along the distribution and use phases in the agri-food sector
6 TO CREATE A LIVELY ECONOMIC MODEL AROUND THE FOOD SYSTEM, GUARANTEEING AN ADEQUATE INCOME FOR ALL THE ACTORS IN THE SUPPLY CHAIN	6.1 Ensure decent working conditions for all actors in the supply chain, from production to retail
	6.2 Encourage the use of multi-functionality as a strategy to diversify agricultural income
	6.3 Promoting equal opportunities in the food sector and female entrepreneurship
	6.4 Support a land re-arrangement where priority is given to access to young farmers
	6.5 Provide technical assistance from the administration in drafting rural development projects
	6.6 Identify and regulate biodistrets and food districts
	6.7 Predict the involvement of disadvantaged people (prisoners, non-integrated immigrants, disabled people) in agricultural activities designed to receive them
7 PROMOTE SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES AND ECOSYSTEMS	7.1 Recognize the value (biophysical and economic) of ecosystem services
	7.2 Integration of environmental accounting systems in the processes of planning and management of land and landscape
	7.3 Ensure a balance between the procurement of agricultural products produced and / or processed locally and those geographically more distant
	7.4 Contain soil consumption and improve the fragmentation index of land use
	7.5 Reduce the ecological footprint of the food system
	7.6 Reduce the use of packaging throughout all stages of the supply chain
	7.7 Reduce / prevent the use of chemical inputs in the fruit and vegetable sector
	7.8 Reduce greenhouse gas emissions by the food system
8 PROMOTE TERRITORIAL SPECIFICITIES RELATED TO FOOD AND TERRITORY, THUS CONTRIBUTING TO THE CONSERVATION OF AGRICULTURAL LANDSCAPES	8.1 Supporting productions with territorial and / or quality certifications
	8.2 Implement brand policies by giving strength to territories and / or productions of particular cultural and historical value
	8.3 To promote the territory and identity through the culture of food
	8.4 Reduce dependency on geographically distant food supplies
9 STRENGTHENING URBAN-RURAL CONNECTIONS	9.1 Stimulate a new pact between farmers and inhabitants in areas where agricultural production and residential areas coexist
	9.2 Strengthen the commercial channels and the infrastructures (material and immaterial) through which the producers who operate near the city can reach the city markets
	9.3 Identify paths to enhance the food identity of the internal areas
	9.4 Assign unused public lands and encourage exchange platforms between land supply and demand
	9.5 Ensure services and infrastructures (transport, hospitals, education) for rural populations
10 SET UP A GOVERNANCE MODEL SHARED BY THE COMMUNITY	10.1 Provide public assemblies, focus groups, workshops focused on the dissemination of the principles of the Urban Food Policy
	10.2 Set up a participatory process based on community involvement on food strategy choices
	10.3 Making the objectives, the expected results and the monitoring phases of the food strategy transparent and easily consultable
	10.4 Favor partnerships with private partners (banks, foundations, Chambers of Commerce, NGOs, associations, accommodation facilities, restaurants, farms, protected areas managers, etc.) and public (neighboring municipalities, research centers, universities)
	10.5 Increase the level of acceptance of activities related to the food strategy through the involvement of all sections of the population





Working together in an urban garden in Athens
Photo: Athens Social Atlas
www.athenssocialatlas.gr/en/article/the-field-in-the-city/

Urban Agriculture in times of crisis: Municipal Gardens in Athens metropolitan region

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Abstract

The recent emergence of various types of Urban Agriculture schemes in the crisis-hit Athens has been considerably lower than anticipated, given the intensity of the current crisis. The most notable practices are Municipal Gardens formulated in the context of the National Strategic Reference Framework 2007-13 action “Social Structures for Combating Poverty”. The results of fieldwork survey to Municipal Gardens in Athens metropolitan region identify their key characteristics, comment on their impact on vulnerable socioeconomic groups and indicate the main impediments that hinder their survival and expansion. Finally, the presentation highlights the need to encompass Urban Agriculture in a consistent Food Plan for Athens and suggests possible policy directions in order to fulfil its crucial role in urban resilience and sustainability.

