Agroecological transitions confronting climate breakdown
Food planning for the post-carbon city

Book of Proceedings
9th International Annual Conference of the AESOP
Sustainable Food Planning Group

Madrid, November 2019

Organized by DUyOT, GIAU+S (Universidad Politécnica de Madrid) and Surcos Urbanos
AESOP - SUSTAINABLE FOOD PLANNING

AESOP’s Sustainable Food Planning thematic group (SFPG) aims to bring together academics, policy-makers and practitioners from an international audience and provide a forum for discussion and development of sustainable food systems. Fashioning a sustainable food system is one of the most compelling challenges of the 21st Century.

The Conference is financially supported financially by the “Programa Propio I+D+i” from the Universidad Politécnica de Madrid (UPM) and is possible thanks to the facilities and contribution provided by the Escuela de Arquitectura de Madrid, Urban and Regional Planning Department and La Casa Encendida. Contact: m.simon@upm.es
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GO PAUSA
Agroecological transitions confronting climate breakdown: Food planning for the post carbon city

The 9th AESOP-Sustainable Food Planning international conference on “Agroecological transitions confronting climate breakdown: Food planning for the post-carbon city” was hosted at the Faculty of Architecture (ETSAM), November the 7th and 8th, and organized by GIAU+S from the Universidad Politécnica de Madrid (Spain) and Surcos Urbanos.

There is increasing scientific evidence that we are approaching a tipping point on climate change, in which self-reinforcing feedbacks will accelerate deterioration on a global scale. Urban food systems are a major contributor to the climate change, as well as highly vulnerable to it, in a non-homogeneous way: distressed urban areas and vulnerable populations will suffer more the impacts.

Urban areas account for nearly 60 % of energy use and 70 % of CO2 emissions (IEA, 2008). As goals are set for greenhouse gas emissions, self-sufficiency in energy, and adaptation to climate change, much prominence is given to urban plans for sustainable mobility and energy efficiency in the built environment. We want to draw attention to the food issue, -which in fact has strong implications in terms of energy and emissions – connecting the already mainstream claims for territorialized food systems based on solidarity relationships and shifting diets, to the challenges related to climate change and eco-social breakdown’s threat.

In this conference we approach the problem with an agroecological lens, to discuss the implications of the deep changes needed, in terms of degrowth, social justice and contesting the political and economic hegemony.

Climate change has cascading effects that should be addressed through corresponding cascading decisions across the urban region. We invite you to share knowledge and experience on planning the agroecological transition and reorienting current food systems.

We invite academics, practitioners, civil servants and grassroots activists to discuss in which ways planning instruments and processes are levers of the required public support towards territorialized food systems, diversified agroecological production, local logistic and retail infrastructures, adapted technologies and new organization of an envisioned close-loop cycle of food production, and consumption. Is resilience a concept strong enough to face the ecological crisis or a more radical approach is needed? Are we talking about impacting unequal power relations and distributions of resources? About placing farming/primary sector at a central position in economy? About placing the rural world at a central position in food planning? Or maybe about self-contained city, frugal urbanity, city-region’s self-reliance and austerity?
Tracks/Themes

**Agroecological transition** contributing to energy and eco-social transition and the implications of different spatial scales for processes of adaptation and mitigation. For up-scaling and out-scaling, lessons can be drawn from other sectors (energy, mobility). Which kind of spatial plans act as triggers for the transition? Can they foster alliances to develop hybrid systems? Is it possible to plan urban food systems that integrate unpredictable innovation in a context of climate change and vice versa, may innovation be facilitated by spatial plans that create enabling environments? (like access to means of production and logistics, knowledge, seeds, water…) Food consumption needs to be anchored to local/ regional agroecological production and productive capacity needs in turn to be improved. We are looking for new reference values and models, and scientific evidence adapted to new conditions.

**Agroecological urbanism** calls for thinking the ‘urban’ side of the food system. How to unlock mechanisms and shape new economic, political and cultural forces to reconfigure the agrifood system, from inside the city? Urbanism entitled to ease the adaptation of urban metabolism to local resources, entails changing behavioural patterns. Are neighbourhoods being transformed into living labs? How to facilitate learning processes and transformative action? How to design food value chains integrating nutrition and sustainability principles? How to achieve synergies with other plans (Air quality, mobility, community health…)?

**Food democracy** is a cornerstone in the collective definition of the new foodscape, be it one of transition, radical transformation or coexistence of both. Grassroot movements complain that it is them that incubate innovations to be later co opted by corporations. Should urbanism contribute to avoid that radical agroecology and food sovereignty are drained away in the process? Who will be the social actors in reshaping urban food systems? How the process is affected by times of social unrest? How to deal in food planning with asymmetries in power? What can be the contributions from a “political agroecology” moving away from technical approaches and .opening discussion on the commons goods?

Together with the conference there will be held some special events, such as a PhD workshop, field visits to some of the most important agroecological enclaves in the city of Madrid, a round table discussion on Social Movements and Agroecology, and a closure social dinner in La Casa Encendida cultural center.
Programme

Wednesday 6th November
Pre-conference Day (PhD- Young Professionals Workshop)
Escuela de Arquitectura (Faculty of Architecture) - Universidad Politécnica de Madrid

12:30 – 13:00   Registration – get to know each other – short individual presentation: who, from where, what?
13:00 – 14:00   Interactive training skills: Sharing our research with a broader community
14:00 – 14:30   Lunch
14:30 – 16:00   Masterclass and debate with Manuel González de Molina: Introduction to political agroecology
16:00 – 16:15   Coffee break
16:15 – 17:00   Wrap up – Paris 2020, next steps of AESOP PhD and YP Group

This informal meeting attempts to gather PhD students and young professionals eager to share their stories as well as learn from experienced researchers and experts in the field of food systems sustainability.

The day was divided in two sessions.

Before lunch, starting from 1:00 pm, we will focus on training some fundamental skills for the development of the researcher related with the ways we explore in order to share our research with a broader community. With the help of Gonzalo Sánchez Toscano, a research fellow from the Departamento de Urbanística y Ordenación del Territorio (DUyOT), the attendees will share and discuss some hints on how to tackle the challenge of boosting their research beyond the academics, sharing and involving in the production and reproduction of their research.

The discussion was organized in small groups, to give everyone the opportunity to share their experiences in a more comfortable setting.

After lunch, we had the pleasure to attend a masterclass by Professor Manuel González de Molina, from Pablo de Olavide University (Sevilla). He will make and introduction to Political Agroecology followed by a discussion with the participants in the masterclass. After the coffee break the day will conclude around 5 pm, with a brief informative session about the events and activities organized by the PhD group within the AESOP team for the next months.
Thursday 7th November  
Escuela de Arquitectura (Faculty of Architecture)

8:30 – 9:15       Registration
9:15 – 9:45       Official Welcome and Opening Remarks
9:45 – 10:45      Keynote Speaker. Manuel González de Molina (Pablo Olavide University)  
“How to scale up Agroecology: Proposals for advancing the agroecological transition”
10:45 – 11:00     Coffee break
11:00 – 12:15     Parallel Sessions I

Aula 1 · Chairperson: Chiara Tornaghi

• Innovations in farmland management to support a transition towards agro-ecology and more territorialized food systems. Coline Perrin
• Agricultural Landscapes of Densification. The Case of Luxembourg. Ivonne Weichold
• Strategic spatial planning and reorientation of the agro-food system in Valencia. Evaluating urban transformative capacities for sustainability. Sergio Segura Calero, Nancy Sarabia and Jordi Peris
• Planning for food through agroparks: room for manoeuvre fostering sustainable farming. Elke Vanempten

Aula 2 : Chairperson: Caroline Brand

• Does agro-ecological transition of the city necessarily implies alternative urban policies? A discussion through the Carma project in Paris. Paula Mace-Le-Ficher
• How to operationalize urban food systems in planning? A transsectoral approach. Margot Olbertz and Christoph Kasper
• Tools for the ecological transition. A proposal of indicators for the community of Madrid. Laura Jiménez Bailón
• Urban food strategy of Madrid: an evaluative case-study. Tanya Zerbian and Elena de Luis Romero

Aula 3 · Chairperson: Henk Renting

• The birth of Food Council MRA, Arnold van der Valk
• From grassroots to collaborative action: Governance of a community garden with a neighbourhood-level food cycle in suburban Tokyo. Naomi Shimpo
• Experiences of Communities of (Food) Practice in South Africa. Florian Kroll
• The emergence of translocal city food networks: reinventing meta-governance for sustainable food security. Ana Moragues-Faus
12:15 – 13:30  Parallel Sessions II

Aula 1 · Chairperson: Michiel Dehaene

- Crisis in urban, agricultural and food systems. Situated knowledge approach towards resilience potentials for urbanism issues and tools. Caroline Brand
- Urban/rural co-productions. Planning approaches for improving the sustainability of local food systems in Italy and England. Luca Lazzarini
- Agroecological Landscape Modelling as a Deliberative Tool: Prospective Horizons of Socioecological Planning in the Barcelona Metropolitan Area (Vallès County, Catalonia). Roc Padrò
- Spatial planning as a lever for agroecology, the missing ingredient in the re-localization of food system in the Mediterranean basin. Marian Simón

Aula 2 · Chairperson: Kathrin Specht

- Feeding Sustainable Cities Platform reshaping the Portuguese foodscape: Exploring the role of internet and ICTs. Cecília Delgado
- The role of knowledge and universities in food democracy. Camilla Adelle
- Emerging new food systems - transforming education and training systems. Niels Heine Kristensen
- The Foodprint Melbourne project: a transdisciplinary approach to establish an evidence base future vision and policy framework for sustainable urban food system transformation in Melbourne, Australia. Seona Candy

13:30 Lunch time · Catering LAREIRA

14:30 – 15:30  Keynote Speaker Luis Orive (Vitoria City Council)
“Difficulties for the implantation of an agroecological model in Vitoria-Gasteiz”

15:45 – 17:15  Parallel Sessions III + City Networks

Aula 1 · Chairperson: Marian Simón

- Food-productive infrastructure: Enabling agroecological transitions from an urban design perspective. Katrin Bohn
- Embedding agroecology’s soil care principle in the urbanised society: the case of Flanders. Hans Vandermaelen
- Food and Multifunctional Urban Green Infrastructure. Julián Briz and Isabel de Felipe
- Food Planning Matters – Towards an Integrated Approach for a Sustainable Rural Urban Nexus, Margot Olbertz
- The Urban Agriculture Nexus. Silvio Caputo
- Exploring the food in the urban food-water-energy-nexus: innovations and policies for resilient and sustainable urban development. Alexandra Doernberg
Aula 2 · Chairperson Émilie Houde-Tremblay

- Prosumer, Food Growing, Food Policies, Jan Eelco Jansma
- Tourism in support of agroecological food production. Barbara Maćkiewicz and Ana Espinosa
- Short supply chains and agroecological transition in the Cusco region (Peruvian Andes).
- Reflections on the hybridization of different sustainability approaches. Margaux Girard
- The role of the rural Open Public Food Markets in the construction of territory. Nadia Fava
- An invisible movement in city: the transformation through the agroalimentary system. Cristina Rodríguez García
- Does food availability differ by socioeconomic status of the neighborhood? A typology of foodscapes of Montpellier, France. Vonthon Simon

Thursday 7th November · Afternoon (Side event) optional visits

18:30 – 20:30  Local food and drink tasting at El Fogón Verde
A rural taste at CAR - Centro de Acercamiento a lo Rural
Centre for city Approach to Rural life

Friday 8th November
Escuela de Arquitectura (Faculty of Architecture)

9:30 – 10:30  Keynote Speaker Emma Siliprandi (FAO)
“UN-Partners’ Scaling up Agroecology Initiative - a framework to guide the transition towards sustainable food and agricultural systems”
10.30 – 10:45  Coffee Break
10:45 – 12:00  Parallel Sessions IV

Aula 1 · Chairperson: Coline Perrin

- Productive cities for urban regeneration: the case study of Turin (proGIreg H2020 project). Giacomo Pettenati
- Integrating agroecology in urban food strategies to fight food poverty. Potential impact in Madrid’s deprived neighbourhoods. Marian Simón
- Exploring the spatial planning dimensions of urban informal food. Luoman Zhao
- The transformative potential of community kitchens for an agroecological urbanism. Preliminary insights and a research agenda. Carlotta Gennari

Aula 2 · Chairperson: Daniez López

- Who Governs the Food Agenda? Food democracy and power in an American City, Mary P. Corcoran
- Can Living-Lab be a tool to foster Food Democracy? An analysis of a territorialised agri-food system reshaping process in France. Romain Feche
• *Towards a more-than-human right to the city.* Debra Solomon

• *Striving for food democracy through municipal Food Policy Councils. Experiences from Germany and Canada.* Marit Rosol

12.00 – 12.30 Posters Sessions

RENASCENCE: The Role of European National Health Services in the enhancement of sustainable food systems.

*Goiuri Alberdi Aresti & Mirene Begiristain Zubillaga*
Delivering a healthy and sustainable food economy in Letchworth Garden City, UK.

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Urban, circular economy mushroom farm has large climate change impacts from transport

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*Émilie Houde-Tremblay*
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Saioa Sase and Eduardo Malagón

Creating and sharing knowledge in Organic Agriculture, Food Systems and Urban Planning.

GO PAUSA

12:30 Lunch time · Catering LAREIRA
13:30 – 14:45 Parallel Sessions V

Aula 1 · Chairperson: Michiel Dehaene

- A spatial perspective on food transition in diffused settlements. Lessons from the Veneto region. Alessandra Manganelli
- URBAL: a tool to unfold the impacts of urban-driven innovations on food systems’ sustainability. The example of two case-studies in Montpellier (France). Valette, Elodie
- Multifunctional Urban Space. Urban agriculture as a tool for climate vulnerability mitigation. Giulia Lucertini
- Innovativeness” in urban agriculture: Which novelties in the social, environmental and economic dimension do urban agriculture projects produce? Kathrin Specht

Aula 2 · Chairperson: Nerea Morán

- “You need to have a shared vision”: Factors that support or obstruct the sustainable establishment and development of urban community gardens. Runrid Fox-Kämper
- From Leisure to Necessity: Evolution of urban allotments in the province of Alicante in time of crisis. Marit Rosol, Barbara Mačkiewicz and Ana Espinosa Seguí
- Food production and distribution in allotment gardens: past or future? Ewa Kacprzak
- Urban Agriculture as Activism: The Cases of São Paulo and Paris. Gustavo Nagib

Aula 3 · Chairperson: Alberto Matarán, University of Granada

- How multi-level food policy networks can improve local food systems: evaluating the Dutch City deal: Food on the Urban Agenda. Lara Sibbing
- Deepening, broadening, and scaling-up: the case of Australian local food initiatives. Leticia Canal Vieira

14:45-15:30 Plenary and Closing Session

Institutional Closing words:
Alejandro Benito. Chair Applied Research and Agrarian Extension Department. IMIDRA (Instituto Madrileño de Investigación y Desarrollo Rural, Agrario y Alimentario)

Manuel Blanco. Director School of Architecture. Universidad Politécnica de Madrid.
Friday 8th November · Afternoon LCE

La Casa Encendida

17:00-18:30 Open Discussion Session. Researches-Social Movements-Local Government. *Who’s planning an agroecological transition that addresses the climate emergency?*

Convenor: Marian Simón Rojo, Surcos Urbanos / UPM

Emma Silipandri FAO Scaling up agroecology

Luis Velasco and Olimpia. Madrid Agroecológico / AUPA

Juan Carlos Liaño. Madrid Agroecológico / Trasiego

Agustín Hernández Aja President WG Sustainability CRUE (Conference of Spanish Universities’ Rectors)

19:00-21:00 Social Dinner · *Catering Cuidando Paladares*

Saturday 9th November (Side event) field trip

9.30-15:30 Visit to urban and periurban agroecological projects

We visited spaces with artisan canning projects, embedded in the historically working-class neighborhoods of the south of the city and cooperative agroecological projects, involved in alternative food networks in the Agrarian Park. We will be able to taste the fruit of their work, as the visit culminates with an agroecological meal in one of the farms, rich in biodiversity and peasant wisdom. The planned itinerary starts in La Casa Encendida, and goes through Fundación Burgohondo Jam Factory, La Huerta Eugenia, Parque Agrario Rivas-Vaciamadrid, ending up in Conciencia Grows.
PhD and Young Professional Workshop

Keynote speakers and parallel sessions
Side events and field trip
Food and Multifunctional Urban Green Infrastructure

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**Keywords:** Agriculture, contamination, food, green, innovation, multifunction, urban.

**Abstract**

The food supply of the urban agriculture should be viewed in the context of the multifunctional green infrastructure. The products offered respond in the first instance to the demand for food and usually focuses on those with high value added, if they are oriented to the market, also those who require affordable farming practices to the urbanites. But vegetation has multiple functions. Besides cooling effect through evapotranspiration, the shade reduces solar heat, increase air movement. It is very important the urban climate documentation and information for designing urban planning, according several dimensions, such as pollution (air and acoustic), radiation, thermal comfort and heat island. Urban biophysical evolution is a consequence of the substitution of nature by buildings. Green areas facilitate rain water infiltration, cooling effects with a direct impact on urban environment. Heat waves and storm flooding have economic and social impacts on urban society, with millions of euros in catastrophic losses and human lives. Looking how green infrastructure may help in climate adaptation, several studies show that reducing 10% green cover with other items may increase heat 8\(^\circ\)C. Therefore we have to maintain or increase green infrastructure, although sometimes is difficult due to the occupation of the space for other activities or buildings. In that case the society has to look for “unusual places” such as roofs, walls, railway lines... etc. However, in addition to the economic value, there are dimensions that should be measured and the market does not appreciate them. We refer to the multifunctional infrastructure aspects such as social relationships, physical exercise and mental relaxation, change of consumption habits, improving environmental and weather, boost biodiversity, saving energy and carbon footprints, among others. Socioeconomic benefits and healthy conditions have to be studied in order to stablish a benefit/cost balance of each urban program. Therefore, urban planners should take into consideration a global vision with local impacts of urban agriculture using mechanisms for evaluation and selection of appropriate policies.

**Introduction**

The food supply of the urban agriculture (UA) should be viewed in the context of the multifunctional green infrastructure. The products offered respond in the first instance to the demand for food and usually focuses on those with high value added, if they are oriented to the market and also those who require affordable farming practices to the urbanites.

But vegetation has multiple functions. Besides cooling effect through evapotranspiration, the shade reduces solar heat and increase air movement. It is very important the urban climate documentation and information for designing urban planning, according several dimensions, such as pollution (air and acoustic), radiation, thermal comfort and heat island. Urban biophysical evolution is a consequence of the substitution of nature by buildings. Green areas facilitate rain water infiltration and cooling effects with a direct impact on urban environment. Heat waves and storm flooding have economic and social impacts on urban society, with millions of euros in catastrophic losses and human lives. (Briz et al. 2019)
Looking how the lack of green infrastructure may affect the climate adaptation, several studies show that a reduction of 10% in the green cover, with other items, may increase heat 8ºC. Therefore we have to maintain or increase green infrastructure, although sometimes is difficult due to the occupation of the space for other activities or buildings. In that case the society has to look for “unusual places” such as roofs, walls, railway lines... etc.

However, in addition to the economic value, there are dimensions that should be measured and the market does not appreciate them. We refer to the multifunctional infrastructure aspects such as social relationships, physical exercise and mental relaxation, change of consumption habits, improving environmental and weather, boost biodiversity, saving energy and carbon footprints, among others. Socioeconomic benefits and healthy conditions have to be studied in order to establish a benefit/cost balance of each urban program.

Therefore, urban planners should take into consideration a global vision with local impacts of urban agriculture using mechanisms for evaluation and selection of appropriate policies.

**Scenarios in the food and green infrastructure**

Urban agriculture (UA) is a significant component of Smart Cities, which need a holistic scenario of analysis. On the other hand, urban metabolism is a key instrument for performance, with the flows and stocks the goods and services, material and energy within the city boundaries with environmental impacts (Gill. S.E. 2017).

Actions in green infrastructures should be focused in:

- **Economics:** Urban agriculture has to shift scale from isolated projects to large scale programs. Beside horizontal (ground) agriculture, we have to look for vertical agriculture possibilities through technological innovations.
- **Political:** Urban farmers do not have political power and there is a lack of standard data about the benefits of urban farming. As a result there are not local and national funding programs, neither multilateral nor bilateral donors.
- **Food and nutrition:** To integrate value chain from production to processing, distribution, nutrition and health, consumer habits for supplying adequate food. **Social:** Urban agriculture may help to provide employment and integration, to immigrant, refugees, unemployed person with difficulties of skill, language or culture.
- **Formation and education:** Institutions and schools have the possibility to educate people on the role of nature and the need to protect natural resources, with the practice of urban farming.
- **Environment:** Air quality, role of green walls and rooftops in air flows cleaning the dust of heavy metals and reducing the heat island effect.
- **Water management,** energy saving, waste recycling and a circular economy are another dimensions to be considered.
- **Innovation:** Share knowledge and promote innovation, encouraging horizontal, city to city learning experience in specifics contexts.
- **International network:** As worldwide network, institutions as World Green Infrastructure Network (WGIN), may be a useful tool to help academic, researcher’s entrepreneurs and policy makers to foster communication about problems and solutions.
• **Public services:** Local and national institutions may supply public services in market information, farming extension specialist, technical support, facilities for regular food local market places.

• **Financial support:** To provide subsidies, credit to small farmers to meet cash flow needs. The microcredit rotary program could be useful, through small loans to acquire seeds and other inputs. The programs should be tailor made for urban farming with special attention to women.

• **Foster urban social integration:** Neighbors association and cooperative movements with stimulus to partnership along the value chain with small agro processor, retailers and consumers.

• **Minimize uncertainties:** Urban society should design strategies to minimize risk in the green city movement, considering the impact in local economy, environment, cultural behavior and social relations. It is a project at medium and long run where green infrastructures will perform an important role in the sustainability of the future cities.

**Comments about urban agriculture**

It is urban agriculture a hobby for urban elites, a need for low class neighborhood or a new concept of urban planning?

Innovation in technology is an important element in the expansion of green infrastructure, allowing to use building as new spaces.

Socioeconomic dimensions of urban farming should be measure in adequate way. Even the number of jobs may be not significant, there are training opportunities, education for healthy eating and environmental attitude.

The proximity of persons to urban agriculture farming is an element of additional precaution in the control of pesticides, fertilizers and environment pollution.

Vertical agriculture may not be competitive as a consequence of high energy and water consumption.

Inefficiency in cost and lower economies of scale compared with rural agriculture, have to be compared with environmental benefits (filter air contamination, water management control, decrease heat island effect, biodiversity improvement), recreation facilities, health improvement (Bai X. 2018).

The romantic view of urban agriculture has to be complemented with qualitative and quantitative studies. Researchers have to evaluate the impact in circular economy, food supply, and decrease in carbon and energy foot prints, education of citizens in nature appreciation (Briz J, De Felipe I. 2015).

It is important to identify the role of the stakeholders involved in the acceptance of green infrastructures in urban areas. From local administration (City Hall, and others), private companies, NGOs, neighbor associations, technicians and individual.

**Urban agriculture, economic development and Sustainable Development Goals (SDG).**

Urban agriculture is closely related to socioeconomic development and Sustainable Development Goals (SDG). In fact, in the 17 total goals of the SDG, there are several related with urban agriculture: Number 2. Food and Nutrition; Number 3. Healthy Life and Environment; Number 8. Economic Development; Number 11. Sustainable Cities and number 13, Climate Change.
Urban Agriculture may facilitate social interaction in urban communities. Countries as Colombia and Germany are examples of refugee’s integration through farming practices.

We have to consider that urban crops are conditioned to topographic and climate conditions, beside the knowhow and tradition. African cities are very active in UA, as they have lower population densities and population maintain farming tradition. In Asia, there are different forms of urban agriculture, those with greenbelts and open spaces and the others with dense and industrial population without special agricultural tradition.

Poor families may spend nearly 80% of their income in food (Maxwell D. et al 1998). Purchase capacity depends upon family income and market prices. Urban food distribution channels are not very efficient. Food losses from production to retail range from 10—30% while urban prices are more than 30% higher in rural areas (Newland IK. 1980).

Urban farming is more oriented to perishable products such as fresh vegetables and animal products (poultry, egg, honey). Accra produces 90% of fresh vegetable consumption, Dakar 60% and La Habana 50% (Maxwell D. et al. 1998). Leafy vegetables are more sensitive to contamination than seeds or fruits. Livestock productions are a potential source of parasites and virus. Recycle urban organic waste products and use as compost has health risks if it has not be properly treated. Wastewater untreated for irrigation is another concern.

Urban Agriculture is not the panacea to solve the problems of environment, food security and other socioeconomic questions in the big cities. However we should recognize that it is an important instrument to be introduced in urban strategies, in the framework of municipal planning and as recognition of farming system with access to farm inputs and services provides to rural farmers.

Urban farming may be focused in different ways and identify several stereotypes, where each of them have different goals and innovation may play several roles.

The challenge to look for a business mode in urban agriculture is related to the capacity of competition in food and ornamental market.

Urban farmers have to respond to local opportunities such as available land, income, local support for environment, recreation and landscape. Input market (land, labor, seed, agrochemical) have low economic impact in local economy. Land, one of the main barrier, is rarely purchased for urban farming. Quite often is leased on temporary basis or located in areas with low opportunity cost. Other inputs (seed, fertilizer) are of minor consideration and water is provided in favorable conditions.

The silent revolution of Vertical Urban Agriculture (VUA)

Urban agriculture has been traditionally located in the ground competing with other urban activities and serious limitation for its development. However innovation and new technologies, allow the use of unused spaces (mainly roof and walls) for farming practices. Consequently there is a potential location for farming practices and vertical agriculture may use thousand sq. meters, in the middle of the city almost for free in the neighbor.

We may identify several steps in the evolution of VUA (Briz et al 2017):

- First generation. VUA is located in roofs and walls open air. The production is seasonal according agro-climatic condition, usually based in native food products (fresh horticulture, flowers and aromatic plants) oriented to local consumer. In some cases they supply restaurants (Wellington Hotel in Madrid, Carlton Hotel in Oslo) and directly to the neighborhood.
• Second generation. The construction of green houses in the roofs allow the urban farmers to extend the production period. At the EU there is a special program for Air Quality to foster green houses in the cities. (https://www.ecoticias.com/sostenibilidad/194895/proyecto-europeo-ofrece-ayuda-instalar-invernaderos-cubiertas-edificios#.XQuZ12dyyZq.email). In this case plants absorb the CO2 through the chlorophyll action and retain dust and small particles from the air. Urban farmers have a free decision of what to produce, food and ornamental plant. Simultaneously we may recycle rain water for the green houses.

• Third generation. In this occasion there is a step forward to improve the environment increasing the inmission and decreasing the emission of contaminants. This is the case of green houses in the roof, recycling the smoke from central heating in family apartments, offices or factories. Conducting the gases to the green houses we use the heat to warm the environment diminishing the heat island effect. As explained before, plants absorb the CO2 and deposit the small particles. As additional activities there is a possibility to recycle the NOX with crystalline urea (Ad blu in commercial terms) with split it in N2 and O2. This practice is already use with the traffic smoke of car and trucks. Also there is possibility to recycle grey water and be used in green houses. (Figure 1. Building with green roof and recycle activities).

Conclusions

Traditionally food has been the main function of urban agriculture and continue with a significant role. New megalopolis face multiple challenges and food supply depends from outside in many situations. However Urban Agriculture as a corner stone of green infrastructures provides other important functions which society should recognize. To get a sustainable horizon with Nature Base Solution is a social demand, and the market has to introduce new parameters to value them.

References


The Foodprint Melbourne project: a transdisciplinary approach to establish an evidence base, future vision and policy framework for sustainable urban food system transformation in Melbourne, Australia

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Keywords: food security, peri-urban, systems, sustainability, resilience

Abstract

Food security is increasingly becoming an urban problem. In Melbourne, Australia’s fastest growing city, population increase and the impacts of climate change put pressure on existing food production and supply networks. Competition for land has led to significant losses of highly productive peri-urban agricultural land to urban sprawl, leaving the city vulnerable to future food insecurity. City planners lacked an evidence base about the significance of peri-urban agricultural production and risks to the city’s food supply.

This paper outlines the transdisciplinary, knowledge-to-action approach developed for the first phase of the Foodprint Melbourne project. This phase (comprised of three parts) was concerned with generating the necessary evidence base to plan for a more resilient and sustainable peri-urban food supply. Research questions were co-developed with city and food system stakeholders and both quantitative and qualitative methods were used. Key research findings were communicated to stakeholders and the general public via reports, media articles and infographics to extend the reach of the project.

Introduction / Background

Historically, the challenges of the global food system have centred on feeding the world’s growing population (Godfray et al., 2010) and largely focused on rural food security. More recently, however, there has been an increased emphasis on food security as an urban problem (Hoornweg et al., 2016; Jennings et al., 2015; Marsden and Sonnino, 2012; Satterthwaite et al., 2010; Sonnino, 2016).

In Melbourne, Australia’s fastest growing city, population increases and climate change impacts are putting pressure on existing food production and supply networks. It is projected to be the largest city in Australia by 2066 with a projected population between 8.6 million and 12.2 million by 2066, surpassing Sydney in 2031 (ABS, 2018). The city is situated in a water-scarce region of the world that is predicted to experience further warming and drying (Steffen et al., 2018). Food supply networks are getting longer due to economic drivers and globalisation, and are become more vulnerable to disruption from extreme weather events (Burton et al., 2012). Competing needs for land result in significant losses of highly productive peri-urban agricultural land to urban sprawl, leaving the city vulnerable to future food insecurity (Sheridan et al., 2015).

Other major Australian state capitals also have productive foodbowls that contribute to fresh food supplies, but they are all under similar pressure from population growth and urban expansion (ISF, 2016). They are unlikely to be able to meet future deficits in Melbourne’s food needs.
City planners in Melbourne lacked an evidence base related to the significance of peri-urban agricultural production, broader urban food system vulnerabilities and potential integrative actions to inform future policy decisions. Urban environmental problems are no longer considered as puzzles for experts to solve but have become issues of public debate in which knowledge from multiple actors is needed for effective interventions (Frantzeskaki and Kabisch, 2016). Any knowledge or evidence generated through research must not only be scientifically valid but also socially robust (Nowotny et al., 2003). This requires a transdisciplinary, issue-driven approach involving engagement with a variety of stakeholders throughout the research process (Gibbons, 2000) and a progression in research practice from knowledge translation to engaged scholarship (Bowen and Graham, 2013).

**Objectives**

This paper outlines the transdisciplinary, knowledge-to-action approach developed for the first phase of the Foodprint Melbourne project and presents a summary of results. This phase, comprised of three parts, was concerned with generating the necessary evidence base required to plan for a more resilient and sustainable peri-urban food supply. Specific objectives were:

- To investigate what grows in Melbourne's peri-urban ‘foodbowl’ and its capacity to feed the city now and in the future (Part 1).
- To calculate the city’s ‘foodprint’ – how much land and water is required to feed the city, and the GHG emissions and food waste generated – and identify vulnerabilities to future food production and supply (Part 2).
- To explore the role of Melbourne’s foodbowl in contributing to a resilient and sustainable ‘food future’ for Melbourne and the significance of Melbourne’s foodbowl for the regional economy (Part 3).

**Methodology**

This research was undertaken with a transdisciplinary (TD) approach, defined as a “functional dynamic collaboration of disciplines and societal actors to investigate and handle sustainability issues” (Pohl et al., 2017). The methodology brings together qualitative TD research methods (Pohl and Hirsch Hadorn, 2007), co-creation and knowledge-action networks (KANs) mechanisms (Martinez-Harms et al., 2018) and quantitative footprinting and scenario modelling.

The project network consisted of a core interdisciplinary research team and a stakeholder advisory group (Figure 1). The advisory group included local government and peak body (representing inter-municipal issues) representatives who contributed to co-develop societally relevant research questions and met regularly with the research team to provide qualitative input and feedback through the research process.
Agroecological transitions confronting climate breakdown: Food planning for the post-carbon city

Figure 1 – Foodprint Melbourne project network

The ‘foodprint’ was calculated for both 2014 and 2050, using the Australian Stocks and Flows Framework (ASFF), a scenario modelling platform designed to comprehensively assess Australia’s long term environmental sustainability challenges in Australia and model potential solutions (Turner et al., 2011). Essentially a mass and energy accounting system, it is employed to track land, water, energy, labour and materials required for economic activity to actually occur. Figure 2 shows a summary of the modelling method and data sources (for further detail see Candy et al. (2019).

Figure 2 - Diagram of methodology developed to calculate Melbourne’s foodprint using ASFF.

State of the art

The project is one of the first of its kind to investigate the importance of city foodbowls for food security in an Australian context, and the only project of its kind to explore these questions in relation to Melbourne.

Engagement planning has been an integral part of project planning from the outset, including the establishment of a Stakeholder Advisory Group, which has partnered on funding applications and helped to shape the research questions. Alongside research reports, key research findings were translated into infographics.
and media articles so that they could be more easily communicated to the public. Public acceptance and understanding of science-based evidence (or lack thereof) can influence governmental decision making with regard to regulation, science policy and funding (Brownell et al., 2013). Public engagement with the issues related to Melbourne’s foodbowl is therefore necessary as part of the bridge between research, policy and action.

Results

Part 1 - Melbourne’s Foodbowl

Melbourne’s ‘foodbowl’ includes many scattered areas of food production around the city fringe and can be defined in terms of an inner and outer foodbowl (Figure 3). The inner foodbowl is the metropolitan area of Greater Melbourne – it includes urban local government areas and the ‘Interface Councils’, the local government areas that are on the edge of the metropolitan fringe and border the city’s Urban Growth Boundary. The outer foodbowl is the next ‘ring’ of peri-urban local government areas that includes regions in the ‘Peri-Urban Group of Rural Councils’.

Melbourne’s foodbowl produces a wide variety of fresh foods, particularly fresh fruit and vegetables, but also eggs and chicken meat, and some beef, lamb, pork and dairy. Highly perishable foods, such as leafy greens and berries, are typically grown in the inner foodbowl, close to the city. The outer foodbowl produces a more diverse range of foods that includes fewer fruit and vegetables, but more livestock products and some oilseeds (Sheridan et al., 2015).

In 2015, Melbourne’s foodbowl produced enough food to meet around 41% of the food needs of Greater Melbourne’s population of 4.7 million (Figure 4). Melbourne’s population is predicted to grow to between 8.6 and 12.2 million by 2066 (ABS, 2018). Melbourne’s population could reach at least 7 million by 2050 (DELWP, 2015), and would need around 60% more food, based on existing consumption patterns. If current urban density trends continue, the capacity of the city’s foodbowl to meet the population’s food needs could fall to around 18% at a population of 7 million, due to a combination of loss of farmland and population growth (for further detail see Sheridan et al., 2015).

Part 2 - Melbourne’s Foodprint

It was found that it takes 758 GL/yr of water and 16.3 Mha/yr of land to feed Melbourne, with over 907,537 t/yr of edible food waste and 4.1 Mt/yr of GHG emissions generated. With no change to consumption
patterns or production methods, in 2050 1598 GL/yr of water and 32.3 Mha/yr will be required, with 7.4 Mt/yr of GHG emissions generated. More detail on modelling results can be found in Candy et al (2019).

Key vulnerabilities in Melbourne’s regional food supply include loss of agricultural land, water scarcity and the impacts of climate change. Potential strategies to increase the sustainability and resilience of Melbourne’s regional food supply include increasing urban density, shifting to regenerative agriculture, increasing the use of recycled water for agriculture, reducing food waste and modifying diets. In 2016, around 10% of the available recycled water from Melbourne’s water treatment plants would have been enough to grow half of the vegetables that Melbourne eats. Increasing urban density as Melbourne grows could reduce urban sprawl by about 50% over the next 20 years, saving 180,000 hectares of land in Melbourne’s foodbowl – an area equivalent to almost 5 times Victoria’s vegetable growing land (for further detail see Sheridan et al., 2016).

**Part 3 - Economic analysis**

Production in Melbourne’s foodbowl makes an important contribution to Melbourne’s regional economy and to employment opportunities. Deloitte Access Economics carried out an economic analysis of Melbourne’s foodbowl for the Foodprint Melbourne project. This section presents some of the findings of this analysis (for more detail see Deloitte Access Economics, 2016).

Melbourne’s foodbowl contributes $2.45 billion per annum to the city’s regional economy, and creates 21,001 full-time equivalent (FTE) jobs. The total economic contribution of Melbourne’s foodbowl includes (see table 3):

- the direct contribution from agricultural production in the foodbowl, which amounts to $956 million per annum and 7,687 jobs (FTE)
- an indirect contribution from the ‘upstream’ sectors that provide inputs to agriculture in the foodbowl (fertilisers, seeds, animal feed, water and machinery), which represents an additional $742 million per annum and 5,719 jobs (FTE)
- a direct contribution from the ‘downstream’ food manufacturing sectors that use agricultural products grown in the foodbowl, which contribute an additional $756 million per annum and 7,595 jobs (FTE)

| Table 1 - Economic contribution of agriculture and food manufacturing in Melbourne’s foodbowl |
|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
|                                       | Agriculture                             | Food Manufacturing                     | Total agri-food contribution           |
|                                       | Direct                                 | Indirect                               | Direct                                 |                                        |
| Value added ($ million)                | 956                                    | 742                                    | 756                                    | 2454                                   |
| Employment (FTEs)                     | 7687                                   | 5719                                   | 7595                                   | 21001                                  |

The vegetable industry makes the greatest contribution to the gross value of agricultural production in Melbourne’s foodbowl, generating over $400 million in value, with the majority of production occurring in the inner foodbowl. This is followed by poultry production, which contributes approximately $400 million in gross value, with the majority of production also occurring in the inner foodbowl. Dairy production contributes just under $300 million and takes place predominantly in the outer foodbowl, as does beef production, which contributes around $200 million in gross value.
Discussion

Role of Melbourne’s foodbowl in a resilient and sustainable ‘food future’ for Melbourne

These results show that Melbourne sits at the centre of a highly productive foodbowl, which makes a valuable contribution to the city’s food supply and to its regional economy. However, the results also show that the city’s food system faces new challenges from rapid population growth and climate change.

If Melbourne can grow in a way that retains – or, indeed, strengthens – the productive capacity of its foodbowl, the foodbowl could reduce the city’s dependence on distant sources of food. It could act as a ‘buffer’ against the impact of disruptions to global and national food supplies and enable the city to harness valuable waste streams to counter declining supplies of water and conventional fertilisers. It would also continue to make an important contribution to Melbourne’s regional economy and employment opportunities. These aspects highlight the important role of the foodbowl in contributing to a more resilient and sustainable food future for the city.

To achieve this however, the city will need to plan for food. The evidence base established during this phase of the project subsequently informed the development of an integrated vision and policy framework to underpin planning for a more resilient and sustainable peri-urban foodbowl (Carey et al., 2018).

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Agroecological transitions confronting climate breakdown: Food planning for the post-carbon city


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The Urban Agriculture Nexus

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Keywords: Food/Water/Energy Nexus; Urban Agriculture; Urban Metabolism.

Abstract

This paper presents a new interpretation of the Food-Energy-Water Nexus, capable of identifying links between the environmental, economic and social factors of urban agriculture in the Global North. The Nexus is a concept advocating the optimisation of resource usage in relationship to food production. This optimisation has been researched from many perspectives, including resource security (i.e. ensuring that usage does not compromise availability - Al-Saidi and Elagib, 2017) and inter-sectorial management (i.e. a systems approach to identify feedback loops when planning interventions in each one of the three sectors – Allouche et al., 2015). These perspectives mainly focus on the macro and meso scale of intervention (Biggs et al., 2015), in which, for example, decisions concerning the construction of hydroelectric plants have an impact on the availability of water for agricultural purposes.

At these scales, people are considered in terms of access to resources and participation in the decision-making processes. Instead, behaviours and cultures of resource use to grow food at a micro scale are rarely considered. Urban agriculture is practiced mainly at an individual and community level, and utilises resources to produce not only food but also social benefits. Hence, in the nexus for urban agriculture presented here, the social aspects that this practice embeds in the food growing activities play a major role. Following a brief overview of the different perspectives of the nexus, one is derived which is fit for urban agriculture, together with relevant factors necessary to design a framework of analysis. This framework aims at developing an understanding of the nexus that connects people, horticultural practices, urban resource usage and food.

1. Introduction

Projections of demographic growth suggest that the global population will reach 9 billion by 2050 (United Nations. 2004). This will result in a growing demand for food, which the Food and Agriculture Organisation (FAO) quantifies as approximately 60% by 2050 (FAO, 2011). FAO recommends sustainable agriculture intensification as an approach to meet this challenge, including a more rational use of resources and targeted policies as key principles (http://www.fao.org/policy-support/policy-themes/sustainable-intensification-agriculture/en/). The non-rational use of resources in food production is demonstrated by many studies. Mueller et al. (2012) show that there are unbalances in the use of fertiliser and water, with dramatic overuse in China and underuse in East Europe. A correct dosage would redistribute resources and generate higher yields. Intensification of water usage in regions currently under deficit of irrigation can increase their yield up to 30% (Pfister et al., 2011). However, in policy and industry, water and energy infrastructure production and consumption are rarely integrated and rationalised. To this end, research into approaches that optimise the food/water/energy nexus can contribute to the sustainability of national and global food systems.

Urban Agriculture (UA) is a form of food production on urban and peri-urban land. Benefits generated by UA include food security, enhanced biodiversity, job provision and opportunities to intensify social
interaction. Potential threats are represented by soil contamination and leaching from polluting horticultural practices. Cities in the global north are increasingly aware that urban food production can play a pivotal role in global food systems (De Cunto et al., 2017). Just as with conventional agriculture, access to urban resources is vital. UA can tap into urban waste and utilise it as a resource (e.g. rainwater harvesting, organic waste and heat from buildings), thus substantially lowering its impact on the environment. Conversely, it can increase the uptake of resources if urban waste is not utilised. In the perspective of an expansion of UA, the identification of strategies for low resource usage is fundamental. Hence, the utilisation of the concept of the nexus seems relevant for UA practices too.

Tools to identify the effectiveness of UA in terms of production have been developed although not from a nexus perspective (i.e. focusing on production and consumption, rather than their correlation with resource usage). These tools are not comprehensive, since they fail to measure inputs and outputs as well as social and ecological benefits. Frameworks for the assessment and/or implementation of the nexus could be useful to assess UA but they focus on a large scale of intervention which is not appropriate urban food production. A concept of nexus fit for UA is needed. In order to address this gap, the FEW-meter project, a research project funded under the SUGI-JPI call ‘Food-Water-Energy Nexus’ (www.fewmeter.org), developed a tool which assembles qualitative and quantitative indicators. To develop this tool, the following questions were investigated: is the concept of the nexus, which was developed in relationship to large scale food systems, appropriate for UA practices? What can be learned from the existing concept/s of nexus and how can this be tailored effectively for UA practices? Finally, which indicators and analytical methodology are appropriate to capture the correlation between resource usage, production and social benefits?

In order to answer these questions this paper will review the concept of the nexus, its origins and the several nexus frameworks in section 2, and the several frameworks developed to assess UA in section 3. Section 4 will propose a nexus for UA and a framework for its identification, which include social benefits as a key component.

2. The water/energy/food nexus.

Although the idea of an interlinked, integrated approach to water, energy and food demands appears in programmes developed by the United Nations University in the early 1980s (Al-Saidi and Elagib, 2017), only in 2008, the World Economic Forum introduced the concept of the nexus as a way to investigate the threat that resource scarcity and climate change represent for global food security. The nexus was further discussed and promoted in the World Economic Forum 2011 and in two dedicated conferences in Bonn (2011 and 2014), in which the challenges of implementing nexus policies through effective decision-making processes was debated (Daher and Mohtar, 2015). Despite the ongoing debate, the challenge of managing supply systems that have been traditionally designed, operated and governed distinctly is significant. Resources such as water basins can be shared between different countries, each one with particular policies (Kibaroglu & Gürsoy, 2015), and there is a lack of cross-sectorial expertise (Bazilian et al 2011), which is necessary to identify feedbacks between systems.

The nexus is present at many levels in our lives and embodied in diverse goods or processes, which adds further challenges to the identification of correct approaches to its optimisation. For example, the nexus can be identified in the increasing demand for bio-fuel (energy and food), with its knock-on effect on deforestation and carbon sinks (FAO, 2008). It can be also identified in the distance between food production and consumption, resulting in high food miles and energy intensive produce (Edwards-Jones et al., 2008), or in the demand for and cultivation of water intensive – rather than water efficient – crops (Allouche et al., 2014). Within the policy realm, energy subsidies are provided to agriculture in many countries, facilitating groundwater depletion which is
pumped for irrigation (Bhaduri et al 2015). To date, no integrated approach for the three or more elements of the nexus is available in policy (Gain et al, 2015).