Keywords

Urban Agriculture, Municipal Gardens, Athens

Introduction

During the last 20 years, or so, Urban Agriculture (UA) has gained considerable attention in the cities of the global north as a community initiative and as a policy field encompassing several sustainability dimensions, from social towards environmental and economic. The emergence of UA projects has been associated with many, geographicaly sensitive, benefits. In the affluent societies “proximity agriculture” has been largely linked with various environmental and health benefits (Santo et al., 2017). In the crisis - stricken Southern European cities these core values have been drawn back at the expense of targeted actions to compact the acute crisis related socio-economic problems. There were high expectations that UA activities could contribute to the food self-sufficiency of the more vulnerable city groups (Gasperi et al. 2016).

However, in the crisis-hit city of Athens the actual realization of UA projects has been much lower than anticipated. Community Gardens, grassroots initiatives producing food for the common benefit of their members, are extremely scarce and short-lived. In fact, only a small number of Community Gardens had been initiated, mostly, by groups

of the radical democracy. Moreover, their prime motive was to occupy public land in order to protect it from abrupt privatization to big real estate investors. The much discussed case of the Community Garden at the neglected land of the prior Elliniko Airport illustrates the point (Partalidou and Anthopoulou, 2016).

The most notable cases of UA are top-down initiatives. Since 2014 several Municipal Gardens (MGs) have been created under European Social Fund funding, mainly in Athens metropolitan region. There is strong evidence that the outcome of the MGs program was not a success. The presentation aims i) to identify the actual impact of the MGs and the main impediments to their survival and expansion and ii) to suggest suitable policy directions to encourage the development of UA practices within the city.

The presentation is based on ongoing research that comprises extensive review of secondary sources (bibliography, reports and policy documents) and field work survey. The survey includes fifteen face-to-face qualitative interviews with key informants (4), municipalities and NGOs staff (6) and MGs gardeners (5). Most of the interviews were implemented at the MGs.

Results

The formation of MGs has been realized under the Action “Social Structures for Combating Poverty” of the National Strategic Reference Framework 2007-13 Operational Program “Human Resources Development”. Two were the main targets of the Action: provision of shelters to homeless population and improvement of the food security of the more vulnerable groups. The great bulk of the food security projects was directed to the creation of social grocery shops and soup kitchens run by the municipalities.

In total 29 projects took the approval to launch MGs all over the country. Nine of them within the Athens metropolitan area. Two (Kaisariani and Zografou) out of the nine eligible municipalities were forced to withdraw from the program at the early stage since they were unable to get the property authorization rights for the selected plot of land. Of the remaining seven MGs no more than 3 or 4 are still in operation today.

A first observation has to do with the socio-economic profile of the eligible municipalities. With the exception of Perama, one of the more deprived areas in greater Athens, the remaining municipalities can be characterized as middle class residential areas. Hence, several low income municipalities did not even apply for the project. According to the interviewees they did not have the capacity to apply since they are understaffed and lack the necessary administrative skills.

There was a low response rate of the local population to the calls for MGs. It is needless to say that people in greater



need, i.e. recently arrived immigrants and refugees, are excluded from MGs since they are not registered in the municipal records. Also, unemployed were only a small segment of the younger age groups.

The typical profile of the gardener is older (above 55 years old) male of rural origin. The representation of women is minimal, less than 10%. The high percentage of people with rural origin was quite predictable since they have the necessary knowledge and skills to practice agriculture. The interviewees informed us that there was a considerable drop-out rate of younger gardeners. Their inability to meet the difficulties and demands of the agricultural production has been identified as the main reason of their quick exit. A number of empty plots were then occupied by middle class gardeners.

The interviewed gardeners were very happy with their involvement with the MG. They were very proud of the quality of their products. Furthermore, the networks of exchange of information with the other gardeners had been quickly transformed to networks of friendship and support to each other.

There was a wider agreement among the interviewees that the shortage of suitable land plots, bureaucratic procedures and the complexities of the governance scheme, were the main impediments that led to delays and the poor performance of the MGs projects.

A plot of land should fulfil certain technical and accessibility requirements, such as, fertile and uncontaminated soil, low level of air pollution, access to running water, in order to qualify for UA. These requirements are not satisfied easily in such a dense urban conurbation as Athens. In fact, there is a profound lack of underutilized or vacant lands at the central areas of municipalities (Athens Municipality, 2013). Hence, MGs were located at the outskirts of municipalities in less attractive spots with poor accessibility. The MG of Ag. Demetrios is located next to the local cemetery. The MG of Elefsis is in a remote area with no close link to public transport, next to a Roma camp. Their remote locations in "unseen" places has contributed to their distancing from the local population. It is indicative that in our trips to the MGs we had to ask several times in order to find someone who knew the location of the MG and was able to indicate us the proper route to reach it.

The municipalities were excluded from the governance of MGs. Following the program requirements, the responsibility for the MGs projects was given to Non-Governmental Organizations (NGOs). This arrangement did not work well in practice due to the lack of relative experience by NGOs, irregular pay instalments and conflicts with the municipalities. It is interesting to see that the more successful MG (Agios Demetrios) is the product of a bold personality - an elected council member with special interest in UA and sustainable food systems - that takes all the necessary initiatives and works long hours on a voluntary basis for the garden.

Discussion

The low motivation to participate on UA projects must be traced in specificities of the Greek socioeconomic structure. Rural exodus took place quite recently in Greece, during the 1950s and 1960s, hence a big part of the urban population has maintained very strong family ties with the countryside. They are receiving frequent deliveries of fresh food from the members of the family who have remained at the village. Also, myriads of small and tiny private gardens are flourishing in apartments balconies and houses backyards all over Athens metropolitan area. Summing up, a big part of the urban population has direct access to fresh food. Also, several writers have highlighted that Greeks are characterised by poor social capital and low propensity to collaborate with strangers (Labrianidis et al., 2004).

These qualities should not be underestimated. The establishment of communal private gardens, a policy that has been applied successfully in New York, seem to be a suitable policy in Athens. The gardeners are sharing the products of their private gardens and build relations with the neighbours (Santo et al., 2017).

Greater Athens is a huge urban conurbation of 3.9 million residents (2011) with high population density and lack of green spaces. The average population density is above 2.500 inhabitants per km², one of the highest in Europe. Also, the ratio of green space per person is only 2.5 m², only 25% of the relative figure of the European capital cities (10 m²) (Municipality of Athens, 2013). Hence, there is an urgent need for more green spaces. At the same time the shortage of suitable land plots in accessible areas has been a major draw-back in the realization of UA projects.

Roof-top gardening and other types of non-land-based spaces are not suitable for Athens due to the high seismic risk. The strict building regulation does not promote the extra loading of the buildings without the prior costly strengthening of the structure. At this point we should mention that UA is widespread in vulnerable to nature disasters city, since it can provide emergency fresh food to the surviving population until the normal distribution system will recover. In this respect Tokyo has already acquired a self-sufficiency rate in fresh vegetables of 4.29% and there is the potential to almost triple this rate quite soon (Sioen et al., 2018).

The shortage of suitable land should be tackled with novel and innovative solutions. UA is a low cost means to green the city through the utilization of unused irregular spaces such as flowerbeds and roundabouts. Also, the vacant lands program initiated in 2012 by the municipality of Barcelona that envisages the temporal use of vacant spaces for collective experiences, such as UA, is a measure that could be applied in Athens as well (Gasperi et al., 2016).

Conclusions

In compliance with relevant studies (Partalidou and Anthopoulou, 2016), the research has shown that MGs are having only marginal impact to the self-sufficiency of low income groups in Athens. Still, their actual impact is significant in several other equally important areas of socio economic life and urban planning. This study testifies the actual impact of UA to community building, physical exercise and improved nutrition of low-income groups.

UA cannot be an issue of social policy. Its multifunctional role demands an integrated approach. It should be seen as a part of a consistent Athens Food Plan. UA practices should develop strong links with the other components of the Food Plan. UA gardens can supply social grocery shops, soup kitchens, schools and other public sector bodies, with fresh fruit and vegetables. At the same time, they can absorb part of the waste of the urban system, in the form of compost, in the framework of a circular economy.

The potential impact of UA to urban resilience and sustainability can be substantially bigger than its present poor performance, as long as, it is supported by appropriate territorial policies.