Much of the nexus literature focuses on the development of frameworks to measure efficiency of resource use or to identify correct approaches to its formulation, and on the process of governance and decision-making that can facilitate or impede effective nexus policies. Frameworks for the assessment or formulation of the nexus can be either indicator-based or process-based. Indicator-based frameworks include the EU-funded W4EF project (W4EF, 2015), which focuses on water availability and how this is used for energy production. Indicators fall under the categories: access to water, interaction with water ecosystems, and interaction with other human needs. Other indicator-based framework are CLEW (Climate, Land, Energy and Water) (International Atomic Energy Agency, 2009) and WEF Nexus Tool 2.0 (Daher and Mohtar, 2015). Process-based frameworks focus on the dynamics within policy making in the three sectors. They are structured as guidelines rather than assessment tools. For example, Gain et al., (2015) utilise the phase of the policy cycle (i.e. agenda setting, policy formulation, decision-making, implementation and evaluation) as those against which local priorities can be identified and effective policies formulated. At the core of this framework is an iteration of the cycle, enabling regular evaluation to feed back into management and governance approaches, which in turn become adaptive to necessary changes. A selection of these tools is summarised in Appendix 1.

The diversity of the proposed frameworks offers a wide range of perspectives and approaches, all struggling to grasp with the complexity of the nexus. From a review of the abundant literature on this topic (see Al-Saidi and Elagib, 2017) some important factors emerge. Scale and governance/management matter (Bhaduri et al., 2015). Water and energy are resources that are best examined at a regional, national or international level, which are the scales on which studies on the nexus and the frameworks predominantly focus (Biggs et al., 2015). But with the scale changing, the analysis can become more detailed, with different indicators and ranges of stakeholders. For example, a transnational study of a shared water basin requires the involvement of water authorities, local governments and representatives from the communities involved; a more confined geographical focus allows the consultation of local farmers and local groups.

The importance of stakeholders’ involvement in the identification of priorities is highlighted in all studies. This is not only because any decision on water and energy infrastructure has consequences on land use, with sometimes large territorial transformations as a consequence of the construction of infrastructure, but also because some stakeholders are directly responsible for a large share of water usage. With this in mind, the nexus can be understood within a social ecological paradigm (Leck, 2015; Smidt et al., 2016). This paradigm sees the interaction between the two systems in evolution, thus adaptive – rather than static – and in a permanently changing balance, rather than within a state of constant equilibrium (see Folke et al., 2010). Connected with this view, in considering water storage strategies to prevent scarcity, Allouche et al. (2014) caution against the design of large infrastructure works, such as dams, as a single solution. A less ecologically intrusive and more adaptive approach would be to consider all the regional water features that are accessible as water storage (e.g. ponds, tanks and wetlands). To these water features, water saved through drought resistant crops or retained in soil through appropriate soil management practices can be added.

There is a parallel between a social-ecological view of the nexus and agro-ecology, which is an approach to food systems, attentive to people, ecology and agricultural practices, rather than finalised to maximised production only (Francis, 2003). Agroecology is based on local ecologies and practices in order to restore ecological functions without reducing production, thus requiring the coordination of local stakeholders (Schalier, 2013). Social-ecological views of the nexus recognise and build on the link between people and their practices, and ecology, thus moving from an idea of resource security to one of resource stewardship. This applies to UA,
a practice that is carried out at small scale, within an urban context, with patterns of resource usage that differ from industrial agriculture. The following section examines UA and its assessment frameworks to then return to capitalise on the findings outlined in this section.

3. UA: frameworks of assessment.

UA can generate multiple benefits. The social gains derived by considering people as beneficiaries of UA are perhaps the most frequently referred to. Gardens help overcome loneliness and exclusion and develop horticultural skills, feelings of happiness and sense of self-worth (Van Tuijl et al, 2018; Armstrong, 2000; Mourao et al, 2018). The physical act of gardening also helps maintain fitness, improve mental health and can lead to more healthy lifestyles (Roberts and Shackleton, 2018). UA has been seen as a potentially untapped resource in terms of reacting to the food needs of a burgeoning, city-based world population (CoDyre et al, 2015). In the abundant literature on UA, productivity as a benefit is discussed (see Garnett, 1999 and Ackerman et al., 2013) to a minor extent.

Although official figures are not available, UA is a phenomenon that is in expansion and increasingly recognised in urban policies as part of the urban green infrastructure and urban food systems. Various authors have developed methodologies to examine urban farm or garden performance and potential. Codyre et al (2015) carried out a study of 50 farmers in Guelph, Ontario, to evaluate the productivity of urban gardens in connection with land, labour and capital used. Farmers were asked to compile a diary and a survey was completed to determine how many people in the city had a food garden, to allow for upsaling the data collected. Pourias et al (2014) worked with a sample of community gardens in Paris and Montreal, interviewing 23 farmers and 14 farmers respectively at the start and end of the growing season. Farming Concrete, Harvest-meter and MYHarvest are all online tools. Farming Concrete has the widest scope, taking into account amongst others, what is planted and harvested; how the farm converts waste and the quantity of compost produced; how many volunteers are working in the garden, the amount of time worked and number of attendees at events; perceived improvements in mental and physical health as a result of visiting or working in the garden; and economic data on sales of produce and food donated. Harvest-meter is concerned only with the amount of food produced per garden and the monetary value of that food. MYHarvest is a newer project with little to report so far in terms of findings, but it plans to use data collected on areas planted and volumes harvested of the 40 most popular UK fruit and vegetables. A selection of tools for measuring output is shown in Appendix 2. In addition to these tools, others are available for measuring the health and wellbeing generated by initiatives, which may be relevant to UA. Garden Organic lists these tools in its 2016 publication, ‘Which tool to use? A guide for evaluating health and wellbeing outcomes for community growing programmes’.

Tools reviewed in this section are partial and do not do not take the systematic approach of the nexus tools presented in section 2. Yet, they provide a range of indicators and techniques for data collection that can be useful for a UA nexus tool. The following section discusses these points and presents a framework to assess the UA nexus that builds on them.

4. Discussion: an UA nexus.

Building on the findings from the review on existing tools to appraise the nexus as well as UA productivity, the framework for a UA nexus proposed below includes social factors and is structured following four principles.

The first one is that people – in terms of social activities connected to farming practices and benefits generated from them – must be recognised as a key factor, together with water, energy and food. Generally, urban farmers include in their agenda activities aimed at involving, informing and engaging with local
communities. This is a reflection of a practice that is carried out in a social – rather than natural – realm, and that attempts to reconcile the gulf between the social and the ecological. The identification and quantification of these social activities and related benefits can lead to an understanding of how their attainment can influence production and resource consumption. For example, in a community garden, volunteers carrying out gardening activities and, in the process, acquiring horticultural skills will also learn about healthy diets and can change their diets. At the same time, a focus on social activities rather than on production only, may result in lower yields, if compared to those expected from conventional farms. A tool to assess the UA nexus must necessarily consider these elements and elicit trade-offs between resource usage, production and wider benefits to society.

The second principle identifies material flow analysis as one appropriate for a UA nexus tool, also because it is based on the concept of urban metabolism. This concept views cities as organisms and utilises ecological principles (Zhang, 2013), enabling nature to sustain life through an iterative use of finite resources, to design more sustainable cities. In cities, like in any organism, life is made possible through flows of nutrients (or materials), which are than discarded. An analysis of urban metabolism can be performed at any scale, including city scale (Kennedy et al., 2011). It usually considers flows of materials, water, energy or even food. Covarrubias (2019) is one of the few investigating the social and material flows shaping and connecting the sectors of the nexus with the actors facilitating these connections. He argues that material-focused methodologies need to be complemented with a social flows analysis that pays attention to the daily practice, policies, ideologies, networks or any kind of socio-cultural meaning that influences resource usage (see also Newman, 1999).

The identification of the material flows and related indicators included in the FEW-meter tool was influenced by the traditional definition of the nexus and customised to reflect typical UA practices. For example, indicators for water allow the qualification of different water sources (e.g. mains, rainwater harvested and groundwater) which can be available in cities. Energy inputs are not only accounted for electricity or fuel-operated garden tools but also for trips to the garden site and food transport. Together with water and energy flows, flows of additives such as fertilisers and pesticides are also included. These flows generate outputs such as produce and economic returns from their sale, whenever produce is sold rather than consumed by farmers only. These flows generate also social benefits. Indicators for produce and social benefits are therefore included in the tool and summarised in Table 1. The tool can elicit the impact that UA practices in terms of jobs, outreach through targeted events and collaboration with local groups or local authorities. In addition, the quantification of the embedded energy of the materials used as a support of food production (e.g. timber for raised beds, fences, plastic for irrigation systems, and glass and aluminium for greenhouses) is also quantified as part of the energy flow.

The third principle concerns data gathering and subsequent analysis. Because of the typical scale of UA projects, the UA nexus framework does not utilise macroindicators (broad data compounded at a regional or national level), which are typically used in nexus analyses. Rather, it includes those that reflect the daily practice of urban farming. Urban farmers are asked to collect only data which will have a direct impact on resource usage, with the specific objective to prompt them to reflect on the resource in/efficiency of their practices. Other data is collected by the research team (see Table 1). The analysis for each UA project, will be available on the project’s website. It will provide an indication of the techniques that farmers use in their practices as well as the balance each project strikes between production and public engagement. Since the range of UA projects that will be analysed is wide, including allotments, community gardens and city farms, it will be also possible to compare different types of UA, their resource use and their outputs.

The last principle goes back to the distinction between indicator and process-based nexus frameworks, which was made in section 2. A process-based framework provides a pathway to the attainment of an aim rather
than a quantification of the effectiveness of the nexus. The FEW-meter tool is not a process-based framework although it asks urban farmers to record data over two growing seasons, providing them with analysed data after the first year and asking them to reflect on the analysis, if relevant, in order to improve resource management. The website functions as a data repository, allowing comparison between growing seasons. The iteration of the data collection becomes a process (a learning process), essential for a continuous improvement of resource management.

5. Conclusions.

An UA nexus needs to address with stronger emphasis the social dimension of agriculture and become a Food-Water-Energy-People nexus. This nexus must focus on a smaller scale, looking at single projects in relationship to urban resources. The selection of indicators reflects this change of scale and includes those that can detect behaviour and culture of urban farmers, facilitating or impeding good use of urban resources. An UA nexus also includes the educational and economic impact of UA practice. Existing nexus assessment frameworks are systemic and use a range of methods from which the UA nexus framework proposed in this article draws.
Material flow analysis has been identified as one suitable for the UA nexus. But this will be complemented with qualitative data for social indicators. It is expected that, as case studies will be developed, the links between social benefits and resource usage will become clearer, thus providing an evidence base of the impact of UA that can support the formulation of resource-efficient UA policies.

6. References.


### APPENDIX 1 – A selection of the existing tools to define and implement the nexus tools

<table>
<thead>
<tr>
<th>AUTHORS</th>
<th>OBJECTIVE</th>
<th>NEXUS</th>
<th>INDICATORS OR PHASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daher and Mohtar, 2015</td>
<td>Determining the impact on local resources and land use under different scenarios of food production</td>
<td>Tool 2.0: Water/Energy/Food (Indicator based - Tool with 5 scenarios for different degrees of national self-sufficiency. Stakeholders’ consultation determines priority and weightings)</td>
<td>Indicators mirroring the particular energy and water usage and processing necessary for cultivation</td>
</tr>
<tr>
<td>IAEA, 2009</td>
<td>Nexus determining lands availability for particular productions and the impact on resources, including land, and emissions</td>
<td>CLEW – Climate – Land – Energy – Water (Indicator based / Material Flow Analysis)</td>
<td>• Type of resource; • Primary (initial processing of the resource); • Secondary (externalities) • Transportation and distribution • Final use if the resource</td>
</tr>
<tr>
<td>W4EF, 2015</td>
<td>Identify levels of resource usage between two factors of the nexus</td>
<td>W4EF Water/Energy (indicator based)</td>
<td>Modules for implementation of the nexus. Each module has distinct indicators Water for Energy 1. Access to water 2. Interaction with water ecosystems Interaction with other human needs</td>
</tr>
<tr>
<td>Halbe et al., 2015</td>
<td>Identify optimal nexus strategies using systems thinking tools</td>
<td>Water/Energy/Food (indicator/process based)</td>
<td>Stakeholders consultation, resulting in Causal Loop Diagram to identify interconnections between indicators and feedback loops</td>
</tr>
<tr>
<td>Al-Saidi and Elagib, 2017</td>
<td>Evaluation of the nexus frameworks in terms of effective integration into policy</td>
<td>Water-Energy-Food (process based)</td>
<td>• ability to change current policy debates, • issue and thinking novelty, • practicability and measurability, • clearness and implementation • roadmap</td>
</tr>
<tr>
<td>Gain et al., 2015</td>
<td>The organisation of a structured process within which the nexus can be examined in policy</td>
<td>Water/Energy/Food (process based)</td>
<td>Phases of the decision-making process, which must be iterated: • Agenda setting • Policy formulation • Decision making • Implementation • Evaluation</td>
</tr>
<tr>
<td>Mayor et al., 2015</td>
<td>Develop guidelines for the implementation of the nexus</td>
<td>Water/Energy/Food (process based)</td>
<td>Steps for the implementation of the nexus: 1. Identification, accounting and description of main trade-offs; identifies and characterizes the flows and impacts to detect the main trade-offs and conflicts 2. Analysis of the level of integration and coordination of sectoral policies and institutions. 3. Discussion of the existing and potential strategies to mitigate conflicts and promote synergies: identifies existing mitigation initiatives and provides a discussion on the results of the analysis to identify possible solutions.</td>
</tr>
</tbody>
</table>

### APPENDIX 2 – A selection of the existing tools to measure UA outputs
## PROJECT DATA COLLECTION INDICATORS

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>DATA COLLECTION</th>
<th>INDICATORS</th>
</tr>
</thead>
</table>
| Farming Concrete ([https://farmingconcrete.org/toolkit/](https://farmingconcrete.org/toolkit/)) | Data recorded on a diary | **Food production:** (Crop count / Harvest count).  
**Environmental data:** (Landfill waste diversion / Compost production / Rainwater harvesting).  
**Social data:** (Number of volunteers / Number of participant hours per task / Number of person hours per project (e.g. building a fence) / Skills and knowledge sharing / Reach of programs)  
**Health data:** (Changes in attitude to fruit and vegetables / Good moods in the garden / Healthy eating / Mood of the community about the garden).  
**Economic data:** (Market sales / Food donations). |
| Harvest-ometer ([https://www.capitalgrowth.org/the_harvestometer/](https://www.capitalgrowth.org/the_harvestometer/)) | Online tool | Weight for each crop  
Value for each crop |
| MyHarvest ([https://myharvest.org.uk/](https://myharvest.org.uk/)) | Online tool | Weight for each crop  
Growing area |
| Harvest booklet ([Pourais et al., 2014](#)) | Data recorded on a diary | Weight for each crop  
Frequency of harvest  
Type of preparation (food processing)  
Destination of food  
Annotation on practice |
Food-productive infrastructure: Enabling agroecological transitions from an urban design perspective

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Keywords: greenway; agroecology; landscape ecology; food-productive; biodiversity; connectivity

Abstract

From an urban and landscape design perspective, it is high time to build a complex relationship between the urban and the suburban and the rural - a relationship that is progressive spatial design and ecological processes - in order to construct closed metabolic loops around food and make them applicable to and compatible with environmentally-conscious agricultural production.

To achieve this, we content that it will be of ecological, economic and social advantage for cities and the countryside if green infrastructure concepts embraced food as a subject. Green Infrastructure, if food-productive, can be the spatial enabler of agroecological processes. Selecting the spatial landscape typology of the Greenway as our example, we suggest a “food-productive greenway” underpinned by the design concept of Continuous Productive Urban Landscape (CPUL) and aiming to expand the ecological capacity of traditional greenways by reorienting them towards food production and urban food system provision.

We will discuss this new ‘hybrid infrastructure’ looking at three different space-planning functions - landscape ecology, landscape productivity and landscape social functions - with the aim to generate recommendations for urban planners to consider food-productive urban infrastructure as one of the keys towards a liveable post-carbon city.

1. Introduction

The recently published Summary for Policymakers by the UN’s Intergovernmental Panel on Climate Change (IPCC) has made it very clear: the negative impact of industrialised agriculture on climate change is paramount (IPCC, 2018). Loss of biodiversity, nutrition and health problems, depletion of resources, to name but a few, are becoming more and more serious in the nexus between rural and urban. Approaches from many directions are needed to tackle these problems in the short and long run, one of them being spatial considerations, given that land will always form a key basis for food production and food system provision.

Due to continued urbanisation, accelerated urban development is sprawling into the peri-urban agricultural land causing the fragmentation of the urban and the rural and affecting its biodiversity, connectivity and productivity. Additionally, intensive industrialised agriculture around cities has led to less accessibility between the urban and the rural. This means that the increasing urban population has very limited access to the surrounding countryside, particularly in terms of everyday recreational possibilities and despite the importance of access to green space for health and recreation being widely acknowledged (Haaland et al., 2010).
1.1 Cities and green infrastructural landscapes

In this paper, we put forward the proposal for urban and landscape planners and designers to finally cast aside compartmental thinking and join forces in order to find practical and desirable solutions towards more sustainable urban food systems.

We content that it will be of ecological, economic and social advantage for cities and countryside if green infrastructure concepts embraced the food subject. Green infrastructure concepts are at the forefront of revaluing the role of “nature” within urban ecological and metabolic processes. Green infrastructure, if food-productive, can enhance this and be the spatial enabler of agroecological processes.

Thinking agroecology in parallel with urbanism has the potential to leave behind the traditional divide between the rural and the urban and between urban and agrarian industries, whose many interlinked environmental costs have long been overlooked (Forman, 1986). It is time to build a complex relationship between the urban and the suburban and the rural - a relationship that is progressive spatial design and ecological process at the same time - in order to construct closed metabolic loops around food and make them applicable to and compatible with environmentally-conscious agricultural production.

1.2 Re-definition of Greenways as Food-Productive Greenways

Selecting - from a variety of existing green infrastructure concepts - the spatial landscape typology of the Greenway as our example, we suggest a “food-productive greenway” theoretically based on the design concept of Continuous Productive Urban Landscape (CPUL) (Viljoen 2005) and aiming at expanding the ecological capacity of traditional greenways by reorienting them towards food production and urban food system provision.

Greenways have been defined as linear corridors that improve environmental quality and provide for outdoor recreation (Little, 1995). They are regarded as actors in the protection of the ecosystem and bridge and connect rural, suburban and urban areas from not only a spatial and temporal, but also an urban metabolism perspective (Marull et al., 2019).

Despite there being many different examples of ecological, economic and social benefits of greenways, food and food system issues mostly do not feature as conscious elements of greenways. We therefore overlay the Greenway concept with the CPUL design concept with advocates urban food growing (urban agriculture).

We content that the resulting ‘hybrid infrastructure’ provides an interconnection between the urban and the rural in spatial conceptions and a metabolic relationship between agricultural production and socioecological processes, all of which allow us to put forward the “Food-Productive Greenway (FPG)” as an idea to achieve synergies between existing yet unconnected sustainable infrastructure concepts.

2. (Design) Research method

2.1 Discussing the potential new ‘hybrid infrastructure’

First, we will present differences and similarities between the two infrastructural concepts Greenway and CPUL. We will extract their interface(s) with the concept of agroecology.

We will discuss the new ‘hybrid infrastructure’ – the FPG - looking at three different space-planning functions: landscape ecology function, landscape productivity function and landscape social function.
2.2 Discussing the selection of suitable landscape ecology characteristics

The paper will then discuss two landscape ecology characteristics – biodiversity and connectivity – selected with the aim to extract insights on how the new FPG can become part of an agroecological and socioecological urban transition towards more sustainable cities.

Landscape ecology can provide a conceptual framework for the assessment of consequences of long-term development processes, like urbanisation on biodiversity, and for evaluating and visualising the impacts of alternative planning scenarios (Mortberg, 2006). Our two selected concepts will be studied in order to assess the suitability of a food-productive greenway within an agroecological urban design discourse. This will help to examine the FPG’s space-planning functions from an ecological point of view, using data from literature (where available) or professional judgement.

a, Biodiversity: we will discuss the spatiotemporal heterogeneity of a FPG from the use of surface and vertical space and time and species flow in supporting biodiversity.

b, Connectivity: we will discuss the fluency of spatial and energy flows, nutrient redistribution, metabolic exchanges based on the FPG’s design pattern. It not only binds the surroundings and independent elements, but also means the interactions between nature, human society and ecosystems.

2.3 Assessing the chosen landscape ecology characteristics using two case studies

We will be using two built greenway projects as case studies: Houtan Park in Shanghai, China, and the South-East London Green Chain in London, UK. We will first look at the current state of our two chosen landscape ecology characteristics (biodiversity, connectivity) in these greenways and explore them in relation to their current three space-planning functions (landscape ecology, landscape productivity and landscape social functions).

2.4 Projecting a future ‘food-productive greenway’

Finally, drawing on the case studies, we will project how the current greenways may change were they to become ‘food-productive greenways’ by adopting food system elements / urban agriculture as another of their defining features. We will discuss the two selected landscape ecology characteristics in relation to the case studies’ space potential new planning functions (landscape ecology, landscape productivity and landscape social functions) and conclude with first recommendations for urban planners to consider food-productive urban infrastructure as one of the keys towards a liveable post-carbon city.

3. Selected case studies

The design research underpinning this paper focusses on two greenway designs from China and Great Britain. The results of this research will be presented and discussed in the fourth section.

3.1 Shanghai Houtan Park, China

a, Landscape ecology function

Shanghai Houtan Park was built in 2010 on a brownfield site in which urban landscape, ecological flood control and wetland water purification are working as an integral system. The project is a narrow linear 14 hectare band with all the characteristics of a greenway. Houtan Park can be considered a living agroecological productive urban landscape providing multiple services for nature and society. After construction, the ecological credentials of the site, such as biodiversity and environmental productivity, have been vastly improved.

b, Landscape social function
The site design evokes not only the agricultural society, but also proposes a future ecological society. It is also a reminiscence of the agricultural heritage with crops to create an urban farm reconnecting people with their agricultural history. People enjoy seasonal changes of different food crops from sunflowers to rice to green clover, providing economic benefits and an opportunity for education in areas such as ecology and agriculture.

c, Landscape productivity function

The productive crops are planted with economic output, including wheat, sunflowers, canola flowers, cane sugar. Field testing indicates that 2,400 cubic metres per day of water can be treated from lower Grade V to Grade II standard, which meets the daily needs of irrigation for the landscape, road flushing and other domestic miscellaneous water in the park. The 585 trees in the park absorb 238 tons of carbon emissions every year amounting to a great contribution to climate protection in the area. （Shanghai Houtan Park, China, 2017）

3.2 South-East London Green Chain, UK

a, Landscape ecology function

The South-East London Green Chain (SELCG) was created linking the River Thames and Crystal Palace Park in London. It has improving the connectivity of 300 open spaces to protect them from urbanisation since 1977 and forms a sustainable transport network providing different spaces for the local community to support economic development and quality of life. The SELGC has all characteristics of a greenway and can be considered a continuous urban landscape. After years of development, it has become a multi-functional ecosystem, with better air quality, accessibility to nature and rich biodiversity.

b, Landscape social function

The SELGC has established cooperative relationship with local schools and functions as an outdoor classroom. Public facilities have been improved along the route, and different activities, such as sports courses and scenic walking routes, promote healthy living. The SELGC works as a sustainable greenway connecting between the existing green parks, thereby supporting a leisure and visitor economy. Public facilities and activities are developed for the engagement with natural resources for the local.

c, Landscape productivity function

The SELGC promotes sustainable food production within some of its areas by creating new allotment sites and community gardens where local people can plant and harvest their own food together. Productive landscape, allotment sites and community gardens are f.e. created in the open space network of the Bexley area and of Royal Greenwich and Greenwich Park Orchard (South East London Green Chain Plus Area Framework, 2015).

4. Findings and discussion

There are no findings yet because the (design) research is currently ongoing.

5. (Tentative) conclusions

With the urgency of climate action and the negative impact of current food systems being paramount, it is time to re-consider the rural, the suburban and the urban as a whole to increase their synergies in a future-oriented productive urban landscape. Linking existing infrastructural concepts into an exemplary “food-productive greenway”, this paper has discussed its contention from ecological, economic and social points of view thereby focusing on those points most pertinent to urban design and agroecology.
Our findings, still tentative, confirm that the “food-productive greenway” can be a sustainable choice for an agroecological transition with economic production and social benefits addressing urbanisation conflicts and fighting climate change.

References


Who Governs the Food Agenda? Food democracy and power in an American City

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Keywords: civil society, food democracy, municipality, political activism

Abstract

This paper draws on an empirical investigation of the efforts of civil society groups to promote greater food democracy and justice in one US city. Reynolds has noted that in the context of the range of ‘activism’ associated with urban agriculture, it is “community-based initiatives grounded in deep understandings of oppression that have been overlooked” (2016: 17). Moreover, she notes that in the United States “there is lack of municipal policies to support farming and gardening as a beneficial use of public space” (2016: 97). This paper is intended to illuminate the extent of community-based activism in New Haven, Connecticut in order to identify the particular challenges that activists face in advancing a more democratic food agenda even when the municipality is relatively open to their claims. In terms of demography, New Haven has the distinction of being the most representative urban area in the nation- it is more similar to the US average than any other city in America (Holohan 2016). Data was gathered through 28 in-depth interviews with civil society actors and participant observation in organizations and initiatives across the food policy and urban agriculture sectors. Three key findings are identified: (1) The city of New Haven is characterized by a strong communitarian ethos at grassroots level operationalized through nonprofit organizations who strive to advance a food justice agenda (2) The efforts of civil society actors are structurally constrained by the fiscally-weak and resource-poor profile of the municipality. (3) The food justice agenda incorporates a broad church of activists whose goals are not necessarily in alignment creating tension between strategies that de-politicize hunger on one hand, and demands for a re-politicization of hunger on the other.

Introduction and objectives

Tornaghi, in a recent critical review of urban agriculture research, argues that we still lack a systematic analysis of “the geography of urban food cultivation and its relations with the politics of space,” (2014: 3). Many cities are now attempting to address the question of food democracy by challenging entrenched food production, consumption and distribution systems that reproduce inequalities in urban settings, (McClintock 2010; Mansfield and Mendes 2013; Morgan 2015; Partalidou and Anthopoulou 2016; Prove et al.,2018; Tornaghi and Certoma, 2019). There is a considerable body of research on the breadth and range of bottom-up initiatives that frequently model innovation, entrepreneurship and social inclusion strategies through a wide range of urban food initiatives (Lohrberg et al., 2015). Many of these address the serious inequities that have arisen in relation to food that mirror inequities, in wider society. Civil society activists increasingly play a role in the spheres of community food production, community development and ecological education, (Corcoran and Salomon Cavin, eds., 2018). For some sectors of the population, there are problems of access to, and affordability of food even in the richest countries of the Global North. Adapting a case study approach, this paper evaluates the role of civil society initiatives in New Haven, a city made up of a series of neighbourhoods that are largely socially and spatially segregated. High levels of food poverty are reported among the poorer sectors of the population including the working poor (The state of food hunger in New Haven 2017-18). Civil society activism brings a wide cast of actors...
into the food justice space ranging from the pragmatic (such as mitigating the effects of food poverty and its impact on health) to the transformative (re-inscribing the principles of bioregionalism and restituting the local food landscape). The paper assesses the extent to which civil society actors can play a meaningful role in shaping the urban food system particularly in the context of asymmetries of power.

**State of the art and methodology**

On the one hand, becoming actively involved in civil society campaigns and activities can contribute toward developing solidarity and resilience in the face of structural changes in the wider urban economy. On the other hand, reliance on (frequently) volunteer activity places an onerous burden on activists and may ultimately exclude the disadvantaged. The “Do It yourself” ethos that underpins much civil society activity ironically may have the effect of under-playing collective political responses, unintentionally contributing to “austerity urbanism” (Peck, 2012).

Food justice initiatives represent forms of empowerment for civil society: improving the quality of neighbourhoods, implementing fairer working conditions, making local, fresh sustainable produced food affordable to the most vulnerable. The critical literature presents this empowerment as a means of liberation from the sphere colonized by neoliberal relations (Tornaghi, 2016), though the potential for such initiatives to be co-opted and instrumentalized by the state is also noted (McClintock 2014; Tornaghi, 2014).

Some initiatives present an alternative to the dominant economic system, often evolving in the context of a failure of existing public policies. Simon-Rojo et al. 2018 trace the emergence of a quartet of food movements as a response to crisis-induced social disempowerment and deprivation in Madrid following the property crash of 2008. Crucially, these movements while differing in terms of their objectives, strategies and lines of action, unified around the notion of an alternative food network. The movement formed part of a more broad-based political platform seeking to challenge the dominant paradigm of urban development and renegotiate the city’s food policy regime.

Generally speaking however, pathways to urban sustainability, especially articulated at policy level, are frequently aspirational with little practical guidance and few practical examples of transformative strategic implementation. As social scientists we have a duty to interrogate the grassroots experiences of actors on the ground, and to mediate those experiences to relevant policy-makers, through whatever means possible. We can ask difficult questions and illuminate the factors that promote or limit the potential of the food democracy agenda, particularly in relation to social inclusion, citizen empowerment, and systems transformation.

This paper seeks to determine whether and to what extent politicizing the food landscape can help to advance a food democracy agenda in the short-term and more progressive social change in the longer term. The case study city, New Haven, Connecticut has since 2012, hosted a Food Policy Council which provides a platform for a range of voices from across civil society to come together and develop strategic responses to local food democracy deficits. In 2016 the municipality appointed a Food Policy Director, the first of its kind in Connecticut and among just 20 similar jobs (at that time) across the United States. The author identified a range of municipal and civil society actors across the sector and conducted 28 in-depth interviews during autumn 2018. In addition, participant observation was carried out over the same period including volunteering at Soup Kitchens and Community Gardens, attending meetings of the New Haven Food Policy Council (FPC), the Food Access Working Group (FAWG) and the Witnesses to Hunger initiatives.
Results and Discussion

(1) The city of New Haven is characterized by a strong communitarian ethos at grassroots level operationalized through nonprofit organizations who strive to advance a food justice agenda. In so far as there is a driver for innovation and change it comes from the civil society sector, which is dependent for survival on volunteerism and raising funds from government, individual, philanthropic and corporate donations. Most organisations spend a considerable amount of their time grant-writing, advocating and developing “story narratives” to capture the imagination of prospective donors. One respondent characterized this organizational model as a “begging economy.” Invariably, because of the size of the sector and the relatively limited number of donors, there can be competition between organisations for funds. Organisations also run the risk of “mission creep” in their efforts to raise funds, (Reynolds, 2016: 102). Moreover, because funding is always contingent it militates against more long-term or joined up strategic thinking in the sector.

(2) The efforts of civil society actors are structurally constrained by the fiscally-weak and resource-poor profile of the municipality. Reynolds has noted that throughout the US, policy-making that deals with food and agriculture is relatively new for municipal governments and that presents its own challenges in terms of garnering the financial and other supports needed, (2016: 93). The issue of the fiscal weakness of the municipality was repeatedly raised by respondents and at meetings of the FPC and FAWG. While the city acts as a partner on several projects and funds on a small scale, there is deep unease across the sector about the implications of budget cuts and the dire financial straits in which the municipality finds itself. While a food policy directorate exists funds are simply not forthcoming either to properly resource the food policy unit, or to publically fund food growing initiatives. The policy unit has a primarily symbolic rather than a substantive role.

Apart from funding and resource deficits, a deep fissure of inequality is spatially inscribed in the city. Writing back in the nineteen sixties, R.A. Dahl observed that “although [Yale] university is one of the largest property owners in the city, it also happens to be far and away the largest owner of tax-free property.” This he believed made Yale officials sensitive to expressions of local hostility and fearful of becoming embroiled in disputes with locals, (1961: 138) If anything, the university has extended its reach over the city during the last 50 years. Although Yale has worked hard through its extension program to win over hearts and minds, there is considerable unease among respondents about the extent to which the university is “a hoarder of land and capital”; “tied to the colonisation of the city” and “unwelcoming” to the wider community of New Haven.

3) The food justice agenda incorporates a broad church of activists whose goals are not necessarily in alignment creating tension between strategies that de-politicize hunger on one hand, and demands for a re-politicization of hunger on the other. At one end of a continuum groups organize purely around emergency food service provision, whereas at the other end of the continuum, groups are engaging in radical social movement activism.

The state (at both federal and local level) has been reluctant to recognise the political dimension to growing hunger (caused by wider economic inequalities) and has not taken a lead in championing the right to food. Rather it has divested itself to a significant extent of responsibility for food insecurity and that responsibility has shifted to the civil society sector. The number of food banks has increased dramatically in the United States over recent decades, a state of affairs that is seen by civil society activists as a stark failure on the part of government.
An emerging literature has focused on how people are coming together to collectively respond to the dearth of provision of their basic needs for housing, food, healthcare, and de-commodified forms of culture (Bresnihan and Byrne, 2015; Di Fieliciantonio, 2016; Vaiou and Kalandides, 2016). Re-framing land in the city as communal rather than private space can be transformative for those involved, allowing for new forms of experimentation in working together that are politically, socially and spatially renewing (Bresnihan and Byrne, 2015). Focusing specifically on a food justice agenda in the contemporary city, Tornaghi (2016) argues for a politics of engagement, capability, and empowerment that extends citizens’ control over social reproduction. This is of particular relevance to people of colour in the city whose lives are deeply impacted by “underlying racial and class dynamics which perpetuate structural inequity” (Reynolds, 2016: 10.) African-American activists and other people of colour in New Haven are particularly aware of the systemic inequities - historical and contemporary - that structure their lives, and see food justice as one arena where it is possible to move beyond what some respondents describe as “food apartheid” and begin to model system change. Such activists - committed to re-politicizing hunger have formed a racial justice platform as well as a food justice guide. They present a radical analysis that causally links food system disparities today to “historically inequitable power relationships that in turn, confer social and economic advantage to some over others” (Reynolds, 2016: 41).

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Agroecological transitions confronting climate breakdown: Food planning for the post-carbon city


Reynolds, Kristin, 2019. Beyond the Kale. University of Georgia, Athens Georgia


Feeding Sustainable Cities Platform reshaping the Portuguese foodscape: Exploring the role of internet and ICTs

Cecília Delgado

Keywords: Actors; Democracy; Foodscape; Platform; Food System; Internet; Civil society; Portugal;

Abstract

The Portuguese national platform - Feeding Sustainable Cities started in June 2018 as a civil society initiative aiming at reshaping the Portuguese food systems. It started with roughly 40 members and only one year later 260 people were engaged, demonstrating a steady increase. This paper explores the following research questions: (1) To what extent internet and more broadly speaking ICTS can be a positive tool to improve food democracy in countries with limited civic engagement? (2) Are permanent engagement, co-learning and trust among food actors, the basic values substantiating a capacity to move from knowledge exchange to a more engaging advocacy capacity at political level? The results of the preliminary research suggest that food actors are willing to be better informed. However, they feel the need to broaden the debate through democratic horizontal exchange able to bypass power asymmetries which is proved to be facilitate by internet. In conclusion, in spite of the significant role played by this platform on building trust based on co-learning among national food actors, it seems to be still too soon to conclude that it can move from a multi-stakeholder to co-governance food movement.

Background of recent food and agriculture movements in South European Countries – a closer look on Portugal and Spain

The report “Portuguese Nonprofit Sector in Comparative Perspective” (2008) gives an overview of civil society's organization's workforce as a percentage of the active economic population based on data from 38 countries, including Portugal and Spain. The leading countries are Netherlands (14,4%), Canada (11,1%), Belgium (10,9%), Ireland (10,4%), United States (9,8%) and United Kingdom (9,5%). France (7,6%), Norway (7,2%), Sweden (7,1%) and Germany (5,9%). Interestingly enough those countries are steering Agriculture and Food movements among the most advanced “food democracies”, as Canada, United Sates or the United Kingdom illustrate. On the other hand, Southern European countries such as Portugal (4,0%), Spain (4,3%) and Italy (3,8%) rank well below average (7,4%). This might contribute to explain why such countries had weaker food related movements and only in recent years started to follow similar food paths, at great speed, tending to catch up the ones with a higher density of civil society organizations.

Notably, Portugal and Spain are somehow facing quite a similar expansion. Roughly speaking two platforms were created since 2016 in Spain, and one in Portugal– Feeding Sustainable Cities being launched in 2018. The “Right for Food Spanish Observatory” was created at the end of 2016 and has been active ever since.

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2 Countries listed on the report - Netherlands, Canada, Belgium, Ireland, United States, United Kingdom, Israel, France, Norway, Sweden, Australia, Germany, Finland, Austria, Argentina, Spain. Japan, Portugal, Italy, South Africa, Egypt, Peru, Republic of Korea, Colombia, Uganda, Kenya, Tanzania, Czech Republic, Philippines, Brazil Morocco, India, Hungary, Pakistan, Slovakia, Poland, Romania, Mexico.
The “Agroecology cities network” was founded in early 2017. Unlike Portugal national platform that explicitly aim to gather all actors and sectors related to the food system, Spain food networks are specific food actors based: cities on the one hand and academia on the other. Briefly, both countries share the same civil society weakness backgrounds and the same challenge: how to feed national food movements in countries without food democracy tradition.

**Portuguese platform Feeding Sustainable Cities started from an external trigger, but as being strongly growing since**

The Portuguese national Platform Feeding Sustainable Cities is a civic society movement that started on the 26 of June 2018 with 40 members. Today it comprises about 260 members due to a snowball process of member’s affiliation and a growing interest in the food issue. RUAF Foundation working session with Portuguese Municipalities on April 2018, was the external triggers that facilitated the launching of the Food Platform. Basically, it led to a public commitment of keeping the debate on food and agriculture more permanently open and fueled by different voices. The challenge was taken by three women with complementary skills and knowledge on the various aspects of what food entitles as well as interpersonal relations and communication skills.

Data from November 2018 based on 94 members at that time, shows that a majority of members are from central and local governments (39), third sector and civil society represent (27), academy (20), public sector (4), international organizations / FAO (2) and (2) were institution representatives. In November 2018 an online survey was launched in order to define members priorities. The survey, answered by 35 members (from the 94 members at that time), is showing that members priorities are: 1 - National best-practices sharing; 2 - Dissemination of national events; 3 - International best-practices sharing; 4 - Extension of the network to other food chain actors; 5 – In-person meetings and visits of initiatives. In short, members are mainly seeking to better know what other food actors are doing, to better know as well each other and to build a common understanding on food and agriculture issues.

**State of the art on ICT contribution**

Literature review is very clear on the contribution of “horizontal learning” a central concept within popular education, which involves ‘democratic communication on the same level (… and the intention to move towards) non-hierarchical and antiauthoritarian creation rather than reaction’ (Sitrin 2006). Additionally, research has shown evidence of the beneficial effects of Internet use on engagement (Kim et al. 2004). Studies on internet impact on political engagement, are showing that Internet’s interactivity, diversity, flexibility, speed, convenience, low cost, and information capacity potentially allow the public to become more knowledgeable about politics and government—a first step toward greater participation (Norris 2001). Online communication has also been found to be more heterogeneous with regard to physical factors such as race, gender, and age (Rheingold 2000). Nevertheless, other studies are showing that those who were civically engaged before the Internet were more likely to adopt the new technology (Jennings and Zeitner, 2003), which can be a challenge for a balanced participation of all the food actors and sectors and considering their quite different mastering of ICTs.

Those observations led us to ours research questions: (1) To what extent internet and more broadly speaking ICTS can be a positive tool to improve food democracy in countries with limited civic engagement? (2)

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6 We are working on the update of data members profile. Expected to be available late 2019.
Are permanent engagement, co-learning and trust among food actors, the basic values substantiating a capacity to move from knowledge exchange to a more engaging advocacy capacity at political level?

**Analysis of email exchange flow: preliminary lessons**

Beyond its swift expansion of the national platform membership is important to understand if and why (1) more members mean more knowledge sharing and; (2) who are the most digital active members. Results are showing that (see table 1) in spite of members affiliation increase the curve of emails shared is quite flat, meaning that more member doesn’t involve more information shared by all. Although could mean that different members are participating in the sharing of information. This needs further research.

**Table 1** – Platform Feeding Sustainable Cities – N.º of Members vs. emails and topics shared from July 2018 to May 2019. Source: Author elaboration 2019

<table>
<thead>
<tr>
<th>Month</th>
<th>N.º Members</th>
<th>N.º emails topics</th>
<th>N.º emails shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018 - July</td>
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<td></td>
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<td>August</td>
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<td>September</td>
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<td>October</td>
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<td>November</td>
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<tr>
<td>December</td>
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<td>2019 - January</td>
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<tr>
<td>February</td>
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<td>March</td>
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<td>April</td>
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<tr>
<td>May</td>
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</tbody>
</table>

What do we know about members’ profiles? According to available data, half of the 10 most active members, five are scholars, two belong to central and local government organizations, two from the third sector and the last being the network facilitator. In total, scholars sent 155 emails, central and local governments 54, and the third sector 29 (see table 2).

**Table 2** – Platform Feeding Sustainable Cities – Who are the most active members since ever. Source: Author elaboration 2019

<table>
<thead>
<tr>
<th>Type</th>
<th>N.º emails shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academy</td>
<td>155</td>
</tr>
<tr>
<td>Central and Local Government</td>
<td>54</td>
</tr>
<tr>
<td>Non for profit Organizations</td>
<td>29</td>
</tr>
<tr>
<td>Network Facilitation</td>
<td>17</td>
</tr>
</tbody>
</table>

**Discussion and further Research**

The already significant membership illustrates fairly well that ICTs and primarily internet were a facilitating tool to connect different actors and sectors. This result is in line with previous research that confirm internet ability to provide individuals with information that fosters discussion and civic engagement (Lassen 2005). The number of affiliates indicates a common and growing interest on food and agriculture. The results of the research suggest as well that food actors are looking for knowledge-sharing and skill-building. On the other hand, results are showing that scholars have been so far leading the knowledge-sharing and skill-building process
i.e. academy is the agent that is building the “shared motivation” through repeated quality integrations that foster trust, mutual understanding, internal legitimacy and collective commitment as referred by (Emerson et al, 2011). In fact, breaking the invisible glass wall of limited “other food members actors’ participation” and get higher exposure, is a continuous challenge for the coordinating group that needs good will, patience and determination. This is being done with direct email, phone calls, or face-to-face meetings, to increase confidence and to get members to be more actively involved. To smoothen power asymmetries and balance participation of diverse actors and sectors of the food system is a challenge for the future. Further research is needed on how to empower actors to participate, primarily the ones with less discursive power, and less technology skills.

In summary, the preliminary results of the on-going and limited research on the recently created platform focusing on the role of internet and ICTs tend to suggest that in Portugal, internet plays an important role on building trust through “horizontal learning” among food actors, by ‘democratic communication on the same level and antiauthoritarian creation (Sitrin 2006). However, results suggest that those who were more technology skilled and civically engaged before the platform was launched were primarily scholars that by and large led the process, benefiting it and benefitted by its development [win-win relation]. Finally, it seems to be still too soon to conclude that the national Portuguese food platform might move along the governance continuum from a multi-stakeholder’s initiative to food advocacy and policy engagement in a co-governance perspective. At this time, such a shift remains something foreseen by some of the platform core members, but not yet in the overall member’s priority agenda. Time will show if this digital platform will be able to intensify connections with more local, national and international organizations, in order to increase its advocacy capacity at policy level.

Acknowledgements

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References


Exploring the food in the urban food-water-energy-nexus: innovations and policies for resilient and sustainable urban development

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Keywords:
Food system, nexus governance, nexus solutions, urban governance, urban planning

Introduction

The Food-Water-Energy Nexus (FWE Nexus) as a new paradigm is rapidly expanding in academic literature and policy documents (Hoff 2011; Al-Saidi and Elagib 2017). The nexus approach is seen as one promising option for integrated resource management at different scales (Dai 2018; Lehmann et al. 2018) as well for urban governance and planning (Artioli 2017; Gondhalekar and Ramsauer 2017). As an analytical tool the nexus approach aims to visualize and assess the interconnections and to identify trade-offs and synergies between the food, water and energy sector (Albrecht et al. 2018).

Aims and objectives of the paper

In this paper we present first results from the international SUNEX research project (Sustainable Urban FWE Nexus). Taking food as an entrance point we explore which nexus innovations and strategies are already in place and which can be developed within a specific urban context. For this we identified regional nexus challenges in the four case study cities in Europe and the Middle East in a first step. We then elaborated technical and non-technical innovations that address these challenges, discuss barriers for implementation with the final aim of developing policy guidelines for the design of sustainable FWE strategies and governance for urban areas.

State of the art

Recent literature reviews (Galaitsi et al. 2018; Wiegleb and Bruns 2018, Zhang 2019) show that the urban FWE nexus and especially the issue of food underrepresented in the nexus research. However, in the last few years the urban nexus gained more attention in research and practice, whereas the focus was here on urban metabolism (Ramaswami et al. 2012), tools and methods for nexus assessment (Albrecht 2018, Dai 2018) as well as urban governance (Artioli 2017). Many observers regard FWE nexus as a relevant and feasible approach to achieve the goals of global agendas such as Agenda 2030 (UN SDG) and the Paris Climate Agreement (Global Nexus Secretariat 2019) and stress the role of cities as crucial junctures in the nexus and for advancing sustainable development (Artioli 2017, Zhang 2017).
Nonetheless urban spaces faces some specific features such as intense concentration of population, critical infrastructure, high resource use and negative environmental impacts in a small area, which provide obstacles, but as also opportunities for sustainable urban development (Artioli 2017, Heard 2017). For example cities are usually sites of FWE distribution and consumption, but they produce and reuse resources to a lesser degree (Artioli 2017). This applies in particular to the food system, where places of production and consumption became increasingly disconnected due the processes of industrialization and globalization in agri-food sector (Wiskerke 2009). The opportunities of the urban space arise from urban planning and more integrated sector management at regional scale and their potential to reduce the environmental impact per capita, create synergistic improvements in the urban system as well as relink cities with their rural hinterlands (Heard 2017). Furthermore, cities were considered as innovation hubs, where new technologies and ideas came up, and where localized nexus thinking and governance can be tested and implemented (Artioli 2017; Seto and Ramankutty 2017).

Methodology

In a first step we identified regional nexus challenges in the four case study cities in Europe (Berlin, Bristol, Vienna) and the Middle East (Doha). For this we used stakeholder consultations and document analysis. Based on literature, internet research and the workshops we then identified technical and non-technical innovations that address these challenges and discussed barriers for implementing these solutions. The case studies provide variety of natural, climate, demographic and socio-economic characteristics, different consumption pattern and locally available resources as well as governance approaches.

Results

In the case study cities the local research teams set different foci on the urban FEW nexus and elaborated in a co-design process with stakeholders the regional nexus challenges (table 1). A few of them are very specific for a certain area such as water scarcity and food security in Doha, but show also some similarities among the cities such as de-carbonization (Berlin, Bristol, Vienna) or local food systems (Berlin and Bristol). This originate from the adaption and implementation of global scale policy objectives and regulations that relate to global nexus challenges such as the Paris Climate Agreement, Agenda 2030 (UN-SDG), the EU Water Framework Directive or Milan Urban Food Policy Pact at municipal level.

Remarkably, we found in our document analysis nearly no explicit reference to the FWE nexus and also many stakeholders in our workshops were not very familiar with the concept. So we had to introduce the nexus concept and apply it to the specific urban context at the beginning of the stakeholder process.

In the following, we take the food system as an entrance point and focus on nexus innovations with its interlinkages with water and energy in urban contexts. This included technical and non-technical (e.g. social, governance) innovations that are already in place or which can be developed and implemented in future. The identified technical solutions range from low tech (such as dry/compost toilets) to more complex smart or high tech systems such as aquaponics and hydroponic systems or intensive high tech urban agriculture with robotics for food production. The non-technical encompass for example agro-ecological practices such as permaculture and syntropic agriculture, with as well as broader agricultural concepts such vertical farming or multi-functional agriculture or local food chains such as community supported agriculture (Seto and Ramankutty 2016, Lehmann 2018, WS BER, BRI).
### Table 1 Regionalized nexus challenges of the four case study cities

<table>
<thead>
<tr>
<th>BERLIN</th>
<th>BRISTOL</th>
<th>DOHA</th>
<th>VIENNA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Food</strong></td>
<td></td>
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</tr>
<tr>
<td>Regionalization and greening of the food system</td>
<td>Localism /localized systems for food</td>
<td>Food Security</td>
<td>Self-sufficiency in food supply</td>
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<tr>
<td></td>
<td>Spatial planning to include use of farmland (strategies to protect and create spaces for food growing)</td>
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<td><strong>Water</strong></td>
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<td>Quality of the water bodies and drinking water, (urban) rainwater management</td>
<td>Regional/household water efficiency / reduction of leakages</td>
<td>Water scarcity, Regional/household water efficiency</td>
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<tr>
<td><strong>Energy</strong></td>
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<tr>
<td>Energy system transformation / coal withdrawl</td>
<td>Regional/household energy efficiency (incl. residential energy efficiency)</td>
<td>Energy security (potential shortfalls of electricity supply in areas of growth)</td>
<td>Regional/household energy efficiency</td>
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<td></td>
<td>Localism / localized systems for energy</td>
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<tr>
<td><strong>FWE Nexus</strong></td>
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<tr>
<td></td>
<td>Establishment of circular economies</td>
<td>Energy intensive supply (desalination) of water for agriculture, industry and private households</td>
<td>Sustainable urban FEW nexus, overall system efficiency accelerating the de-carbonization of the city</td>
</tr>
<tr>
<td><strong>Other issues related with urban development</strong></td>
<td></td>
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<tr>
<td>Re-communalization of infrastructure (water, energy)</td>
<td>Meeting existing superior standards, social &amp; environmental performance, legal accountability, public transparency, Carbon neutral Bristol 2050, delivering compact cities and promoting urban living across the city</td>
<td>Overall energy and resource efficiency Meeting existing superior standards social &amp; environmental performance, legal accountability</td>
<td>Radical resource preservation Development and productive use of innovations (incl. new technologies) High and socially balanced quality of life</td>
</tr>
<tr>
<td>Climate change / Carbon neutral city</td>
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<tr>
<td>Land use change</td>
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<tr>
<td>Economic growth and degrowth</td>
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<tr>
<td><strong>Focus / entrance in the case study</strong></td>
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<tr>
<td>Food system with intersections with water and energy</td>
<td>Water and food system with intersections energy</td>
<td>Water and food system with intersections with energy</td>
<td>Energy system with intersections with water and food</td>
</tr>
<tr>
<td><strong>Key strategic approaches and documents / (long-term) city visions</strong></td>
<td></td>
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</tr>
<tr>
<td>Berlin Food Strategy, Berlin Energy and Climate Protection Program 2030</td>
<td>Bristol city local plan, Bristol city one plan, Bristol Green capital our future, Good Food Plan for Bristol, Good Food and Catering Procurement Policy (Framework) 2018</td>
<td>Qatar National Vision 2030, Doha Municipality Vision and Development Strategy</td>
<td>Smart City Vienna</td>
</tr>
<tr>
<td>Handlungsprogramm Berliner Stadtgrün 2030, Zero Waste Berlin, Carbon Neutral Berlin 2050, Berliner Nachhaltigkeitsprofil, Smart City Strategie Berlin</td>
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</tbody>
</table>

Source: Own compilation based on first results from document analysis, stakeholder consultations and workshops (WS) in Berlin/BER (n=14), Bristol/BRI (n=17), Doha (n=40), Vienna (n=12)

Other relevant solutions present the utilization of (new) food sources such as aquatic plants and insects for humans and livestock as well as fertilizer for agriculture (Specht et al. 2019, WS BER). Apart from these mentioned solutions the need for changing the consumption behavior (especially reduction of food waste) and of diets towards plant-based diets was emphasized in the literature (Heard 2017) and in the workshops. In Berlin for example the stakeholder discussed the difficulties to change the individual behavior and the imperative for...
political steering instruments such as regulations, taxes, subsidies and labels for (un)sustainable production and consumption practices.

All in all, the innovations identified so far refer to different spatial scales in (plot, rooftop, building, quarter, city, city region) and show different degrees of complexity (single solutions, system solutions). They aim to improve efficiency and sustainability with direct or indirect impact on the other systems, but only few couple the three nexus sectors (e.g. hydroponic). The various nexus innovations are estimated as feasible for improving food security, increasing the efficiency of the resource use, closing nutrient and resource cycles at the urban scale (e.g. nitrogen, phosphorus) as well as connecting the city with its hinterland. Some of the mentioned solutions can be considered as retro-innovations (e.g. permaculture) and are basic elements of broader (urban) planning and design concepts such as green infrastructure, productive landscapes, sponge city, urban metabolism and circular economies. Nonetheless many of the solutions exist in a niche or only as demonstrator in urban space and their impact in the urban FEW nexus and on sustainability remains still vague (Heard 2017, Specht et al. 2019, WS BER, BRI). This presents one obstacle for the implementation and up-scaling. Other relevant barriers are the social acceptance (e.g. entomophagy, sanitary systems), access to land, the establishment of the new solutions in the existing build environment and infrastructures (relating to questions of path dependency, interface design, coupling, de-coupling of systems) as well as financial and legal aspects (Drechsel et al. 2015; Heard 2017, Specht et al. 2019, WS BER).

Discussion, initial conclusions and outlook

In this paper we presented a first stocktaking of urban nexus challenges from four case study cities and studied the nexus solutions from a food system perspective. We found that urban nexus solutions (especially three-pronged or nexus-spanning) are currently hardly available in the studied cities, apart from the options of changing diets and reducing food waste. Against the backdrop of different cultural, political and socio-economic conditions place-based approaches needs to be developed and implemented in the case study cities. They should be accompanied by sector-specific (e.g. food system planning), but also more integrated governance and planning approaches that take into account the different types of nexus innovations and scale issues. In the next steps of the project we apply scenarios and develop also general applicable policy guidelines for the realisation of FWE optimisation within the context of sustainable development goals and climate change. Although the nexus concept was not very present in policy, planning and decision-making of actors of the three sectors in the case study cities, the potential for improving integrated resource management and urban nexus governance for achieving resilient and sustainable cities remains a key opportunity and target and also for this applied research project. In sum we estimate the nexus approach as a valuable analysis tool for research and urban planning, which offers also new perspectives for food system research.

Acknowledgements

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Agroecological transitions confronting climate breakdown: Food planning for the post-carbon city


The role of the rural Open Public Food Markets in the construction of territory

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Abstract

The transition of food asks for the steps of the food supply chain to be reviewed, but distribution also plays a key role in terms of how food impacts social spaces and physical territories. The “no sedentary” rural Open Public Food Markets (OPFM) have been analyzed in the context of the urban environment, in other words, with a mostly city-centered discourse. This paper moves the perspective to the rural context and investigates the role that the OPFM could play in the remote areas which are in decline - despite the current consumer demand for local and more sustainably produced food.

In rural areas, farmers’ markets, specialized food fairs and gastronomy fairs, (managed principally by the private sector), are growing in number, quantity and extension. However, unlike their private counterparts, public food markets, managed by municipalities and, as such, dependent on the political context, are public spaces that swing between being in decline or being renewed and affected by gentrification.

Through semi-structured interviews, primary research, document analysis and direct observations, the “food movements” and the construction of the market public space is observed in the province of Girona and focuses on the rural Ter-Brugent Valley. The findings show the markets are barely considered to be a public procurement and private initiatives are fundamental if they are to survive. These OPFM have lost, in part, their connection with the products and the culture of the place and very few stall holders and/or producers are trying to maintain any kind of local connection with the Ter-Brugent Valley.

The value of this paper is to explore the conflictive narratives on post-productive decline of rural areas in the process of commodification. The potential of the open markets in rural areas will encourage not only the local economy, and thus avoid the increasing phenomenon of depopulation, but will not only promote a network that links urban and rural areas, but also link new-comers and the established commercial social class.

Introduction

In rural areas, farmers’ markets, specialized food fairs and gastronomy fairs, managed basically by the private sector, are growing in number, quantity and extension. However, unlike their private counterparts, public food markets, managed by municipalities and, as such, depending on the political context, are public spaces that swing between being in decline or being renewed and affected by gentrification.

During the 19th and 20th centuries in Europe, public markets were built to provide a public service and respond to the need to regulate food “quality and price”. Since the very beginning they have been the nexus between the rural and urban ambits.
The renewed popularity for these markets that began at the end of the 21st century, along with the zero kilometre and ecological food movement is, in part, a response to climate change concerns as well as a social demand to return to the immaterial and material culture of the “territory”.

With its more than 650 weekly markets and 60 still active municipal market halls, Catalonia is an exceptional example and well worth a study centred on its public role.

Our research investigates the open public markets and the public procurement of OPFMs (Brown, 2002) as a public service. The research addresses whether public markets are public services and what their mission for society today is.

**Food issues: functional and critical perspectives**

There is a wide range of approaches to food which embraces everything from the pragmatic to the critical perspective, and most of these perspectives are embedded with the spatial dimension. The “functional” vision is concerned mostly about how to reintroduce the food issue as public procurement, who needs to manage food policies, who are the public and private players and the different scales that exist depending on who articulates the questions, how the food issue is compelling and conceptualizing the urban and rural relationship, how food and gastronomy are changing sectors within the city according to the city of short distances paradigm. This vision that interplays with the interaction between the city, the regions and food, has focused mostly on the spatiality of food, gastronomy, the political economy of the cities (Parham, 2015; Parham, 2015; Parham, 2019), and sustainable food systems.

This field could be encompassed within the major issue concerning the investigation into the role cities and rural spaces have for sustainability and which affects not only places of production, but also issues such as public health, social justice, energy, water, land use and economic development (Morgan 2009). Scholars are debating how cities at the forefront of the food planning movement are advocating for returning food to its central role in shaping landscape, public and private spaces and investigating the need to develop better knowledge and exchange mechanisms to explore joint solutions to common problems and to disseminate good practices and, for example, proper management of OPFMs.

This operational approach follows the construction of concepts able to explain the dynamics and process of food for supplying the population and how this process could change the use and form of a territory. Food is explained within the frame of the value food chain, connected to the policies or sustainable perspectives which have generated concepts like zero-mile consumption, local and/or ethical consumption. Food is also explained in terms of supply regions and scales or networks. All these forms linked with the spatial dimension has generated concepts like the City Region Food System (Dansero, Pettenati and Toldo, 2017), the foodshed (Peters et al., 2009), and the bio-regional network space. In this perspective of the urban-rural space interplay, the food movements, the interplay between “what we eat” and the urban and rural landscape (Roe, 2016) related to it, are the main concerns, and the food markets today represent the interconnection of these different perspective.

The critical perspective has at least two dimensions. The first concerns the meanings related to food and the social space constructed by its means and the culture shift which moved the attention to everyday life (De Certeau, Giard and Mayol, 1998), its routine and practices in the urban sphere. Food practices have shaped place and the food places have shaped food behaviour and people’s identity. Roland Barthes (1975) explains that food is a system of communication, a body of images, a protocol of usage, situations and behaviour which we can experience in the food place such as a food district or food market. In this setting, food is related to district gentrification (Parham, 2015). The “local” and “authenticity” value is also discussed and debated for its
significance for understanding food geographies (Born and Purcell, 2006) and about how local could add economic value across the different players in the supply chains (Marsden, Banks and Bristow, 2000) and how this value is socially constructed, which brings us to the third nature of food, a mix between social and nature (Marsden, 2012). If we consider that food also has social aspects, this would mean that food markets need to be adaptable to the transformative identity of both social and consumer behaviour. The attempts to fix the meaning of places, the food market in this case, in order to transform the place into a product, (touristic or not) has the possible risk of fixing static identities for places (Masey: 1992:12), meanwhile, even today, part of the attractiveness of the open food market is their character of the “unsuspected” or “surprising” factor linked to the specificity of their social and cultural territory.

The second dimension is related to the “alternative or counter-culture” values and beliefs regarding food, which are related to the contradictions present in the food narrative that shift between the “geography of powers” of the players involved at food markets and their attractiveness in being a “space of resistance” against the codified system where “surprising and spontaneity” have become a value. This alternative culture is represented by the citizens’ movement asking for safer food, a reconnection with food, food sovereignty and ethical consumption (Feuer, 2015; Carrington, Zwick and Neville, 2016). The Alternative Food Network (AFN) to ‘conventional’ ways of food provisioning (Renting, Marsden and Banks, 2003; Whatmore, Stassart and Renting, 2003; Winter, 2004), have been presented as a resistance movement against the fast-food system, questioning monoculture vs biodiversity, quantity vs quality, and the long food chain vs. the short food chain (Maye and Kirwan, 2010).

In this context, food markets and the role of the municipal institution in food systems planning are emergent fields of study. Their contradictions and paradoxes open a debate about whether the divergent narratives on the role and meaning of the food public market as a public service able to define in the frame of all the public service.

The interest in this subject is twofold. First, the food markets embody, on the one hand, the rural roots of the city, and in this sense “distinction” and identity. On the other hand, they are place-based models connected to the environment, food production, local knowledge and local identity, all of which is in continuous transformation. The OPFM has rhizomatic practices and uses. Their functionality is not static and depends on horizontal networks of information, goods and people.

Second, the growing interest in food and gastronomy as pillars of urban policies are one of the main public forces in the policies of food or gastronomy urbanism. Policies that, work on a territorial and urban scale to regulate not only the connection between production, delivery and supply, but also between the place where food is retailed, the food market, and the urban space and its social connotations and networks.

**Methodology**

The case study concerns the 50 weekly open public markets in the rural provinces in Girona, with a special focus on the seven markets in the Ter-Brugent Valley; one such example of a remote rural zone. The OPFMs in Cataloniawere analyzed in 2005 by the Generalitat de Catalonia who published the “Llibre blanc del comerç no sedentari a Cataloniá”(Contreras, 1980), with a mostly economic perspective analyzed by quantitative data. This study has been our basis and was helpful in tracing the evolution of the markets because the municipalities themselves have not kept records or controlled this information. The main goal of our study is to describe the OPFM in relation to the territory. This point is analyzed in two respects: i) exploring where the food is sourced from and ii) discerning the vendors’ weekly route. The data has been compiled from interviews with agri-food stallholders, direct visits to markets to verify the type of product sold during 2016-2017. Although the open
markets also have stallholders selling clothes and household products, the analysis only focuses on the agri-food sector which corresponds to a traditionally more stable sale of products that the consumer needs to be supplied with on a weekly basis. The analysis aims to understand the economic, social, urban and territorial dynamics. Semi-structured interviews with stallholders have been formulated using five fundamental questions: What kind of products do you sell? Do you buy in or produce your own products? Where are you from? Where do you live? Do you attend any other market during the week?

Moreover, to test municipal engagement and support for the open market, and the conflictive power relationships with the local retail shops, we developed a SWOT analysis for the different players, i.e., the administration, food producers, sellers, and buyers involved in the food market. The SWOT analysis’s main objective was to raise awareness, through cooperative work and to debate the present and the future of the agri-food markets and local commerce in the Ter-Brugent area.

**Results and discussion**

In the remote rural zone, the bigger open markets, with more than 75 stallholders, are located in the denser and more populated city. In the rural context, the OFPMs are usually smaller with fewer than 75 stallholders. Most of them, however, have fewer than 25 stallholders and some of them are at risk of disappearing. (Fig.1).

![Fig.1 OPFM in the Girona province- The biggest markets are along the coast.](image)

**Market and demography**

Historically the relationship between markets and inhabitants has been significant and the size of the market was related to the size of the population they were supplying. An analysis of the Ter-Brugent Valley’s demography between the years 1930 and 2017, shows a general tendency towards population loss. (Tab.1)
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Currently the relationship between population size and market size is distorted because, although to some extent the market’s size depends on the size of the population, other factors such as the impossibility of the young family being able to go to the markets during the week, also comes into play. The tendency for stalls to diminish in number is difficult to reverse because the critical mass of potential consumers is neither diminishing nor decreasing.

Today, the presence of e-commerce, one stop shop in rural area make the number of population, number of stall equation more articulated. Market location (in relation to being either on the periphery or in the centre of the town, visibility from the street, available parking, or the presence of supermarkets in the area nearby) and market opening day and hours are also factors to be considered. (Table 2)

<table>
<thead>
<tr>
<th>OPFM Ter Brugent Valley</th>
<th>Nº stalls</th>
<th>Total (2003)</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>greenery</td>
<td>meat</td>
<td>Dried fruit</td>
</tr>
<tr>
<td>1. Sant Feliu de Pallerols</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2. Les Planes d’Hostoles</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3. Amer</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4. Cellera de Ter</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5. Anglès</td>
<td>7</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>6. Bonmati</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>5</td>
<td>9</td>
</tr>
</tbody>
</table>

Table 2. Stalls, their products and the variation of stalls between 2013 and 2017.

**Market: Area of food supply and territorial embeddedness**

The distance from where the product is produced to where it is sold, is usually one of the concerns about the quality of food that consumers consider when purchasing products. The CO2 footprint food makes not only depends on the goods themselves, but also on the journey that the producers or the resellers have to make to
sell their merchandize. The survey shows the producers’ food journey historically maintains the connection the Ter-Brugent Valley has with the Maresme - a fertile plain near the coast covered in market gardens.

The resellers live in different areas of the province of Girona and they basically to buy at the main city where they can find the wholesale markets, Marcagirona o Mercabarna, thus travelling longer distances than the producers do.

These food markets have lost, in part, their connection with the products and the culture of the place. Few producers are trying to maintain embeddedness (Oñederra-Aramendi, Begiristain-Zubillaga and Malagón-Zaldua, 2018) with the consumer and the Ter-Brugent Valley. (Fig.2-3)

Fig.3 The seller/producer journey. They produce the vegetables and fruit in the fertile plain of Maresme close to the Mediterranean, which is nearly one hour by car from the Ter-Brugent.
Fig. 4 The resellers journey. The extension of the origin of the resellers’ products is much larger and more varied.

**Markets and the public procurement**

How to supply food was historically a public procurement but has now been left to the private sector. While EU policies focus on food security, food accessibility or food “sustainability”, in the remote rural zone this is still clearly not an issue. The SWOT analysis jointly carried out with the multiple interviews with those in charge of the municipal markets and the vendors, proved that each municipality treats the market issue distinctly, even when they are located close to each other and the sorts of problems the markets have are similar. Unlike local commerce, which is considered the economic and social power of the towns, the weekly markets are scarcely controlled and little protected by the administrations responsible for their upkeep. From the seventies of the last century OPFM have suffered from discrimination and have always been considered to be a minor activity within local retailing scene.

Both the public administration and the local shop retailer see OPFM as competition from citizens who are not really part of town.

Moreover, communication between stallholders and the public administrations hardly exists and the lack of interest in cooperating has been observed and is conflictive, as in other European situations (Spilková and Perlín, 2013), thanks to the complicated bureaucratic system for obtaining a stallholder’s permit. Moreover, the nonexistence of formal associations formed by local stallholders means there is an absence of unity which, in turn, weakens the public role weekly markets may have.

Immobilism and the lack of a culture of market stallholder cooperation means that there are few joint promotion and dissemination initiatives.
The strengths and opportunities that emerged with the SWOT yet again underscore the social role the OPFMs have. The arguments were not only about the trust that exists between consumers and vendors, personalized treatment, transmission of culture, but also about trust among the community of sellers. Issues such as the quality of the product and the social nature of the commerce, could be improved with focused campaigns engaging stallholders, local retailing shops, the municipality and other public bodies on a provincial and regional level. The alliance between stallholders and the prospect of organizing a Ter-Brugent Market Association would provide more muscle and more united action to deal with the local stalemates. The possibility of developing a set of joint conditions for the Ter-Brugent markets would facilitate the entry of local stallholders into the OPFMs, thus generating job opportunities.

**Conclusion**

The OPFM is a territorial level capillary structure that could participate at the current rural renovation. On contrary they run the risk that the capillarity shrinks to a few bigger markets, located in the larger towns where people can use the market as a “third place” or in towns with tourism and/or where people have more free time to shop at the market.

In this context, the public bodies have an important role to play in understanding the “mission” of the weekly OPFM and need to view this mission from the perspective of being able to include the economic, social, and environmental dimensions. The loss of commercial functions in rural towns turns them into dormitory towns instead of actively promoting the city and territory of “short distance”. Local food retailing and OPFMs need to be considered as the same issue, in order to create an innovative mission related to the territory.

Nevertheless, the problem is not just quantitative, but is also qualitative. The OPFM might offer quality that is appreciated in the perspective of transition to sustainability. The concepts of “local”, “authenticity” and “tradition” have been widely discussed for their political, symbolical and social meanings, and their affinity with idea of nationalistic identity. The first step for promoting the multitier effect of the OPFM may well come from the perspective of transition to sustainability, reducing food and stallholder movement. A process that, until now, has been difficult to observe in remote rural areas where theoretically the relationship inhabitants have with the territory is closer.

**References**


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Can Living-Lab be a tool to foster Food Democracy? An analysis of a territorialised agri-food system reshaping process in France

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Keywords: Food Democracy; Food Governance; Living-lab; Mirecourt; Territorialized agri-food system;

Introduction

The agroecology transition is commonly accepted as a priority to face sustainability challenges. Some authors advocate to radical and systemic transformations to change the dominant agroindustrial paradigm and emphasize that the transition cannot be established by regulatory injunctions (Angeon & Chave 2014). In that context, food democracy (FD) represents a challenge for the transformation of agri-food systems towards greater sustainability, without guaranteeing it. Briefly, Lang define FD as "processes of food governance, at the level of living territories, in which groups of citizens decide on their food choices" (Lang 1998, according to Paturel 2018:18). This concept is thus marked by the need for social groups to acquire the needed knowledge to make informed choices (Lang 1999; Hassanein 2003; 2008; Paturel 2018). Although we observe the opposite trend in the dominant regime (Hassanein 2003 and 2008; Renting et al 2012), we can observe the development of local and alternative initiatives illustrating this definition. Resulting from social movements to link agriculture and food, and a gradual food fact reterritorialization from urban territories and local governments, these initiatives differently linked to market mechanisms, contribute to the reconfiguration of regulation activities (e.g. AMAPs, solidarity purchasing groups, etc.) (Renting et al 2012; Lamine et al 2012; Bonnefoy and Brand 2014). Each time, the renewal of links between actors, exchanges places, reflections, actions and issues’ problematization (Billion et al 2017), tends to reposition citizens as food actors. Thus, two aspects seem to be particularly important to pursue the FD issue: to develop a bottom-up approach and to imply all the agri-food system actors in a collective process to overcome uncertainties and conflicts of values (Hassanein 2003; 2008).

The local food geography appears thus relevant. Already described as the preferred level of actors coordination in the implementation of sustainable development (Lardon et al 2008), the territory is also a mean to develop a systemic and embeddedness approach taking into account local context in terms of living conditions, agricultural and food issues, and territory resources. By relying on its specific characteristics, a territorialized approach allow citizens to appropriate agri-food system issues and to build actionable knowledge (Luederitz 2017). Causes and consequences become thus concrete and make easiest citizens mobilization on.

In this idea, (Urban)Living-labs (LLs) are presented as a relevant approach to support sustainability transition at the local scale (Schilwa and McCormick 2016). LLs are experimental spaces where several actors seek together to co-design, co-create, test and implement innovations (Frantzskaki et al 2018). LLs can be understood as both a cooperative and co-creative approach between a wide range of stakeholders, including citizens, and an arena providing them spaces to experiment with new ways of living on their own territory (Bergval and Stahlbrost 2009).
The question of the relevance of this tool to promote FD and to involve in action citizens in sustainable and territorialized agri-food system construction is thus raising. How this tool is facilitating FD? What are required conditions? Is it just another top-down tool?

Through this contribution, we question the interest of the living-lab approach to contribute to FD by enabling citizens to transform and choose the developments of their territorialized agri-food system.

TEASER-Lab, a living-lab approach aiming to co-build a territorialized agri-food system in North-East of France, is working on such perspective. Since 2017, TEASER-Lab gather actors from different backgrounds (public, associations, and citizens) who are coming together in an equal footing ecosystem in order to implement a healthy and sustainable territorialized agri-food system. This bottom-up mechanism is built on existing agri-food initiatives in the area, projected one, or just interested stakeholders. Not only reduced to an organization of existing wills, it is also a process of co-building: stakeholders involved have defined collectively sets of values and aims, which are mainly fed by pragmatic actions, in order to put words on their commitment to facilitate others actors integration in this dynamic. They have thus developed more or less shared agri-food initiatives based on existing ones\(^7\) in order to give more and more body to it. TEASER-Lab is also trying to create different involvement spaces (actions, reflexion, expression, doing with), and thus stimulating acting power of citizens and stakeholders.

Several materials constitute the analysis basis. TEASER-Lab takes place in an action-research project, where our research unity and its experimental farm are involved. Moreover, we are involved in the living-lab as stakeholders as well as others actors, but in charge of coordination tasks. These positions place us at the heart of key moments in the project evolution as well as in some initiatives by doing participant observations. Our analysis is completed by open exchanges conduct with initiatives actors, and documents related to stakeholders and their project.

Concerning the field, TEASER-lab is taking place in Mirecourt, a little town of around five thousands inhabitants in the western Vosges plain with rural surroundings. Marked by high poverty and unemployment rate, low population density, and a median annual income well below the national average\(^8\), the territory surroundings are also the picture of an intensive agriculture characterized by a disconnected polyculture-polyelevage addressed to extra-territory exports. It is even the case for a part of organic producers. However, the region is recently the site of initiatives to develop organic agriculture and short-circuits combined with significant associative dynamics.

**A territorialized, horizontal, and bottom-up built agri-food system governance in progress**

In line with Frantzeskaki and al (2018) observations, TEASER-Lab is an experimental space where several actors seek together to co-design, co-create, test and implement innovations, in a horizontal way. Collectively seizing and implementing solutions to social issues give stakeholders a legitimacy to act, a “license to operate” (Nevens & al 2013). LL give them a space to create new ways of living according to an iterative process in order to inspire other actors. It provides an arena to define collectively another narrative about territorialized agri-

\(^7\) like shared gardening productions, seasonal/local/organic markets, trying to implement local and organic institutional catering, etc …

\(^8\) Insee 2014 ; DataFrance 2015
food system and about how it could be sustainable on a common basis, and representing thus a governance\(^9\) niche at territorial scale (Ibid).

This illustrates the first FD principle highlighted by Hassanein (2008:290), “collaborating toward food system sustainability”, as it is something requiring collective action and impossible to achieved in an individual way. This is well understood by actors as more and more initiatives and actions are shared, and some actors asset that “If we want to preserve our environment and people eating organic, we have to work together, it’s the only way to progress further” (Farmers association member). Moreover, sharing and implementing collectively initiatives according to the aims previously cited, express a strong commitment to the common interest and to the community good as it illustrates a “willing to go beyond their self-interests to promote the well-being of the community and to recognize the value of mutual support and interdependence” (Hassanein 2008: 291), including environment.

TEASER-Lab is also working as a space of resistance and creativity in which people are coordinating in a different way and give a different form to relations between food and agriculture, and between them and agri-food system issues (Hassanein 2003) than in the dominant food system. Working towards healthy and organic food, working with citizens and with citizenship, for cooperation and synergies creation to be more efficient, are at the heart of the coordination process. Markets mechanisms are still present and used, but they have no central position. Even in an economic and selling perspective, cooperation are emerging between some living-lab stakeholders. It is also in that sense that it is possible to refer to a territorialized food governance (Billion 2017), that is a horizontal (equal footing) and bottom-up (with citizens and from directly involved stakeholders) process.

Moreover, the LL is enabling more FD as it represents a mean for forgotten and commonly non-consulted food system actors on agri-food issues, to have an orientation power on. They are not anymore only farmers, transformers, distributors, or consumers, etc ... as they act as “citizen in the broad and denizen sense of the word” (Hassanein 2008: 289), a stakeholder of a territorialized agri-food system. Therefore, it is also a way to re-politicize agri-food issues at the territorial scale.

Finally, TEASER-lab is participating to improve FD at the territorial scale by giving alternatives of choice to people in their food supply, diversifying sources with credible and affordable solutions facing supermarkets as for instance seasonal/local/organic food markets.

Involving citizens to create local solutions for a better food justice.

People in precarious situation are more excluded of decisions that define the agri-food system as food aid captives and not beneficiaries of classical food circuit (Paturel 2018). To face this, living-lab approach can be a solution to involve these persons in the co-design of a territorialized agri-food system. In TEASER-lab, an initiative aims to empower people in the transformation of the territory by the shared vegetables culture. It is leading by various peoples such as food assistance recipients, allophones and migrants peoples, workers of an establishment promoting the reintegration of people with disabilities through the employment (ESAT) and members of our research institute. These citizens co-design and lead vegetables production in three ways. Firstly, family gardens allow people who wish to cultivate organic vegetables in the way they want. Secondly, there are

\(^9\) Territorialized food governance is understood here as “a dynamic process of coordination (hierarchy, conflits, consultation) between public and private actors with multiple identities and resources (in the very broad sense: powers, relationships, knowledge, status, financial capital) asymmetric around territorialized issues” (Rey-Vallette et al 2011), (translate by authors).
two shared gardens to produce vegetables by and for the community without "attribution modalities". Finally, citizens lead a vegetables’ parcel that is much more mechanized. The vegetables are destined to feed the participants and their families. However, a part of the production is sold both to local school canteens and agro-food chain to cover the costs induced by the seeds or equipment purchase. The season is punctuated by large collective work (plantation, harvest, sorting), co-design workshops (variety choices, enhancement of the organization, etc.) and weekly meetings.

This initiative seems to be a good way to help people to regain food autonomy. TEASER-lab offers the resources to initiate a statuses’ change, from a captive place to an active stance by the creation of a place to experiment new ways of living based on the cooperation. We note that the project permits people to build a new relationship with the territory. On the one hand, it facilitates the meeting of different worlds that never cross each other before. With time and by the confidence building, new ways of solidarity are developed between the persons. For instance, sometimes, gardeners worked together on ones’ parcel to help him weeding his vegetables. Also, ESAT’s workers accepted to stock the plantation of the gardeners under them greenhouse. On the other hand, this initiative helps people to appropriate themselves their territory. Indeed, people create, transform and act on the territory, which allows them to build a territory that is consistent with their visions of how to inhabit the place. To illustrate, this initiative allows migrant people to access to some pieces of land where they can express themselves as they want: one erects a beautiful flag on the top of his garden for an esthetic reason.

Both by the building of new solidarity and by their territory appropriation of, we can say that by transforming their territory, participants transform themselves. It is a factor of health and a step in the building of identity (Canguilhem 1965). This initiative is thus a mean to reconsider citizens as city actors. Teaser-lab creates the frameworks and offers the resources to the citizens to create new ways of living on their territory by a reterritorialization process. It is a new way to define the quality of life on the territory based on actor’s relation, solidarity and sharing.

To conclude, as a project lead at the local scale involving a wide variety of stakeholders, TEASER-Lab is creating connexions between different ways of participation in territorialized agri-food system orientation, answering to FD issues. Its strength is also to allow a pooling process of different agri-food system stakeholders’ issues, especially for those commonly excluded, to define collectively a systemic sustainability. Here, TEASER-Lab implies what Paturel & Carimentrand (2018: 48) described as a FD process, that is to say, “citizens engage themselves in local collectives to exchange their ideas and implement concrete and effective alternatives towards the satisfaction of the general interest”.

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The transformative potential of community kitchens for an agroecological urbanism. Preliminary insights and a research agenda.

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Abstract

A large part of contemporary discussions on sustainable food planning in the Global North is focused on interventions on the food supply chain (i.e. AFN, farmers-consumers reconnections, food miles) alongside campaigns for (individualized) responsible and healthy food behaviors, such as eating local, seasonal and organic, or food waste reduction. Collective, rather than individualized, arrangements for food system transformation (if we exclude those focused on charity and food poverty aid) are however less prominent and under-researched within the sustainable food planning community.

Through an overview of literature debates and some preliminary (mostly exploratory) empirical material, this paper will make the case for a renewed attention to collective interdependencies, and in particular the role of community kitchens as building blocks of a ‘reproductive, resourceful, agroecological urbanism’ (Deh-Tor 2017).

Departing from the extensive (and forgotten) work of Dolores Hayden (1985), the first part of the paper will offer a review of the literature, starting from ideas and contributions developed in the 18th and 19th century (i.e. utopian, feminist, communards, socialist models etc.), such as in Fourier’s work, until more recent debates. In the second part, reflecting on one or more examples of community kitchens in the UK context, and in particular their aims and their socio-political, economic and organizational aspects, the paper will discuss potential and limits of contemporary community kitchens to shaping agroecological behaviours in urban contexts and building viable alternatives to the food regime.

Introduction

In recent years urban food growing and cooking has become the object of intense interest and exploration in community, policy and research contexts - particularly in the cities of the Global North. Urban communities’ interest for gardening, food cooking and food sharing has been documented in connection to a number of trends: the revitalization of disused urban spaces, the desire to reconnect to their neighbours, the rediscovery of the pleasure of gardening, ecological concerns for food miles and food quality, or simply just the need to provide food in difficult times.

Within this context, a relatively smaller attention has received the realm of collective food preparation and consumption. Existing research (and policy) in this context has been predominantly focused on two areas:

- reskilling programmes in food preparation (i.e. Eat Well program), which are largely targeting vulnerable individuals rather than food outlets or communities, and tend to reinforce the general approach that food provisioning - particularly healthy eating and non-wasteful behaviours - is an individual responsibility;
the use of food surplus and food waste for the provision of food to vulnerable individuals, such as through the creation of community pantries, pay as you feel cafes, community shops, and social supermarkets (Saxena-Tornaghi 2018), as a way to tackle simultaneously wasteful food chains and urban poverty.

This paper aims to move away from these two predominant areas of research: we explore emerging collective and community kitchens that are linked to self-growing of food (hence do not -or not exclusively- use surplus food) and that are focused on collective practice and community empowerment.

Our interest for the self-growing aspect of food sourcing in community kitchens is related to our embracing of the agroecological ethics of soil stewardship and farmers sovereignty, aspects which are largely disregarded by conventional food approaches, and especially by wasteful and farmer-screwing supermarkets approaches to food sourcing.

Our interest for the collective aspect of food reskilling and empowerment is rooted in understanding of food as a central ecological and metabolic practice, which requires a sympoietic approach (Haraway 2016), the recognition of our entanglements with others (humans and non-humans) for the production of food and the reproduction of knowledge and life.

Feminist approaches have historically and systematically stressed the importance to think and build collective approaches to food as ways to decolonize these practices from patriarchal, extractive, productivist and oppressive regimes (Federici 2019, Hayden 1985, Puig de la Bellacasa 2017).

Within this framework, the exploratory empirical research illustrated below interrogates the potential of community kitchens to become building blocks of an agroecological urbanism (Deh-Tor 2017): of social arrangements for urban life in which food is not a commodity among others, to be allocated on the market on a first-come-first-served-basis, but rather the core of our ecological and metabolic entanglements with nature, and the basis for our survival.

The remaining of this paper is structured as follows: in section 2 we provide an historical overview of the debates and contexts of community kitchens. In section 3 we briefly present the methodology used to select the practices discussed in this paper. In section 4 we present a preliminary analysis of these practices. In the 5th and concluding section we highlight some tensions, further research questions and draw some conclusions on the potential role of community kitchens for an agroecological urbanism.

A brief history of urban community kitchens

The idea of community kitchen has its historical roots in the 18th and 19th Centuries’ debates around the commons, especially those related to ‘social reproduction’ - or the making and maintenance of life- which were put into practice through communitarian dwelling, cooperative housekeeping and consumers/producers cooperative.

One of the first highly provocative theorizations in this field are signed by the French philosopher - and co-founder of utopian socialism - Charles Fourier. He proposed the phalanstères as an alternative collective housing characterized by the lack of private spaces and designed to produce a shift from the nuclear family to communitarian ways of living. The fourierist ideas of communitarization of food practices - and living - inspired experiences worldwide especially under the influence of feminists and socialists in the United States, liberals and
nationalist governments during the first World War in England and the Soviet elites which was trying to shape a cultural change- ‘novyi byt’ or ‘new everyday life’ - through the built environment, like the kitchens (Ruscitti Harshman, 2016). The brief overview that follows below is largely taken from Dolores Hayden’s exhaustive work “The Grand Domestic Revolution” (1981), where she explores the cooperatives and communitarian experiments realized in the US between the second half of the 18th and the beginning of the 19th century, as part of a broader movement for women’s emancipation and the collectivization of reproductive work.

Fourier, the phalanstere and communal households

Charles Fourier’s (1772-1837) revolutionary and feminist ideas on housing design were part of a broader critique on the mercantile culture and bourgeois society of his time in France and of a greater project for a new economical and political organization that would lead to liberated ‘passions’ and women, and to egalitarian stateless societies. In his vision the private dwelling was one of the greatest obstacles to improving women’s position in civilization; for him, improved housing design was as essential to women’s rights as improved settlement design was to the reform of industrial workers’ lives. The communal household, or phalanstere in which a diverse group of people (about 1600 individuals) would live together according to affinity rather than family units, was based on the collective care of all tasks - including food preparation - needed for their survival and thriving, and was described by communitarian socialists as “a miniature of the world that at once domesticated political economy and politicized domestic economy” (Hayden 1981, p. 33). The phalanstery or “unitary dwelling” was the Fourierist way to overcome the separation and the contraposition between city and country, men and women, rich and poor, by an enlightened arrangement of economic and social resources (Hayden, 1981) and it is one of the earliest political accounts of collective food provision.

Material feminists and communitarian socialists: cooperative housekeeping and public kitchens

About a century later, at a time of intensive political organizing of social movements against an industrial and alienating society, “material feminists” (i.e. Pierce and Gilman) and communitarian socialists (Fourierists and Owenites) criticizing both the spatial and economic separation of domestic work and women’s role in social reproduction, put forward a number of ideas trying to redefine them at the household, neighbourhood and city level. They theorized re-organized communities where household labour and industrial labour had the same weight. Some alternative societies were realized in the mid 19th century in the United States and Europe and they included dormitories, communal kitchens, laundries and bakeries. In many of these experiments members were allowed to have their own family units and private dwellings (with or without kitchens) on the domain. At that time the first utopian socialist colony was also founded in Topolobampo, Mexico, and it represented the transition from the Fourierist idea of single phalanstery housing for an entire community to a broader notion of mass housing with mixed building types and a range of communitarian services in the urban and suburban areas (Hayden, 1981).

Amelia Bloomer, an activist against the isolated dwelling, introduced the idea of cooperative housekeeping but it was Melusina Fay Peirce the one who actually theorized it as a formalised cooperative

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10 The most durable example of a Fourierist phalanstery was the North American Phalanx, realized in 1843 in New Jersey.

11 See Olerich’s fictional city on Mars “A Cityless and Countryless World - An Outline of Practical Co-Operative Individualism” 1893

12 See the Brudenhof and Hutterian communities in the United States and Canada
society with membership fees, whose goal was to centralise and collectivise the work among groups of 12 to 15 women, by creating a dedicated building with shared facilities, employ some of them (or external workers) and charge the husbands for the services, enabling women to improve talents and careers more freely and on a paid-basis (Hayden, p. 68).

These changes in domestic organisation and economic cooperation had deep implications in neighbourhood planning and design, which included sophisticated common building with a wide range of rooms for all the different tasks (pantry/storage, baking, cooking, dining, accounting, sewing, laundry, ironing, relaxation, reading, etc.) and movable walls, as well as simplified kitchen-less houses (ibid. p. 69). Peirce and a group of women started to pilot this initiative in 1869, in Cambridge, MA, but failed three years later, largely under the oppression of their husbands.

A further evolution of this idea came through the work of Ellen Swallow Richards (a scientist at the MIT) and her assistant and nutritionist Mary Hinman Avel who strongly fuelled a scientific approach to domesticity and tested a model of public kitchen, inspired by popular kitchens in Europe (p. 157). They tested and advertised their approach by actually running a kitchen at the World Columbian Exposition of Chicago in 1893, where they fed thousands of visitors. One of the context in which the public kitchen was implemented was the social settlement houses (social housing) that adopted a cooperative housekeeping model, such as the Hull House in Chicago, led by Jane Addams. Hull House was a project run by a group of reformists who, by settling in a poor immigrant neighbourhood wanted to deeply understand the living changes of these communities, experiment alternatives and lobby politically to devise social reforms.

An innovative residential community with a strong socio-political commitment, they had in fact political influence through the 1890s, lobbying for industrial health and safety and the legal recognition of trade unions. Every night people were dining together and talking about the Hull House so that they could constantly adjust its organization in a cooperative way: one of the improvements was the introduction of a Public Kitchen in 1894, after discovering that most of the immigrants were suffering malnutrition.