References

Gasperi, D., Pennisi, G., Rizzati, N., Magrefi, F., Bazzocchi, G., Mezzacapo, U., Centrone Stefani, M., Sanyé-Mengual, E., Orsini, F. and Gianquinto, G. (2016) "Towards Regenerated and Productive Vacant Areas through Urban Horticulture: Lessons from Bologna, Italy", *Sustainability*, 2016:8, 1347.

Labrianidis, L., Skordili, S. & Kalogeresis, A. (2004) "Entrepreneurship in Rural Greece: Kilkis and Lesvos", in L. Labrianidis (ed.) *The Future of Europe's Rural Periphery*, London: Ashgate, pp. 223-46

Municipality of Athens (2013) A proposal for the creation of urban gardens, mimeo (in greek).

Partalidou, M. and Anthopoulou, Th. (2016) "Urban Allotment Gardens During Precarious Times: From Motives to Lived Experiences", *Sociologia Ruralis*, 57(2): 211-228.

Santo, R., Palmer, A. and Kim, B. (2016) "A review of the benefits and limitations of the urban agriculture", Research Report, Johns Hopkins Centre of Livable Future.

Sioen, G. B., Terada, T., Sekiyama, M. and Yokohari, M. (2018) "Resilience with Mixed Agricultural and Urban Land Uses in Tokyo, Japan", *Sustainability*, 10(2), 435.



The Human Scale In Urban Agricultural Policies: A Methodological Contribution¹

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Abstract

The components of the human scale in urban agriculture policies are investigated in order to contribute to the elaboration of a methodological proposal that demonstrates the role of urban and peri-urban farmers in the supply of vegetables to the Metropolitan Region of Natal, while emphasizing the importance of these social actors and their activity for the purpose of understanding the city as a heterogeneous, multiple, open and relational space, also as an environment that produces life and healthy food.

Keywords

Urban Agriculture; Public Policy; Human Space

Introduction

Introduction

The practice of Urban and Peri-urban Agriculture is an embodiment of paradoxes, both in Brazil as well as in the Metropolitan Region of Natal. In this region, while there is an increasing participation of urban agriculture in the dynamics of supplying fresh food to different markets such as free markets, supermarkets and hotels, in the political and ideological context, both these social actors and their activity and effective participation in supplying healthy food to the urban space are invisible.

This invisibility is evident in the fact that the family based urban and peri-urban agriculture is not reached by the official federal agencies responsible for the collection of census data such as the Brazilian Institute of Geography and Statistics (IBGE) or state and municipal bodies responsible by the agricultural extension policy. This paradox implies that farmers cannot benefit from specific public support to family agriculture and agricultural production occurs in the context of the trilogy: land, labor, and family, which is the basis for its structural support. The combination of these absences places urban and peri-urban farmers in an asymmetrical position in the power relations with the public bodies responsible for land

use and management, policy makers responsible for policies to stimulate horticultural production, as well as in relation to real estate agents with speculative interests in the conversion from agricultural to residential land use. This makes the practice of urban and peri-urban agriculture a complex activity, since while it contributes to supplying the urban food market, it diverges from the interests of agents of capital who reproduce themselves through the unequal appreciation and appropriation of the city and of the territorial space (Carlos, 1992; Santos, 1985 and 1977; Santos and Locatel, 2017), thus conflicting with the urban and peri-urban farmers who conceive it as a space for (re) production of life (Santos, 1985 and 1977; Santos, 2012; Santos and Badiru, 2017).

This research contributes to showcase the practice of urban and peri-urban agriculture in the metropolitan region of Natal (Santos and Locatel, 2017), evidencing the existence of social subjects who reproduce socially as a result of the accomplishment of this activity with their family in the territory understood as a space of identity and life. At the same time, pointing to the relevance of this activity and of these subjects to benefit from the public policies inherent to family agriculture such as the Food Acquisition Program (PAA) and the National School Supply Program (PNAE) and to be recognized as space modelling agents that fulfil an important role supplying food and vegetables to the local and regional market.

The human scale of the research (Santos, 2012) has as its starting point the material basis of the existence and experience of urban and peri-urban farmers, that is, the neighborhood, the stage of production and reproduction of life, the scale of everyday life with its clashes, challenges, impulses and passions. Assuming that space is open, multiple, relational (Massey, 2008; Steinberger, 2006) and dynamic as reality itself.