At the Hull House cooked food was sold in the Public Kitchen itself and also in the factories to serve the local workers. Hayden underlines the difference from Pierce’s cooperative kitchens and the Public Kitchen: the main aim of the cooperative housekeeping was giving a salary to (middle-class) women just like the ones paid to men for skilled work while Richards and Abel’ Public Kitchen focused on the needs of working women and immigrants, the optimization of the inputs, in order to meet health and economic needs. Some of the reasons for a later failing of the Hull House to survive, were mainly two: on the one hand the skilled professional and reformists - both housekeepers and home economists - remained quite low-paid; on the other hand the attempt for scientific and skilled care created a distance from other collective efforts for spontaneous, non-scientific cooperative housekeeping (Hayden, 1981). The lack of a common cultural ground regarding food was also a limitation for cooking in cooperative ways in large and diverse communities like the settlements.

Probably aware of the Hull House limitations - after living there for three months- Charlotte Perkin Gilman - another key thinker of the time - moved away from the “scientific” approach to housekeeping. She led the material feminists in demanding new forms of collective domesticity in the name of improved motherhood. She popularized the idea of homes without kitchens and towns without homework (Hayden, 1981). The questions raised by Gilman regarded economics and private property; her influence and the enthusiasm about socialized domestic work and kitchen-less housing inspired several new forms of housing between 1898 and 1930.
Ebenizer Howard’s famous garden city idea, which he himself tried to implement in Letchworth (UK), was also designed around collective land ownership, common gardens and common kitchens. The city offered a variety of garden apartments, standard houses, kitchen-less houses, a central communal kitchen and other facilities. The cooperative housekeeping units of Howard’s garden cities provided services to a variety of housing needs: from single parents to childless couples, etc (Hayden, 1981). In Howard’s utopic vision the cooperating tenants shared all domestic work and owned collectively the city, including agricultural lands and public infrastructure, in a financial model that is today known as a land trust.

Nationalists and communists experiences of communalisation of food in the early 20th century

Ideas about communalized food practices have also arisen in Russia by the end of the 19th century due to sanitary and political concerns. The governments of the Late Imperial Russia had to face huge epidemics of cholera, often caused by contaminated water or food. In addition both the late imperial reformers and the soviets, sharing some aspects of their vision of modernity, considered the kitchen a limitation to women’s independence. Due to these political and sanitary urgencies many reformers of the late imperial period started re-thinking the use of kitchens, even if the majority of the Russian population, especially the peasant and urban working class, didn’t even have a space designed as a kitchen in their houses but instead they usually had a multi-functional room (Ruscitti Harshman, 2016). Because of the increasing number of peasants moving to the city, the houses were overcrowded and the kitchens - or multi-use space- started having a social functioning which was discouraged by the reformers afraid of any kind of communalization raised out of their control. In addition to that, the reformers also thought that they would eradicate cholera and other diseases by taking food preparation under their control and creating communal kitchens in the residential areas. There they tried to improve women’s situation by promoting the presence of waged professionals for cooking even if it never happen because of lack of resources (Ruscitti Harshman, 2016).

The same interest for “planned communalisation of food” was shared by the Bolsheviks of the early Soviet period. Due to their priorities - more focused on the class struggle than on gender issues - the Bolsheviks proposed community cafés in working places which achieved both the sanitary goals and the need for better managing of resources in time of scarcity. Later on in Moscow women were hired for professional food preparation inside the individual cooperative houses, eliminating the unpaid domestic labour - but without considering their professional will. In this way they determined the gendering of domestic labour, making steps backwards for women conditions. Ruscitti Harshman (2016) concludes her analyses of communal kitchens between 1890 and 1935 in Russia underlining how both sides tried to control the use of the kitchen for their political and economical purposes but their decisions regarding the communalization of kitchens were extremely top down, limiting their success in time.

In the same years in England many community kitchens were created through grassroots movements of workers as a response to food scarcity and inflation in war time (Evans, 2016). By mid-1918 there were 1000 national kitchens in Britain but one year later they all disappeared. Their origin was in 1914, when the Salvation Army founded some communal soup kitchens for serving nutritious and cheap food to the people: those were mostly run by volunteering working class women. In 1917 the war intensified so the Ministry of Food created a new division dedicated to “mass dining” in the attempt to reduce food inflation. In this phase canteens were created in industrial buildings, making the communal soup kitchens obsolete. Due to the increasing of anti communism they also changed the name of the community kitchens into National Kitchens and the government took total control over them also making sure that private entrepreneurs could run them for economic profit.
The government shifted from encouraging the charity culture to imposing profit-based management, because of the fear of socialist radicalisation during the conflict (Evans, 2016). With the new state control the kitchens were now private businesses with a small grant from the government, and they could get the status of National Kitchens being fully funded only after proving their financial viability (Evans, 2016). In this way working class women found themselves very isolated by the system, and they were not allowed to run their communal kitchens unless they were approved by the authorities. National kitchens really multiplied in Britain in the second half of 1918 since the government made them more appealing than soup kitchens: they were considered “cheap restaurants”. The government standardized the kitchens and the scarce food through a Food Control Committee (FCC) (Evans, 2016). The centralized control on one side made the kitchens very diffused (imposed) all over the country, on the other side the standardization and rationing would make them unpopular later on. The responsible for the “mass dining” policies was considering it in a long-term way to continue providing nutritious food to the people, especially because of the massive unemployment they would experience after the war. On the other side the FCC was very concerned about the public finances, and even the private sector was really against the kitchens. The “fair-play” culture of the private sector and the excessive political control over the kitchens made the National Kitchens disappear after the First World War. They were opened again during the IIWW but only as an emergency measure, hence without the hostility of the private sector (Evans, 2016).

The discourse around the kitchens was historically a political territory and even Richard Nixon and Nikita Chruščëv experienced “The kitchen debate” during the inauguration of the National American Exhibition in Moscow in 1959 (CIA 1959). They were discussing their opposite political visions inside the prototype kitchen that the Americans were presenting at the exhibition, as the example of the capitalist success: a kitchen full of tools and labour-saving devices that, as the American vice-president affirmed, every single American could afford.

The second half of the 19th century was in fact dominated by the capitalist economic boom, which determined the peculiar food culture and behaviours we know well today.

A pilot exploration of community kitchen in contemporary Britain: research questions and methodology

While many contemporary communitarian households or co-housing still retain some collective food growing and cooking facilities (although many have only collectivised the purchase, rather than the preparation of food), the large majority of community kitchens appear in isolation from housing projects and collective living. While in the past community kitchens and communitarian households were largely inspired by holistic socio-political visions, today we see a proliferation of collective kitchens that offer meals in the context of capitalist co-optation of communities (the Big Society idea - what Levitas calls “work for free”), the political acceptance of the dismantling of welfare state services. In the framework of austerity politics we observe an increase of volunteering, charities and other bottom-up activities trying to cover the lack of public interest (and budget) for some services and sectors of the population (Levitas 2012). Most of those activities - either volunteering or social labour - are run by women whose unpaid work is often normalized alongside poverty. The normalization of unpaid work is also considered from Federici (2019) when she describes how capitalism has been re-using the idea of the ‘commons’ instrumentally for promoting unpaid work; she also underlines how women, which have historically been in contact with natural resources more than men because of their primary role in reproductive work, are inevitably more affected by the privatization of the resources and the commons (energy, healthcare, water, land, etc). For the same reasons they are also the ones who can change things, and in fact she calls for a
feminist reconstruction. Federici (2019) describes some examples of communalization of goods (see ollas comunes in Peru and Chile) for responding at economically and socially hard times:

“The first lesson we can gain from these struggles is that the ‘commoning’ of the material means of reproduction is the primary mechanism by which a collective interest and mutual bonds are created” [Federici, 2019, p. 108]

Both Levitas and Federici try to retain some positive aspects needed for overcoming the capitalist societies and the unsustainability of these ways of living:

“we need to overcome the state of irresponsibility concerning the consequences of our actions that results from the destructive ways in which the social division of labour is organized in capitalism; short of that, the production of our life inevitably becomes a production of death for others”. [Federici, 2019, p. 109]

Levitas (2012) invites us to see the Big Society not as an ‘hermeneutic of suspicion’ but as an ‘hermeneutic of faith’ (Ricoeur, 1981) which can inspire what seems utopic today: a world ecologically sustainable and with better conditions of life for the majority of its population.

In line with the spirit of building alternatives from the ground up, and particularly with the intent of contributing to the political, ecological and planning framework of an agroecological urbanism (Deh-Tor 2017) we have embarked in a small pilot research on three community kitchens in the UK (two in England and one in Scotland). Our aims were: 1) to explore kitchens that were openly embracing an empowering rather than a charity-ethos, rejecting the normalisation of poverty, food waste and unpaid work; 2) to understand what they had in common with experiences of the past and whether they would be useful to become bricks of an agroecological urbanism, and 3) to understand critical issues in their day-to-day running and identify a research agenda.

The reasons for implementing community kitchens - and making food production and consumption a collective responsibility - today still have characteristics in common with the past experiences but depend also on the new needs of contemporary cities in times of austerity, overcrowded cities, climate and environmental crisis. The purpose of the research is understanding if communalized food practices through community kitchens are a possible way for overcoming what Federici (2019) defines as ‘sense of irresponsibility’, trying to swift from the individual blaming to a collective responsibilization about food: can community kitchens represent a collective alternative to the food regime, as described by McMichael (2009)? How can they enable agroecological behaviours and increase access to agroecological food? How do they contribute to an alternative society where food, culture and caring are decommodified?

According to our vision of a ‘reproductive, resourceful, agroecological urbanism’ (Deh-Tor 2017) we are interested in community kitchens because of their political, territorial and communitarian dimension bearing in mind also the concept of ‘ethical foodscape’ (Goodman & Maye, 2010) which consist in “engaging critically with the processes, politics, spaces, and places of the praxis of ethical relationalities embedded and produced in and through the provisioning of food”.

The research was carried out by the first author between April and July 2019, using desk research, face-to-face semi-structured interviews, site visits, and online follow-up with the people involved in the practice, as
part of an Erasmus+ funded research-based internship at the Centre for Agroecology, Water and Resilience, at Coventry University.

Looking for ‘agroecological behaviours’ in London, Birmingham and Edinburgh: preliminary insights

The UK is a peculiar context where tackling the topic of community kitchens with a focus on urban agroecology. On the one hand there is an increasing interest for cuisine and a long tradition of allotment gardening, on the other hand a pervasive presence of food outlets selling very cheap, highly processed meals and “junk food” (all features of so called “food deserts”) leading to the third highest obesity rate in Europe (Eurostat 2014). The UK is also facing years of severe cuts in the welfare and an on-going social benefits reform, which increasingly leads a big part of the population to food poverty. Charity-based initiatives, such as food banks and soup kitchens to feed low-income and homeless people with free or ‘pay-as-you-feel’ meals are multiplying, and while these are certainly important (and sometimes the only available) emergency measure, they don’t represent the eradication of the problem.

On the contrary, given that they often rely on the wide availability of food surplus taken for free from the retail sector (relieving supermarkets from the cost of disposal to landfill), they indirectly support wasteful stocking choices and a regime of oversupply enabled by excessively low prices paid to farmers. Another contradiction of charity-based kitchens and food provisioning is that they mostly count on unpaid labour (provided by volunteers), or random grants which limits their potential to evolve. In looking at the three community kitchens described below, we took inspiration from Di Vito Wilson’s (2012) critique to the Alternative Food Networks discourse, searching for experiences that, while grounding their food sourcing at least partially in self-grown food, allow a transformative politics open to all.

South Norwood Community Kitchen: Humanizing aid food within the community

The South Norwood Community Kitchen (SNCK) in London serves free meals every Saturday at noon in a space provided by the local Baptist Church. They differentiate themselves from a soup kitchen (in which they worked in the past), because they aim to create a warmer and more comfortable environment for the local community to meet and socialise. The menu combines sophisticated and nutritious meals, cooked by volunteers using supermarket’s surplus food collected every Saturday morning but they recently started growing vegetables in a council allotment. The SNCK is focused on de-stigmatization of food poverty and community-building and for these purposes they are in the process of relocating to a council venue shared with the other local social enterprises where they already have access to an allotment for self-growing. Using both the supermarket’s surplus food and the self-grown food (people from the community who already have an allotment offers their vegetables for communal use too) they will be able to serve meals on a daily basis with the scheme of ‘pay-as-you-feel’, still maintaining the Saturday’s lunch for free. In the new venue they will also organize collective cooking and food growing sessions opened to all the community, promoting communalization of food

13 According to Oxfam and Church Action on Poverty 20,247,042 meals were given to people in food poverty only in 2013/14 by the three main food aid providers (+54% compared to the previous year).
14 Kitchens supported with continued public funding are exceptions. See ‘Cozinha Popular da Mouraria’: a community kitchen in a central area of Lisbon designed and realized by a woman through public funding for urban regeneration projects (Bip/zip 2011).
15 Due to a policy of the City of London the ‘pay-as-you-feel’ scheme allows social enterprises to get public fundings.
16 See ‘Socco Cheta Community Hub’
as a way of mutual care, moving away from the idea of mere food aid\textsuperscript{17}. Having a proper space they would be able to run other ‘pay-as-you-feel’ activities not exclusively related to food in collaboration with other enterprises, for example providing clothes and a community cinema. The SNCK was firstly known by the local people of Croydon (not only low-income), but after a while people from different areas of London started to join their Saturday lunches. Decisions are regularly discussed and shared with the volunteers and the community; their aim is to turn food into both their produce for the regular meals and a commodity for allowing other activities for free (cinema, Saturday’s lunch, etc). However, while putting their efforts on the community-building and humanized aid, the SNCK doesn’t question their dependency from the industrial surplus food and from the ‘pay-as-you-feel’ scheme which inevitably feeds the vicious cycle of overproduction and low paid/free work: they consider volunteerism a necessary stage for creating the social enterprise.

\textit{The Forest Cafe’: Decommodifying art through ethical food}

The \textit{Forest Cafe’} in Edinburgh is a project with a clear political commitment to anarchism and was founded by a group of friends for promoting local artists and for making independent art accessible for free to everybody, particularly the local community. To keep themselves independent they don’t accept any funding and they rely solely on the café’s incomes to cover all their costs. Being anti capitalist and environmentally conscious they use only local, organic and ethical food\textsuperscript{18}, and they serve vegetarian and vegan meals. The food comes mainly from a workers-owned cooperative of local products and from a social bakery\textsuperscript{19}. Their commitment to vegetarianism started years ago for bureaucratic reasons: they didn’t have the necessary conditions for passing the hygienic controls asked for meat. Now environmental justice and ecology are consciously taken into consideration and a matter of activism within the Forest community through food consumption, talks and other activities (composting, recycling, etc.). The volunteers are organized in five working groups (kitchen, administration, graphic & exhibitions, events, HR) and everyone can join one or more of them. The Forest always encourages new people to join them by running a variety of activities proposed by the community itself. For promoting community empowerment and politicization they have a regular meeting every month for discussing openly about organizational, political and social problems they experience (gender-related issues, work time, etc). They constantly struggle with financial and organizational problems but their autonomy is also key for their political positionality. They do not accept funding for two reasons: firstly they want to keep the organization out of hierarchical processes and in control of the decision-making; secondly they want to be resilient relying exclusively on their resources without taking the risk of expanding due to funding and then shrink when they come to an end. They survived over 20 years in this way. Legally they are a consensus based non-profit charity where the ‘pay-back’ of volunteering is the independence and resilience in time despite the financial problems.

\textit{Kingstanding Food Community: Enabling community empowerment through food and care}

The third case study is the \textit{Kingstanding Food Community (KFC)}, a charity-based project operating in a disadvantaged area of Birmingham. The KFC is also focused on community-building and caring but has a strong pedagogical dimension. Through free workshops and activities they aim to empower the community: even if is not always possible to explicitly discuss people’s poverty conditions they try to enable their independency teaching them how to cook with a low budget and how to grow their own food. It was created 6 years ago with

\textsuperscript{17}Normally accessible only in precise time/days and in venues which is not opened to the community otherwise.

\textsuperscript{18}By ethical food we refer to local enterprises products which guarantee workers and environmental rights.

\textsuperscript{19}They hire people with learning difficulties.
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a specific focus around healthy food for low budgets but due to public cuts to the national mental-health service their mission changed, now focusing on mental-health. They still give great attention to the food since they run a café opened 3 days a week serving very cheap meals. They take care of local low-income people through free workshops and other activities of caring: some people spend everyday of the week at the KFC. For 9 months they also got funding for a group of children between 10 and 16 years old, which are normally taking care of a parent/relative: the Young Carers Project gave them training for their domestic activities and asked them to run the café every afternoon of the week until the funding finished. Their organization mainly depends on volunteering, a lot of whom are vulnerable people from the community itself and they receive a full training for the tasks they are required. Only three people are paid, even if they used to be more: a wellbeing officer (previously food officer), a person in charge of the administration and a gardener who runs activities and workshops in the allotment and takes care of the compost production for the allotment. Being completely dependent on external funding their project is vulnerable, their resources unpredictable and limited in time.

**Conclusion**

As we have seen above, the three community kitchens we have presented above share the aim to offer alternatives to the existing mainstream options for food access in the city. While they are widely different in terms of their ecological, social and political models, they all manifest a number of contradictions. We reflect on these in turns, to then return to what agenda we can imagine, taking research on community kitchens forward.

- The ecological considerations along the whole cycle from seeds to produce, to food and back to soil are rather limited and inconsistent. Locally sourced or self-grown food is sometimes used alongside industrial food surplus, and ecological considerations around soils and composting were also not systematic, or not necessarily coupled with a radical stance on using only agroecologically-produced food.

- Regarding community empowering, it was difficult given the exploratory character of this research, to assess the extent to which these projects relate to the territorial milieu and its community. While we know that some were quite focussed on providing space for the community to meet (especially SNCK and to some extent KFC), charity or social economy narrative were still playing an important part in the organisation of the initiatives. It is not yet clear to what extent the users of these facilities are part of a local community involved in self-provisioning, self-reskilling, and mutuality. In at least two cases, food was partially or totally used as a commodity to fund other aspects of the project such as free cultural events. While community self-organisation around alternative cultural facilities is surely important, the treatment of food as a commodity defeats the spirit of the community kitchen as an empowering tool in the sphere of food sovereignty.

- In assessing the political engagement and transformative action against the food system, it is not clear what political positions these kitchen have towards the disabling effects of the current food system, and what they effectively aim to transform. Further research should focus in understanding what devices they have set in place for avoiding being co opted into upper classes unorthodox dine-outs, what trajectories for empowerment are they designing (if any) and what is their horizon of action.

While this pilot research has been the opportunity to raise questions more than to find answers, we take these questions as backbones for further research.
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How to Operationalize Urban Food Systems in Planning? A Trans-sectoral Approach

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Keywords: food planning, food infrastructure, resource-efficiency scenario development process, urban food systems, trans-sectoral planning

Abstract

APothukuchi, Kaufmann (2000) pointed out that food systems are low on the planning agenda. Twenty years later, food systems are increasingly adopted in planning. However, operationalizing integrated and trans-sectoral food system planning remains challenging in multiple aspects, especially in light of urbanization. Rapid urbanization condenses rising water, energy and food consumption and wastewater and waste generation. Demand often outstrips supply, recovery of solid waste and wastewater residues accrued by the urban metabolism is low and resources are lost. Outputs of once used resources pollute the environment and pose health risks to local food production. Those responsible often fail to adapt cities’ urban infrastructure system despite multiple opportunities urban areas offer for a responsible resource handling.

The trans-disciplinary Rapid Planning Research Project (2014-2019) focuses on achieving integrated, sustainable and resource-efficient urban food systems (UFS) and trans-sectoral urban and infrastructure planning approach in fast growing cities for its case cities in Asia (DaNang, Vietnam) and Sub-Sahara Africa (Kigali, Rwanda). Rooted in the multi-disciplinary Urban Metabolism framework, research questions include how applying trans-sectoral planning contribute to optimizing resource loops and to ensuring the quality of urban life while reducing global resource dependency.

This contribution provides insights into scenario development by including food as one of the key urban infrastructures. The scenario set-up comprises status quo, a reference scenario based on existing masterplans and a trans-sectoral scenario that harnesses synergies between infrastructure sectors. Using the developed simulation software tool, simulations of key trans-sectoral scenario process chains revealed synergistic effects of managing and re-using urban flows. The UFS benefits from interlinking waste, wastewater and energy generation, reducing cities dependency on external inputs while creating circular urban loops. The applied scenario method supports cities in their strategic decision making and planning process to assess the benefits of an integrated resource-efficient urban food system.
Introduction

In 2000, Pothukuchi and Kaufmann pointed out that urban food system (UFS) issues are low on the agenda of planning. Twenty years later, food systems are increasingly adopted in planning, e.g. London Food Strategy, Vancouver Food Strategy, Berliner Ernährungsstrategie to name a few. However, operationalizing food system planning as an integrative topic for trans-sectoral infrastructure development in urban and regional contexts remains a challenge, especially in the light of rapid global urbanisation. In particular, urban food planning in relation to urban metabolism and synergies between infrastructure sectors water, waste, energy and food flows has not received much attention to date.

Rapid urbanization condenses rising water, energy and food consumption as well as wastewater and waste generation (United Nations 2018). Demand often outstrips supply, recovery of solid waste and wastewater residues accrued by the urban metabolism is low and resources are lost. Outputs of once used resources pollute the environment and pose health risks to local food production. With growing population amid rising affluence and consumer-oriented economies (Ferrao, Fernandez 2013), cities not only in the global South are facing challenges in managing increasing urban material flows. Not recognizing these flows as resources, cities often fail or lack capacities to adapt infrastructure set-ups, despite multiple opportunities urban structures offer for greater sustainable and more circular resource handling. Not least the lack of data on urban flows at different spatial and temporal scales given the complexity and interactions of urban infrastructures hamper integrated planning. This contribution will reflect on how scenario development and simulation methods can support trans-sectoral infrastructure planning including food and strategic decision-making processes based on the findings of a 5-year trans-sectoral research project.

The Rapid Planning Project’s approach in brief

The Rapid Planning (RP) Research Project (2014 - 2019), funded by the German Ministry of Education and Research (BMBF) set out to develop a methodology for “Sustainable Infrastructure, Environmental and Resource Management for Highly Dynamic Metropolises” in support of creating synergies between water, energy, waste sectors and the food system (figure 1). Rooted in the multi-disciplinary Urban Metabolism framework, research focused on developing adapted trans-sectoral infrastructures in response to changing urban systems. One project goal was examining which trans-sectoral infrastructure systems are required to optimize resource loops, reducing global resource dependency and ensures the quality and resilience of the Rapid Planning’s case cities in Asia (Da Nang, Vietnam), North Africa (Assiut, Egypt) and Sub-Sahara Africa (Kigali, Rwanda).

The research project applied an innovative understanding of the urban food systems as part of the urban infrastructure. For the first time, the food system and its components (from production to disposal and valorisation) has been systematically included into the canon of urban infrastructures and considered a central component besides water, energy, and waste by TU Berlin. In contrast to traditional infrastructure systems, food is a hybrid, since it is largely organized by the buying behaviour of private households, therefore by the market, and thus evades the grasp of urban planning despite a range of direct interfaces (Giseke, Brandt, Kasper 201).
As a further methodological component of the Rapid Planning project, TU Berlin developed the scenario process as a basis for scenario simulations to translate its trans-sectoral infrastructure approach by identifying, quantifying and simulating key interfaces between urban infrastructures. Key goal is assisting fast growing cities in their strategic decision-making process on operationalising trans-sectoral infrastructure systems.

**Methodology - The Urban food system as part of a trans-sectoral scenario approach**

The Rapid Planning scenario development process set out to improve the operationalization of urban planning by including food as one of four above-mentioned infrastructures – exploring the question whether trans-sectoral planning leads to better resource management for a given city. Taking a metabolic and systemic approach to food system planning, a wide variety of parameters define interactions between the natural and human environment. When examining non-grid infrastructures such as the urban food system or the waste sector with interfaces to private consumption, municipalities and utilities lack a tangible representation of the added value of trans-sectoral resource use. This is compounded by missing policy frameworks and the perceived high cost of recovery processes not measured against environmental or socio-economic benefits. To fill this knowledge gap, the RP scenario process analyzed and quantified effects of trans-sectoral infrastructure linkages through making underlying key parameters and assumptions visible and measurable; i.e. selected urban infrastructure related input parameters regarding material flows and consumption and generation patterns according to spatial and socioeconomic units and/or how they can be organized more effectively within the urban system.

As a first step in a recursive process, TU Berlin analysed the UFS and its components: production (differentiated into primary and secondary) (Giseke et al. 2015), processing, distribution and access, food consumption and disposal or valorisation. The spatial conceptualisation into various sub-categories of contextualised, spatial typologies provided the necessary understanding for assessing multifunctional land-use structures and related flows within a systemic urban/regional food system.

The trans-sectoral scenario set-up experimented with different benchmarks for each spatial urban agriculture typology as part of the green infrastructure system: testing how much primary and secondary urban agriculture can supply of fruits & vegetables to growing urban populations by using trans-sectoral inputs such as treated grey water for irrigation and organic household and agricultural waste converted into compost for fertilization. Variable quantitative parameters included various food types incl. fruit & vegetables; crop yield (dependent on rainfall/irrigation) and fertilizer demand to quantify trans-sectoral synergies of greywater re-use and compost while localizing physical structures according to local conditions. Given the complexities of a city’s metabolism with its interacting input and output flows, the scenario development process encompassed a number of recursive process steps. Broadly, these can be summarized as shown in figure 1.
The Rapid Planning scenario set-up comprises the (1) status quo, a (2) reference scenario based on existing masterplans and sectoral plans and the (3) trans-sectoral scenario harnessing synergies between infrastructure sectors. Besides numerous assumptions made on possible futures, the trans-sectoral scenario is based on two basic assumptions: 1) a trans-sectoral food system and infrastructure set-up is established in line with modified resource use; 2) consumption and generation patterns adjusted towards more environmentally-friendly lifestyles, e.g. a willingness to separate and valorise household waste. Hence, comparing reference and trans-sectoral scenario outcomes, quantified by the developed simulation tool, a food and urban planning vision can be formed.

**Overcoming the challenges of trans-sectorality**

Current urban planning practices mostly remain anchored in sectoral thinking. Hence, key challenges in operationalizing trans-sectoral food planning include finding a common language and a common understanding of the main interdependencies and interactions of an urban metabolism, key cause-and-effect chains, material and energy flows of defined spatial units and application areas within a given urban environment (demarcated area and its system boundaries) and not least restrictions and limitations. To overcome these challenges, trans-sectoral urban and infrastructure planning requires a recursive process of developing methods and techniques (simulation tool) and of intense stakeholder dialogue between infrastructure sectors, agriculture and urban planning and other relevant actors. In addition, continuous cross-referencing among stakeholders on implementation feasibility, policy congruence and policy expansion potential respectively will be necessary.
The complexity and variety of interfaces of trans-sectoral infrastructure and food planning requires a high degree of coordination and cooperation between involved stakeholders. Over the course of the Rapid Planning scenario process, it took many internal working meetings to identify key trans-sectoral synergies between the different infrastructures (figure 2). Alongside, a series of workshops in each case city were conducted drawing a broad spectrum of local stakeholders. Key objectives included sensitizing for and analyzing material and energy flows of defined spatial units, and discussing possible trans-sectoral scenario options to generate interconnected infrastructures according to the local context. On implementation feasibility, policy congruence and policy expansion potential respectively will be necessary.

In parallel, RP firstly outlines the current situation of the infrastructure structures in its case cities in order to understand the systemic interconnections and to identify data lacks. Then the two mentioned scenarios based on numerous assumptions of specific parameters of urban food production and consumption patterns aim at harnessing synergies between the urban food system and the other infrastructure sectors. To reduce complexity and increase communicability, the following process steps were taken:

- so-called process chains illustrate essential aspects and links in relation to spatial units of the trans-sectoral scenario
- process chains represent an important tool for developing a simulation software within the Rapid Planning team
- so-called simulation blocks as part of the process chains adequately reproduce quantified material flows. Separating (spatialized) simulation blocks and material and energy flows enables a practical approach to complex questions while offering the possibility to adjust parameters in line with changing framework conditions.

The simulation tool allows checking different (planning and management) options and comparisons on the basis of generated quantitative information, as well as measuring trans-sectoral synergy effects between infrastructure sectors on local/regional food production, distribution and consumption while keeping impacts on the environment low and solutions affordable.

![Trans-sectoral process chain of linking the UFS with organic household waste](https://example.com/figure3.png)

*Figure 3. Trans-sectoral process chain of linking the UFS with organic household waste (Rapid Planning Project, visualization TU Berlin: Kasper, Olbertz, Lindschulte)*
Results and Discussion

As part of a more comprehensive trans-sectoral infrastructure planning approach, the Rapid Planning Research Project provides a conceptual framework and methodological assessment for a spatialized and trans-sectoral integrated urban food system. It illustrates the benefits of integrated resource-efficient city/regional and food planning and infrastructure management in urban growth centers as a strategic decision-making tool in early planning phases. The approach is:

- technology-orientated
- considers the specific local context
- facilitates networking and exchanging of (civil) actors and their (social) practices, and processes
- understands the urban food system through spatialized food system models and scenarios as a trans-sectoral, interactive infrastructure.

The RP approach offers new perspectives to support operationalizing food planning. It revealed the urban food system’s importance as a key end-user of re-use of organic waste and wastewater resources, reducing cities dependency on external inputs, creating circular urban loops and trans-sectoral resource recovery. The combination of developing and simulating scenarios by using the RP Simulator allows the integrated modelling of four infrastructures and their possible trans-sectoral synergies for the first time. The scenarios, translated into process chains are means to precisely identify, check and quantify infrastructure linkages and more circular urban metabolic processes within local contexts. The applied approach allows mapping the status quo, identifying potential or missing links and formulating (quantitative) initial situations (e.g. self-sufficiency rate of a city with fruit & vegetables). Furthermore, this approach enables an integrated illustration and assessment of existing plans, e.g. masterplans or sectoral plans, and the formulation of objectives and targets. By comparing scenarios, decisions can be prepared and made. Improving the urban food system’s visibility and measurability is an important step towards its operationalization as part of urban planning.

The scenario set-ups can be adapted to urban change and assessed on different social, economic, technical and environmental criteria. By revealing effects of applying trans-sectoral infrastructure planning through simulating possible futures of each infrastructure sector and the quality and intensity of their interactions - impacts and synergies in relation to urban metabolism, urban development and growth processes can be considered. Thus, the approach serves as a tool to support resource efficient food and urban planning.

Methodology - The Urban food system as part of a trans-sectoral scenario approach


Tools for the ecological transition. A proposal of indicators for the community of Madrid.

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Keywords: Agroecology, Agro-ecological sector, Analytic Hierarchy Process, Community of Madrid, Eco-social transition, Indicators.

Abstract

Agroecology offers complex and comprehensive solutions for the necessary and prevailing eco-social transition and is postulated as a paradigm from which to think the transformation of the agri-food system. Despite being a concept and a series of practices and methodologies that are increasingly booming in the agricultural sector, in the Community of Madrid is far from being recognized and, furthermore, there is a wide debate on their complementarity and/or overlap with organic farming. Therefore, tools are necessary that allow us to characterize how an agroecological project is defined and that also serve as a guide for the transformations that must be made for the agro-ecological transition of the agri-food sector.

One consequence of this lack of recognition is the small number of food production and transformation projects that are considered as agroecological in the Community of Madrid. Under the assumption that the agroecological sector includes more projects than those that recognize as such, the present work has the objective of characterizing the agroecological food production and transformation projects as well as contributing to generate a definition of agroecological practice adapted to the context of the Community of Madrid.

The methodology used for this purpose is based on a system of 34 indicators grouped in 5 dimensions contemplated within the concept and principles of Agroecology: ecological-productive, socio-labor, economic, political-cultural and distribution and marketing system. These indicators are weighted according to the Hierarchical Analytical Process, obtaining in this way a quantitative reference for each dimension that serves as a tool to characterize how agroecological production is defined in relation to its practices and situates the position of this sector in the Community of Madrid.

The results indicate that, in spite of the existing difficulties, mainly in the economic and social and employment dimensions, we find ourselves with a booming sector that presents itself as an alternative for the transformation of the current dominant agri-food system and for the sustainable development of the rural environment.

Introduction

The industrialized and globalized organization way of the agri-food system has generated significant ecological and social impacts in recent decades. On one hand, the energy consumption increasing, specifically fossil energy, has generated the increase in emissions, and its contribution to global change. Emissions due to the whole agri-food system, according to GRAIN, account for 44% to 57% of total global emissions (GRAIN, 2014). In Spain, a fifth of all the primary energy consumed is due to the agri-food sector (Infante-Amate, Aguilera, & González de Molina, 2014).
The homogenization in the animal farming and farming systems of the industrial system has caused the loss of traditional knowledge, traditional farming and breeding systems that generated specific cultural landscapes and genetic biodiversity. All of them are elements that increase the resilience of the agri-food system by facilitating the response and adaptation to external imbalances. Global change is already affecting this agri-food regime, due to the impacts generated by droughts, floods and other climatic changes, both in the production phase and in the distribution over long distances.

To face these and other challenges, Agroecology has been postulated as a new paradigm for a necessary ecological transition, as a way of improving the resilience and sustainability of the agri-food system and as a strategy for rural development and improvement quality of life for farmers (De Schutter, 2014).

Agroecology proposes the approach of the term from different dimensions (Altieri M., 1987) that shape a whole, both when analyzing a farm, and when it comes to building an Agri-Food System. It has emerged as a new approach to agricultural development, resuming and reviewing traditional practices. It is also sensitive to the complexities of local productions, by expanding agronomic objectives and criteria to cover sustainability, Food Sovereignty, resource conservation and equity. Therefore, from an agro-ecological perspective, we assume that it is possible to recover the role of agricultural activities in the generation of social, cultural, economic and ecological wealth from a sustainability perspective.

We know, from previous studies that focused on the fruit and vegetable sector (Del Valle González, 2013) or more recent as those carried out by the Agroecology in Action Network [1], that many agroecological projects has many difficulties to achieve economic viability and end up disappearing.

Thus we think it is time to strengthen the agro-ecological sector as it is one of the fundamental axes that will allow us to address the transition of our society towards more sustainable models.

**Objectives**

The main aim of this study is the development of a methodological proposal that serves as an approximation to the definition of the concept of agro-ecological production for a territory, in this case the Community of Madrid. This methodological proposal is based on a system of indicators weighted around the dimensions of Agroecology.

In addition, this methodological proposal allows to evaluate, for a specific productive project, for a productive sector or for the agroeological sector of a territory, each of the dimensions that define this concept. On one hand, this evaluation serves as a tool with which to identify the weaknesses and strengths of the sample studied, which allows to focus the work for its improvement. This tool can be applied at different scales, from the farm to the territory scale. On the other hand, it allows people who carry out these productive projects to have a reference for decision-making when developing and planning their projects. Also, it focuses efforts for advancement and sustainability in the agro-ecological transition of a territory.

This methodological proposal serves also to identify the factors that characterize and differentiate the agroecological production from the conventional and the certified organic. This proposal is thus a useful tool that can shed light on the wide-ranging debate on complementarity and overlap of the concept of agro-ecological production with certified organic farming.

In addition, defining what is an agro-ecological project allows to generate a valuable and rigorous argument to establish criteria for evaluation of projects, for their impulse from institutions and regulations. On this way there is a wide potential through public purchase Sustainable.
Methods

The proposed methodology is based on a system of indicators organized around 5 dimensions that are contemplated within the concept and principles of Agroecology: ecological-productive dimension, distribution and commercialization system dimension, socio-labor dimension, economic dimension and political-cultural dimension.

To establish this system we have based on the publications of (Begiristain, 2018), (Pomar León, Duran Gurnsey, Gamboa Jiménez, Binimelis Adel, & Tendero Acín, 2018) and (Begiristain & López, 2016), on the indicators used by the certification systems of the SAES (Participatory Social Certification System of the central zone from Spain) and of the CAEM (Ecological Agriculture of the Community of Madrid Committee), as well as in the previous experience of the authors.

Below it is offered a table that includes, for each of the dimensions analyzed, a small explanation of the dimension and the studied indicators:

<table>
<thead>
<tr>
<th>DIMENSIONS</th>
<th>indicators</th>
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<tbody>
<tr>
<td>ecological-productive dimension</td>
<td>VEGETABLE AND FRUIT PRODUCTION PROJECTS</td>
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<td></td>
<td>- Mehanization level</td>
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<td></td>
<td>- Crops diversity</td>
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<td></td>
<td>- Origin of the plant and seed</td>
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<td></td>
<td>- Traditional varieties use</td>
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<td></td>
<td>- Fertilization system</td>
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<td></td>
<td>- Pest control system</td>
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<td></td>
<td>- Ecosystem conservation practices</td>
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<td></td>
<td>- Other agricultural practices</td>
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<tr>
<td>distribution and commercialization</td>
<td>CATTLE RAISING PROJECTS</td>
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<tr>
<td>system dimension</td>
<td>- Form of livestock exploitation</td>
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<td></td>
<td>- Complementary feeding</td>
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<td></td>
<td>- Mechanization level</td>
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<td></td>
<td>- Cattle breeds</td>
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<td></td>
<td>- Origin of animals</td>
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<td></td>
<td>- Disease control system</td>
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<td></td>
<td>- Livestock and ecosystem conservation practices</td>
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<tr>
<td>socio-labor dimension</td>
<td>FOOD TRANSFORMATION PROJECTS</td>
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<td>- Raw materials origen</td>
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<tr>
<td></td>
<td>- Raw materials typology</td>
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<tr>
<td></td>
<td>Distribution characteristics and marketing diversification</td>
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<tr>
<td></td>
<td>- Average distance traveled by products</td>
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<td>- Product distribution way</td>
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<td>- Number of channels in which it markets</td>
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<td></td>
<td>- Equity index in marketing channels</td>
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<td></td>
<td>Working conditions and relations between company and working people</td>
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<td></td>
<td>- Legal formula of the project</td>
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<td></td>
<td>- Work dedication of employed people</td>
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<tr>
<td></td>
<td>- Proportion of extra days</td>
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<tr>
<td></td>
<td>- Labor regime of employed people</td>
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</tbody>
</table>
Once the indicators are established, a process of indicators weighting has been implemented through an Analitic Hierarchic Process (AHP), which allows obtaining a quantitative data that guides, on the one hand, what can be considered as agro-ecological production, and on the other gives us an idea of the position in which the Agroecological Madrid sector is, around this concept.

The Analitic Hierarchic Process, is a mathematical technique that allows us to generate priority scales when making multi-criteria decisions (Saaty, 2008). This technique allows to establish, in an objective way, the allocation of weighted weights of the variables that make up a complex variable, in this case each of the dimensions of agroecological production. This methodology allows the variables to be organized into logical hierarchies and to assign weights to each level of the hierarchy.

Once the hierarchy is structured, the relative weights are assigned for each level. In this case, two levels have been established: indicators and response options for each indicator. This weight allocation is calculated by an algorithm resulting from pairs comparisons between elements.

This technique allows us, on the one hand, to build a mathematical expression that defines each of the dimensions of agroecological production from the chosen indicators. Thus, knowing which indicators weigh more in that mathematical expression, this concept is constructed.

For the weights allocation to each variable it is essential to have experts in each field, specialists from each productive sector who are able to weigh these variables based on both their knowledge and their experience. Thus, the weighting of the variables has been carried out by a team of 3 to 4 experts in each of the fields and sectors together with the authors of the study. These teams are made up of experts from different fields of knowledge, and with different experiences and subjectivities.

The judgment of experts is defined as an informed opinion of people with experience in the subject, who are recognized by other people as qualified experts in this (Escobar-Pérez & Cuervo-Martínez, 2008). We are known that the use of expert judgment as part of the process for the variable weight estimation implies always a bias. That is why we have tried to minimize this bias by using the Analitic Hierarchic Process and consulting more than one expert. These methodologies based on the assessment of more caution than empirical research when interpreting the results and extrapolating them. It is thus intended, not so much to present an empirical proposal of absolute validity, but rather an approach that serves as the basis for the debate.
In addition to the qualitative variables, whose response options are weighted using the AHP method, there are some other indicators, such as the equity index of marketing channels or equity index in the sources of income, which are calculated numerical variables. For this, the Shannon-Wiener index has been used, one of the most recognized methods to measure the uniformity of a data set.

**Results**

**Agroecological Indicators system**

The construction of the agroecological production concept is obtained from the generation of a mathematical expression elaborated from the weighted weights of each variable in each hierarchy. For each of them, the weights of each variable option and of each variable that defines a dimension, are obtained.

In the ecological-productive dimension, for fruit and vegetable projects, the most influential variable, with a weight of 0.25, is the application of ecosystem conservation practices such as biodiversity, flora and fauna, or Rural landscape conservation. These practices have great weight in the concept of agroecological production, since it is of great importance for its innumerable ecosystem services, such as succession, biotic regulation, nutrient cycling, energy flow and water cycle regulation (Miñarro, García, & Martínez-Sastre, 2018), (Stupino & Bonicatto, 2014). Biodiversity is essential for agriculture and represents the basis of agroecosystem sustainability (Secretaría del Convenio sobre la Diversidad Biológica, 2008). Another issue that defines agroecological production quite well, with a weight of 0.18, is the use of various techniques related to Agroecology, such as crop rotation and association, low invasive soil tillage, waste reuse as cycle closure of matter and the use of an efficient irrigation system. All of them increase the ecological sustainability of crops.

Agroecological livestock farms, would be characterized, in large part, by livestock practices carried out such as traditional practices such as hefting or transhumance, the maintenance of traditional enclosures integrated into the landscape, the closing matter cycles (reuse of manure and slurry with nearby farms), the recovery of the landscape and traditional knowledge, respect for wildlife and the state of conservation and use of the immediate environment. All these practices have a proven positive influence on the improvement of ecosystem sustainability. This indicator has a weight of 0.34 points.

For the transformation sector, the indicator that most influences in the construction of the ecological-productive dimension is the typology of raw materials, with a weight of 0.62. When raw materials are organic produced, we ensure that they meet certain requirements that favor environmental sustainability. The size of the distribution system is mainly characterized (0.49 points) by the distance at which the products are distributed. Thus, local foods reinforce sustainability as they develop the potential of local agriculture, allow the closure of material and energy cycles, boost local marketing through short commercialization channels, shorten the distribution chain and favor the local economies (Begiristain M., 2018).

The socio-labor dimension is essential to understand Agroecology from a holistic perspective. It is necessary, for a project to be considered as agroecological, the existence of decent, fair and stable working conditions for all the people involved (Begiristain, 2018). Thus, the indicator with the greatest weight in the construction of this dimension, with a weight of 0.44 points, is the legal formula of the project in which the structures belonging to the social economy, such as cooperatives, communities of goods or associations, are positively valued. These types of entities take into account people in a horizontal way, the environment and sustainable development, as a priority reference over other interests. They also promote the principles of equity, work, environmental sustainability, cooperation, the “non-profit” principle and commitment to the environment.
The economic dimension is built as a fundamental basis through the relationship between the billing of each project and the number of employed people on it. This indicator has a weight of 0.51 points. With the same weighted weight, of 0.3125 points, the variables that build this cultural political dimension are active membership in agrarian organizations with political or social purposes such as trade unions, associations or networks related to the sector, which empower it from any of its dimensions, or spaces of awareness or dissemination of the sector.

**Madrid Agroecological sector situation**

The studied indicators for each used dimensions are used, in this case, to model what the absolute maximum and minimum values of the model would be. Thus, the model allows to obtain, for each one of the dimensions, a spider web graphic that summarizes each one of the studied indicators weighted with the Analytic Hierarchic Process.

With these two data we can assess how close the projects studied are to the maximum possible value, or compare different projects with each other. Below you can see the summary graph for all dimensions, where the differences by sectors can be seen more globally.

![Figure 2. Indicators for the 5 agroecology dimensions system. Comparison of the three sectors.](image)

Although there are no significant differences, it can be emphasized that horticultural projects obtain higher values in terms of the ecological-productive, political-social and distribution dimensions while they have lower values in terms of the labor dimension and especially in the economic one. In other words, it would be more precarious projects from the point of view of the people who are part of the projects.

With regard to Livestock, they have higher values in terms of economics and lower values in terms of distribution, which as we saw has some added complexities with respect to horticulture and transformation projects.
Related to the transformation projects, they present slightly lower values with respect to the distribution and especially in the productive ecological dimension that, as we have seen, has to do with the origin and typology of the raw materials. On the other hand they are above the horticultural and below the farmers in terms of economics but above both in terms of labor.

**Comparison between self-denominated agroecological projects and certified projects**

Agroecology and certified organic farming are two closely related but different concepts, whose terminology can also lead to confusion. Therefore, we have considered interesting to investigate how similar or different the projects that call themselves agroecological certificates in ecological in the Community of Madrid. For this, the proposed methodological model is a useful tool. Two groups of productive projects have been compared for each of the 5 dimensions: those that define themselves as self-denominated agroecological and the certified ecological ones.

![Indicator system for the 5 dimensions. Comparison of self-styled agroecological projects and certificates in ecological](image)

From the previous graph we can infer that at the level of ecological-productive practices there are no significant differences between them. As for the rest of the indicators, the greatest differences are in favor of self-denominated agroecological projects that generally show more comprehensive values in all aspects except in the labor dimension, that is, they are more precarious.

**Conclusions**

- Through the methodological model presented, an approach to the definition of the concept of agroecological production is proposed, based on 5 Agroecology dimensions previously established.
• We are aware of the limits and biases of the proposal, but we think it is a valuable tool that sheds light on the issue.

• This model also sheds light on the situation of the agroecological sector of the Community of Madrid, locating its strengths and weaknesses. Among the strengths can be named the productive techniques used and as weaknesses economic sustainability.

• Therefore, we can conclude that in the Community of Madrid there is a lot of similarity between certified projects in ecological (especially in the productive ecological issues that are the ones that control the certification) and self-denominated agroecological and it could be emphasized that how it indicates us the theory agroecological projects are more comprehensive.

References


Agroecological transitions confronting climate breakdown: Food planning for post-carbon city


Food production and distribution in allotment gardens: past or future?

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Abstract

The study assesses the importance of the productive function of allotment gardens (AG) to identify factors that determine its development and directions of distribution of the food produced in the gardens. Field research was conducted in Germany (Westfalen-Lippe region) and Poland (Wielkopolska Province). Both countries were among the first to implement allotment gardening, where the productive role was crucial. In these study we developed and applied a multi-step research procedure. Necessary information and materials were collected during field visits, surveys and interviews. Regarding the productive function, we determined the allotment development cycle and attempted to assess the structure of food production on allotments. We found that German and Polish institutions managing AGs have no access to statistical data on food produced by garden owners. The study revealed differences in importance of the productive function. In Germany, legal regulations and the multicultural structure of the gardeners’ community favours the cultivation of edible plants. In contrast, the great freedom in Polish legal regulations concerning allotment use means cultivation of horticultural crops is marginalized in favour of recreational use. We found that the food produced in AGs in both countries is distributed primarily non-commercially, although some commercial distribution channels were recorded, too. The study revealed that food production in AGs is determined by individual characteristics of the plot user (e.g. origin, lifestyle, food awareness) and external factors (e.g. political, historical, environmental, economic, and legal). Changing environmental, political and socioeconomic conditions, including concepts and models of urban development (urban agriculture), favour the productive function of AGs. Consequently, they may become the productive part of the urban landscape once more.

Introduction

The presence of AGs is particularly important in urbanised areas. These constitute part of the natural urban system and are treated as a component of green infrastructure, including edible green infrastructure (EGI) e.g. Breuste (2010), Naumann et al. (2011), Russo et al. (2017), Szczepańska (2016), Trembecka and Kwartnik-Pruc (2018). In such conditions, AGs can be analysed in terms of ecosystem services understood as the input ecosystems providing for the quality of human life, as a result of interaction between biotic and abiotic processes (Barthel et al. 2010, Borysiak et al. 2017, Breuste and Artmann 2014, Camps-Calvet et al. 2016; Kronenberg, 2012, Kronenberg et al. 2013, Langemeyer et al. 2016, Speak et al. 2015). Ecosystem services are divided into three main groups: productive, including supplying food, regulative and cultural (Haines-Yong and Potschin, 2013).
In Europe the productive services of AGs were of paramount importance in the first stage of their development, in the 19th and early 20th century, when they were a common source of food (Appel et al. 2011; Barthel et al. 2010; Van den Berg et al. 2010; Bellows, 2004; Ward and Crouch, 1997; De Silvey, 2003; Gawryszewska, 2006; Gröning and Wolschke-Bulmann, 1995; Hochhäusl, 2014; Irvine et al. 1999; Kampffmeyer, 1926; Keshavarz and Bell, 2016; Lorbek and Martinsen, 2015; Spilková and Vágner, 2016; Warnecke, 2001; Villace et al. 2014). Later, food production in AGs increased during various types of crises, e.g. military conflicts (World War I and II), socio-economic crises (the 1930s, financial crisis that began in 2007). At that time, ensuring food security was of crucial importance (Baudry, 2012; Barthel et al. 2015; Barthel and Isendahl, 2013; Colasanti et al. 2012; Calvet-Mir and March, 2017, 2019; Holmer and Drescher, 2005; Espinosa et al. 2017; Kato et al. 2014; Matsuo, 2000), as well as increasing social and urban immunity to crisis situations, e.g. Camps-Calvet et al. (2015), Gómez-Baggethun and Barton (2013). Contemporary gardens are markedly different from those functioning more than a hundred years ago when the idea was initiated. With time, under the influence of socio-economic changes, their development and use evolved. Greater availability of food (especially fruit and vegetables) and higher living standards caused growing interest in leisure on a plot.

The increase in the importance of the recreational function was accompanied by reducing food production, which in some countries led to its marginalisation (Breuste, 2010; Calvet-Mir and March, 2017; Colasanti et al. 2012; Drake and Lawson, 2014; Fox-Kämper, 2018; Pawlikowska-Piechotka, 2010; Szkup, 2013). However, the second half of the 20th century saw a return to the plant-growing character of a plot in European gardens resulting, e.g. from a widespread ecological lifestyle (healthy, slow life), an interest in organic food production methods, and implementation of the concept of sustainable development of urban areas (Buhtz et al. 2008; Giedych and Poniży, 2013; Drilling et al. 2016; Duś, 2014; Pawlikowska-Piechotka, 2009; Viljoen and Howe, 2012).

**Objectives**

The article aims to identify the importance of the productive function of contemporary AGs, factors influencing its development and the determination of the directions of the distribution of food grown on plots. In the study we try to assess the chance of future existence of food production in AGs. The research is focused on Germany and Poland, which were the first countries to implement the idea of allotment gardening in Europe and are presently the leaders in this field.

**State of art**

At present, AGs are perceived as an element of urban gardening and an integral part of urban agriculture (Gasperi et al. 2012; Hou et al. 2009; Mougeot, 2005; Nordahl, 2009; Orsini, et al. 2013; Redwood, 2012; Tornaghi, 2014). In the 21st century, in many countries, and especially those in the northern hemisphere, a renaissance of urban gardening has been seen, also including allotment gardening (Keshavarz and Bell, 2016; Calvet-Mir et al. 2016; Drilling et al. 2016). Although providing food is still mentioned among the benefits of holding a plot (e.g. Barthel and Isendahl, 2013), until recently as Veen notes (2015), "Allotment gardens were tolerated rather than championed and neither their production aspect nor their share in food provisioning practices were taken seriously". As a result, in the literature on the subject, there are no updated studies on the recognition and assessment of the importance of their productive function and food potential, nor on the distribution of food grown on plots (Čepić and Tomićević-Dubljević, 2017). This study attempts to fill this gap.
Methodology

Comparative research on AGs regarding their productive function was conducted in the Westfalen-Lippe region of Germany (42 of 736 allotments, which is 5.7% of the region) and in the Poznań area of Poland’s Wielkopolskie Voivodeship (32 of 513 allotments, which is 6.2%). All the allotments studied in Germany were governed by The German Leisure Garden Federation (Der Bundesverband Deutscher Gartenfreunde e. V., BDG), whereas those examined in Poland were governed by the Polish Allotment Federation.

The research was carried out from June 2016 to November 2018. The field research was preceded by a multifaceted analysis (a desk research technique was applied) of secondary materials obtained from the Statistical Office of Poland, organisations directly related to how AGs function (at the national and regional level), legal acts and regulations concerning the functioning of AGs in Germany and Poland. The websites of individual allotments, press materials and professional literature were reviewed. Moreover, German, Polish and foreign scientific literature was analysed in order to properly understand the productive function of allotment gardening. While implementing the adopted research objective, a series of quantitative and qualitative methods was used. Surveys among the plot-holders were carried out, which (except for social and spatial aspects) concentrated on determining functional properties of a plot, with particular attention paid to the productive function, e.g. by identifying the structure of crops, their importance in a plot-holder’s household budget, the way they are managed, and ecological methods used. 780 paper questionnaires were distributed (440 in the Westfalen-Lippe region, 340 in the operation area of the Poznań District Board in Wielkopolska) and the rate of return was 25.5% (112 surveys) in Germany and 35.6% (121 surveys) in Poland.

Participation in the research was voluntary, the questionnaire was in a paper form and included 33 questions (open-, closed-ended, multi-choice). Together with surveys, exploratory walks were carried out (interactions with plot-holders), which made it possible to gather a great deal of additional information on, e.g. practical application of legal solutions concerning the subject in both countries and prepare photographic documentation. In order to identify the investigated issue carefully and describe the data obtained, in-depth interviews (IDI) with the following presidents were conducted: the president of the German Leisure Garden Federation Westfalen and Lippe district and the president of the Polish Allotment Federation, Poznań District Board. The interviews were in the form of conversations (30-60 minutes) during which substantial valuable primary information was collected and the fragments of responses were cited using the following codes: Expert DE and Expert PL.

The case study method was of particular importance for the issue examined. To this end, one AG for each region was selected: rev. L. Przyłuski Allotment Garden in Poznań in Poland and KGV Im Spredey Castrop-Rauxel in Germany. In order to present the functional and spatial properties of allotments in the best way, especially their productive function, historical and location conditions were analysed, as well as the elements of their development, equipment, the structure of their use and also the phenomenon of plot transformation. This study was conducted on the basis of allotment registration cards and in-depth interviews (IDI) with allotment managers.

Results and Discussion

The survey results showed that the majority of plot-holders in both regions used their gardens for recreational/plant-growing purposes (DE=90.5%; PL=81.8%). German users more often indicated only the plant-growing character of plots (DE=2.9%; PL=1.7%), whereas Polish ones emphasised their recreational use (DE=6.7%, PL=16.5%). Thus, it is difficult to disagree with Acton (2011), who claims that “Not least of all, they supply healthy food and, accordingly, many plot-holders regard allotments as a hobby with benefits.”
The research revealed both clear differences and certain similarities in the structure of plant cultivated on plots in the AGs analysed (Fig.1). In the Westfalen-Lippe region allotment produce (vegetables, fruit and herbs) are cultivated on more than half of plot area (58.1%). This proportion is lower in the Poznań district and amounts to 37.5% of plot area. In the case of German plots, what is characteristic is a greater share of herbs (11%) and fruit bushes (18.2%). On the other hand, a larger proportion fruit trees (24.4%) is typical of Polish plots. In turn, the scale of vegetable crops in both cases is comparable (DE= 28.4% and PL=27%). The species cultivated included vegetables, fruit and herbs - from domestic to exotic ones.

Our findings are in agreement with the conclusions proposed by Action (2011), and Klepacki and Kujawska (2018). The majority of German and Polish plot-holders taking part in the research declared that they grew crops using ecological methods, with the Westfalen-Lippe gardeners presenting an ecological approach considerably more often (DE=91.6%; PL=71.4%). This is confirmed by a small proportion of gardeners using chemical fertilisers (DE=5.4%; PL=4.1%). An important difference, however, was recorded in the use of chemical plant protection agents (DE=0.9%; PL=21.5%). An important issue in the context of the productive function of plots and an ecological approach to cultivation is biodiversity. Most plot-holders who took part in the study stated that their plot was significant for an increase in biodiversity. It should be emphasised, however, that it was definitely greater in Germany (DE=86.6%; PL=58.9%).

The structure of crops on a plot has a diverse influence on plot-holders’ household budgets. Over half of the German gardeners (almost 56%) declares that plot crops add to savings, whereas for most of the Polish holders (66.1%), they do not matter. In the both regions, most plot-holders declared a surplus of crops: DE=80.4%; PL=84.3%. German and Polish gardeners alike gave them away to friends and family (DE=76; PL=89). In the Westfalen-Lippe region, two cases of sharing the surplus on stalls were recorded. The crops are then exposed in a specially prepared place in front of a plot. It occurred only very rarely that German or Polish holders gave their surplus to external institutions (DE=5; PL=1).

One of the forms of sharing the excess food is giving it out to children and school pupils. It ought to be emphasised that in both countries legal regulations on AGs stress their non-commercial character. Despite this, plot-holders occasionally receive income from selling the excess food grown on plots, e.g. honey, seedlings, etc. It should be noted that in both Germany and Poland respondents mentioned the sale of food grown on plots as one of the forms of activity. However, it is difficult to determine the scale of sales and its range because plot-holders are aware that this is illegal. Among the activities related to the cultivation of plants, they indicated the exchange of seedlings and seeds (DE=33; PL=49) and sales (DE=18; PL=5) most often. The produce on sale included: fresh vegetables, fruit, herbs and flowers (DE=3; PL=2), seedlings and seeds (DE=4; PL=2), honey (DE=7; PL=1), and compost (DE=4; PL=0). Animals were also kept, although very rarely, e.g. pigeons, rabbits (DE=5; PL=5).

The research procedure applied made it possible to identify the factors determining the productive function of AGs and to distinguish the distribution channels of produce grown on plots (Fig.2).

In both regions and countries, the law allows plot-holders to use food grown on plots only for their own purposes. Hence, in “plot-related distribution”, non-commercial sales channels were of prime importance. German and Polish plot-holders used the products mainly for their own needs (current consumption, preserves) or gave them to their family and friends. Similar results were obtained by Crespi (1982); Klepacki and Kujawska (2018); Spilková (2015); Tei and Gianquinto (2010). According to Crespi (1982), AGs deliver products which have also become part of the barter economy. However, our study shows that food was rarely bartered with other plot-holders. Crops were also sporadically given away to charity. In Westfalen-Lippe, part of the crops, e.g. fruit, were distributed among people walking in the gardens. This sales channel was not observed in the Poznań region.
The research also revealed the presence of a commercial sales channel. Both German and Polish plot-holders sell their produce (mainly honey) in the garden area or in its immediate vicinity. The Poznań plot-holders specialised in selling, e.g. honey or seedlings at street markets. This sales channel had marginal importance in the distribution system of food grown in AGs. Bellows (2004) states that Polish gardeners rarely gained financial benefits from sharing garden crops with neighbours. However, our field research shows that it is difficult to determine the importance of sales, because plot-holders were aware of the fact that the law only permitted non-commercial use of a plot. Unfortunately, Polish plot users were observed not to fully exploit crops and, as a result, these were wasted.

The conducted research indicates that it is possible to maintain and even develop the productive function of modern AGs in highly developed countries. It is important to develop non-commercial ways of distribution of food produced in AGs e.g. community kitchens. However, it requires legal support, involvement of municipal authorities, promoting the idea of urban agriculture and circular economy.

![Figure 1](image)

*Fig. 1. Share of crops in the area of a plot (average in %).*

*Source: survey results.*
Production function of AGs

Geographical location
Natural conditions
Historical conditions
Political factors
Legal regulations
Economic situation
Living conditions of population
Access to food
Origin of plot-holders
Live style
„Food awareness” of plot-holders

Fig. 2. Conditions and factors determining the development of the production function of AGs in Germany and Poland in the 20th and 21st centuries.

Source: own study.
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Fig. 3. Distribution of food produced on plots in the Westfalen-Lippe region (Germany – DE) and in the Poznań district (Poland – PL).

Source: own study.

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Food Planning Matters – Towards an Integrated Approach for a Sustainable Rural Urban Nexus

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Keywords: city regional food systems, integrated approaches, rural urban nexus, sustainable land use, urban rural linkages

Abstract

In the course of increasing urbanisation including various economic, social and ecological challenges, the question has arisen of how to create and structure sustainable urban-rural linkages and new urban-rural interaction in a spatial-structural as well as in a functional, economic, and socio-cultural perspective. Embedded in this systemic understanding, regional food system can play a crucial role. This contribution gives insights to selected results of the interdisciplinary research project “Rural Urban Nexus – Global Sustainable Land Use and Urbanization” (2016-2019) funded by the BMU (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety) and UBA (Federal Environment Agency).

Starting point of this contribution is the research and discussion (literature evaluation) of relevant (disciplinary) approaches by using a specially developed method. Given the complexity of the topic, five different perspectives (cultural characteristics, flows and material flows, sustainability and land use, multi-dimensionality, food and food systems) as well as assertions to the type of linkages (spatial, material, functional) were applied in order to adequately depict the often sectoral oriented approaches. Furthermore, selected approaches were evaluated in detail.

The second part of this contribution identifies, systemizes and evaluates 50 real examples of the Rural Urban Nexus, covering a broad spectrum of themes and topics that seek to handle or break with the dichotomy of the urban and the rural. By analysing selected examples, it become obvious that the topic of food – as a transversal topic - is an excellent starting point for optimising and operationalizing urban-rural linkages. Examples illustrate the extent of differing characteristics of the Rural Urban Nexus with regard to the spatial nexus, functional/economic nexus, material, social and the institutional nexus.

The findings lead to the last part: a theoretical approach (principles) for a sustainable urban-rural nexus and its operationalization (options for action at the level of federal politics in Germany) including the role and importance of regional food systems. These principles include the need for a spatially comprehensive planning approach, sectoral comprehensive planning and political concepts, a multi-actor approach including early participation and long-term orientation with permanent evaluation.

Introduction

Given increasing urbanisation including various economic, social and ecological challenges, the question arises of how to create and structure sustainable urban-rural linkages and new urban-rural interactions from a spatial-structural as well as a functional, economic, and socio-cultural perspective. This contribution gives insights to selected results of the interdisciplinary research project “Rural Urban Nexus (RUN) – Global

The RUN project aimed at developing integrated approaches for sustainable linkages between urban and rural areas for their mutual benefit. Furthermore, it seeks to highlight starting points for globally sustainable land use in the context of urbanisation. On the one hand, existing approaches were systematically analysed. On the other hand, existing examples were identified. These two building blocks, among others (e.g. urban metabolism, political strategies and instruments) were used to derive principles for sustainable urban-rural development. A central entry point identified by the project is the development of regional food strategies, which address sustainable urban-rural interactions at several levels and dimensions (environment, health, education, culture, integration, regional development, civic engagement, etc.) (Wunder u. a. 2019).

Analytical and conceptual approaches for the development of the urban and the rural

This part of literature research (see further: Kasper und Giseke 2019 forthcoming) provides an overview of existing approaches that consider urban-rural linkages or address them. The extreme thematic range demonstrates the complexity of approaches, taking into account the various existing types of interdependencies (e.g. functional, spatial, material, ...). The aim of this part is therefore to show the bandwidth and access points and to continue with a systematisation approach, without claiming comprehensiveness. It is meant to serve as an overview while evaluating six approaches in detail in order to identify principles for an integrated approach.

During the identification phase, two filters were used to further limit the large amount of approaches. The first filter is concerned with the spatial, scale-related focus. Only those approaches were selected that addressed interactions at regional and city-wide level and which focus on interaction between the city and its hinterland. The second filter referred to a thematic focus. Five sub-objectives for sustainable urban-rural development were used as a thematic delimitation:

- environmentally friendly land use,
- the closing of resource and material flows,
- the strengthening of regional food systems,
- the strengthening of regional value chains,
- the provision of integrated infrastructures and services.

In order to illustrate the complexity and spectrum of the subject area, the multiple perspectives of each approach were used as a structuring element. This ensures that consideration is given to the widely different

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20 This contribution deliberately refers only to "approach", a term that subsumes models, theories, concepts and strategies. A distinction is made between analytical and conceptual approaches:

Analytical approaches are descriptive and take into account theories (as a system of scientifically based statements to explain certain facts or phenomena and their underlying principles) and models (as idealized structures as a limited representation of reality that map and/or illustrate the relationships and functions of something).

Conceptual approaches are operational and consider concepts (as a collection of guidelines or principles or as a sketch of a project in the form of plans or programmes) and strategies (as a plan of action to achieve defined goals, including consideration of relevant factors) (Kasper und Giseke 2019, 13 forthcoming).
levels of the respective approaches and the difficulty of direct comparability. Change of perspectives is therefore a crucial component of the systematization method. Basically, five perspectives could be identified:

- Perspective: Cultural region specifics,
- Perspective: Flows and material flows,
- Perspective: Sustainability and land use, (ecological, economic, social and spatial-morphological dimension)
- Perspective: Multidimensionality as well as
- Perspective: Food and food systems.

Interim analysis results of 44 approaches revealed that currently no approaches explicitly focus on the question of the rural-urban nexus under current conditions of the spatial development in urban and rural areas. However, results also show that the phenomenon of the Rural Urban Nexus has been dealt with in various disciplines for some time and that a great amount of sectoral knowledge exists. In addition, there are also approaches that attempt to overcome the urban-rural dichotomy by referring to either urban/rural/regional systems, urban-rural continuum, networks, landscape, urbanized landscape or landscape-like city.

The six following approaches were evaluated in depth on the basis of selected criteria (central thematic fields and elements, scale, geographical context, political and social context as well as information on disciplinarity and actors involved):

- the network city, a morphological, physiological (urban metabolism) model of urban systems and a design application approach (Michaeli 2004);
- the green infrastructure approach, a systemic and spatial, cross-scale approach with references to multi-functionality debates and ecosystem services (Pauleit u. a. 2011, 273);
- the conceptual approach of Continuous Productive Urban Landscapes (CPUL) from 2005 (Viljoen, Bohn, und Howe 2005), which integrates the urban food system into urban planning and architecture
- the City Region Food System (CRFS) approach, which covers complex networks of actors and processes related to food production, processing, marketing and consumption (APA-FIG 2016) in order to contribute to the development of sustainable, resilient food systems;
- the landscape approach, which addresses "wicked problems" or seeks to implement integrated projects in a socio-ecological system (Sayer u. a. 2013);
- the integrated rural development (ILE) approach seeks to reconcile social, cultural and economic requirements of rural areas with their ecological functions (BMEL 2014, 6).

Analytical and conceptual approaches for the development of the urban and the rural

The second part of this contribution identifies, systemizes and evaluates 50 real examples (including strategies, programmes, projects, interventions, initiatives) of the Rural Urban Nexus, covering a broad spectrum of themes and topics that seek to handle or break with the dichotomy of the urban and the rural. This is a collection of best or next practices for sustainable development solutions for an integrated urban rural development. The examples are not explicitly mentioned in the literature as examples of linking the urban and rural spheres. A compilation of examples of this kind took place for the first time, at least in German-speaking countries, as part of the RUN project (Kasper und Giseke 2017).

The selection includes a total of 15 German, 15 European and 20 other international examples. The examples identified through literature research and evaluation of research projects were keyworded and located
both geographically (see figure 1 and 2) and temporally. At the same time, assessing individual examples by their effect on the above-mentioned thematic RUN topic areas allowed for a systematised thematic categorisation.

Five examples were selected from the long list by discursive procedures within the research consortium. These were examined and analysed in depth. To make the knowledge generated from the examples available and in parts comparable, a defined set of aspects were developed for analysis. Besides providing an overview and characterisation of the five examples examined in more depth, objectives, activities and results; actors and stakeholders and the impact on the Rural Urban Nexus were looked at in detail.

The five examples analysed in depth can be briefly outlined as follows (see also figure 3):

- The example of the biometropolis Nuremberg reveals that a politically motivated increase in demand (e.g. in public canteens) can strengthen local and regional economies. Important aspects here are the coordination and interconnection of various actors as well as links with other urban development objectives. The processes are supported by active public relations work and consumer information (Stadt Nürnberg 2014, 2–3).
- The edible city of Andernach stands for the transformation power that can be developed through the introduction of new or different practices at decisive points. Here, two classic rural subject areas were successfully transformed into the urban context (municipal green space planning) (Vgl. Kosack 2012).
- The green infrastructure approach in Liverpool does not differentiate between urban and rural, but uses uniform land use typologies, each of which has a broad range of functions. Using approaches from the ecosystem services (see Daily 1997; Grunewald und Bastian 2012) as well as from the multi-functionality debates (see Batty u. a. 2004), a (monetarised) value is assigned to the landscape network.
- The Canadian example of the Food Policy Council emphasizes the importance of the role of multiple platforms in pooling projects and actions to implement the formulated policy goals. Permanent human and financial resources, the clarification of responsibilities and the consideration of the expertise of stakeholders led to the success of the Food Policy activities in Toronto. Toronto has also realized that the urban food system does not only exist at the neighborhood level, but must rather be shaped at the regional level. It is thus an example of integrated food planning across urban and rural areas (Hoekstra und Lauren 2016, 102).
- The Quito example is based on an integrated territorial perspective. This was associated with a new spatial layout beyond the existing administrative structures in order to protect agricultural and ecologically valuable areas and to further qualify them by a programme. The implementation of this programme requires a politically supported institutional structure with its own budget and specialised technical team and in addition the interconnection of urban and peri-urban agriculture with the overall development goals of the city (Dubbeling und Rodríguez Duenas 2016, 70).

This collection of examples also shows that different forms of the Rural Urban Nexus exist. Thus, the various urban-rural interdependencies, interrelations or links can be dealt with both contextually and thematically. Five different forms of Rural Urban Nexus have been identified:

- spatial nexus: interweaving, i.e. the interrelated consideration of new (systemic interconnected) spatial patterns and their interaction;
• functional / economic nexus: production and consumption-based rural-urban interdependencies, e.g. in relation to basic functions of existence such as housing, employment, education, and recreation;
• material nexus: systemic exchange of resources such as energy, water or (organic) waste for multiple use of these resources;
• social nexus: urban-rural interactions through the exchange of information, ideas, and practices for mutual benefit or capacity building and awareness rising;
• institutional nexus: formation of institutional organisations or plans, programmes or strategies and their institutional anchoring in order to accomplish a common goal or to generate benefits.

Towards an integrated approach

The above findings led to the last part: a theoretical approach (principles) for a sustainable urban-rural nexus and its operationalization (options for action at the level of federal politics in Germany) including the role and importance of regional food systems.

By comparing and evaluating approaches and examples, it was possible to identify similarities for a number of conceptual issues. The following four principles for an integrated approach were derived:

1. Planning approaches must be spatially comprehensive and tailored to the respective local context, irrespective of administrative boundaries. A polycentric approach seems more promising than a centralised approach.

2. Plans and concepts should be trans-sectoral, or at least take into account cross-connections between individual sectors. The organisation is suitable for this based on areas of need (housing, mobility, food etc.).

3. Inclusive and early participation through a multi-actor approach is another principle. This must be accompanied by a clear distribution of roles and responsibilities supported by continuous capacity building for organisations and stakeholders.

4. The orientation of the processes should be long-term oriented with permanent evaluation (Wunder u. a. 2019, 35).

In addition, the article identifies six different areas of policy options at the German federal level. These range - to give only a small insight - from the improvement of information base for understanding urban-rural linkages and relations beyond administrative borders, tailoring the use of instruments for spatial development and spatial planning and the strengthening of incentives for sustainable urban-rural relations to institutional anchoring (Wunder et al. 2019, 14–15,22).

But how can the entry into an integrated urban-rural development be achieved? From the point of view of the RUN project - as described above - the development of regional food strategies is promising, as it includes core themes of urban-rural development such as land use, closing resource and nutrient cycles, regional development and value creation, but also the necessary cooperation of different administrations in the city and the countryside (Wunder u. a. 2019, 15–16). To this end, nine steps towards the development of a regional food strategy were elaborated and possibilities identified for supporting regional food policies at federal and regional policy levels (Wunder et al. 2019, 46–49).
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Figures

Figure 1 Project cards of the RUN examples
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Figure 2 Localization of the examples

Figure 3 Synopsis of the examples analysed in depth
Agro-ecology and the Metropolitan Biopolitics of Food in Cape Town and Johannesburg

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Keywords: agro-ecology; biopolitics; food sovereignty; food systems; governance; urban; transition

Abstract

Anthropogenic environmental change, driven significantly by urban food systems, erodes the ecological foundations of society, requiring urgent transitions towards sustainability. Urban food security research interprets hunger, poor nutrition and ecosystem degradation as consequences of contradictions and failures of urban food systems. This involves framing food systems and environments as discrete objects of urban governance, and advocating various forms of multi-level and adaptive governance to achieve policy coherence. The city-region food system discourse in particular frames the policy problem in terms of a need to promote transition to more resilient, localised, agro-ecological food systems.

What is disregarded in these discussions is the extent to which constructing ‘urban food systems’ and environments as objects of governance, and orienting these towards agro-ecological principles, depends on discursive work, technologies of power and rationalities of the state. Framing metropolitan food systems governance as an emergent biopolitics, this paper sketches the metropolitan governance terrain and explores how fragmented institutional structures, a patchwork of disconnected policies, intersecting logics of control and divergent ideologies constitute a contradictory and ambiguous food governance environment in the metropoles of Johannesburg and Cape Town. Agro-ecological concerns are not prominent in South African metropolitan discourse and have been appropriated by a donor-dependent NGO sector promoting urban agriculture.

To the extent that it disregards the nature of the South African state, its fragmented technologies of power and the inadequate “will to transform”, the normative project of agro-ecological food systems governance in the two metropoles faces significant challenges. To muster the will and assemble coherent technical means to transform food systems, the metropolitan state will require skillful leadership alliances able to negotiate the complex and ambiguous metropolitan governance terrain, research partnerships to inform policy development, intersectoral alliances and a strong social movement that articulate a compelling social-ecological narrative.

Introduction

Urban food systems contribute significantly to anthropogenic environmental change, requiring urgent transitions towards sustainability (Willett et al., 2019; Sonnino et al, 2014). Urban food security research attributes malnutrition, unemployment and ecosystem degradation to contradictions and failures of food systems and environments. Construing these as objects of governance, researchers call for multi-level, adaptive local governance strategies enhancing coherence and democracy (Candel 2014; Drimie et al, 2011; Pothukuchi and Kaufmann 2010; Smit 2016; Ledger 2016; Pereira and Drimie 2016; Pereira and Ruysenaar 2012; Parsons and Hawkes 2018; McLachlan et al 2015; Sonnino 2009; Moragues-Faus and Morgan 2015; Wiskerke 2016). Food sensitive planning inserts food environments into urban planning and design discourse (Turner et al 2018; Brand et al 2019; Donovan et al 2011). Agro-ecology and food sovereignty discourses propose
transition towards sustainable and just food systems (DeKeyser 2018), but the implications for metropoles are unclear. Systemic and spatial framings of metropolitan food governance suggest opportunities to promote transitions aligned with social and ecological principles.

The notion of city-region food systems (CRFS) aligns urban food systems thinking with the social and ecological concerns of agro-ecology and food sovereignty. CRFSs emphasise localism, i.e. increasing reliance on local food production, improved urban-rural linkages, and reduced dependence on remotely-produced food, aiming to lower food prices and increase the resilience of livelihoods, supply and prices. CRFS discourse neglects cross-scale linkages, the role of city-regions in driving transitions, and local governance capabilities (Battersby and Watson 2018; Battersby and Watson 2019).

Influenced by international innovations, impulses towards systemic food governance have emerged in the South African metros of Johannesburg and Cape Town (Haysom 2014; ibid 2015; Rocha and Lessa 2009). How does the governance terrain constrain this endeavour and to what extent can the metropolitan state muster the strategic will and technical means to promote agro-ecological transitions?

Objectives

This paper frames food systems governance towards agro-ecology as reflexive biopolitics. This interprets government as an assemblage of technical means (institutions, policies, narratives) to mitigate harmful consequences of modernity by incentivising conduct that promotes the wellbeing of urban populations (Foucault 2007; Collier 2009; Collier and Lakoff 2015). Biopolitical practices constitute a field of rationalities comprised of ideologies, internal models of control and discursive problem framing (Lemke 2002; Lemke 2007). Assimilation of agro-ecological values within metropolitan governmentalities therefore depends on their articulation with existing rationalities, and on how change agents galvanise the will to transform urban food systems (Akinwumi 2013; Li 2007). I therefore sketch the governance terrain, then review i) institutional context, ii) policy environment, iii) models of bureaucratic control, iv) ideologies and discursive framing of the issue. In concluding, I consider the implications for social-ecological food systems transition in Johannesburg and Cape Town.

The South African metropolitan food systems governance terrain

Key features of the two metros shape food system transformation: large, rapidly growing populations inhabit spatially-fragmented settlements with high levels of informality, widespread unemployment and poverty, deep inequalities, persistent service delivery challenges, and contestation of limited resources (Davidson 2016; Satterthwaite 2014; Sinclair-Smith and Turok 2012; Turok 2011; Turok and Borel-Saladin 2014). Millions of people in Cape Town and Johannesburg experience food insecurity (Battersby 2011; Kroll et al 2017). Constrained by poverty, rising food prices and adverse foodscapes, the urban poor subsist on affordable, accessible but unhealthy foods and consume little fresh food. Obesity across South Africa is swelling, exacerbating NCDs, while childhood stunting affects about one in four children (Muzigaba et al 2013; Shisana et al).

Poor consumers rely on hybrid food retail environments comprised of roadside traders, small informal shops and malls clustering fast food and supermarket retail(Even-Zahav and Kelly 2016; Skinner and Haysom 2016; Peyton, Moseley & Battersby, 2015). Consumers source fruit and vegetables from roadside traders and supermarkets, but few get food from urban agriculture. Day-to-day staples are bought from supermarkets and small informal shops (Battersby 2011; Rudolph et al 2012; Kroll et al 2019). Entry of informal transnational
business networks is changing the latter, while the former are extending their reach into poor and remote areas, driven by the interests of corporate retailers, property developers, financiers and politicians (Battersby 2017).

Retail outlets are supplied by concentrated upstream value chains financed by diffuse global capital, and regulated by complex contractual arrangements and standards. Big Food derives most inputs from large-scale monocultural industrial farming. Mechanisation, automation and smart supply-chain management mean that these industries generate dwindling, insecure, and poorly-paid jobs. Retailers source fresh produce through agents or directly from municipal fresh produce markets. Fresh produce is supplied by capital-intensive farm operations able to meet contractual obligations and quality standards. These farms generally rely on high external-input mass production (Greenberg 2010; Greenberg 2018; Ledger 2016). Agro-ecological produce remains inaccessible to the urban majority. Much food produced in the hinterland of these metropoles is exported, as are food products manufactured in the metropoles. Food production inputs like seeds, fertilisers, machinery and feedstock likewise flow through regional and global supply chains.

**Methodology**

To develop a conceptual framing and refine the research question, I reviewed literature concerning urban food security, urban food governance, biopolitics, South African state formation and relevant policy documents. Data was gathered using informal dialogue interviews with officials in the City of Johannesburg and in the City of Cape Town, as well as from the provinces of Gauteng and the Western Cape and by participation in workshops convened under the auspices of the Western Cape and Gauteng Communities of Practice on food governance.

**Results**

**Institutional Hierarchy and Fragmentation**

Metropolitan institutions in Johannesburg and Cape Town are large, complex, siloised bureaucracies governing multiple sub-regions (Cameron 2010; Pieterse 2007; Govender and Reddy 2015; Naidoo 2015; ibid. 2017; ibid. 2018). Food security mandates are isolated in poorly-resourced units low in the institutional hierarchy facing budget and personnel constraints and political uncertainty. They pursue competing priorities and key officials have multiple complex portfolios. Mandates which indirectly shape urban food systems are scattered across departments for which nutritional, social or ecological concerns are peripheral. This includes development and planning, economic development, health, Joburg Property Company and the City of Cape Town property management department, the Joburg Fresh Produce Market and the Cape Town Fresh Produce Market. Several of these entities are state-owned companies oriented towards financial sustainability.

**Ambiguous Logics of Control**

Metropolitan state function is shaped by ambiguous logics of control where New Public Management (NPM), Neopatrimonialism, and Leninist cadre deployment intersect (Brunette et al 2014; Chipkin 2011; Chipkin and Meny-Gibert 2011). Dominant NPM emphasises stringent planning, budgeting, outsourcing of state services, control and accountability through key performance indicators (KPIs), Integrated Development Plans (IDPs), Service Delivery and Budget Implementation Plans (SDBIPs) and audits. These mechanisms favour incumbent service providers, discourage transversal programming and collaboration and create a climate of anxiety around allegations of corruption and mismanagement. Formal systems are overlaid with an informal neo-patrimonial
logic where access to state resources is subverted by a reciprocal logic of favour and loyalty (Hyslop 2009; van Vuuren 2006; Lodge 2014). Leninist strategies expose cadres to conflicted loyalties when formal processes conflict with party-political agendas (Beresford 2015; Chipkin 2012; Kelsall 2012).

Policy Patchwork

Metropolitan food policy, though constitutionally mandated, is shaped by National and Provincial food security policies (IFSSA; NFNSP\textsuperscript{21}) predominantly oriented towards increasing agricultural production (Pereira and Ruysenaar 2013; Pereira and Drimie 2016). The National Development Plan and SPLUMA\textsuperscript{22} consider food in terms of production. Provincial and metropolitan authorities support agriculture and distribute food aid to indigent households and schools (Kroll and Rudolph 2016). Other policies affecting urban food systems include informal trading policies and environmental health and safety regulations. Spatial planning instruments influencing food environments include spatial development frameworks, urban development plans, and environmental impact assessments. Metropolitan state structure, its internal systems of accountability and day-to-day workings are shaped by the Municipal Systems Act (MSA) and the Municipal Finance Management Act (MFMA). Policy development and innovation, often driven by articulate and motivated leaders allied with academic networks, involves complex processes of review and competition for scarce budgets adjudicated by poorly-informed officials.

Ideological Tensions and Problem Framing

The strategic intent to transform (Akinwumi 2013) metropolitan food systems contends with multiple conflicting ideologies concerning the purpose of the state and of the food system. These range from neoliberal via social-democratic to food sovereignty (Pereira and Drimie 2016; Haysom 2014; Thow et al 2018).

Dominant neoliberal ideology in both metros emphasises free market delivery of goods and services, with minimal state regulatory interference with capital interests. Food is governed as a private commodity and not as a public good, narrowing scope for state intervention (Busch 2009; May 2018). “Corporate Social Responsibility” funds support NGOs promoting urban agriculture or distributing food. Standardised “project” implementation emphasises training, distribution of equipment and access to wealthy consumer markets. Modernist urban management narratives portray street trade as an eyesore discouraging investment while seeing mall development as investment catalysts. This motivated evictions disrupting informal food traders’ livelihoods (Rogerson 2016). Social-democratic impulses balance demands for economic growth and global competitiveness with redistributive measures promoting access to essential goods and services, thus mitigating the impacts of unemployment and poverty (Seekings and Natrass 2015). Food aid distribution, social grants, school feeding schemes, expanded public works programme (EPWP) and VAT exemption of staple foods are initiatives shaped by social democratic thought. African national socialist ideology seeks redress of historical inequities through the formation of an African middle class and bureaucracy. Compounded by neopatrimonialism, the resulting ambivalence towards skill compromises merit-based appointment of public servants and state capabilities to govern (von Holdt 2011; Lodge 2014). This ideology contributes to the persistent agricultural policy response to food insecurity: cultivation symbolically contests the rights to land of

\textsuperscript{21} Integrated Food Security Strategy of South Africa; National Food and Nutrition Security Policy

\textsuperscript{22} Spatial Planning and Land Use Management Act
the African urban poor (Du Toit 2018). The nascent food sovereignty movement contests NGO appropriation of agro-ecology, calling for deeper structural change oriented towards equity, resilience and sovereignty. These ideologies inform a threadbare theory of change which proposes to resolve urban food insecurity through increased local production, neglecting structural determinants or environmental linkages.

**Troubled prospects for agro-ecological transitions**

This governance terrain is complex, ambiguous, riven by tensions and contested by unequal powers. Metropolitan territories are far-flung, fragmented and increasingly informal, their rapidly-growing populations beset with unemployment, poverty, and deprivation - neither agro-ecological produce nor concerns are accessible to the majority. Metropolitan food systems are intricate corporate assemblages enmeshed in global networks of capital and commodities which promote large-scale monocultures, capital-intensive food processing, regional and global sourcing and distribution feeding into a retail network generating large amounts of food and packaging waste. These metropolitan food systems present consumers with foodscapes that incentivise consumption of harmful but affordable products, while healthy foods are less accessible and affordable. Transformation of food systems fundamentally opposed to social and ecological principles requires a fierce, sustained and sophisticated struggle. As intermediaries distributing largesse to the disadvantaged, food security NGOs are beholden to capital and urban elites. They cannot advocate the systemic change agro-ecological transformation requires, instead subverting agro-ecological narrative to the current systemic logic.

What then of the metropolitan state’s means and will to act as an agent of food systems transformation informed by social and ecological values? The findings are sobering: institutions of metropolitan food governance are fragmented and poorly resourced; a patchwork of policies shapes metropolitan food systems and foodscapes, but have little bearing on global and regional networks; ambiguous rationalities of control and accountability within the state undermine capacity, discourage transversal programming and stifle innovation; in the face of dominant ideologies and the low profile of food issues, the will to transform metropolitan food systems is weak. Agro-ecological narrative is “captured” by corporate, NGO and elite interests; and despite access to research, metropolitan food programming relies on threadbare theories of change. This governance terrain favours incumbents invested in the current system while disadvantaging consumers and smaller food system agents. To muster the will and assemble coherent technical means to transform food systems, the metropolitan state will require skillful leadership alliances able to negotiate the complex and ambiguous metropolitan governance terrain, research partnerships to inform policy development, intersectoral alliances and a strong social movement that articulate a compelling social-ecological narrative.

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Planning for local food systems: a study on potentials and limitations in Italy and England

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Keywords: food systems, urban/rural relationships, food planning, local governments, land use.

Abstract

This contribution examines the role of planning in improving the sustainability of local food systems. Specifically, by focusing on two domestic contexts of the Global North –Italy and England–, it investigates how planning policies and plans contribute to shape the relationships among food production and consumption across the urban/rural continuum. Research findings underline that the prevailing approach by planners and policy makers in dealing with the food system is regulative and prescriptive. Emphasis is on protecting existing agro-ecological resources and visual amenities of the countryside, rather than exploring the ways in which agricultural production and multifunctionality can guide a transition towards more sustainable food systems. Reasons of this limitation lie in planning’s disjointed focus on distinct policy regimes, which is mainly due to sectoral and regulative designations and to structural conditions. Conversely, a positive contribution in exploring the potentials of food for shaping better urban/rural relationships comes from a number of alternative, non-statutory, collaborative spaces among farmers and civil society. These have emerged in opposition with the standards and regulations typically underlying the planning process. Their potential lies in the reflexive approach and in the process of inclusive negotiation they share in addressing the vulnerabilities of the food system.

Introduction

Having significant relationships with issues of poverty and health, food has become one of the major challenges for contemporary urbanisation processes, both in the Global North and South. Its importance relates to the impacts on a host of other sectors —such as public health, social justice, energy and transport— (Morgan, 2009) together with the direct contribution on citizens’ quality of life.

In many cities, food-related health and sustainability concerns have prompted into the scientific, political and planning agenda. These discourses are grounded in the awareness that the construction of planning policies oriented to reinforce the linkages among hinterland’s productive factors and the city’s demand for good food can be an effective way to guide the transition towards more sustainable food systems (Renting & Florin, 2015). Among the many advantages that can be obtained by stronger relations of proximity among food producers and consumers the reduction of distance (literally and metaphorically), often related to a better consumer knowledge of place, methods and products and to higher levels of food security and transparency, is the more significant (Broekhof and van der Valk, 2012).

Indeed, as also recalled by Dubbeling (2013), spatial planning provides a relevant contribution in supporting sustainable food systems due to its crucial role in regulating the use, guiding the productivity of the most versatile agricultural land and in shaping the functional relations among urban and rural areas.

An important aspect to consider is the fragmentation that often characterizes land-use policies which manage and plan agricultural areas. As part of the rural hinterland which surrounds a number of urban cores,
food growing areas are often subdivided among a number of municipal jurisdictions. For this reason, the consideration of agriculture in spatial planning presupposes a reflection on the administrative dimension of territories, on what Calafati (2009) interprets as the relationship among territorial and institutional facts. Thus, investigating how to improve the role of food growing spaces in a perspective of urban/rural relationships means to increase the understanding on why and how local governments cooperate in planning for sustaining more sustainable and localised food systems.

The goal of this contribution is to improve the understanding on the planning approaches by which local governments can build more localised and sustainable food systems across the urban/rural continuum. The research has explored this topic by looking at the planning actions and interactions, connection and disconnections among local governments (Marsden & Franklin, 2015) in two domestic contexts of the Global North, Italy and England, and in three cases of contrasting size and configuration: the metropolitan area of Milan, the Aso Valley and the City Region of Bristol.