Methods

The Metropolitan Region of Natal is a heterogeneous territory. The 14 municipalities (Figure 1), sum up an area of 3,555,771 km², and a population, in 2016, totaling 1,555,072 inhabitants (IBGE, 2016). The Municipalities of Natal (state capital) and Parnamirim account for 71.42% of the total population.

For the identification of urban and peri-urban areas, sector census data were used, which allows to identify the areas of agricultural production. This data allows the identification of the priority areas for the analysis of the agricultural use in urban and peri-urban areas. Based on this identification, the areas used for agricultural and livestock production were vectored from satellite images. The areas where the surveys were carried out were defined based on the use of IBGE micro data and spatial statistics, which enabled them to be delimited and mapped. Questionnaires were then undertaken in order to characterize the farmers and their families, the productive activities carried out, the market destiny of production, access to public policies and the composition of family income.

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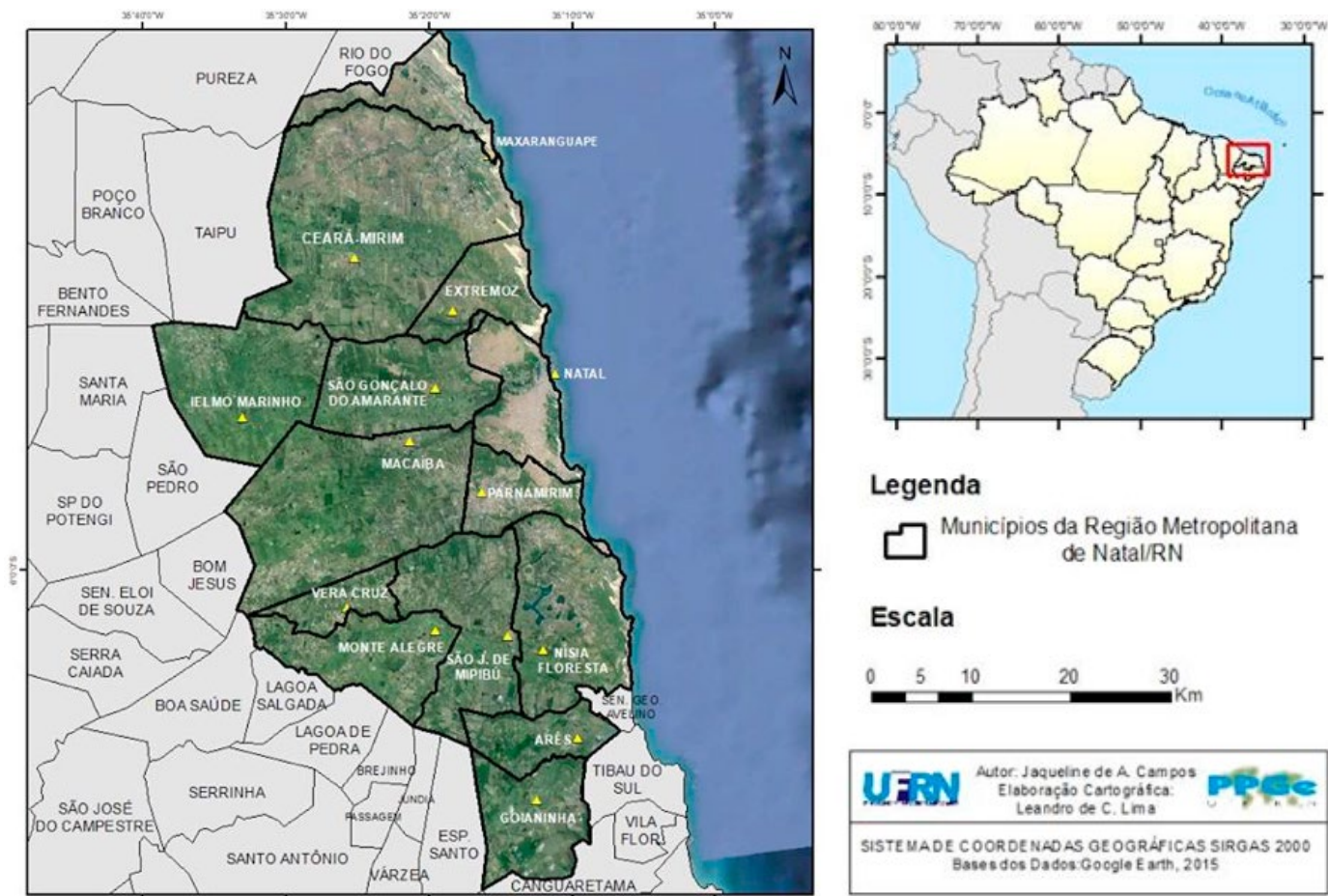