The choice of the case-studies is based upon two main criteria. Firstly, the case-studies are indicative of different spatial configurations of urban/rural relationships (Jacuniak-Suda et al., 2018; Bengs & Schmidt-Thomé, 2006), with reference to the territorial dimension of agriculture within urban and metropolitan regions. OECD (2013) provides an interpretation of urban/rural relationships according to which the concept is not attached to a certain spatial extent but it applies both for metropolitan regions and for small and medium sized towns. Accordingly, the case of Milan is indicative of a metropolitan region in which rural areas mainly have the role of servicing the urban region and where the countryside has a relation of strong dependence to the city (among the many: Ferraresi, 2009). In Bristol city region a number of few small-medium sized cities is strictly interconnected to a cluster of rural areas and the hotspots of local urban economy are spatially diffused in the whole region (Carey, 2011). Instead, the Aso Valley is an example of a sparsely populated context with market towns in which urban areas do not play a role as engines of growth and where the regional economy depends on resources and activities mainly located in rural areas (GAL del Piceno, 2014).

Secondly, the case-studies are representative of different governance and planning arrangements which match with the configurations of urban/rural relationships above mentioned. The location of the three cases in two distinctive institutional contexts and planning frameworks provides the chance to reflect upon the cultural assumptions and technical procedures that produce a different tension among spatial development and territorial governance (Janin Rivolin, 2008; Teles, 2016; Teles & Swianiewicz, 2018). Accordingly, while in Milan the agricultural park is an inter-municipal governance body with a planning policy established for protecting and governing a vast portion of agriculturally-specialised territory in the South of the metropolitan area, the Aso Valley is a context in which a statutory local governments’ association and a number of soft and strategic-oriented spaces of cooperation are acting for reinforcing the economic burden of agriculture, and its related social and environmental benefits to the local context. Last but not least, Bristol City Region provides the chance for investigating upon the performance of a consolidated planning policy, the Green Belt, which has been recently transformed by local and city-region planning policies (mostly by the newly established inter-municipal public-private body, the West of England Local Enterprise Partnership).

The case-study strategy adopted by the research had the purpose to understand how contextual conditions have influenced and determined the investigated phenomenon (Yin, 2003). Data collection mainly relied on a series of semi-structured interviews addressed to local institutional actors directly involved in constructing planning policies (mainly mayors, local councillors and planning officers), and to civil society representatives with an interest towards the content of the policies or the related planning processes. Other
data collection methods have been a literature review, especially in planning and food system fields, and a documentary analysis on reports and official spatial planning documents.

Discussion: from binding regulation to inclusive negotiation

Despite their embeddedness in different planning systems, the research has shown that local governments both in Italy and England build policies tackling agricultural areas by adopting a regulative and prescriptive planning approach (Mount, 2012). Policies and plans are mainly oriented to protect the countryside from inappropriate developments and to preserve landscape and agro-ecological qualities. Accordingly, they do not significantly contribute to the differentiated and multifunctional nature of agricultural areas and to their potential in strengthening the relationships among food producers and consumers across the interface (Lazzarini, 2019).

In Italy, the cases of Milan and Aso Valley binding local and inter-municipal plans tackle the vulnerabilities of agricultural areas mostly by creating a land-use designation which is complex in terms of the coexistence and overlapping among different layers of regulation, and enduring because of the difficulty to modify its scope and contents [fig. 1] (Lazzarini, forthcoming).

In England, the focus of local plans on food growing areas in Bristol City Region is mainly on protecting the visual amenity of the countryside and on clarifying the circumstances for the protection and/or release of Green Belt land for housing developments [fig. 2]. Just in the municipality of Bristol, the local plan has shown a more sophisticated approach to the food system, mostly due to the positive contribution of the Bristol Food Policy Council to the plan-making (Raffle & Carey, 2018). Among the policies dealing with the food system included in the local plan, the more significant require new residential developments to be designed and located for facilitating opportunities for local food growing. Others set out a statutory provision of allotment plots in new developments and expects them to maintain the role of civic centers as providers of groceries and fresh food in contributing to day-to-day shopping needs (BCC, 2014). In the other neighboring local authorities in Bristol City Region, the only local plan dealing with multi-functional farming is the South Gloucestershire local plan. In this case, a planning guidance is set for improving farm diversification by, for instance, establishing criteria for farms to introduce farm shops, plant nurseries, farm-based food processing and packaging and farm workshops (South Gloucestershire Council, 2006). At City Region level, the research has investigated the newly-adopted Joint Spatial Plan (JSP), a plan implemented by the West of England Local Enterprise Partnership (WoE LEP) — a non-statutory and inter-municipal body with no legal powers introduced in 2010 as part of the Localism Agenda (HM Government, 2010). Although the JSP has not taken a sectoral approach, the focus of the Plan is limited to urban growth and infrastructure planning. It leaves out any consideration of countryside’s strengths and weaknesses. Plan’s only way to tackle agricultural areas lies in the criteria for the release of Green Belt land for locating new housing developments.
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Figure 1. Concept diagram for East Keynsham Strategic Site Allocation in Bath and North-East Somerset (UK). Source: BathNES Local Council, 2014.

Figure 2. Land-use designations map of Pregnana Milanese (Italy). Source: Comune di Pregnana Milanese, 2016.
Alongside the regulative approach taken by local governments, the research has shown the emergence of non-statutory and soft planning spaces based upon open and collaborative platforms which gather farmers, civil society members and activists. Their logic is to put together a number of actors which have a common interest in building more localised food systems and in shaping stronger urban/rural relationships. An example of this approach is the case of the Milanese Rural Districts. These are forms of cooperation among farmers based on innovative business models that have been able to share and network energy and resources for jointly promoting products and services and improving the communication of farms with local institutions and consumers (Cinà e Lazzarini, 2019). A second example is the case of the Food Policy Council in Bristol which can be considered a meeting place for civil society, agri-food companies and local government for developing a food governance system in Bristol. One of the concrete results of the holistic “good food” vision implemented by the BFPC is the Good Food Plan for Bristol, a policy which promotes a cross-sectoral and integrated approach to Bristol’s food system based on a vision that keeps together producers, processors, distributors, retailers and consumers (BFPC, 2013).

The common goal of these experiences is to explore the contribution of food growing spaces in achieving more localised and sustainable food systems and in framing an innovative and alternative vision of urban/rural interdependency. More importantly, these experiences have emerged as open, reflexive and collaborative platforms of exchange among local governments and civil society actors, where the farmers and food activists have played a crucial role in shaping goals and contents of these spaces. Thus, one of their innovative aspects is the creation of a permanent relationship of co-production between the civil society groups and the municipality in what has been already defined as a reciprocal game of alignment for civil activists with local council’s strategy (Morgan & Moragues-Faus, 2015). The reference here is made to Albrechts’ interpretation of co-production as a political strategy, as a way to challenge “the fundamental political issues through its implication for the distribution of power between citizens and state” (Albrechts, 2012: 53).

By taking as reference the interpretation of neoliberal governmentality by Haughton et al. (2013), findings indicate that also in the food system a dualism among hard spaces of government and soft spaces of governance is emerging. This dualism is given by the different approach these spaces take on the governance discourse. Statutory spaces like the WoE LEP are acting on the basis of the need to establish boundaries and criteria which must be maintained and consolidated over time. Conversely, a more reflexive approach is taken by the soft spaces according to which identity is continuously strengthened by a process of inclusive negotiation. In this case, central “is the understanding that collective decision-making will reflect a diversity of interests, interpretations and priorities” (Mount, 2012: 23). This suggests that disconnecting with standards and regulatory approaches to planning can become a necessary dimension for civil society to reach some goals that governmental actors would not be able to achieve by themselves.

**Conclusion**

What the research has elicited is that the prevailing attitude by planners and policy makers towards the potentials of agricultural areas in shaping more sustainable food systems is still limited to the protection of existing agro-ecological resources and visual amenities of the countryside, rather than fully exploring their contribution to the overall sustainability of cities and territories. This is partly due to what Gallent et al. (2017) defined as the “planning’s disjointedly focus on distinct policy regimes”, an attitude that is mainly conveying sectoral and regulatory designations. When they tackle food issues, policies and plans deal with a separate section of the food system, rather than putting in place integrated, enabling, qualitative and performative
policies that look at planning as a place-shaper of the functional relationships among city and countryside. Nevertheless, the spatial plans investigated by the research still do contribute little to the agro-ecological transition and provide scarce implications for the climate change mitigation in contemporary cities and territories.

These limitations are complemented by the active role that farmers and civil society often had in co-producing strategies and actions for the transition towards sustainable food systems. The interesting point is that this innovation often happened in connection with local governments, rather than separated from it (Marsden & Franklin, 2015). This suggests the relevance for community and farmers initiatives to connecting and building alliances with institutional actors which can provide knowledge resources, financial support and visibility. Still concerns regards the way in which these strategies can better inform and orient spatial plans towards addressing the vulnerabilities of the food system and in reinforcing the cross-boundary cooperation and the functional production-consumption interaction happening across the urban/rural interface.

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Multifunctional Urban Space. Urban agriculture as a tool for climate vulnerability mitigation

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\textbf{Keywords}: adaptation; climate change; green infrastructure; multifunctionality; urban agriculture; vulnerability.

\section*{Abstract}

Rapid population growth, climate change adaptation, food security, and risks reduction are just some of the future urban challenges. In the next years, the world population will live and work in cities and megacities, urban space will grow faster, reducing urban and peri-urban green space. The growing need for Green Infrastructure (GI), landscape, and space for food production should be recognized as an urban issue, where alternative green space, farming, and agricultural multifunctionality are real options to the urban-scape and the food production stability for the cities inhabitants. This paper presents a first research step developed for the city of Venice-Mestre in Italy. The research, considering the multifunctionality of the agricultural system, aims to understand the city’s potential to produce edible food and at the same time mitigate urban’s vulnerabilities like urban heat island (UHI) and urban flooding. The study identifies the areas of the city most vulnerable to UHI and flooding, and the potential ones, for integrating green infrastructures, especially urban agriculture. Then combining information the research tries to understand in which way urban agriculture can achieve city objectives. The research concludes that: i) environmental, social, economic and spatial criteria should be considered for the design thinking; ii) the design should be a flexible system of urban agriculture typology; iii) urban agriculture co-benefits are high and need more experimentation.

\section*{Introduction}

Adapting urban areas to climate change impacts is a task of great importance. Climate change studies have foreseen several climate impacts: global warming, sea-level rise, high frequency and intensity of extreme events like as heavy rain and storm events, heat waves, desertification, forest fires and etc. (IPCC 2014). These documents also acknowledge that the adaptation and resilience of societies to a new climate framework is one of the most important human challenges. These issues have particular relevance to urban areas where the risk is higher given the concentration, infrastructure, governmental and economic systems and where more than 50\% of the population lives (Masson et al. 2014). At a city-scale, some of the climate change impacts take on specific characteristics such as the formation of UHI, or urban flooding. UHIs are urban areas within cities where the temperature is recorded to be higher than the neighboring areas and which could lead to injuries and deaths (O’Malley et al. 2015). Urban flooding is due to significant land-use changes that converted the natural areas to anthropized areas. Impermeable surfaces alter the hydrological nature of surface runoffs, reducing water infiltration into the ground, increasing storm runoffs both in terms of volumes and peak flow (Liu et al. 2014). Thus, climate change impacts as UHI and urban flooding endanger the health and even the life of human and animals, spoil private properties and public infrastructures, erode channels and soils, and contaminate rivers.

\textit{Green Infrastructure and Urban Agriculture.} In the last years, an increasing amount of research has addressed climate change adaptation measures and particularly UHI and urban flooding through GI and more
specifically through Urban Agriculture (UA) (Dubbeling, 2015). GI could have several definitions but in this article, it can be generally defined as a planned network of high quality natural and semi-natural areas, features and green spaces in urban and also rural areas, which is designed and managed to deliver a wide range of services. GIs are seen as important spatial structures able to provide co-benefits from natural element to people because of nature’s ability to provide ecosystems services (better quality of life, biodiversity, climate change mitigation and adaptation, social function). The increasing relevance of green infrastructure research is due to the GI’s multifunctionality, i.e. its ability to perform more functions in the same area with a win-win solution for competitive land problems. Giving opportunity for the achievement of significant environmental, social and economic benefits GI obtains great consensus in both theory and practice domain (Wright, 2011). At the same time, UA increasingly boosts its importance due to several socio-economic, environmental and resource-use benefits. These benefits include a contribution to food security and provision, waste recycling, reduction in air pollution and soil erosion, community empowerment, climate change adaptation, biodiversity, and ecological and social sustainability. In that way, UA is considered as a particular form of GI (Badami and Ramankutty, 2015). UA can be defined as growing crops and breeding livestock within the city; we consider in particular: forest, rooftop gardens, residential and community garden, vacant land, vertical edible green infrastructure, etc. And while UA is recognized as a useful tool to counteract climate change impacts there are just a few studies that analyze UA under such perspective (Artmann and Sartison, 2018).

In this article, it is presented a work done with a group of students trying to understand where and under which conditions UA as GI could be a good choice, which benefits to mitigate climate change impacts (UHI and flooding) and which co-benefits to environment and society.

**Methodology and Results**

The methodology applied is developed in 3 main steps. The first one has been devoted to the analysis of the selected area, with its characteristics and constraints; the second one was about the selection of the possible urban agriculture areas, and the third one was to identify co-benefits. The selected area is the center of Mestre, defined in collaboration with the Municipality, which considers it really important for the city future development. This area includes a mix of residential, commercial and small industrial uses.

**Analysis.** The analysis was developed by the use of GIS data, in order to identify morphological and socio-economical characteristics of the area, more specifically have been identified: green existing areas, buildings structure, rooftop typology and settlement, sites vulnerable to UHI, sites vulnerable to flooding, vacant areas, private or public lots, population distribution and class, economic sectors, but also the relevant normative, the existing plans and strategies, some collaborative agreements and existing projects. These analytical basis is useful to build a general knowledge framework, to understand the different city strength and weakness and to assess the UA as GI potential in different contexts. The results of this phase were to identify neighborhoods and areas that because of their characteristics are more suitable for GI and more in detail where UA can be used and in which form (ex. in fig. 1 and 2).

**Possible UA.** Considering the results of the analysis have considered 4 main sustainable goals linked with climate change: a) to increase permeable surface to reduce urban flooding; b) to connect the city with the peri-urban ecological system in order to increase the efficiency of the green network; c) to enhance soil fertility and green areas to lower CO2 levels; d) to improve green area to decrease UHI. In order to achieve them, it has been decided to use UA-based solutions, due to their multi-functionality. Thus, considering the socio-economic condition of the area, dimension, morphology and scope several UA have been classified.
Co-benefits. In the last step co-benefits have been identified for each UA solutions classified through the literature review.

Finally, with the information collected during these steps it has been developed an intervention guide for the administration, able to support it during urban renewal-regeneration and climate adaptation actions. The analytical model designed for Mestre is summarized in the table below, where are identified: objectives, vulnerabilities, opportunities, the most appropriate UA solutions, and their relative co-benefit.

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>to increase permeable surface for reducing urban flooding</th>
<th>to increase green area to reduce UHI</th>
<th>to increase soil fertility and green areas to increase CO₂ reduction</th>
<th>to connect the city with the peri-urban ecological system in order to increase the efficiency of the green network</th>
</tr>
</thead>
<tbody>
<tr>
<td>VULNERABILITY</td>
<td>UHI vulnerability</td>
<td>flooding vulnerability</td>
<td>people at risk (young and old)</td>
<td>commercial zone</td>
</tr>
<tr>
<td>OPPORTUNITY</td>
<td>Building rooftop</td>
<td>vacant and green areas</td>
<td>commercial zone</td>
<td>different cultures (immigration)</td>
</tr>
<tr>
<td>UA SOLUTION</td>
<td>rooftop gardens</td>
<td>residential and community gardens</td>
<td>vertical edible green</td>
<td>vegetable rain garden</td>
</tr>
<tr>
<td>CO-BENEFIT</td>
<td>UHI and flooding impact mitigation</td>
<td>food supply; fresh, healthy and/or organic food</td>
<td>Training, education and nature experience</td>
<td>countering environmental pollution</td>
</tr>
</tbody>
</table>

Discussion

Although studies and intervention guide has been developed during a student workshop, with limited time, the results are very promising and interesting. The case study highlights the great potential of Mestre to introduce UA to solve many issues at the same time and show how this possibility has been underestimated and not considered at all from the municipality until now. It showed on one hand the importance of some variables/characteristics, not only for identifying vulnerable areas, but especially during the choice of possible solutions: among these certainly the types of settlement and building (i.e. residential, industrial); high or low density of settlement (i.e. presence of space for garden, but also practices of composting and poultry breeding); type of social groups (i.e. population with propensity to carry out an agricultural activity and/or more vulnerable to the UHI). On the other side, the activity with the students allowed to understand the opportunity of urban
agriculture expansion on the rooftops, thus, considering the plain rooftop and building with a structure able to support UA, we have an area of 60 ha. Because of structural constraints and Municipality suggestions, it has been decided to assume just the use of 18 ha (30%). Considering an average horticultural production of 152 (ton/ha)year (Orsini et al., 2014), for Mestre the production has been estimated in 2736 tons/year, that represent about 39% of the city’s fresh vegetable requirements (ISMEA data). This solution seems particularly desirable where the availability of surface on the ground is small or car traffic could affect the healthiness of products. Moreover, following the study of Orsini et al. (2014), UA on rooftops helps to reduce CO₂ production, diminishing transport and packaging, that have been estimated to count 1370 tons of CO₂, and supports the creation of green corridors. Next steps for this research aim to understand and assess the trade-off between the use of UA and GI. Since, what is clear from this preliminary studies is that, from one side UA is an opportunity extremely useful and flexible, but from the other side, its impact on climate change vulnerabilities must be further developed, especially understanding the potential of different cultivar. Likewise, the feasibility of UA solutions must be further investigated, considering better both physical constraints (i.e. streets dimensions), as well as socio-economic and regulatory barriers (i.e. people acceptance, normative for contaminated soil, governance), that have been neglected in this work. Moreover, we believe that another crucial aspect to be addressed is how UA can contribute to close the production and consumption loops within the city, creating virtuous re-localized cycles in a metabolic view and in a circular economy perspective.

References


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A spatial perspective on food transition in diffused settlements. Lessons from the Veneto region.

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Keywords: Alternative Food Networks; Diffused settlements; Food space; Food transitions; Veneto Region.

Abstract

The agro-food literature increasingly adopts transitions approaches in order to conceptualize the emergence and scaling out of alternative food initiatives. These approaches through time have given greater importance to the socio-political context and the multi-level institutional apparatus in which alternative food initiatives develop. Scarce attention, however, is given to the role of space and place in the agency of alternative food initiatives. Taking the Veneto ‘diffused settlements’ as a case study, this short article briefly illustrates how spatial-geographical assets and flows - such as quality agricultural land, water and soil resources, mobility systems, alternative and conventional food infrastructures - have played a substantial role in influencing the development of conventional and alternative food networks in the Veneto Region. Based on the empirical findings, this article provides first directions for embedding a spatial/geographical consideration in the analysis of food system transitions. These directions relate to: a) the analysis of characters, access, uses of key material resources, b) attention to distance-proximity relations favoured by mobility systems; c) the role of territorial actors (planning/territorial administrations, conventional or alternative food clusters); d) the spatial organization of alternative and conventional food networks into self-reliant or, rather, hybrid food systems.

1. Framing food systems transitions. A review of approaches.

The agro-food debate increasingly adopts transitions approaches in order to analyse the emergence and scaling out of agro-food initiatives as alternatives to dominant food systems (Brunori et al. 2011, Sage, 2014, Bui et al., 2016; Spargareen et al., 2012). Referring to post-organic movements such as the Italian GAS (Gruppi di Acquisto Solidale), contributions such as Rossi and Brunori (2010), for instance, examine processes through which these types of alternative consumption-distribution network emerge, consolidate and scale out. With a closer look to socio-political dynamics in food transitions, contributions such as van Gameren et al. (2015) stress the importance of analysing Alternative Food Networks (AFNs) “in their socio-institutional and socio-political contexts”, examining the “interplay between local food systems and institutional actors of the current food systems” (p. 875). These and other scholars also observe how growth dynamics can create tensions in AFNs (Mount 2012; Manganelli and Moulaert 2018). These tensions mainly refer to value struggles of food initiatives as they seek to avoid ‘normalisation’ of AFNs into mainstream food system practices (Rossi and Brunori, 2010), or cooptation into established administrative and institutional apparatuses (Sage 2014). Other strands of contributions on (the agency of) food transitions focus on grass-root innovations (Seyfang and Smith, 2007) and everyday practices (Hargreaves et al., 2013, Cohen and Ilieva, 2015). Indeed, studies on food transitions from the perspective of everyday practices look at innovations in actors’ habits and routines - such as harvesting,
processing, distributing, consuming, and disposing food (Spargareen et al., 2012, Cohen and Ilieva, 2015). As these authors posit, local as well as multi-level socio-political structures play a key role in favouring or, rather, inhibiting the emergence and proliferation of new practices or initiatives, as well as their transformative potentials. For instance, municipalities encouraging new forms of organic waste recycling, or governments giving financial incentives that allow low-income citizens to buy at farmers markets (Cohen and Ilieva, 2015), can help alternative food practices to flourish.

The above observations show that contributions on AFNs from a transitions perspective have progressed in analysing the role of agency in AFNs, as well as the embeddedness of food initiatives in specific socio-political and spatial contexts, such as cities and multi-level institutional structures. However, we argue that food transitions approaches would benefit from a closer examination of the role of space and place in the agency of AFNs. With space and place, we refer to the physical-geographical conditions of a specific territorial context, such as a city or a region. In particular, more attention should be given to how spatial-geographical assets (e.g. quality agricultural land and its accessibility, mobility systems, alternative and conventional food infrastructures, spatial habits and practices of inhabitants), as well as spatial flows of food and key resources, interact with the agency of local food initiatives, namely their self-organising dynamics and their capacity to develop sustainable AFNs (Potukuchi, Kaufman, 2000; Steel, 2008). In the next sections we outline first concepts and tools for embedding a spatial/geographical consideration in the analysis of food system transitions, focusing on the geographical context of ‘diffused settlements’ in general and the Veneto ‘città diffusa’ in particular. The empirical part of this short article capitalizes on content and findings from the doctoral project of the second author concerning the Veneto region’s food system (De Marchi, 2018).


Located in the North-East of Italy the Veneto region is a potentially autonomous territory, rich in food culture and products variety, with a relatively strong food economy. The central area of Veneto region is characterized by important forms of urban dispersion, named ‘città diffusa’ (Indovina, 1990; Munarin and Tosi, 2005), and it is currently configured as a horizontal metropolis (Viganò et al., 2018; Giurleo, 2016), where places to inhabit, produce, consume, are intermeshed among each other (Ferrario, 2007). Therefore, the territorial configuration of the central Veneto is product of the interaction between urban and rural culture (Mininni, 2013); in other words, a widespread condition of peri-urbaneity (Donadieu, 1998). The sequel of this section gives a short territorialized analysis of the Veneto regions’ conventional food system and emerging alternatives, in the production, processing and distribution areas of the food system. Supported by concrete examples, this section underlines modalities through which alternative food initiatives use territorial assets to enhance their autonomy and to develop alternatives from mainstream food systems.

2.1 Production/transformation and distribution linkage

The central plain of Veneto region is an area particularly rich in surface water, with a network of rivers that innerves the plain from the Alps to the Adriatic Sea. Moreover, this area presents a large variety of different soil types, from permeable gravel in the north of fresh water springs, to the sandy soils on the coastal area. Therefore, the richness and variety of two crucial resources for agriculture, water and soil, facilitated the development of different agricultural models and productions. More precisely, the regional production is characterized by two coexisting realities: a still dominant conventional agriculture, often subsidized and strictly connected to the mainstream distribution systems; and traditional as well as emerging place-based niche products, with quality labels and remarkable impact on the regional/national market. The emergence of niche
initiatives is also facilitated by the presence of infrastructures and knowhow for food processing and transformation.

An example of alternative food production-processing initiatives is the linkage between the Danilo Tonon’s farm and the Latteria Sant’Andrea dairy factory. The fifty-years activity family farm Tonon, located close to Treviso, produces raw cow milk and cereals. The few cows live the majority of their annual life in the open field and are partly fed with fodder produced in the same farm. Part of the produced raw milk is sold in two vending machines in the proximity of the stables. The two vending machines are able to sell around 4,500 litres per week. The remaining quantity of milk is sold directly to a local dairy producer called Latteria Sant’Andrea, which is located 13 km far from Danilo Tonon’s farm. This dairy factory is a cooperative specialized in production of local cheeses, using exclusively milk coming from the Treviso province. The final product is sold locally through alternative channels: a selling point inside the factory; two mono-brand shops; local farmer’s markets and neighbourhood markets. This niche initiative has successfully used territorial assets to detach its economy from the mainstream distribution system, supporting local producers (who know in advance the amount of milk to produce and sell) and selling good quality short-chain products inside the region.

2.2 From production to distribution

If we look at the distribution phase, besides a strategic geographical position, the region can count on a well-organized multi-level mobility system as well as a food related facilities network. Indeed, there are two important inter-modality hubs in Verona and Padua, specialized in food logistic and packaging. Furthermore, the region hosts a west-east bundle of infrastructures with highway, national road and railway, which rely on the European Corridor V; and a dense network of minor roads that innervates the whole central plain connecting small towns and productive areas. Reflecting this multi-level mobility infrastructures, the food distribution system is also various, with a dominance of supermarkets, but also with the presence of traditional neighbourhood markets as well as local farms that sell fresh products onsite. Empirical findings show that the physical proximity between production places and urban settlements, together with a capillary mobility network, have facilitated the shortening of supply chains, and the creation of a diversified network of food distribution outlets.

A key example of transitioning initiative in the distribution-retail sector is EcorNaturaSì. The society has born in 2009 from the fusion between Ecor, the biggest Italian wholesale market for organic and biodynamic food, and NaturaSì, the main Italian supermarket chain specialized in organic products retail. EcorNaturaSì structure is able to cover the majority of the supply chain encompassing a network of organic producers, a consolidated system of retail and a series of organic labelled brands. The society offers logistic and informative services to its partners supporting also those farms interested in converting their conventional productions into organic. This has positive spatial effects as producers are also encouraged to enhance the landscape quality of their farms. Besides the associated producers, who are spread from the Prosecco hills (where they try to counteract the wine monoculture) to the coastal fields, EcorNaturaSì can count on a logistic plant where fresh and transformed products are stored and packaged. The society headquarters are inside Veneto region, but the scale of its activity is national, in terms of both producers and market outlets.
2.3 Regulatory context and multi-level territorial management

Territorial management policies and planning have also played a fundamental role in shaping Veneto’s conventional food system and emerging alternatives. At the European level, the Common Agricultural Policy, for instance, has an impact on the development of Venetian production and territory. Subsidies given to maize production in the 90s have caused a progressive expansion of this product in the high plain, often at the expenses of more traditional products and local varieties (Ferrario, 2007). Nowadays, the Greening policy favours the enhancement of buffer zones and the return to bushes and tree lines planting on property borders (Commission Européenne, 2013). At the national and local levels, powerful economic actors have influenced territorial management policies. Large retail companies, for instance, are often allowed to build new retail structures in peri-urban areas, where local administrations struggle to implement public services and infrastructures (streets, sewage systems, public lighting, and so on). On the other hand, civil society and producers associations also express their needs, for instance requiring local administrations to enhance the use of public spaces for farmers markets (Veneto Agricoltura, 2010).

This short outline of Veneto Region’s food system initiatives, illustrates how alternative food networks in the production-distribution sectors have found opportunities to scale out, using territorial assets, and/or connecting alternative and conventional infrastructures in innovative and creative ways.

3. Discussions and conclusions

Based on the analysis of the Veneto diffused settlement we highlight four analytical dimensions as starting points for a territorialized analysis of food transitions’ networks.

- **Characters, access, uses of key material resources.** This dimension refers to the biophysical characters and the uses of key resources such as fertile land, water, as well as infrastructures for food processing/distribution. Are fertile soil and water accessible to placed based food networks? Are there dynamics of competition over the use of key resources and infrastructures among conventional food actors and (emerging?) alternatives?

- **Distance-proximity relations.** Connected to the previous one, this dimension invites to look at mobility networks and (multi-scalar) infrastructures for transport, processing, distribution, consumption of food. Key questions to ask are whether these assets favour long distance food chains or, rather, can facilitate locally embedded food networks. As shown, the capillary mobility structure of the Veneto region, facilitating proximity among practices such as harvesting, distributing, purchasing food, have favoured a diversified network of food outlets.

- **Inter/multi scalarity of food chains, as well as of administrative and planning systems.** This dimension put accent on the analysis of key territorial actors impacting on locational strategies and on reproduction of conventional or alternative food chains. These actors are, for instance, big agro-food industry clusters or retail chains; the presence of small-scale farmers, cooperatives, local food entrepreneurs, solidarity-based food networks, more or less connected among each other; but also policy and planning agents, acting at multiple spatial scales, who have an impact on locational strategies and support towards small or big scale food systems.

- **Autonomous/self-reliant or hybrid food networks.** Connected to the previous, this dimension invites to observe modalities through which alternative food networks self-organise and reproduce in a certain geographical context, such as the diffused settlements. Do they organise into self-reliant short food circuits, as
the example of the Latteria Sant’Andrea shows, substantially autonomous and detached from conventional food actors? Besides, are there potentials for hybrid food infrastructures and networks (e.g. shared use of infrastructures, stocks, collaborations, and so on) between emerging alternatives and dominant conventional food players (as shown by the example of EcorNaturaSì)? This dimension is important to evaluate transition modalities and pathways of local food systems that necessarily involve some sort of relation between alternative and conventional food chains.

These dimensions can be potentially used as starting points for comparative analyses of transition pathways and hybridisations among alternative and conventional agro-food initiatives in low density or dispersed territories. These territories are common in Europe and yet, modalities through which food system initiatives develop and scale out in these specific geographies, remain understudied.

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Urban Agriculture as Activism: The Cases of São Paulo and Paris

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Keywords: Activism; agroecology; community garden; right to the city; urban agriculture

Abstract

Urban agriculture can be found in different civilizations and historical periods. However, it was not until recent times that it became associated with a kind of urban activism, including social and political actions in publicly land. The resulting community gardens came to symbolise the struggle for the re-organisation of the urban space, including the reflection on the uses of public space, the origin and quality of food, the agroecological principles, the citizens’ rights to cooperate and intervene in the city. This paper will focus on urban agriculture as an activist expression, notably in two metropolises – São Paulo and Paris –, where it has experienced a remarkable development in the last two decades. It is common for zoning models to stimulate the formation of fragmented cities or not to contribute to the consolidation of truly democratic urban plans in terms of the use and occupation of space, resulting in a clear segregation. From this framework of contradictions and their dialectical relationship, activism (including community actions and the formation of local associations) is an important mechanism for the struggle to improve the quality of life of the population, with actions aimed at reducing inequalities and discriminations, including new utopian readings about urban space. My approach will enlarge the concept of urban agriculture signalling its activism dimension from social engagement and citizen participation with local politics, and also addressing the utopia of the "peaceful revolution", i.e., the possibility that community gardens can provide a better kind of relationship with the public space and urban life, based on the communal sharing of assets and experiences – a scream for the right to the city.

Introduction

Urban agriculture encompasses a wide range of practices, forms, intentions and definitions (Mougeot, 2005). According to Cabannes (2012), this activity involves a series of actors and sectors, giving it multiple dimensions: social, ecological, economic, political and spatial. In this variety of roles, Madaleno (2002) includes the capacity of urban agriculture to be a strategic tool for urban planning in order to combat poverty and promote urban environmental policies. Reynolds (2009) and Nagib (2018), meanwhile, present it under the activist perspective, as a result of the guerrilla gardening actions or the local community initiatives, expressed by the model of community gardens.

In São Paulo, a network called Hortelões Urbanos emerged in 2011. This was a fundamental step in bringing together urban agriculture enthusiasts who were initially interested in discussing food production in the city, but also brought an activist willingness to start the practice of urban agriculture in public spaces. Hortelões Urbanos have become a "public group" (of free access) in Facebook for the exchange of experiences and information related to urban agriculture of domestic or community scale. Since its official appearance in 2011, communication among those engaged in the theme has become easier.
In 2015, a law was passed on the participative management of squares in the municipality, a fact celebrated by the activists, who came to rely on this legal protection to give some guarantee of survival to the community gardens located in public squares and also saw part of their struggles legitimized by the public power. However, intra-urban agriculture is still not regulated in the city and the municipal public power has not yet seen this issue as a priority.

In Paris, Graine de Jardins is the community gardening network that was established in 2001. Representative of the national network of French community gardens (Le Jardin Dans Tous Ses États) in the metropolitan region of Paris, institutionalized and recognized by the local city council, Graine de Jardins affirms to add associative and institutional actors in order to materialize community gardens based on common values of: sharing, respect for the urban environment and solidarity (mutual aid). The Parisian network promotes annual membership campaigns and provides a site with information on all the gardens registered in the metropolitan region.

The City of Paris has also introduced intra-urban agriculture as an integral part of its new master plan (Le plan local d'urbanisme), with targets set for 2020. The public incentive covers urbanistic interests in expanding Parisian green areas on terraces, balconies and roofs. Urban agriculture also contemplates the objectives of materializing ecological corridors and urban biodiversity, which cover the entire metropolitan region and are governed by the master plan of the metropolitan region.

Objectives

What do urban activism and urban agriculture reveal about contemporary cities and what are their (material and cultural) capacities to promote socio-spatial transformations?

Considering that urban agriculture presents different expressions materialized in the intra and periurban areas, but one of them is its activist expression, our objectives are intended to understand and critically analyse the city and the contemporary urban crisis frames from the perspective of the urban agriculture as activism, while presenting alternatives for the prospects of an increasingly urbanized world and the right to the city strengthens as a political (and environmental) agenda.

It is also pointed out as our objectives to understand the different materializations of urban agriculture as activism in two metropoles: São Paulo and Paris. Thus, a comparative and a questioning about South and North is sought in order to expand the academic horizon on such geopolitical understanding, having in urban agriculture a way for this theoretical analysis.

State of Art

The main innovative aspect of this research is to analyse and interpret urban agriculture, specifically the typology of intra-urban community gardens, from the activist bias. This is a theoretical-conceptual effort that involves a methodology of its own and aims to expand understanding about the activity. From a more comprehensive perspective, we recognize two very obvious expressions of urban agriculture: (a) one related to food production and income generation (economic activity); (b) and that resulting from activist actions aimed at transforming urban space, whose materializations reveal primarily non-economic purposes (Nagib, Nakamura, 2017).
Urban agriculture as activism (b), in turn, has distinct methods of materialization: via guerrilla gardening, that is, occupation without prior authorization of urban public or private land for agricultural purposes; or through collectives, associations and other citizen organizations, of community, local or neighbourhood character, in order to promote the reoccupation of the public spaces of the city. Both methodologies of citizen action are types of activism of local scale (“peaceful micro-revolutions”) that aim to give another meaning (aesthetic, emotional, ecological, political, etc.) to urban space; promote reconnection with nature; awaken the spirit of non-productivist and non-monetary cooperative work; and create new social relations of proximity.

From a wide bibliographical review, the critical contribution (to understand the capitalist system as contradictory in its logic of urban space production) and the numerous field works (with participant observation and/or action research) in two metropolises with quite a few contexts (São Paulo and Paris), this proposal intends to advance the academic understanding of urban agriculture while, at the same time, dialectically, seeking a better understanding of the city (as a space of evident inequalities, but also original and very attentive claim struggles to the issues of the 21st century). Defending urban agriculture as activism as a concept is the main thesis, opening a new perspective for analyses and interpretations about cities.

Methodology

The spatial organization is understood here by the interpretation of the dialectical process (a continuous action unfolding towards any result implying concepts of time and change) between: forms (the visible aspect of a thing or its mere description at a given instant of time); structures (the interrelation of all parts of a whole); and functions (the task or expected activity of a form) over time (Santos, 2012).

Concomitantly, a critical approach will be proposed from the dialectical method, which allows us to think the contradictions of the process of production of space at the heart of capitalist social production.

According to Lefebvre (2000), space is a necessary condition for the process of accumulation, since the city will be the material object of reproduction of capital under the command of the State. This, in turn, reproduces the logic of inequality and materializes the contradictions inherent in capitalism, which is exacerbated in the production of space geared to the economic and political needs that guarantee the private appropriation of social production. Therefore, the analysis proposed here will not present the space only in its formal aspect, but, rather, dialectically (“harmony versus contradiction”).

In this perspective, urban agriculture as activism reveals itself as an alternative to the market imperative of the urban space. The citizen actions materialize it in the form of community gardens in public spaces, contesting the current order and proposing new democratic conditions of use and function of collective spaces.

However, dialectically, alternatives materialized in the form of urban agriculture also become businesses, configuring themselves as multipliers of contradictions. It is the dialectical method that allows us to understand the alternative as antithesis or, contradictorily, as new mechanism for the reproduction of (green) capital.

It will also be given attention to the methodological procedures of action research, impelling this researcher to the understanding and direct interaction with the members of the investigated situation (Thiollent, 2011), confirming the pertinence of the dialectic as a method: the daily participation of the researcher in community gardens integrates the object of study of the research. This methodological procedure is able to increase both the knowledge of the researcher and the people involved in the research, in an ethical way and democratizing the academic research.
The materialization of urban agriculture as activism – because it confers different modes of social, economic and political-ideological organization – deserved a comparative study. To do so, a comparative study between São Paulo and Paris – both global cities in South and North respectively – becomes extremely relevant to this research. The proposed spatial cut will be community gardens in public spaces in intra-urban areas, whose respective materializations refer to collectives, activist movements or associations that resignificated the public space. But also the investigation of new fields of commercial activities concerning to intra-urban agriculture (urban farms, start-ups, etc.), that look for those community initiatives to develop themselves as a business.

Finally, we list as procedures: participate in ongoing processes of creation, maintenance and institutionalization of community gardens; analyse the relations between State and society in two different metropolises; interpret what citizens involved in community gardens mean by "activism"; elect the motivations and ideologies of making a community garden (whether for leisure, environmental education, community socialization or even entrepreneurship); understand the tensions in the territory (whether legal or emotional); compare positions/discourses on their pragmatic and ideological content; interpret what citizens involved in community gardens mean by "activism"; elect the motivations and ideologies of making a community garden (whether for leisure, environmental education, community socialization or even entrepreneurship); understand the tensions in the territory (whether legal or emotional); compare positions/discourses on their pragmatic and ideological content; analyse the daily discourses and practices; identify commercial initiatives that were born at the same time as community engagement for urban agriculture; recognize the contradictions. It is pragmatically necessary to: elect and map an area of study (intra-urban community gardens and some commercial initiatives in São Paulo and Paris); expand bibliographical review in order to propose a new look at a typology of urban agriculture; interview urban gardeners and local government agents; participate in events, associations and activist movements; use internet (especially social networks) to access as many people as possible involved in the ongoing processes.

**Results and Discussion**

The different ways in which urban agriculture materializes, structuring a broad "umbrella" of own expressions and whose characteristics are quite particular in time and space, cannot be satisfactorily understood in contemporary times as isolated cases and/or models, without taking into account the influences that the information flows exert on the exchanges and relations between the different actors and in the different territorialities (Nagib, Nakamura, 2017; Smit, Nasr, Ratta, 2001).

The community gardens are a source of free entertainment in the city, as opposed to the constant call for the consumption of goods and merchandise. In the strict sense of community gardens, it is understood that the act of "consuming the community garden" already means an activism against the consumer society, since the gardeners spend energy in a productive activity and they also give another configuration of use and experience for the urban space, away from the market ostentation ("peaceful revolutions") (Manier, 2012; Nagib, 2018).

This model of urban agriculture broadens the debate, also, to the understanding that the right to the city passes through the establishment of democratic control over the urban restructuring: "The right to the city cannot be conceived simply as an individual right. It demands a collective effort and the formation of collective political rights around social solidarities" (Harvey, 2012). Urban agriculture, analysed under the activist and mobilizing bias that was intended to present, joins the set of "emancipatory struggles that defy the existing order", contributing to change "institutions, introducing democratic practices and banning authoritarian practices" (Singer, 2002).

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It is also important pointing out some preliminary findings of empirical research in São Paulo and Paris. In both metropolises, community gardens ideologically value organic production. Agroecology appears as a symbol of the activist and community practice of valuing ancestral knowledge and differentiating itself from the organic production destined for the market. Conceptualizing, agroecology is also attentive to the socioeconomic condition of the farmer or gardener, the quality of the food produced, the reflection on the food distribution and marketing network, the distance between production and the market, and the preservation and conservation of biodiversity (Altieri, 2018).

Regarding local government, both the São Paulo and Paris municipalities allow the community urban agriculture initiatives to multiply through the city's green spaces, without the use of chemical inputs and pesticides, thus ensuring the "clean" production of food and respecting the urban local fauna (such as bees, which are fundamental pollinators). Since the first decade of the 21st century, however, Paris has had specific public policies and programs for urban agriculture, and has now become one of the main flagships of the current administration, which supports as many new community and business initiatives as possible, envisioning the spread of "sustainable business" and urban farms (which is also allowing us to better analyse the contradictions previously cited).

References
An invisible movement in city: the transformation through the agrifood system

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Keywords: Agroalimentary as alternative system, Citizen self-government, Food democracy, Resilient city, Spaces of resistance

‘[...] in the case of natural and human-created disasters and conflict recovery situations, food sovereignty acts as a form of “insurance” that strengthens local recovery efforts and mitigates negative impacts... where we remember that communities affected by disasters are not helpless, and where strong local organization for self-help is the key to recovery;’

(Nyéléni Village, Sélingué, Mali, 2007)

Introduction

Spain suffered a Shock, an economical, political and social shock that lead to the deregulation and privatization of the public services. Mayer (2013) names the case of (southern) Europe where ‘governments have used the financial crisis as an opportunity to implement more severe cuts than ever seemed justifiable before’. Over ten years after of the burst of the global crisis of 2008, the steps of the Shock Doctrine (Klein, 2014) can be traced in the case of Spain. The creative destruction (Harvey, 1988) effect is palpable from the media to the streets. However, we support the hypothesis that there is a resistance to the shock, a counter-power (Casadevante, Morán, 2018) to the imposition of the new system, that is also transforming the city in a creative manner, turning upside down Harvey’s concept. Moreover, among the different types of resistance, we choose to analyze the alternative food systems (AFS from now on) because they are a tool towards social justice and equality (Simón Rojo, 2019). This resistance is shaping the hardware of the urban towards what we defend is a resilient city (Godschalk, 2003).

We strongly believe that the citizenship and the city itself are in a constant dialog, both give and take creating a sort of play where the citizens are subtly lead by the hardware of the urban structure (Sassen, 2013). However, we investigate the social movements that, thanks to their work on food sovereignty (Desmarais, 2018), they are re-shaping the urban tissue and policies. The relation between the civē (the engaged population, the counter-power) and the urbs (the architectural structure, the physic of the city) as a path to urbanize without building (n’UNDO, 2017). It is the hardware, Sassen claims, that needs to be urbanized; this will lead us to a resilient city.

The engaged citizenship is creating an alternative (Allen, 2003), in every fragment that constitutes society. Food offers a great opportunity to shape the urban because of what entails: efforts of cooperation and association, explorations of diverse management methods, aim of penetration in the political agenda, etc. However, the food network is not properly connected to the urban tissue, they have grown apart. There is a clear lack of development on this connection as well as a lack of political efforts invested. Because of this, it becomes the core of the investigation.
Objectives

We aim, through a theoretical and practical work, to intrude into the dialog around food, between the engaged inhabitants and their city. Are the social movements, related to the right to food, agroecology and food sovereignty, actually reshaping the scenography of the city? Furthermore, can the analysis guide us to an alternative structure of the urban tissue through alimentary systems to construct a resilient city? In other words, what is the state of the urban tissue and what can be transformed; what does mean transforming and how is it related to resilience within the food systems. Finally, as a result of the case study, estimate the viability of the food systems in a local or even national scale.

State of art

Since the study is founded in the idea of food sovereignty (Desmarais, 2018), through social movements, there is a need to start clarifying two paths. First, the concept the right to food (at all times connected to food security, the quality of the product and the reachability of it), referring to a excluded and/or vulnerable population, whose reason to reach the AFS was a lack of coverage of a basic need that can not be satisfied through the conventional market mechanisms. Second, the population out of this risk who chooses the AFS for political or health reasons. Highlighting this differentiation enables us to understand in which occasions the spaces of resistance originated as a matter of interest in social transformation and not because an opportunity to cover a basic need. Urban policies can not address both issues with the same perspective due to their dissimilar demands.