Figure 01. The Metropolitan Region of Natal

Result

During the field research a total of 43 questionnaires were launched in 16 localities, belonging to six municipalities (Extremoz, Macaíba, Natal, Nísia Floresta, Parnamirim and São Gonçalo do Amarante), out of which 44.2% in the urban perimeter, 46.5% in rural areas and 9.3% in areas considered peri-urban.

The families interviewed had a total area of 62.8 hectares, but the size varies considerably, from 100 m in the city of Natal, to 10ha in Nísia Forest, the most extensive unit used for cattle breeding (Table 1).

MUNICIPALITIES	SIZE CLASSES							TOTAL	WITHOUT INFORMATION
	M ²								
	100 A 5.000	5001 A 10.000	10.001 A 15.000	15.001 A 20.000	20.001 A 30.000	30.001 A 50.000	ACIMA DE 50.001		
Nísia Floresta	4	1	0	2	0	0	3	10	1
São Gonçalo	1	1	2	1	0	0	0	5	0
Macaíba	0	0	0	1	0	0	0	1	1
Extremoz	1	2	0	0	2	1	0	6	1
Natal	4	2	0	1	1	0	1	9	4
Parnamirim	1	3	0	1	0	0	0	5	0
Total absoluto	11	9	2	6	3	1	4	36	7
Total relativo	25,6	20,9	4,6	14,0	7,0	2,3	9,3	83,7	16,3

Table 1. Size of the properties interviewed, by size classes in the Municipalities of the Metropolitan Region of Natal.

Source: Núbia Dias dos Santos. Prepared based on the forms applied in the Field research, 2017/2018



The age groups 36 to 45 years and 46 to 55 years represent the highest percentage of respondents (Table 2). Regarding the time of practice of the agricultural activity, 47.7% did so for more than 20 years, 11.4% between 11 and 20 years, 18.2% between 6 and 10 years and the remaining 22.8% until 5 years.

GENDER YEARS	BY GENDER	BY AGE GROUPS (IN %)						
		16 TO 18	19 TO 25	26 TO 35	36 TO 45	46 TO 55	56 TO 65	65 AND PLUS
Male	79	2,9	5,9	14,7	20,6	23,5	14,7	17,6
Female	21	0,0	11,1	0,0	33,3	33,3	11,1	11,1
Total	100	2,3	7,0	11,6	23,3	25,6	14,0	16,3

Table 2. Brief characterization of urban and peri-urban farmers surveyed

The majority of the work is done by the owner and his family (in 81.4% of the cases), while 18.6%, corresponding to 8 properties, use also paid work, in a total of 32 permanent paid workers. The use of paid work is related to the larger size of the property. In Natal, for example, two cases were identified in which each enterprise hired 8 and 12 permanent employees. In addition, there is also temporary hiring of paid work. Among the interviewees, 23 farmers (53.5%) hire temporary workers, employing a total of 44 people. There have been isolated but alarming cases of non-compliance with labor legislation.

In total, between family members and paid workers 166 people are directly involved with horticulture activities and rely on land and agricultural practices to live and reproduce socially.

In 90,7% of cases, horticulture is the main activity, while livestock, hydroponics and agroforestry correspond to the remaining 9,3%. The productive activities are distributed between vegetal production and animal production. In the vegetable production, the leaf/flower vegetables (Figure 2) are the main source of income and the main one responsible for the social reproduction strategies of the family; followed by fruit vegetables.



Figure 02: Agricultural practices in the research area

Root vegetables and tubers contribute sporadically to the composition of family income, as well as fruits harvested according to each season of the year. Animals integrate the reproductive strategies of the family farmers in two distinct bases: for those who have horticulture as their main source of income, the cattle raising appears as an alternative of income, but, mainly, as part of the family consumption. For those who live on cattle raising, this is their main source of income, whether or not combined with horticulture, depending on the physical area available, the predisposition of the farmer and the on the availability of family or paid labor.

The planting techniques are the hanging gardens or directly on the ground. The garden in the ground, despite being the most common, it is also the one more susceptible to climate and weather adverse conditions and to and insect pests. The majority of the work is hand work using traditional tools and only 18.6% of the interviewees use the tractor or mini tractor. They use compost and chicken manure to fertilize the soil.

Regarding the destination of production surpluses after self-consumption, 20 different destinations were identified for the products of Urban and Peri-urban Agriculture in the Metropolitan Region of Natal, with direct sales in free markets (58.1% of the cases) being the most important, also because they are the most dynamic and diversified markets. In 39.5% of cases, they use intermediaries while 32.5% sell their production on the spot, 18.6% sell to supermarket chains and an equal value places their production in neighborhood groceries.

As for financing, some gardeners make use of the credit lines made available by the BNB (Brazil's Banco do Nordeste), to assist in the cost of production, however, this option is used only by few of them and the impacts on production are shy. For the majority, the horticultural activity, in the researched area, is the result of the family investment, from both the financial and the labor points of view.

Discussion

Although the practice of urban and peri-urban agriculture in the area of research is consolidated, professional training, volume and range of production and the network of socio-territorial and commercial relations, are still not sufficient for it to benefit from public policies aimed at family agriculture. The National Family Agriculture Program (PRONAF), was created on August 24, 1995, "intended for financial support to agricultural activities developed through direct employment of the labor force of the farmer and his family" (MDA/SEAD, 2017). However, among those surveyed, only 16.2% already benefited from this policy, while 83.8% did not.

Regarding institutional markets, the Ministry of Agriculture, Livestock and Food Supply (MAPA) reports that the Food Acquisition Program (PAA) was instituted in July 2003 as a support to family agriculture by buying preferably from them agricultural products that are intended for distribution to people in a situation of food insecurity and to the formation of strategic stocks. Despite its importance, only 11.6% of respondents reported knowing the existence of this policy, out of which only 4.65% have benefited from it.

The National School Supply Program (PNAE) was created by the Ministry of Education (MEC) on March 31, 1955, under the School Lunch Campaign (CME). In 2009, the Program was extended to the entire public basic education network, also including the Youth and Adult Education Programs. It

requires that at least 30% of the funds from the National Education Development Fund (FNDE) will be used in the acquisition of food products from family agriculture. However, in the same sense of the two previous cases, the PNAE is known by 20.9% of the interviewees, and only 2.32% benefited from it. Although some respondents said that they would like to benefit from public policies oriented to strengthen family agriculture, they report that they depend on their membership in Rural Workers' Unions. This requirement creates an administrative barrier, since the Unions cannot approve their registration because they live in areas considered 100% urban, which in the Brazilian conception means the absence of agricultural practices. Thus, urban and peri-urban farmers are excluded from PRONAF policies, since they do not yet consider the existence of agricultural activity in urban space, despite its importance to supply fresh food in the area under study.

In 2012, the Public Prosecutor's Office signed a partnership with the Association of Residents and Friends of the Gramoré Site and Adjacencies (AMIGs), EMATER, SEBRAE and Petrobrás to create the *Amigo Verde Gramorezinho* Project with two major aims: to contribute to reduce agricultural environmental impacts and to enlarge the number of farmers who could benefit from these public policies. So, on one hand, the initiative aimed to emphasize the socio-environmental issue, since the area in spite being the main center for vegetables supply to Natal, used by more than 120 agricultural properties, is part of the Natal Master Plan as the Environmental Protection Area -9 (ZPA-9) and is part of the River Doce Hydrographic Basin, one of the tributaries of the Extremoz Lagoon, that supplies water to the city of Natal (Anjos, 2009). On the other hand, the project aimed to disseminate knowledge on agro-ecological practices required to obtain the organic production declaration issued by the Ministry of Agriculture, in accordance with Federal Law 10.831/03, which is necessary to access the institutional market and some public policies. Some of the interviewees joined the project, made the transition to agro-ecological and began to produce according to the law. However, after issuing the declaration to the first 20 farmers, EMATER stopped providing technical assistance. Without this monitoring, financial and bureaucratic difficulties limit obtaining certification by the Ministry of Agriculture. This situation left the farmers unsatisfied because those who got the certification are taking advantage of programs such as PAA, PNAE, and participate in organic fairs promoted by the Public Ministry, while all others are excluded.