This double path is closely related to ideas such as ‘accessibility’, a population able to cover their demands because an economic viability. However, accessibility also refers to the availability of a proximity supply. Another linked concept is the ‘nutritional quality’, meaning the value of the product understanding it not only on health terms but also as environmental responsibility (Sonino, 2014). All these characteristics are covered by the umbrella of the right to food (Committee on Economic, Social and Cultural Rights, CESCR, 1999) which
becomes itself a crucial piece to the description of food sovereignty. There is no food sovereignty without the fair right to food, and to accomplish by a society its right to food, all the ideas above described should be fulfilled.

Consequently, we understand food security as a bi-modal concept that, together with the search of a food democracy, funds a via for a transformation. We concur to the food democracy description of Hassanein (2013): as the active participation of the citizenship where there is equality in the decisionmaking process and also in the definition of food policies. Food democracy is interpreted as holder of terms such as food sovereignty and social justice. The case study notes, as well as it is introduced in the article of J. François (2018), that the AFS are constituted around the idea of food democracy. Thanks to the inherent political claim of its members, whether was this their original interest for joining or not. This grants the possibility to intervene in the political agenda and discuss the transformation of the hardware of the city.

As Sassen (2015) differentiates between hardware (physicality) and software (people's activities and the abstract concept of 'citynes'), we understand that the software is already performing. It is the social movements practicing food democracy as a counter-power (Casadevante, Morán, 2018) to the conventional market. Sassen defends the idea of urbanizing from the urban structure, and this is what is needed to take in consideration from the designing perspective: a responsible city that can interact and conduct its inhabitants, therefore must be transformed to answer the demands of a nowadays life and become truly resilient. What we define as resilient is no other that a smart city but concordats with what n'UNDO (2017) declares to be redundant: [...] the cities, as social polis by definition, have used the knowledge of the natural reason, to conform themselves as more compact and diverse, more inclusive, more intelligent [...]⁴. Therefore a resilient city will be the one able to handle and confront impacts of any kind ( economical, natural, political, etc.) without suffering a unrepairable damage (Godschalk, 2003).

**Methodology**

For the methodology two main tools are used: interviews, collected in data sheets, and field research, translated to drawings. In order to apply them, we choose an area of a large city, such as Madrid, to become our case of study. The case of study chosen is the area of Puente de Vallecas, defined among the train rails and the highways M-30, M-40 and A-3. There are two main reasons to choose this region of the urban area of Madrid: on the one hand, because it embodies one of the most vulnerable areas of the city (Hernández Aja, et al., 2015) which also means a starker impact of the crisis. On the other hand, a neighborhood with a long tradition of social movements that produces a consolidated tissue of political awareness and social activism. Finally, three points are chosen as core examples, aiming to provide the fullest picture in diversity of alternative food systems: Social Center La Villana (C.S. La Villana), the cooperative La Garbancita and Social Center El Seco (C.S. El Seco). The last one mention is outside the limits that were previously described, yet it is by its members, history and its performance understood as part of the district. Because of this, is considered within the case study.

The process starts with a first clear mapping of the area to identify what is the structure of the food network in the larger scale. Thanks to this, the examples to study deeper in detail can be geographically placed and contextualized in their surroundings. The layers of commerce are stressed in two levels: dominant industrialized system and alternative systems. The plane includes information on spaces that can be supporters of the alternative systems, belonging to the network of spaces of resistance that grow parallel to the dominant system.

*Author's note: original text is written in Spanish, for accuracy on the quote refer to Desde la Resta. N'UNDO, 2017*
The three examples are very diverse from each other and each is located in a different census tract, adding to why where they selected. We will refer to them as spaces of creativity and opportunity, spaces of resistance, because is where we can find the option to grow alternatives that promote resilience. The state of property or rental differs in each case, as well as the food systems they hold (integrated cooperative, food consumption groups, shops and a food solidarity pantry). Each case is closely connected to its close surroundings, which directly affects to the working of the AFS. In C.S. La Villana we can find food consumption groups (as in all the three examples) but also holds the only food solidarity pantry (this illustrates the issue before explained about the right to food, highlighting the lack of accessibility); this is an indicator that describes the population of the tract. Furthermore, we find an integrated cooperative (Bajo el Asfalto está la Huerta, BAH!) which points a dense populated area. In La Garbancita we find an integrated cooperative that includes a shop, which again is the only case in the study, with a completely different managing system. Here the urban tissue reflects, as in the case before, the viability of this AFS. Finally, in C.S. Seco we find a solid structure of food consumption groups and has a incredible amount of parallel activities (as well as in C.S. La Villana), with an urban community garden among others.
The next step consists in mapping the areas in a closer scale: the census tracts of *Numancia* and *Palomeras Bajas*, drawing more detailed information, now in three levels of commerce (D. López García, et al., 2018). Here the local trade network is included. Characteristic elements of urban structure are shown here: green open spaces, density of housing, public areas and commerce localizations. As a result, we archive a defined drawing of the urban tissue that enables us to compare de tracts.

Finally, a series of interviews are done. Six in-depth interviews, semistructured type, with six stakeholders selected because of their long trajectory of belonging to the spaces, their AFS to complete a broad sample and the fact that they are female voices*. The conversations are summarized in two parts, one related to the functioning of the building and the alternative systems, including indicators related to the property, the users, the management, etc. The second part is closely related to the food systems and to the logistics.

**Results**

At first it is very noticeable how the location for each food systems heavily affects its progress. The fact that the solidarity pantry is located in La Villana is connected to the urban tissue (high density, old housing, lack

*Authors’ note: the intentional fact that most of the interviewed were females is an active decision taken due to the limited scope of the study. It is important to claim the space in the academic research for the female voices, from references to collaborators. In this manner we try to balance the unequal current state.
of greenery), there is a more diverse population but also impoverish inside an old construction. Unlike the area where La Garbancita is placed, a newer neighborhood with open spaces that offers an easier option to open a store (easier access to transport, both for delivery and consumption). In every case the reason for the permanent activity is a political aim, with different perspectives and paths, but always offering a parallel option for food understanding consumption (the food system as a cycle where our decision-making has a larger impact and therefore individual should take part on it).

The interviews as well as the bibliography reflects that the food consumption groups are the core that hold most of the weight of the AFS activity. The food solidarity pantry exposes a negligence of the State towards the population, though its functioning it is admonitory, a resilient city should include this issue in its agenda as part of the disaster risk reduction. Furthermore, the interviewee confirm several issues on the managing and organizing part, as time consuming and lack of efficiency. This is closely linked to the locations as well because the buildings where we can find AFS are not prepared to hold such activities. Including transport and packing issues because in many cases they deal with scarcity of means or logistic that can not confront.

To firmly state what is the impact of the AFS, the case study should be geographically expanded to have a broader sample. However, in a local substrate, the food movement has a palpable impact. It would require and impulse from an outer stake holder to increase the scale of influence. Furthermore, the political agenda of the Government of Madrid includes food affairs as a new part of their program, which is encouraging for this spaces of resistance. However, there is a need to extend it to the urban agenda, from policies to design, due to the fact that in the field research has shown a big lack of 'hardware' development. Even though this are great steps to renew the understanding of food as a tool of empowerment of the citizenship and a strategy to deal with inequality, the dominant food system is far to established to be shaken.

**Discussion**

The AFS are a gap solving strategy, that is more democratic, environmentally and socially sustainable. In other words, they give coverage to a demand that a part of the population claims and yet it is unattended. These are demands of participation and choice (food democracy) but also demands of basic needs and social justice (right to food). Therefore, they are inherently resilient, because they adapt, grow and shape through time and adversity. The AFS are an 'urbanazing' factor that should be taken in consideration to constitute an improved scenography of the city. However, the support and the investment of means are clearly not enough for the healthy development of the AFS, they depend exclusively on the will of the people that constitutes them. The political and social work conducted in these spaces of resistance are a key to maintain them functioning but also to orbit among the ideas of food democracy. Therefore, and returning to the idea of the food security, an improvement of the structure and management of the spaces with a public institutional support has to be debated. The case study shows how the problems of the running of the AFS are in many occasions a lack of means, and here comes the space for the architecture and urban design. To promote the growth towards a larger alternative, food-wise, we need to think the cycle of food as a living system that needs a physical support. Where production, transport, distribution and waste management must be determining factors to shape buildings and connections in the urban hardware. This is the path for architecture to transform the city into a resilient one.

Further studies could compare territories or focus on the side of the rural tissue and its productive roll. Also, could be proceeded with applied strategies to the existing urban territory. Furthermore, the implementation of management tools that would make more efficient the running of the spaces. In any case, a non-intrusive institutional support will ensure the growth of the AFS, which means a reinforcement of one of the cornerstones for a resilient city.
Agroecological transitions confronting climate breakdown: Food planning for post-carbon city

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Integrating traditional private actors in the construction of a food public strategy: the case of independent shopkeepers and wholesalers in Paris

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Keywords: food democracy; food supply chain; independent shopkeepers and wholesalers; municipal food strategies; socioecological transition; urban food system

Abstract

In May 2018, the City of Paris revealed its strategy for sustainable food23, after two years of analysis and consultation about the current food system of the French capital (AEU, 2018). This strategy is one of the outcomes of the Paris Climate Action Plan, which goal is to make Paris a carbon neutral city by 2050 (City of Paris, 2018). To do so, the food strategy aims to relocate the Parisian food system. Therefore, the City of Paris has to initiate some changes in networks that exceed its frontiers and jurisdiction. Particularly, it implies a new relationship between local authorities and the private actors involved in the food production, transformation or distribution (Bognon, 2014). This communication – part of an on-going PhD – focuses on the way independent wholesalers and shopkeepers are involved in this governance framework. Those traditional actors play an important role in inner Paris, where there is still a great number of independent shops. Nevertheless, they are unequally mustered in the making of food policy. Indeed, the City of Paris mainly helps new retailers to open shop and has few tools to influence existing supply strategies, as well as the institutional actors dedicated to helping shopkeepers, such as Chambers of Commerce. On the other hand, traditional independent shopkeepers and wholesalers are embedded in strong retail networks that complicate strategies’ transformations toward a territorialized food system. This communication tries to document this configuration by studying the results of 15 interviews made with members of public institutions in charge of the making of food strategies and representatives of professional organizations of shopkeepers and wholesalers.

Introduction

This communication is part of an on-going PhD studying the shopkeepers’s supply strategies in the food sector. In this communication, I will focus on understanding how independent shopkeepers and wholesalers are taken into account in the construction of a new frame of food governance in inner Paris24.

In 2018, the City of Paris launched its Climate Action Plan, which is the municipal translation of commitments taken by the French state following the 2015 United Nations Climate Change Conference (COP21). The Climate Action Plan aims to make “Paris a carbon neutral city powered entirely by renewable energy by 2050 at the latest” (City of Paris, 2018a, p. 2). The City of Paris’ ambition is to lead an ecological transition by acting on six fields: energy, mobility, buildings, urban planning, waste and food. The “Paris’ strategy for sustainable food” published in 2018 is featured as the practical application of the Climate Action Plan in the food sector. Its goal is

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23 Stratégie de Paris pour une alimentation durable. Personal translation
24 The City of Paris has 2,2 million inhabitants in a 100 square meter’ perimeter, and belongs to a larger and a complex set of local authorities. It is included in the Greater Paris Metropolis, which has few operational competences for now, considering food policy in particular.
to “develop a sustainable, inclusive, resilient, safe and diversified food system and to support access for all to healthy, local and affordable food”\textsuperscript{25} (City of Paris, 2018b). This strategy has three main goals: decreasing the Parisian food system’s impact on the environment; improving the nutrition and health of the citizens; reducing socioeconomical disparities linked to consumption habits.

To meet those ambitions, the municipality wants to relocate its food supply chain inside the boundaries of the Paris Basin, which includes the administrative region of Île-de-France and its surrounding regions (City of Paris, 2018b). In this context, relocation impacts both the supply chain’s perimeter and the type of actors involved in it. Indeed, the current Parisian food system is to a great extent deterritorialised and privatised (Bognon, 2014). This configuration restrains the municipality’s levers to regulate its structure.

The food system’s relocation is closely linked to the City of Paris’ wish to build a new frame of territorial governance, by gathering around its food strategy all the actors involved in the Parisian food supply chain. It aims to be a unifying framework on different scales: inside the municipal institution, the strategy brings together previous policies already dealing with the food system; inside Paris’ administrative perimeter, it seeks to push various actors – both public and private – to contribute to the public interest; finally, on a regional, national and even international scale, the City of Paris wants to play a leading role in the promotion of a socioecological transition in the food system. Taking part of the Milan Urban Food Policy Pact in 2015 is an example of this process. This governance framework leads to wonder what kind of partnership could be built inside Paris’ frontiers, as well as the potential conflicts it might bring on (Billion, 2017). But it also question its exhaustiveness, which is one of the aims of the strategy: how can it involve every actors of the food system and if not, how can it deal with those who might be excluded from the framework?

In this communication, I will focus on the case of independent shopkeepers and wholesalers, who play an important role inside the Parisian food system. It was estimated that, in 2017, 68% of local food shops located in Paris were independent, meaning that they do not belong to a retail network\textsuperscript{26} and have complete autonomy concerning their supply chain (Atelier parisien d’urbanisme, 2019). In this context, they seem to be strongly linked with independent wholesalers, who mostly trade their product in Rungis International Market. Indeed in 2006, 80% of Île-de-France’ independent shopkeepers were buying their products there (IAU Île-de-France, 2011). But those supply chains are unequally mustered in the territorial food governance. In Paris’ food strategy, local shops are featured as major tools to reinforce citizen’s access to sustainable food, for example by creating new short supply chains with local producers (City of Paris, 2018b). To achieve this goal, the municipality has some levers, mostly by using its competences on land leaseback. Those devices are efficient to help the installation of shopkeepers whose supply chain are in step with the Paris’ strategy for sustainable food, but questions the way existing shops can be included in the construction of a new food system. This ambiguous position also applies to independent wholesalers, who are not mentioned in the Paris’ strategy for sustainable food.

\textsuperscript{25} « Développer un système alimentaire durable, inclusif, résilient, sûr et diversifié, et de favoriser l’accès de tous à des aliments sains, locaux et abordables ». Personal translation

\textsuperscript{26} The National Institute of Statistics and Economic Studies define commercial networks as “a set of sales outlet (enterprises or establishments) and a network head company, which maintains lasting relationships and establish common interest.” (INSEE, 2019)
Objectives

This communication aims to document how and to what extent independent wholesalers and shopkeepers are included in the making of public food strategies. We intend to show that, even if they play an important role in the food system, they are not at the centre of policy making. We will seek to understand and explain this configuration. To do so we will focus on the network construction’s process associated to the food governance framework. To a greater extent, the objective of this communication is to contribute to the academic debates on food democracy, by focusing on a professional category whose place in the food governance is being questioned by the development of short food supply chain. Indeed, go-between such as shopkeepers and wholesalers are historical actors of the supply chain, but their position in contexts of relocation is ambiguous, which make it particularly interesting to study.

State of Art

Since the beginning of XXIst century, several studies have been conducted to analyse socioecological transitions in food systems and their governance (Brand, 2017; Lubello et al., 2016; Wiskerke, 2009). They highlight how local authorities have progressively put food on their agendas, at the crossing of sectoral policies such as agriculture, health and urban planning (Bonnefoy and Brand, 2014). Other researches focus on the actors who contributed to this agenda setting, in particular citizens and public associations, by studying how their claims contribute to implement changes in policy making in the food sector (Aubry and Chiffoleau, 2009).

These studies allow us to understand the food system’s transformations linked to the (re)emergence of civil society and public actors in its regulation. They also offer some frames to analyse governance as an exchange or confrontation space (Billon, 2017; Bognon, 2014; Le Velly, 2017). Nevertheless, they do not systematically take into account strategies led by actors at the margins of those configurations, such as independent shopkeepers and wholesalers. Those professional categories have been mainly studied in the field of management and economic sociology (Bernard de Raymond, 2014; Michel, 2014). The crossing of those two theoretical backgrounds offers some stimulating perspectives to study how traditional economic actors are included in frameworks of food governance.

Methodology

This communication is based on 15 interviews, focusing on two types of actors: on the one hand, members of institutions who contributed to implement food governance in Paris, Greater Paris metropolis and Ile-de-France; on the other hand, representatives of professional organisations representing the fruits and vegetables industry. I chose to make a case study of this foodstuff because each industry has its own structure, based on its history, its constraints and the actors involved in it. Moreover, the fruits and vegetables sector is at the heart of Paris relocation’s ambition, as the municipality mainly wants to support the development of market gardening in Ile-de-France by giving it outlets inside the capital. Those interviews complement the analysis of institutional documents dedicated to food governance, such as food strategies, annual reports and public communications.

Results

In the Paris’ strategy for sustainable food, the municipality mainly encourages the installation of independent shopkeepers who promote short and/or relocated food supply chain. At the time of writing, there is no existing tool to support transformation of the supply chains built by already established shopkeepers. That can be partly explained by the fact that the city has levers on land use, but cannot easily regulate retail practices.
The Chamber of Commerce, whose role is, amongst other, to be a mediator between companies and public action, does not have structured actions in this perspective either. Because it was a deregulated field for more than half a century, shopkeepers’ supply strategy wasn’t considered as a relevant field of action for Chambers of Commerce. It was – and still is to a great extent – regarded as a strategic and competitive tool for retail actors.

This lack of support occurs in a context where supply chains are characterised by strongly intertwined network between shopkeepers and wholesalers. As mentioned in the introduction, Parisian shopkeepers mainly buy their products at Rungis international market, where trust and networks play a key role. Moreover, the idea of complementarity is perceived as the main added value of this supply chain’s configuration: wholesalers are depicted as essential actors to regulate prices and select appropriate products; shopkeepers on their side inform the final clients about fruits and vegetables and promote them. Moreover, with their knowledge of the market, both of them are able to induce changes in the global supply chain if necessary.

This notion of complementarity may complicate the integration of actors from the traditional supply chain into strategies that aim to decrease the number of go-between in the food system. Obstacles are also linked to the fruits and vegetables industry’s scale where transactions as well as professional organisations are mostly national or international. Their weak integration in municipal, metropolitan or even regional governance framework could be explained by the fact that they have not had historical partners at those scales.

Anyway, even though they are not included in the construction of food strategies, traditional shopkeepers and wholesalers are in charge of a great part of the Parisian supply chain. Moreover, process of relocations in Paris are characterised by new forms of intermediations and during the last few years, some companies and associations were created to help producers dealing with logistics and distribution issues, by taking these activities in charge and by communicating about producer’s offer to the consumers. These practices are very close to what shopkeepers and wholesalers do on deterritorialised supply chains. Thus they could be particularly interesting actors, and their knowledge of the supply chain configuration is not completely taken into account in sustainable food governance frameworks.

Discussion

This communication focuses on the Parisian case but is part of a comparative analysis of a variety of food governance models in Ile-de-France. The comparisons show that even though socioecological transition is always depicted as a core ambition, there are several approaches to food-related policy making, depending on the local authority’s jurisdiction and the way food governance is embedded in other goals, such as economic development or regional competition. These different contexts could benefit from a deeper study.

Moreover, to realise this case study I interviewed institutional representatives. It allowed the identification of tendencies regarding the Parisian food system transition’s management. However, independent shopkeepers and wholesalers are professional categories embracing a great diversity of practices or professional and personal trajectories. Therefore, it would be relevant to compare this case study with the individual representations and strategies of independent shopkeepers and wholesalers, by interviewing them directly. That’s what I intend to do in the following months of my PhD.

Finally, this communication focuses on a case study which has distinctive features, linked to the territory’s history and configuration. It would be particularly interesting to compare the Parisian situation with other regional or international contexts.
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Strategic spatial planning and reorientation of the agro-food system in Valencia. 
Evaluating urban transformative capacities for sustainability.

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Keywords: agro-food system, strategic planning, sustainable transitions, territorial planning, Valencia

1 Introduction and objectives

Climate change is consequence of significant impacts on human and natural systems (IPCC, 2014). Cities and urban food systems are critical contributors to climate change. According with United Nations 55% of the World’s population lives in urban areas (UNDESA, 2018). Urban unsustainability problems are full of uncertainties and complexity. Furthermore, the agro-food systems are characterized by globalization, global markets, neo-liberalization and changes in lifestyles (El Bilali, 2019). In that way, we require new forms of planning to confront current global sustainability challenges related to agro-food systems, especially in urban areas.

In this complex scenario are emerging more sustainable ways of production. The two who stand out are the organic/ecological agriculture and the agroecology (Altieri and Nicholls, 2013). The former focuses on food production avoiding synthetic fertilizers and pesticides but without ensuring a global balanced socio-ecological system. The latter (agroecology) is based on a holistic approach that focuses on ecological sustainability of overall production system. According with Levidow et al. (2014), agroecology is at the same time a scientific discipline, an agricultural practice and a social movement. This integration has nurtured collective actions and alternatives following food sovereignty values against the hegemonic agro-food system all over the World.

According to the first Dobris Assessment (EEA, 1995), the historical Huerta of Valencia is recognized as a very singular landscape in the Mediterranean region. This historical irrigated vegetable market garden, which surrounds the city, is crucial in terms of the urban sustainability transition singularities of Valencia. In this way, the relation between the Huerta spatial planning and the agro-food system strategic planning has been selected in the city of Valencia. In addition, Valencia has an effervescence of disruptive agro-food collective initiatives and it presents a balanced leadership amongst public institutions, stakeholders, civil society and private sector initiatives (Palau-Salvador et al. 2019). Furthermore, local citizens have reacted to current agro-food system issues by challenging it with creative initiatives, self-organization and claiming for change.

Since 2015, a political change came up in Valencia. Those social claims have been answered by both agro-food and spatial planning policies. On the one hand, Valencia has developed a sustainable agro-food policy strategy called Valencia 2025. On the other hand, the Huerta Law and the Huerta Territorial Action Plan to protect the Huerta’s landscape were approved in 2018. Also the Strategic Agrarian plan of the city of Valencia is ongoing, which is facing the dilemma production versus protection.
The aim of this piece of work is to analyze the urban transformative capacity (Wolfram, 2016; Wolfram et al., 2019), in relation to the agro-food system and the Huerta’s planning in the city of Valencia. Wolfram (2016:126) understands urban transformative capacity to be “the collective ability of the stakeholders involved in urban development to conceive of, prepare for, initiate and perform path-deviant change towards sustainability within and across multiple complex systems that constitute the cities they relate to”. The purpose is to carry out an exploratory assessment of Valencian potentials towards sustainability. In addition we identified the essential factors to accelerate transition throughout the Huerta spatial planning processes and the agro-food system policy reorientations. In particular, the role of planning (and planners) and stakeholders have been examined in relation to its capacity to translate and incorporate innovative practices to accelerate urban sustainability transitions.

2 Theoretical framework

The background of this piece of work lays on diverse transition schools that differently address transitions towards sustainability issues. We are following four main approaches (Frantzeskaki at al. 2018). Firstly the Technical Innovation Systems approach that focuses on the emergence of new technologies and their related social assets. The second one is the Strategic Niche Management which focuses on niche creation, proliferation and replication to enable transitions throughout strategies such as shielding, nurturing or empowering (Hoogma et al. 2002). Transition Management is the other broader scope which embraces and emphasizes the governance framework to articulate actors and their influences. In addition, transition management is including the implementation of specific processes and methodologies for envisioning, backcasting or transition arenas building for advancing transitions (Rotmans et al. 2001; Loorbach, 2007; Loorbach et al, 2016; Wittmayer et.al, 2018). The last one, the Socio-technical Systems approach aims to explain transitions focused on the complex dynamics amongst niches, regimes and landscapes (Geels, 2004, 2011).

We understand transition as “radical transformation towards a sustainable society as a response to a number of persistent problems confronting contemporary modern societies” (Grin et al. 2010:1). The complex character of the societal changes makes transitions as continuous processes that reinforce each other but take place in different areas such as technology, economy, institutions, culture, ecology and belief systems (Rotmans et al., 2001). Additionally, transition studies incorporate an institutional perspective in which these processes of structural change are associated to a shift in the dominant rules of the game (Meadowcroft, 2009). Furthermore, we are working across multi-actor perspective where agency of actors, networking and governance articulation are central drivers for transitions (Grin et al., 2010; Avelino et al., 2016; Frantzeskaki et al., 2018). We are also considering a multi-level perspective that supposes a complex interaction amongst landscape, regimes and niches (Geels, 2002, 2004, 2010).

Furthermore, there is an increasing in attention to the role of place in urban transition studies (Coenen et al., 2012; Frantzeskaki et al., 2017). As well there are different theoretical proposals that address the notion of urban transformative capacity. We are based on Wolfram’s conceptual framework (2016), which develops an urban transformative capacity framework in ten components to understand the agency of territorial actors and their interaction, the core development processes and the relational dimensions that involves the urban transformative capacity towards sustainability of a city (Figure 1).
Figure 1: Components of urban transformative capacity. Source: Wolfram et al., 2019: 439.

3 Research methodology

This piece of work follows successful applications of Wolfram’s conceptual framework in sectoral-oriented researches, such as urban regeneration (Wolfram, 2018) and energy governance systems (Wolfram, 2019). Primary data was gathered throughout semi-structured interviews with 13 selected stakeholders (Table 1) who were involved in current agro-food system initiatives and planning processes. The interviews were realized between January and June 2019 throughout a balanced representation of stakeholders. Complementary primary data was also collected throughout local events and meeting attendance.

<table>
<thead>
<tr>
<th>ID</th>
<th>Affiliation</th>
<th>Stakeholder group</th>
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<tbody>
<tr>
<td>V1</td>
<td>Director, Planning Division (Generalitat Valenciana)</td>
<td>Regional government</td>
</tr>
<tr>
<td>V2</td>
<td>Secretary, Planning Division (Generalitat Valenciana)</td>
<td>Regional government</td>
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<td>V3</td>
<td>Planning Service (Valencia-Municipality)</td>
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<td>V4</td>
<td>Agriculture and Huerta Service (Valencia-Municipality)</td>
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<td>V5</td>
<td>Per l’Horta</td>
<td>NGO</td>
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<td>V6</td>
<td>CERAI</td>
<td>NGO</td>
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<tr>
<td>V7</td>
<td>Cuinatur (Eco Business)</td>
<td>Business</td>
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<tr>
<td>V8</td>
<td>Cercle (Coop.)</td>
<td>Intermediary (private)</td>
</tr>
<tr>
<td>V9</td>
<td>The Water Tribunal of Valencia (since 960)</td>
<td>Intermediary (public)</td>
</tr>
<tr>
<td>V10</td>
<td>Cátedra Tierra Ciudadana (Universitat Politècnica de València)</td>
<td>Intermediary (public)</td>
</tr>
<tr>
<td>V11</td>
<td>Urbanism department (Universitat Politècnica de València)</td>
<td>Academia</td>
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<tr>
<td>V12</td>
<td>Geography department (University of Valencia)</td>
<td>Academia</td>
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<tr>
<td>V13</td>
<td>Soc. Sci. and Economy department (Univ. Politècnica de València)</td>
<td>Academia</td>
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Table 1: List of stakeholders selected for personal interviews
In addition, interviewees were also asked to assess the components of Wolfram’s framework on a 5-level Likert scale. Furthermore, the interviewees’ assessment scores were aggregated by 18 subcomponents in order to display the stakeholder’s overall vision which was finally compared with the research team integrated vision to enrich discussion and conclusions.

4 Results

Valencia and the Huerta have a particular urbanization pressure tradition. Since the Turia river flood of 1957, the urban and metropolitan planning was focused on infrastructures (Miralles, 2018). Also the Spanish property boom and soil speculation hit hard in the city and its outskirts (Melo, 2018). After a 50 year-long local community claiming process in favor of the Huerta’s agricultural land and its lifestyle protection, a popular legislative initiative to protect the Huerta emerged in 2001. Although this initiative, which collected 100.000 signatures, was refused by the Parliament at first sight. Despite of all a new regional and local political will came up in 2015, which was aligned with 15-M and those social movement claims. At this time, Valencian municipality set up a new council for agriculture, Huerta and towns; and also Valencia signed the Milan Urban Food Policy Pact in 2015. After that, Valencia was said to be the Food World Capital in 2017. Last year, agro-food strategy Valencia 2025 was approved. Furthermore, the Huerta law and the Huerta territorial action spatial plan to protect the Huerta were approved in 2018. In addition, the Huerta’s agrarian strategic development plan is ongoing, which is the last pillar of the popular legislative initiative of 2001.

According with stakeholders’ interviews, diversity of actors and inclusive and multiform urban governance spaces related to the agro-food system have been improved. On the one hand, the Space of Agroecological Incidence (ESPAI) was set up throughout informal pathways by university professors, members of public institutions and NGOs, who all were grounded in food sovereignty. On the second hand, a new institutional food advisory panel was built up by the Municipality of Valencia. This municipal food council is constituted by more than 70 organizational and institutional members. These new transdisciplinary spaces were working together towards the Valencia 2025 Agro-Food Strategy approved in 2018. Despite of these governance spaces, there are not enough intermediaries and networking connections amongst actors. However at Valencia metropolitan level, the Huerta Council is a forthcoming institutional multi-actor entity, which will be in charge of main intermediary issues.

The improvement of the governance system and the rise of empowered communities of practice are the results of powerful transformative leaderships in political, social and private level in Valencia. Per L’Horta, who are the heirs of the popular legislative initiative, or Salvem movements are involved in every metropolitan territorial conflict of Valencia. Nevertheless, agro-food collectives such as CERAI in favor of food sovereignty are emerging as communities of practice. Farmers’ associations such as La Unió de Llauradors i Ramaders, also contributed as stakeholders. The academics’ roles were also relevant in terms of co-production of knowledge and highlighting the Huerta throughout research work. The Cátedra Tierra Ciudadana is one important institution from the Universitat Politècnica de València. Despite of all, as indicated by all stakeholders there is not shared vision amongst stakeholders but a partial one which provides orientation. In particular, the Valencia 2025 agro-food strategy was approved by all the parties. However, barriers between urban and rural leaderships have been appeared.

Regarding with disruptive experiments towards sustainability the private sector of Valencia has been considered weak by interviewees. Nevertheless, a high diversity of agro-food disruptive initiatives has been recognized such as food consumer groups, urban gardens, municipal markets, eco-markets or sustainable education projects in schools. Besides all of these, there are not resources to promote enough agro-food
innovation based on community. Also innovation embedding and flexible regulation are not developed by public administration but red tape issues to achieve those experiments.

Furthermore, a lack of monitoring and accountability funds has been noticed in the agrarian strategy Valencia 2025 and the Huerta of Valencia spatial plan. These tasks are currently carried out through informal pathways by Per L’Horta or the ESPAI. Furthermore, reflexivity and social learning spaces are mainly created by social movements beyond planning elaboration procedures. However, there are not systematically and continuous processes to reflect on by administrative institutions. Finally, despite of strategic planning and urban spatial planning emphasizes and involves issues about the relational dimensions of the Wolfram’s framework, horizontal and vertical integration and coordination still remains a key weakness.

5 Discussion and conclusions

Figure 2: Differential assessment of urban transformative capacity between stakeholders and academia

Figure 2 shows discrepancies between stakeholders’ interviews and academia scores. The academic interviewees considered disruptive experiments and transformative leaderships higher than ever before but not enough towards sustainability transitions. Furthermore, they claim for cross-scale coordination and multi-level perspective orientation. Likewise, the stakeholders considered the collective vision and the scenario planning as underdeveloped drivers towards sustainability.

The first results show that reflexive governance and envisioning should be reinforced in order to achieve urban sustainable transition. According with these results practical implementation proposals have to be shown in further developments of this piece of work. Finally, this extended abstract already goes one step forward
towards ‘planning unlearning’, and also it could be itself considered as a tool for developing reflexivity and social learning amongst stakeholders.

**Acknowledgements**

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Demonstration plots in Maputo’s urban agriculture as adaptive instrument to disseminate knowledge and to promote innovation for an agroecological change

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Keywords: demonstration plots, good agricultural practices, innovation, knowledge transfer, participatory education

1. Introduction

The global food production is with up to 29% a major contributor to greenhouse gas emissions (IPES-Food, 2017, p. 6) and it is also severely threatening the world’s biodiversity (Willett et al., 2019, p. 467). Additionally, the accessibility of food is distributed unequally, with obesity on the one and hunger on the other hand. For these, and for other ecological and social reasons, food and nutrition are currently one of the most pressing challenges. To address these issues a systematic shift to food system planning becomes necessary which operates locally – embedded in people’s living environments. Taking into consideration that the 21st century will see even more urban growth, which needs to happen within cities and the strengthening of urban agriculture becomes essential. However, for a long time, urban food production has mainly been discussed as a mean to reduce food insecurity in the Global South (World Bank, 2013, pp. 6–7), whereas cities of the Global North are currently rediscovering and evolving what once inherently belonged to them (Scazzosi, 2016). Redeveloping urban food systems in the Global North, must include strategic efforts to improve agricultural production and is accompanied by providing the necessary infrastructure but also education on food and nutrition issues (Stierand, 2014, pp. 194–195). Lessons can be learned from the Global South and their experiences in order to foster the socio-ecological transition necessary to ease climate change and its impacts. Hence, (urban) agriculture can be seen as an important action field within the post-growth movement.

2. Context

The post-growth movement seeks for a fundamental socio-ecological transition by implementing progressive strategies under the current neoliberal conditions but without losing a long-term perspective on an all-embracing change (Schmelzer, 2017, pp. 8–10). Within planning and spatial sciences post-growth approaches are also getting into the centre of discussion. The necessity of economic expansion is inherent in the planning of our socio-physical environment and thereby in the spatial development of our cities. By criticising those current paradigms and rethinking common understandings of terms and concepts new subjects like agriculture or forms of organisation can become planning issues and alternative path dependencies are getting more probable (Schulz, 2017, pp. 11–12). Post-growth planning claims to substantially decrease the use of natural capital and instead to enhance the use of social capital i.e. knowledge, understanding or interpersonal solidarity (Wächter, 2013, pp. 1069–1070) by setting up potential meeting points, where interaction can start and develop. By this the community’s self-reliance increases and power from markets and states may be shifted to the people
Agroecological transitions confronting climate breakdown: Food planning for post-carbon city

(Wächter, 2013, p. 1074). This should also be considered in the context of urban agriculture in West European cities which is gaining importance.

Currently, urban gardening as a lifestyle attracts a lot of attention within politics and society, whereas urban food production, that would support regional food cycles on a larger scale and work towards a socio-ecological transition, is struggling to be promoted and funded. Hence, urban planning should focus on building up social capital within the structures of urban agriculture while also guaranteeing other prerequisites like land access. By intervening on a social level and creating networks or platforms for social interaction, a sense of community, the potential to share skills and to represent their own interests are being strengthened.

In Maputo, Mozambique, an interesting example for this can be found within the sphere of urban agriculture. Around 14,500 small-scale farmers produce for their own consumption as well for the local markets (Halder, 2018, p. 5). The majority of them is organised in associations and is cultivating the “green zones”, which have been established during Mozambique’s civil war. A key component of this urban food system is the knowledge transfer that is being executed by the public extension service in collaboration with (mostly Mozambican) non-governmental organisations.

The most widely applied instrument within the extension service in Maputo are demonstration plots. They are a collective field within the association where valuable and already approved techniques are being practised with the help from extension workers and where the farmers can exchange ideas and knowledge. It is a method to show small-scale farmers the advantages of certain practices, to gather and generate better agricultural practices within their own context and to respond adequately to the issues that go along climate change (Gaspar, 2013, p. 20).

To promote a social and agroecological transformation within the field of urban food production, it seems reasonable to take Maputo as a reference model. In order to check, whether demonstration plots can be transferred and adapted to different contexts, an example needs to be chosen from the context it is destined for. In the case of West European cities, it is worth looking at the German allotment garden movement, especially since the structures that have been developed over the course of their 200 years of existence are rather similar to those witnessed in Maputo.

During the times of industrialisation when the food supply of the cities and their inhabitants had become unstable, inner-city land was provided for the poor and needy so that they could produce their own food. With economic deterioration and a growing demand for subsistence farming, the first law regulating the allotment gardens had been enacted in 1919 (Bock et al., 2013, pp. 34–36); today’s German Bundeskleingartengesetz is still based on that (Deutscher Bundestag, 1983).

Even though, most urban farmers in Maputo produce solely for commercial purposes which is quite a stark contrast to German allotment gardens in which this is forbidden while food production is obligatory, the farming activities remain comparable especially when exploring the organisational structures. In Maputo as well as in Germany, the land rights are secured through the association in which the farmers and gardeners, respectively, are grouped. Moreover, they are strongly interconnected with other associations and those (inter)regional unions form lobbies for the farmers and gardeners and enable discussions surrounding the future viability of agricultural land within cities. Moreover, they also encourage exchange and provide structures for knowledge transfer. By acknowledging the similarities between the extension service in Maputo’s urban agriculture and the German allotment garden community, the latter was chosen to explore how they could benefit from Maputo’s knowledge transfer.
3. Procedure, objectives and methodology

The study has been divided into two steps with their own specific objectives:

Step I – Maputo: To examine the functioning of the demonstration plots in Maputo and to evaluate their potential for the dissemination of agroecological knowledge.

Step II – Transferability: To evaluate whether demonstration plots are a suitable instrument to foster socio-ecological transition on a territorial scale within other contexts, using the example of German Kleingärten (allotment gardens).

The two steps had been carried out methodologically as follows:

Step I: A three-months-long fieldwork in Maputo that has been guided by the ‘Action- and Decision-oriented Research’ approach (Fiege, 2018) revealed insights into the functioning of the demonstration plots and their potential of adapting and disseminating good practices within the ‘green zones’. The data has been obtained through a mixture of methods: Semi-structured interviews with extension workers, farmers and policymakers as well as civil society actors build the core of the data. They have been complemented by participatory observation during the sessions on the demonstration plots and the measurement of quantitative data surrounding the physicality of the plots. In a workshop setting, interim results – which testify the good functioning of the demonstration plots when certain conditions are met – have been verified and complemented by selected stakeholders.

Step II: Based on those results, the reasons why demonstration plots could also be implemented in other contexts emerged and the conditions that must be met to obtain good results have been outlined. The transferability of demonstration plots as a suitable instrument for agroecological transition in different contexts has been explored using the example of German Kleingärten (allotment gardens). By means of two semi-structured interviews with representatives of the German federal union of allotment holders and the regional union of Berlin, data about their training instruments and their requirements to transfer knowledge especially in the field of agroecological gardening could be obtained.

4. Outcome

In correspondence with the above-named objectives the study brought results on two levels:

Firstly, the research revealed detailed information on the functioning of the demonstration plots. concerning aspects like political and strategical framing, general conditions of participation, didactical methods and the content of the transferred knowledge. Furthermore, it revealed that the acceptance of the transferred knowledge among participants is high and that they also apply their new knowledge and share it with others, which is highly supported by the organisational structures of the associations.

Factors that facilitate the success of the training sessions are: Size of the training group that does not exceed 30 participants; concordance of the farmer’s needs and capabilities with the particular functioning of the demonstration plot and the training contents; educational capacity and technical knowledge of the extension workers to convey the training content convincingly; availability and quality of seeds, tools and materials used during the training; support by an appropriate funding and a political strategy that could align the stakeholder’s activities.
It can be summarised that the demonstration plot is a form of communal training whose success is highly individual because it relies hugely on the work of the extension worker, the needs of the producers and the dynamic within the training group and the availability of resources. Many extension workers and farmers describe their work as a collaborative knowledge transfer which is a highly valued characteristic that demonstrates the importance of practical and participatory training methods.

Based on those positive results, Maputo’s demonstration plots are proposed to be a reference model by assuming that they can easily be set up in and adapted to different urban contexts worldwide. Also, the following characteristics speak for the implementation in other contexts: Demonstration plots require a small amount of resources (i.e. time, staff, space), their flexibility enables them to cater for different teaching contents, its low-threshold access due to its informal character helps to reach the target group consisting of a wide range of farmers and generally they are suitable to generate and disseminate innovation within a large group of urban farmers in a relatively short period.

By conducting interviews with representatives of the federal union of German allotment holders and the corresponding regional union of Berlin, it became more conceivable why and how the application of Maputo’s demonstration plots in a different context could work out. Currently, the main actors of knowledge transfer within the German allotment garden movement are volunteering technical advisors, the Gartenfachberater, who help those that actively seek guidance. Training units remain largely theoretical and need to become more practical. The case of Berlin also showed that there is the need for educational gardens on district level to directly address regular association members (Wachtmann, 2019).

The actors within the German allotment garden movement are aware of their significance and impacts as drivers of an agroecological change in the short and long run. Hence, they are dedicated to spread knowledge on agroecological land-use and food production amongst its members by emphasising the advantages. Yet, the Kleingarten associations also have the potential to train urban gardeners who are not allotment holders by opening the associations even more to the public since the associations’ properties are public land and should not exclude anyone (Rekowski, 2019).

The research demonstrates that the adoption of Maputo’s demonstration plots in German allotment garden associations and their adaption to the specific context could not only improve the training sessions of the Gartenfachberater and allotment gardeners but also be a tool to strategically pursue the use of more agroecological production methods within the allotment garden movement. Thereby, their high biodiversity value and influence on a balanced urban climate could be consolidated which becomes more and more important when discussions arise regarding the replacement of allotment gardens by apartment blocks in order to ease the current housing shortage in Germany’s major cities.

5. Conclusion

Knowledge transfer within groups of farmers – be it supervised or unsupervised, practical or theoretical – is nothing new. In that sense, the demonstration plots in Maputo with their concept of practical training in communal fields are not radically innovative. Yet, the case of Maputo is still interesting for other cities, since it showcases a suitable instrument for the urban context where it can easily be embedded in associative structures. By this, it can address and mobilise a wide range of urban farmers without excluding anyone and transfer knowledge on a territorial scale.
As a format which can be adapted easily to other contexts, European cities could take Maputo as example to strengthen their existing urban food production networks by spreading knowledge on future-oriented practices and by collaboratively looking for solutions that benefit everyone.

Consequently, they could become those places, which promote the increase of social capital in terms of social interaction and skill sharing, which are necessary for a post-growth transition, and they can contribute to the generation of new and alternative path dependencies that are necessary for a social and agroecological transition.

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From grassroots to collaborative action: Governance of a community garden with a neighbourhood-level food cycle in suburban Tokyo

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Keywords: Urban gardening, food system, recycling, governance, green space, compost

Abstract

Albeit agricultural technology and globalisation impede people’s opportunities to understand where food comes from and how it is produced, urbanites can learn about their food cycle and composting by growing vegetables and fruits and by caring for livestock in community gardens. However, community gardens established by grassroots’ initiatives often are unstable. Case studies are needed to develop theories about stable governance of community gardens. This paper discusses the governance of community gardens by focusing on Seseragi-Nouen, a community garden in suburban Tokyo. In this community garden, gardeners collect kitchen and green waste and use it to directly fertilise the soil. The harvests are evenly distributed among the gardeners and neighbours. The mixed methods approach comprises quantitative analysis of demographic questionnaire data on gardeners and qualitative analysis of the garden’s history using data from interviews with the leader and supplemental local documents. The results found that the garden leader started the garden to use kitchen waste for the benefit of the environment with two other members. Although non-farmers’ uses of farmlands were grey activities in terms of the land-use regulations at that time, the Seseragi-Nouen community gardeners obtained cooperation from the Waste Reduction Division of Hino City. They worked with neighbourhood associations to obtain food waste, and they invited children from kindergartens and elementary schools to the garden to teach them about the food cycle. Through these efforts, they gradually established the garden’s positive reputation. In the stable stage, the core members were people aged over 50. In conclusion, legal conflicts might be overcome by demonstrating a community garden’s significance and middle-aged and retired people can be key actors for promoting neighbourhood-level food cycles.

Introduction

Agricultural technology and globalisation have made our food production more efficient; however, urban populations have few opportunities to see how food is produced as a result. Plant factories with water and artificial light may supply more vegetables than conventional agriculture affected by conditions of weather, soil and so on. Food produced with cheap labour is exported from various countries. These systems work but are not invulnerable. Furthermore, people may struggle to secure food if natural or human disaster disrupts or destroys plant factories and transportation systems. In that case, people who have neither knowledge nor experience of growing vegetables or raising livestock would have difficulty in getting food in a period of crisis. To prepare for such situations, urban people have to learn how to produce food independently.