Conclusion

Urban and Peri-urban Agriculture (AUP) is considered a multidimensional concept (Santandreu and Lovo, 2007; Mougeot, 2000), which manifests itself in the reality of the area where field research took place. Although the farmers interviewed feel that they contribute to the dynamics of the fresh food market, they find that administrative barriers place them outside the scope of PRONAF and institutional



markets (PAA and PNAE), which, although having a national scope, are directed to agricultural activity carried out in rural areas. The agricultural activity carried out is understood as a profession and a strategy of social reproduction of urban and peri-urban farmers for the consolidation of their existential and living space (Santos, 2012; Santos and Badiru, 2017; Santos and Locatel, 2017).

Farmers reported different experiences in their relationship with public policies aimed at strengthen family agriculture, in part because they have been punctual and selective, as was observed in relation to *Amigo Verde Gramorezinho* Project that was interrupted leaving farmers from the same region in unequal situations.

Urban space should be assumed as a multifunctional space where agricultural activity might also be carried out, thus allowing urban and peri-urban farmers to benefit from policies oriented towards strengthen family farming, which are currently restricted to rural areas in Brazil. There is hope that the new Law of Urban and Peri-urban Agriculture (Ordinance No. 467 of February 7, 2018 / MDS), will finally create the conditions for the development of this activity.

References

CARLOS, Ana Fani Alessandri. A cidade. São Paulo: Contexto, 1992.

MASSEY, D. Pelo Espaço. Uma Nova Política da Espacialidade. Translation Hilda Pareto Maciel, Rogério Haesbaert. Rio de Janeiro: Bertrand Brazil, 2008.

MEC, Ministry of Education. National Development Fund for Education. (FNDE). National School Supply Program (PNAE) <http://www.fnde.gov.br/programas/pnae/pnae-sobre-o-programa/pnae-historico>

MDA Ministry of Agriculture, Livestock and Supply (MAPA). Food Acquisition Program (PAA). <http://www.mda.gov.br/sitemda/secretaria/saf-paa/sobre-o-programa>

MDA, SEAD. National Program for Strengthening Family Agriculture (PRONAF), (MDA/SEAD, 2017). <http://www.mda.gov.br/sitemda/pagina/hist%C3%B3rico>

MOUGEOT, L.J.A. Agricultura urbana: concepto y definición. Revista de Agricultura Urbana. RUAUF, PGU-ALC. n. 1, 2000.

SANTANDREU, Allain; LOVO, Ivana Cristina. Identification and Characterization of Urban and Peri-urban Agriculture Initiatives in Brazilian Metropolitan Regions. In: Food and Agriculture Organization of the United Nations - FAO; Ministry of Social Development and Fight against Hunger - MDS; Secretariat of Food and Nutrition Security - SESAN; Department of Promotion of Decentralized Systems - DPSD. Overview of urban and peri-urban agriculture in Brazil and policy guidelines for its promotion. Belo Horizonte, 2007, 89p.

SANTOS, M. Sociedade e Espaço: a formação social como teoria e como método. In: Boletim Paulista de Geografia. nº 54, São Paulo, julho 1977, pp.81-100.

Espaço e Método. São Paulo: Nobel, 1ed. 1985.

Santos, N.D. dos. 2012. Pelo Espaço do Homem Camponês: Estratégias de Reprodução Social no Sertão dos Estados de Sergipe e Alagoas. São Cristóvão: UFS/NPGE0, 2012. (Doctoral Thesis in Geography).

Santos, N.D. dos; LOCATEL, Celso Donizete. Políticas Públicas, Mercados Institucionais e Agricultura Urbana e Periurbana na Região Metropolitana de Natal. In: Simpósio Internacional de Geografia Agrária (SINGA). Curitiba, 01 to 05 de November 2017.

STEINBERGER, M. (Org.). Território, ambiente e políticas públicas espaciais. Brasília: Paralelo 15 e LGE Editora, 2006.



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