Community gardens are an option to provide opportunities to obtain knowledge on growing food. There are many cases of food education programmes where participants can experience vegetable and fruit gardening, composting and other food-related activities including cooking. Especially children born and raised in urban areas are often important targets, as they have little contact with agriculture but might be faced with crises caused by climate change and political and economic collapse in their future. If they have community
gardeners in their neighbourhoods, they can acquire skills in growing food in their daily life. Such community gardens should exist stably in neighbourhoods to provide learning opportunities continuously.

One of the challenges community gardens often face is governance. It is suggested that they are established in bottom-up, top-down or mixed approaches depending on context (Fox-Kämper et al., 2018). This means there are no fixed successful ways to initiate a community garden project and get support from public or private sectors. Participants have to seek a sustainable form of management, so various case studies on different types of community gardens are needed as a frame of reference.

Accordingly, this study aims at clarifying the governance of a Japanese community garden that has special focus on organic waste recycling. Previous studies mostly targeted English-speaking countries (Guitart et al., 2012), and cases in other countries are not well discussed at international levels yet. Through a Japanese case study, it will be possible to discuss what is common and uncommon depending on local environmental and social conditions. To do so, three research questions were set: 1) How was the garden established and developed? 2) What kind of stakeholders are involved in supporting the garden? 3) How are the daily garden activities sustainably conducted by volunteers?

Methodology

The study site is Seseragi Nouen in Hino City in the western part of Tokyo Prefecture, around 25 km from the centre of Tokyo. It was established in 2008 and is located in a residential area that was originally a paddy field. The garden has an approximate size of 2,000 m\(^2\) and consists mainly of collective crop fields. Gardeners put kitchen waste collected from the neighbourhood directly into the fields on Tuesdays and Thursdays and plough them. They do just gardening on Sundays. There is also a shed where gardeners can have lunch and rest during working days.

To understand the history and basic structure, including relevant stakeholders, of the garden, the author interviewed the garden leader several times from August to November 2011. The information on recent situations about the garden was obtained from interviews and mail correspondence with the leader from March to August 2019. Then, to grasp the activities sustained by volunteers, the questionnaire surveys were conducted one month per season from 2011 December to 2012 September. In the questionnaire, gardeners were asked demographic questions such as age bracket, gender, occupation and so on and the kind of activities they did on each working day, as well as when and for how long. By using this result, the informants were sorted into three clusters according to the frequency and length of their stay in the garden. Through these clusters, the characteristics of gardeners at different commitment levels were examined.

Results

Before Seseragi Nouen started, the garden leader collected organic waste from the neighbourhood and composted by mixing the waste and manure at a livestock farm to do something good for the environment in her daily life. On the other hand, she was also a member of a non-profit organisation to support the disabled, which was using farmland to grow vegetables. When the livestock farm had to closed, she had an idea to establish a community garden on the farmland her NPO already used and continue composting there. Then she talked to several acquaintances with good knowledge of vegetable farming and herb gardening to start the community garden project. Other gardeners joined gradually when they were spoken to by the leader when passing by the garden or were taken to the garden by other gardeners. To reduce necessary working load, she learned the method of organic waste fermentation in the soil instead of composting, as composting requires a longer period
and extra effort to transport to the fields. This method was invented by a former agricultural instructor, who has occasionally been invited to the garden and kindergartens nearby to teach how to implement it.

Land tenure is a crucial issue for sustainability of *Seseragi Nouen*. The farmland for the garden was owned by a farmer, but he did not have intention to continue professional agriculture there. As this farmland was designated in a special category, named *Seisan Ryokuchi*, for the owner to get land tax exemption in residential areas, the farmer had an obligation to cultivate the land himself for at least 30 years. The non-profit organisation to which the garden leader belonged then started using the land in the form called *enno*, helping the farmer in cultivation. The project of *Seseragi Nouen* also employed this form. In 2018, the legal regulation was loosened and non-farmers can now officially rent a farmland in the special category. The problem regarding the land ownership was clear; however, the neighbourhood where the garden is located is currently a target of rezoning by the municipality. If the landowner decides to sell the land or move his tenure to another piece of land, the garden will have to disappear or be moved to another location. This is currently under negotiation between the garden leader, landowner and municipality.

The main source of the garden budget comes from a subsidy from the municipality. The Waste Reduction Division of Hino City gives financial support to the garden as a fee for waste treatment. Profits earned by selling products of the garden at local events are also part of the funding. The main purpose of the money is maintenance fees for a truck used for organic waste collection and rewards for the people who commit their time and energy to collect organic waste and accounting.

Regarding the structure of the garden organisation, there were 193 households that provided organic waste to *Seseragi Nouen* and 93 gardeners who work in the garden often. Among the gardeners, 39 were also registered as organic waste providers. There were also stakeholders outside the garden. For example, bamboo powder, which is used as material that accelerates fermentation of organic waste, was provided from a facility for the disabled. They could earn some income by fees paid from the garden organisation. A few elementary schools, kindergartens and nurseries have also joint gardening events so that children could learn how food waste can be processed in the soil and new food can be produced. In addition, gardeners get residues of *tofu* from a *tofu* factory in the neighbourhood to use them as fertilizer.

The gardeners were divided into three clusters by the results of the questionnaire: high-, middle- and low-commitment clusters. The high-commitment cluster (n=11) consisted of 5 male and 6 female gardeners, 8 of whom were more than 50 years old. The gardeners in this cluster spend time mostly in waste treatment, basic gardening and infrastructure maintenance activities as well as communication with other gardeners. The middle commitment cluster (n=29) consisted of 8 male and 21 female gardeners. Eleven were more than 50 years old, while there were 7 people in their 30s and 40s, which shows a mixed age demography (10 people did not provide answer about their age). In this cluster, the gardeners engaged in basic gardening activities, especially easy tasks such as weeding and harvesting. The low commitment cluster (n=23) consisted of 3 male and 18 female gardeners (2 did not indicate gender); 10 of them, or almost the half, were in their 30s and 40s. The gardeners in this cluster engaged in both organic waste treatment and gardening activities.

**Discussion**

The history of the garden showed that the strong initiative and motivation of the garden leader made this garden start and that the garden made progresses gradually by dealing with problems as they arose. The leader explored what she could do for the environment, then started the garden by using available resources in her surroundings. These small steps should be important for the community garden to secure participants, land,
funding and whatever is needed for long-term operation. The leader built up a stable foundation for the garden, which made the garden resilient to any coming problems.

The stakeholders of Seseragi Nouen include not only gardeners but also various institutions such as the municipality, a facility for the disabled, schools, kindergartens, nurseries and so on. It is assumed that this network made the garden well known and drew interest from new people. The strategy to involve various institutions that help vulnerable people may also increase the chance for Seseragi Nouen to survive in the neighbourhood, which is still under pressure of urbanisation. Usually, community gardens are not secured as they are often established on the basis of temporary land use. However, if municipality and citizens understand the importance of community gardens in society, they would not be able to get rid of the gardens easily. The most serious difficulty related to the sustainability of the garden is the land tenure issues. It is expected that the leader will make use of the existing network to support the existence of the garden.

The gardeners who engaged in Seseragi Nouen had different roles according to their frequency of visit. If the garden targeted only young generations, the garden could not be managed well as they do not have enough leisure time due to work or children. In the garden, people are not obliged to come regularly and are allowed to join whenever they have time. The basic necessary tasks are done by the elderly people, who have more time in general. On the other hand, if only elderly people worked in the garden, the significance of the garden in the society could be lower, as it would not contribute to raising children and education. In addition, heavy work cannot be done without participation by young gardeners. Thus, co-existence of various generations can help the garden exist sustainably. It can be said that the leader was good at inviting new people in the neighbourhood across various demographic groups.

**Conclusion**

This study presented the history of a Japanese community garden, its stakeholders and roles of gardeners. It suggests that gradual progress, various supporting collaborative institutions and different types of gardeners may be keys to sustainability of community gardens. Further work should involve a comparison of this case with other cases, domestic and international, to develop a theory for sustainable management of community gardens.

**References**


How multi-level food policy networks can improve local food systems: evaluating the Dutch ‘City deal: Food on the Urban Agenda’

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Abstract

Municipalities around the world are increasingly engaging in food policy to make local food systems more sustainable, healthy and just. To truly improve local food systems however, multiple government levels need to collaborate for exchanging knowledge and coordinating their policies. One of the first such collaborations recently emerged in the Netherlands. In the Dutch City deal: Food on the Urban Agenda, municipalities, ministries and provinces collaborate. However, it remains unknown if this network lives up to the expectations, as the precise functioning and outcomes of multi-level food policy networks remain largely unexplored. We therefore evaluated both process and outcomes for the City deal, using Ansell and Gash’s collaborative governance model. We conducted two rounds of semi-structured interviews with civil servants and politicians (n=33); one round prior to the start and one three years later. In three years, the City deal grew into an active network for strengthening connections, exchanging knowledge, learning, and raising awareness on the need for local food policy. However, it hardly lead to real collaboration between participants, nor did it lead to concrete, tangible outputs on the ground. The collaborative governance process was challenged by abstract ambitions, large differences between municipalities, weak interdependence between participants, lack of political commitment, and unstable leadership. The process was facilitated by strong commitment of participants, a strong institutional design, strong face-to-face dialogue and several crucial intermediate outcomes. These results suggest that the contribution of a multi-level food policy network is –at least in the beginning- mostly processual, while collaboration resulting in tangible results remains challenging. However, it might well be that processual outcomes are a necessary first step, allowing for collaboration that lead to lobby and tangible results in the next phase.

Keywords: food policy; cities; collaborative governance; municipality; collaboration

Introduction

Municipalities around the world are increasingly developing food policies to make food systems more sustainable and tackle issues like food waste, food insecurity and obesity through a systemic approach. To this end, they collaborate with other stakeholders in their region in local food policy groups (LFPG) and with other municipalities in trans-local networks.
Scholars have studied various types of LFPG’s, such as policy councils and partnerships (Bedore 2014; Blay-Palmer 2009; Halliday 2015; Lang et al. 2005; Moragues-Faus and Morgan 2015; Scherb et al. 2012). However, these are predominantly collaborations within cities (or regions), or between local networks. Santo and Moragues-Faus’ (2018) for example studied trans-local food policy networks in which municipalities across a country collaborate.

To truly improve local food systems though, multiple government levels need to collaborate for exchanging knowledge and coordinating their policies. However, the precise functioning and therefore the potential contributions for improving local food systems of multi-level food policy collaborations is still largely a black box. We therefore aim to answer the question: **What is the potential of multi-level food policy networks for making local food systems more healthy, just and sustainable?**

To address this question, we evaluated both process and outcomes for a pioneering food policy network in the Netherlands: the City deal: Food on the Urban Agenda (hereafter called City deal).

In the remainder of this paper we address our application of collaborative governance theory, the City deal case, the evaluative research design and methods, the process and outcomes of the City deal, and a concluding section on the potential of multi-level food policy collaborations.

**Collaborative governance**

We define the City deal as a collaborative governance network and use Ansell and Gash’s (2008) collaborative governance model to study both its process and outcomes. Ansell and Gash (2008) define collaborative governance as: *“A governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets”* (Ansell and Gash 2008).

Collaborative governance depends on four contingency variables; the collaborative process itself, and the three variables influencing it; starting conditions, institutional design and leadership (Ansell and Gash 2008). The collaborative process is a continuous cycle of trust-building, commitment, face-to-face-dialogue, intermediate outcomes and shared understanding. Starting conditions comprise the differences in resources such as knowledge and finances that participants possess, the prehistory of cooperation or conflict that they share, and the incentives and constraints on participation they have at the start of the process. The institutional design refers to stakeholders being allowed to join the process, the network distinguishing itself from others, clear ground rules and protocols being in place, and the level of transparency of the process for participants. Facilitative leadership empowers weaker participants and ensures the integrity of the consensus-building process by promoting and safeguarding it (Ansell and Gash 2008). The collaborative process eventually leads to outcomes. In this study we also take outcomes into account as the fifth variable. Figure 1 summarizes the collaborative governance model.
Methodology

This study is an evaluation, based on the City deal participants’ reflections prior to the start of the City deal, compared to their reflections three years later.

The City deal: Food on the Urban Agenda

We selected the ‘City deal: Food on the Urban Agenda’, as it is one of the first multi-level governance networks and one of the first national spin-offs of the Milan Urban Food Policy Pact (MUFPP).

It was founded in 2017, by twelve Dutch municipalities, one province and three ministries\(^27\), as a three-year collaboration through which participants aimed to contribute to safe, healthy, ecologically sustainable, robust and accessible food systems in and around cities. Participants pursued three goals together;

1. Establishing a platform for knowledge exchange and collaboration on food policy.
2. Investigating the changing role of the government towards a more integrated and more interactive governance approach.
3. Identifying "best practices", share these internationally and learn from other countries’ examples (Citydeal Voedsel op de Stedelijke Agenda 2017).

\(^{27}\) The municipalities of Almere, Amsterdam, Den Bosch, Den Haag, Ede, Groningen, Helmond, Leeuwarden, Oss, Rotterdam, Utrecht and Venlo, the province of Gelderland, and the ministries of Economic Affairs (later Agriculture, Nature and Food Quality); the Interior and Kingdom Relations and; Health, Welfare and Sport.
The governance structure of the City deal consisted of a coordinating team and four working groups: 1; governance innovation, 2; ecological and economic innovation, 3; regional food systems, fair and short supply chains, and 4; food education, health and social inclusion (Citydeal Voedsel op de stedelijke Agenda, 2017).

Data collection and analysis

We conducted two semi-structured interview rounds. In 2016, we interviewed participating practitioners, about motivations for participation in-, goals for-, and expectations of the City deal. Three years later we interviewed the practitioners again about the collaborative process and the outcomes of it. For all interviews, we used an interview guide, based on the collaborative governance model (Ansell and Gash 2008). In 2019, we also interviewed three actively involved politicians to get a broader perspective. Interviews transcripts were thematically coded, combining all interview data and assigning answers to the corresponding collaborative governance category. To verify information where necessary, we consulted field notes, reports and press releases.

Results

a) Process

Starting conditions

The group of participating municipalities in the city deal was heterogenous, including for example highly urbanized municipalities with almost a million inhabitants that faced obesity problems, and small rural municipalities that faced unsustainable agriculture problems. Key factors of difference were; number of inhabitants and level of urbanisation; most pressing local food issues; level of political support to join the collaboration; available capacity and budget, and experience with food policy. This resulted in asymmetries in resources, knowledge, and power at the start, which persisted over the years. Incentives to participate varied less among municipalities; to establish a government-oriented food policy platform and exchange knowledge and experiences; to promote the own city or region; to get in touch with- and lobby with the national government; and to contribute to- and raise awareness about local food policy. The ministries wanted to hear what bottlenecks municipalities faced and what national government could do to address these and the province. Overall, participants did not know each other beforehand as food was a new policy theme for which they had not collaborated yet. Participants therefore had no history of conflict nor cooperation, and therefore did not trust nor distrust each other strongly.

b) Institutional design

Optimal participatory inclusiveness, requires that all involved stakeholders, including "difficult" ones participate in the collaborative governance process. It is not easy to determine whether this has been the case in the City deal, as the City deal is the first Dutch network in its kind, and a blueprint as to who is involved in local food policy does not exist. However, the participation of all government levels (national, provincial and municipal) can be perceived as a strengthening participatory inclusiveness. The (unintended) absence of private partners on the other hand, weakened inclusiveness. Municipalities were to involve private partners from their network, but in practice this hardly happened due to time and capacity constraints. All in all, the city deal succeeded relatively well in involving a broad group of stakeholders. The consortium might even have been too inclusive, given the large differences between participants (see the section Power-resource-knowledge asymmetries), which made it difficult to achieve consensus. Forum exclusiveness seems to have been strong, as the focus on governments distinguished the city deal from already existing Dutch food collaborations, which
focused on all actors in the food chain. Moreover, the participation of the ministries, turned out to be appealing for municipalities. Merging the Dutch MUFPP collaboration and the city deal at the start (Citydeal Voedsel op de Stedelijke Agenda 2017:4) further increased forum exclusiveness. The network had a clear organizational structure and clear ground rules, that were developed collectively and formalized in a covenant: the city deal text (Citydeal Voedsel op de Stedelijke Agenda 2017). Overall, the organizational structure of the City deal, consisting of a coordinating team and four working groups, functioned well. Decision-making processes in the City deal were transparent to participants, except for those within the coordinating team. Many participants therefore did not feel sufficiently connected to the coordinating team, but at the same time they did not experience this as a large shortcoming.

**Facilitative leadership**

Leadership was unstable in the City deal, as the main leader (program manager) and supporting staff changed several times, resulting in participants becoming disconnected from the collaborative governance process, and weaker stakeholders being empowered and represented less. Many participants indicated that a more careful selection process for leaders should have been conducted at the start of the City deal to ensure stable and strong leadership. However, leadership, was not dependent on one program manager only, but on the coordinating team that consisted of three participating municipalities, two ministries, the program manager and supporting staff. This structure proved successful as it offered stability, as responsibilities were shared by several people, and legitimacy, as leaders were representatives from within the group.

**Collaborative process**

Commitment among civil servants was relatively strong, although a key hindering factor was the low level of interdependence between participants. Although participants had signed a covenant, this was not legally binding and the need to collaborate to achieve crucial goals was not felt by participants. This might also have been the case for politicians, as commitment among responsible politicians was weak in the City deal.

Achieving shared understanding proved challenging, as participants had different backgrounds and wishes with regard to food issues and were often more interested in achieving their individual goals. Achieving shared understanding was even more challenging as the initial objective of the City deal was abstract and the City deal covenant contained many additional implicit objectives.

The City deal participants managed to produce several intermediate outcomes, such as plenary meetings with expert lectures, a videoclip, several excursions, an online ‘recipe book’ with best practices in food governance and an opinion piece in a national newspaper. These outcomes can be considered ‘small wins’ that fuelled enthusiasm for the collaborative governance process.

Face-to-face dialogue was relatively strong in the City deal and occurred twice a year with the entire group in a plenary session, and several additional times per year within the working groups. However, distance was an inhibiting factor for some participants, especially those in the south and the north of the Netherlands.

Trust played a relatively small role, as the collaboration had no legal or major financial consequences. Trust was therefore not experienced as a bottleneck, but it was also not put to the proof. Over the years, trust between participants grew, as they got to know each other better. The informal nature of the network particularly facilitated this.
Outcomes

The most important outcome of the City deal is the active network. With the network, the City deal managed to achieve essential, but previously lacking, preconditions, as it served to bring crucial stakeholders together, strengthen connections between governments, exchange knowledge and experiences, learn about and develop a vision of what food policy entails, and put local food policy on the agenda of participating cities as well as in The Netherlands in general. The City deal however, hardly led to collaboration -for example in the form of joint lobbying, nor did it lead to concrete, tangible results, such as joint pilots, campaigns or adapted legislation or regulations.

Thus, out of the three initial goals, establishing a platform for knowledge exchange and collaboration on food policy has been achieved best. The identification of best practices has succeeded reasonably, especially through the 'best-practices recipe book'. Researching the changing role of the government into a more integrated and interactive role was achieved least, as were sharing best-practices internationally and learning from examples from other countries were achieved least, as the City deal hardly operated internationally.

In general participants hardly achieved the predominantly substantial, individual goals they set at the start. This was not considered a problem though, as participants realized these goals were ambitious.

Discussion

It seems that the City deal mainly succeeded to be a network through which participants could connect to each other, exchange knowledge and experiences and through which awareness on local food policy could be raised. However, the City deal did not lead to collaboration, nor did it lead to concrete, tangible outcomes, such as projects or changes in rules or policies. Several factors seems to have constrained this, by discouraging the collaborative governance process. First, many municipalities seem to have joined the network out of ‘fear of missing out’ and as an opportunity to promote their own city (by lobbying with the ministries). Second, developing shared understanding seems to have been challenging, as local food policy priorities, differed greatly between municipalities and food policy is a relatively new, broad and politically sensitive policy problem, adding to the differences in perceptions. Third, it seems that the scope of the City deal was too broad to be successfully translated into actions.

It therefore seems that the value of an multi-level government collaboration should not be sought in collaboration in terms of projects, as municipalities vary too much, but in providing a platform through which governments can find each other, exchange knowledge and keep each other up to date.

Conclusion

The City deal mainly served as a network for strengthening connections, exchanging knowledge, and raising awareness on the need for local food policy. However, it hardly lead to real collaboration between participants, nor did it lead to concrete, tangible outputs on the ground. These results suggest that the contribution of a newly established multi-level food policy network is mostly processual, while collaboration resulting in tangible results remains challenging. However, it might well be that processual outcomes are a necessary first step, allowing for collaboration that lead to lobby and tangible results in the next phase.

References


Integrating agroecology in urban food strategies to fight food poverty. Potential impact in Madrid’s deprived neighbourhoods

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Keywords: agroecological urbanism, food poverty, public procurement, shared facilities, urban regeneration plans

Abstract

Climate change impose immense challenges to current urban food systems. From an ethical approach, they should be addressed integrating the principles both of climate justice and food justice. Scientific evidence shows that distressed urban areas and vulnerable populations will suffer more the impacts of a climate breakdown. As the social justice dimension is at the core of agroecology, we explore designing urban food systems with an agroecological approach that prioritise deprived neighbourhoods.

We aim to integrating spatial design principles that may contribute to revisiting and reorganizing the model of production and consumption through the urban-rural transect, in processes inspired by agroecology and addressing food poverty. This way, the traditional assistance approach can be replaced by a structural solution that disrupts dominant relationships bringing food sovereignty a step closer. We developed a methodology and applied it to a vulnerable neighbourhood (Bellas Vistas in Madrid, Spain), to visualize the potential creation of a network of productive spaces and collective facilities for an agroecological transition that overcomes the common middle-class bias of Alternative Food Networks. It takes advantage of the existence of a Food Strategy being implemented at a city scale, as it is related to at least twelve of the forty-five measures included in this Strategy. It defines mechanisms to connect local needs with available resources, considering self-supporting communities, empty plots and underused spaces and buildings, as well as institutional policies and plans.

Introduction

The agroecological movement is gaining presence in urban spaces, transcending the rural areas where it originated and revealing the need for an alliance between both worlds. As the social justice dimension is at the core of agroecology, one would expect that designing urban food systems with an agroecological approach would prioritize deprived neighbourhoods. However, this is not happening. To overcome it and address food poverty, on the one hand we explore spatial design principles inspired by agroecology, to transform production and consumption along the urban-rural transect (Simón-Rojo, 2019). On the other hand, we analyze the local Food Strategy aiming to unveil how it can provide an adequate framework to develop this kind of plans.

Given that distressed urban areas and vulnerable populations will suffer more the impacts of climate change, whose self-reinforcing feedbacks will accelerate deterioration on a global scale, urbanism should consider the food dimension as an essential component of spatial planning (Pothukuchi, 2009; Viljoen and Wiskerke, 2012). There are international movements claiming for local food, agroecology, food sovereignty, food democracy or food justice, and at an institutional level, urban food strategies or plans are being developed. How

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all these components match together and what for a new foodscape (Morgan and Sonnino, 2010) is on the wake, is not yet clear. With this research we land in Madrid (Spain), in particular, in its vulnerable neighbourhoods. The region witnesses effervescent phenomena around food, so it is a good laboratory to compare demands from social movements with the recommendations or orientation from general documents and what can be specific about deprived neighbourhoods, taking into account their spatial arrangement and their social capital, building on the community’s existing assets (Project for Public Spaces, 2003).

**Methodology**

We developed a methodology and applied it to a vulnerable neighbourhood (Bellas Vistas in Madrid, Spain), to outline a network of productive spaces and collective facilities for an agroecological transition that overcomes the middle-class bias commonly observed in Alternative Food Networks. It defines mechanisms to connect local needs with available resources, considering self-supporting communities, empty plots and underused spaces and buildings, as well as institutional policies and plans.

Based on field work, specific spaces are identified to be transformed into productive and inclusive nodes. The analysis of the demands of social groups, participant observation in meetings of Mesa de Exclusión, as well as the interviews and workshops conducted as responsible for the design of Madrid’s Food Strategy (Ayuntamiento de Madrid, 2018) enables us to relate the proposals to the local social capital and considers the mobilization of local resources through public policies. Maps, statistics and visual information are conceived as a tool to reinforce local knowledge and accompany the process of cooperative design. Those tools facilitate the understanding of resources available, including social and economic stakeholders related to the food system and social inclusion, underused spaces and buildings, and public policies and measures that could support or finance the implementation of the proposals.

**Results**

To exemplify how the “food dimension” could be integrated in a socio-urbanistic intervention, we analyze one basic product: bread. We choose bread because it is part of the basic food basket and its daily intake is generalized and because of the health benefits of shifting from the widespread consumption of white industrialized bread into organic bread. The decision was also based on the fieldwork analysis, that revealed preexistences and vestiges of past activities related to bakery. Bread could be dealt with in a small-scale pilot project, afterwards replicated and extended to other products in an overarching program.

There are already bakeries and stores selling bread; the proposal is not aimed at undermining them nor at competing for their market share. Instead, we explore how the reorientation of public procurement could act as a catalyst for increasing the demand of agroecological food. If municipal programs dealing with the right to food incorporate criteria of health, sustainability and social justice in their specifications, the demand for agroecological food will increase (i.e the bread provided at school breakfast municipal programs addressing household food insecurity for children). Therefore, we identify (figure 1) those public facilities and activities connected to the food sector that could be developed in the neighbourhood in the framework of the Food Strategy, Urban Regeneration Plans and Social Programs.

**Facilities for vocational and applied training**. In Bellas Vistas we find the School of Bakery of Madrid, used to be managed by ASEMPAN (Provincial Association of Employers Manufacturers-Expenders of Bread of Madrid). It was closed down some years ago, but could come back to life for training programs taking advantage
of its facilities: two bakery workshops, a classroom for lectures and a “sales classroom” to practise small-scale retailing. Training may include modules for ongoing initiatives (like candy businesses of immigrant entrepreneurs) promoting the adoption of better nutrition and sustainability criteria.

**Facilities for food processing and cooperative business incubators.** In Bellas Vistas we find a closed bread factory, a small industry which could be recovered, retrofitted and transformed into shared installations available for startups and cooperatives. Small scale agroecological projects, which lack investment capacity, could operate in a shift work basis, making use of shared installations (McCausland et al, 2018). This way they will be able to comply with food hygiene and safety provisions in force, and traceability would be guaranteed.

**Facilities for logistics and warehouse.** Empty warehouses could be transformed into shared logistics spaces for a myriad of small food projects linked to the social economy. It would ease the coordination of producers in order to have a complementary offer. There are three municipal markets in the district, that could also fulfil that function, providing an area for collecting, arranging and organizing the distribution.

**Food culture centers.** Meeting spaces for knowledge exchange around nutrition, food and culinary experiences, are central for strengthening civil society networks. If designed to be multifunctional, with cold room, collective kitchen and storage capacity, they can also be food hubs for the distribution of food to vulnerable population.

**Community gardens** serve as well as open spaces of food culture, places to improve intergenerational and intercultural relationships.

In Bellas Vistas open space is a high restriction to develop productive urban agriculture. That may be an option in other urban tissues, considering that they are not aimed to compete with rural areas but as spaces to empathize with periurban and rural farmers, who will be critical to fulfil the widening demand of agroecological food.

The proposal is related to at least twelve of the forty-five measures included in Marid's Food Strategy which are being implemented by different municipal agencies. A comprehensive plan, territorialized and rooted in a neighbourhood provides the framework to achieve synergies between them, taking advantage of the mobilization of public resources to contest food poverty and mitigate the impact of food system on the climate change.
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Discussion and Conclusions

Translating food sovereignty and justice aspirations into real actions entails moving beyond symbolic inclusion into material redistribution (Miraftab, 2009), for which governments should have a role to play. They should adapt the regulatory and institutional frame to make this redistribution real, in a different way that what happened with mainstream regulation of organic food (Guthman, 1998).

Planning the material redistribution in the city based on the transformation of the food system can be operationalized through a high capillarity agroecological network. Spatial plans can contribute to this material redistribution, through the re-organization of food production and consumption, targeting underutilized spaces and buildings to leverage this transformation (Simon Rojo, 2016). The analysis confirms that the possibilities of developing urban agriculture with a commercial orientation in dense areas, where open space is scarce, are very limited. The urban tissue has a strong influence on the availability of open spaces suitable for urban farming. Expanding the focus from cultivating to the entire food production process offers opportunities (Agence pour l’Entreprise et l’Innovation Wallonie, 2015) that have been neglected so far.

The transition into a more sustainable and agroecological food system needs to build on local community assets (multicultural in many of these neighbourhoods), using peer learning to spread successful initiatives and easing the path for newcomers. Any proposal should consider that vulnerable population needs accompaniment in its incorporation into the labour market, in a necessarily gradual process. Therefore, training must go hand-in-hand with integration in productive networks and it is important to facilitate access to the means of production.
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Towards multispecies urbanism

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Keywords: governance, more than human, public space, right to the city, urban greens, urban nature

Abstract

This paper investigates citizen-expert collaboration with more than humans in the design, implementation and maintenance of public space urban greens in Amsterdam. A characteristic of Dutch spatial planning, metropolitan nature is valued according to its ability to be 'experienced' by human citizens. Yet when urban greens are planted as monocultures composed of expansive lawns, tall trees, and defensive shrubs, Amsterdam's greenest boroughs have both highest levels of obesity and the lowest levels of outdoor physical activity. Counted among the negative effects of thusly designed urban natures are high maintenance costs, allergenic plantings, lack of use, and the perception by locals that the pocket woodlands, are unsafe. Despite being enrolled in policy documents as the consumers of these natural world leisure landscapes, expert citizen groups are readying themselves to access, steward and 'produce' these public green spaces anew in transformative power constellations and for different purposes entirely. As climate chaos and plummeting biodiversity further pressure urban natures to perform ecological roles, how can rethinking the role of the more than human produce more accessible urban greens and woodlands?

The research discussed in this paper is framed by an ongoing Amsterdam case study (VBAZO) researching the urban food forest implementation in public space by citizen expert Communities of Praxis. The public space food forest case study (VBAZO) affords an example to reflect on the transformation of how public space stewardship is carried out, as ecosystems become veritable partners with local Communities of Praxis that prioritise more-than-human concerns in the production of public space. The research will consider how interaction between citizen experts and more-than-humans collaborating in the material production of new ecological layers and formats within public urban greens can result in agency for urban ecosystems. Revisiting new notions of the Right to the City, how can more-than-human involvement in the co-production of (urban green) space become a right to the urban metabolism? What is the nature of that co-production and how does this expand the notion and praxis of the public space as a landscape of production as opposed to one of consumption?

Towards multispecies urbanism

A characteristic of Dutch spatial planning, urban natures are valued according to their ability to be experienced or consumed – by the city's human citizens. But whilst urban greens (i.e. plantings and parks) are designed and planted as monocultures comprised of expansive lawns, tall trees, and defensive shrubbery, Amsterdam’s greenest boroughs have both the highest levels of obesity and lowest levels of outdoor physical activity and engagement. Counted among myriad negative effects of thusly designed urban natures are high maintenance costs, allergenic plantings, lack of use, and in the case of potentially valuable urban woodlands, a local perception that such spaces are unsafe. (Municipality of Amsterdam 2018)

29 'naturbeleving' in Dutch
30 VBAZO – Amsterdam Zuidoost Food Forest | Voedselbos Amsterdam Zuidoost
31 'naturbeleving' in Dutch
Agroecological transitions confronting climate breakdown: Food planning for post-carbon city

Expert citizen groups are readying themselves to access, steward and to produce these public urban natures anew, but with goals alternative to those facilitated by spatial planning instruments and policy. As climate chaos and plummeting biodiversity further pressure cities and urban natures to perform enhanced ecological functions, this research addresses how rethinking the roles and the rights of the urban more than human might produce better performing urban greens. Otherwise stated, how might groups from civil society produce a more democratically landscaped public space in conjunction with nature itself; the ecosystems, woodlands soil organisms, and requisite, plant, animal and microbial communities? This article investigates citizen-expert collaboration as more than humans in the design, implementation and maintenance of public space urban greens in Amsterdam.

To examine urban greens and the city's inhabitants involved urban in their spatial production, this study brings together two different theoretical literatures, namely, urban political ecology (UPE) and Right to the City. UPE literature alongside its Marxian precursors recognise the fundamental role of nature in the production of cities. Whilst maintaining that any conceptual separation between nature and society is illusory, UPE literature focuses on identifying uneven power relationships limiting access to the production of urban green and public space. Theoretical literature stemming from Lefebvre's radical right to the city concept, advance the notions of the (democratic) use value of the city for and by the city's inhabitants. More recent right to the city interlocutors defend the concept against historical and conceptual co-optation by international agencies by putting forth new social movements forming alliances under the banner of self-management (autogestion). Additionally, these theorists reinterpret the right to the city's relevance under neo-liberalism by unpacking the very nature of the right and what that right demands, amending right to the city strategies with value (as materialised labour). Yet, as social scientists in the disciplines of human geography, science and technology studies and anthropology theorise about more than human relationships of reciprocity and collaboration, the critical addition of the more than human as ever-present and ever-labouring inhabitant can address theoretical gaps in both UPE and right to the city literatures. The right to the city and requisite right to the urban metabolism specifically for more than humans, as yet remains theoretically fallow, but its critical addition has the potential to support the development of how new planning mechanisms for the production of public space can be enacted.

An amply told history, Lefebvre first advanced his radical right to the city concept in the wake of crises of democracy and economics in 1968 Paris (Lefebvre 1968/1996). Subsequent socioecological crises driven by rhythmic, overlapping, and ongoing economic crashes (2000-now33) gave impetus to several passes at re-interpreting Lefebvre's concept(s) under the dynamics of neoliberalism (Harvey 2003, 2008). In the context of these and later crises, Lefebvre's right to the city is reformulated and its readings categorized (P. Marcuse, 2014). The nature of what Lefebvre's intended 'right' within the larger field of 'rights talk' is examined (Attoh 2011). Right to the city's co-optation by the human rights tradition is denounced (Kuymulu 2013), and its adoption by social movements re-thinking its meaning anew revealed (Mayer 2009). Contemporary theorists continue to

32 In 2019, tree-felling actions condoned and implemented by the Dutch national forest service received widespread media attention causing citizen outrage. Though forest service spokespeople consistently framed the felling-actions as the production of pioneer landscapes, journalists, ecologists and environmentalists countered these claims showing this deforestation episode (2013-2019) to be financially motivated. Forest service messages regarding the tree felling were silent on the carbon sequestration capabilities of living trees and requisite ecosystems, as well as their positive role in biodiversity, habitat production and (micro)climate remediation.

33 i.e. 2000-02, 2007-09, and all of the 2010's up to and including now.
resuscitate the right to the city as an inspiration in utopian thinking (Pinder 2015), unpacking the array of what that right demands of us now (Purcell 2002, 2009 a,b 2014).

However, it is Lefebvre who came up with the most radical conception of the right to the city. To his credit there is unanimity amongst theorists engaging seriously with his writing that contemporary practice thereof falls short of his intentions. P. Marcuse34 studies right to the city from several readings, concluding Lefebvre's demand can be implemented through exposing, proposing and politicizing, as the lived weave of theory and practice (P. Marcuse 2009 186), also known as praxis. Aimed at a veritable revolution towards a new understanding of the 'urban', through the notion of 'urgent utopia' and a new social contract, urban inhabitants are not only called upon to imagine the city beyond capitalism, but to self-manage it, to engage with it in a productive capacity (Lefebvre, 1970/2003 154, Purcell 2013, 151).

Is it not strange that the most productive and interconnected urban inhabitant of all, the urban ecosystem, both in its parts or as a more than human whole, is excluded in these radical notions of the right to the city? Anthropocentrism is rife in right to the city literature where myriad blind spots from the perspectives of urban design and spatial production occur by not taking into account the more than human as the urban inhabitant in question. Including the more than human in the urban process as inhabitant and productive agent, with rights and requirements of its own, demands provisioning for its needs, both spatially and institutionally. This also results in reaping the benefits of this increased interaction.

As the city is divided up into parcels of (private) property, it segregates and defines land use in economic terms35. It compartmentalises space, creating 'sterilised habitats' (Lefebvre, 2003b/1970 109), preventing encounter and 'natural' ways of coming together. This is certainly the case with urban greens, whose landscape is literally parcelled by management schedules. Bees can't eat, flowers can't seed, and seeds can't sprout, unless this is scheduled by willing municipal managers. Separated from their larger community, – the woodlands, meadows and orchards, bees can't express their species being without access to or persuasive contact with urban managers. As legal projects are carried out bent on securing (urban) nature's legal rights (Ecocide Law 2019, Het Nieuwe Instituut 2019), in the Lefebvrian sense of right to the city, nature's rights speak of a moral rather than of a legal right (Attoh 2011).

The research discussed in this paper is framed by an ongoing Amsterdam case study investigating the implementation by citizen expert communities of praxis of a specific type of public space urban nature namely, the urban food forest. The Amsterdam Zuidoost Food Forest (VBAZO 36) is a 55 hectares urban food forest currently being produced by a local community of practice of which I am a member, in the public space of Amsterdam Zuidoost's K- borough. The case study, discussed at length later in this document, affords an example to reflect on how urban nature stewardship is carried out, how relationships with urban ecosystems can be cultivated to become multispecies alliances prioritising more than human concerns in the production of public space. The research considers how interaction between citizen experts and more than humans collaborating in the material production of both new ecosystem layers and new institutional formats of stewardship of public space urban greens, can result in increased agency for urban ecosystems. Revisiting contemporary notions of the right to the

34 Throughout the document Peter Marcuse is referred to with his first name or initial to differentiate him from his father, progenitor of critical urban and anarchist theory, Herbert Marcuse.
35 (the mowing incident shows this as well)
36 Voedselbos Amsterdam Zuidoost (VBAZO) is the acronym for the Amsterdam Zuidoost food forest.
city, how can including more than human involvement in the co-production of urban green space forge a right to the urban metabolism for humans and more than humans alike? What is the nature of this co-production, and how does it expand the theory and praxis of the right to the city, beyond a location of leisure landscape consumption, but as the right to a public space landscape of spatial, infrastructural, and ecological production?

The societal relevance of both the practical and the theoretical contributions of this research have the potential to deliver palpable forms of human – ecosystem interaction yielding sustainable, science-based (micro)climate mitigation, a sustained increase in biodiversity, and real examples of intentional multispecies resource distribution. On a practical level, new formats of urban natures resulting from collaborative human + ecosystem alliances (i.e., more than human alliances) are being developed and studied. On a theoretical level, the research will provide analysis of both the more than human right to the city and requisite right to the urban metabolism in the form of multispecies-centred policy and planning mechanisms with regard to the production of (public) space. This analysis will help develop a framework to provide insight as to whether and how such collaborations result in higher levels of ecosystem service performance, and how this facilitates more effective representation at the urban planning table for a newly empowered socionatural stakeholder, the more than human–ecosystem alliance.

The paper concludes by proposing a (governance) framework driven by natural world priorities in order to do two things. Firstly, the governance framework prioritises radically mitigating the effects of climate crisis and its ill-effects on human/more than human well-being through the immediate decrease of urban heat island (UHI), the reversal of biodiversity loss, and greenhouse gas production through the production and stewardship of high value urban natures. These urban natures sequester carbon, rainwater, increase biodiversity by providing habitat and food for key species, including humans. Secondly, framework's aim is to produce and facilitate environmentally just and democratic urban environments through policy combined with praxis, promoting beneficial ecosystem expression serving all urban inhabitants. The framework is called multispecies urbanism.

Multispecies urbanism denotes forms of urban development that foreground the care for the urban natural world. The concept was first formulated in Soil in the City: The Socio-Environmental Substrate (Solomon and Nevejan, 2019) where the chapter suggests a new paradigm with urban natures as stakeholders in their own right – engaging with civil society reciprocally. Considering humans as per definition multispecies, multispecies urbanism endeavours an urban development that facilitates urban ecosystem functions. Multispecies urbanism posits that urban environmental (food and climate) justice can be achieved through ecologically driven policies and practice: recognising humans as part of the natural world and their health and well-being as being dependent upon natural world resilience. Reprioritising use value in the spatial and social production of cities: addressing the fact that the global effects of capitalist urbanisation affect urban inhabitants unequally, multispecies urbanism surpasses 'nature-inclusive' policies' business-as-usual approach, which it sees as perpetuating non-democratic development.

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Embedding agroecology’s soil care principle in the urbanised society: the case of Flanders

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Abstract

In recent years, challenges such as climate change adaptation and dealing with the biodiversity crisis have drawn the attention of the urbanised society on the importance of soil stewardship. We believe agroecological farmers and food growers could play an important role, as the care for living soils is a fundamental principle in agroecology. However, current urbanisation dynamics deeply affect this potential. In the context of the food disabling city (Tornaghi, 2017), living soils are actively destroyed, and soil care is not mandatory, not common, nor structurally valued or supported. To overcome this deadlock, we need to (re)value the metabolic agency of agroecological practices within dynamics of urbanisation.

In this paper, we examine to what extent soil care is embedded in the regulation of land use and soil use in Flanders (Belgium). We use an agroecological farmers perspective to think beyond the residual embedding of soil care, and to begin to re-politicise the soil issue. We develop a critique of the post-political nature of existing policies and recent attempts to put the soil issue back on the agenda. Our analysis shows that the attention for soil care in the regulation of land and soil use in Flanders is limited, fragmented and not coherent. We conclude that urbanism and food planning can play an important role in enabling soil care, but this will require active engagement in the re-politicisation of soils. We make the case that such politicising work could start by giving a voice to agroecological farmers and food growers within soil policy arenas.

Valuing the metabolic agency of farmers

Urban societies face a number of socio-environmental challenges that cannot be solved solely within the urban fabric. These challenges, such as climate change adaptation, dealing with the biodiversity crisis, or making our food production ecologically sustainable and socially just, inherently impose a set of tasks on the unbuilt space, urban fringe and countryside. In recent years, urban planners discovered the farmer as an interesting agent to address for implementing and maintaining a variety of answers to these challenges, putting the farmer in charge of various societal services besides food production, such as renewable energy production, maintenance of cultural heritage landscapes, water management, carbon capture and storage in soils, the protection of endangered species or biodiversity at large, etc.
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Such lists of what the farmer could do for the urban society contrast sharply with the food-disabling character of current western urbanisation processes (Tornaghi, 2017). From a historical perspective, urbanisation has always been inextricably bound up with taking care of the structural dependence on food for the hungry city (Steel, 2008). This involvement in the food question has been gradually evacuated from the urban sphere, finding the ground for the cheap and massive supply of food within the extractive exploitation of a colonial geography. Following Friedman and McMichael (Friedmann, 1987; Friedmann & McMichael, 1989; McMichael, 2008, 2013) we can retrace how the regulation of food became part of a global order in which the food question became a national and supranational question, and would only to a very limited extent be treated as an urban matter of concern in the global north. The global food regime makes urbanisation in the global north a process centred on the organisation of food consumption but less and less concerned with the care for food production. Consequently, urbanisation systematically destroys the conditions and resources needed for food growing, causes an ongoing displacement of localised food growing practices, disempowers local knowledge ecologies, and structurally fails to value the role of farmers and farm practices. In the context of such food-disabling urbanisation processes, responsibilising farmers to tackle vast, societal challenges without re-evaluating contemporary urbanisation methods is unfair and perverse. To overcome this deadlock, we are convinced that it is necessary to (re)value the metabolic agency of food growing within dynamics of urbanisation.

The ongoing research project ‘Urbanising in Place’ (UIP), in which three of the authors are involved, starts from the assumption that agroecological farmers and food growers can be metabolic agents. However, we immediately tagged a second assumption onto it: this requires a radically different model of urbanisation. The project is a participative effort to build and empower the concept of an ‘agroecological urbanism’ (C.M. Deh-Tor, 2017, 2018) with communities of practice in Rosario, London, Riga and Brussels. We seek, proceeding from a normative research starting point, to implement the principles and practices of political agroecology in a new paradigm for urbanisation which places food, metabolic cycles and an ethics of land stewardship, equality and solidarity at its core. We try to conceive of the societal embedding of agroecology in an urban society, in the socio-ecological processes that construct the city (Heynen, Kaika, & Swyngedouw, 2006).

Soil care in the food-disabling city

Soil care is a clear illustration of this situation. Many authors have described how civilisations historically have tried to develop a sustainable relation to soils and soil fertility to ensure social reproduction (Bardgett, 2016; Dale & Carter, 1955; Hillel, 1991; Hyams, 1952; McNeill & Winiwarter, 2006). This quest for “intelligent soil parasitism”, as Hyams called it (1952, p. 42), generated a rich history of landscape ecologies, collective arrangements, strategies and infrastructure to protect, increase and reproduce soil fertility. In Belgium, the history of the urban manure systems and the historical organisation of agricultural tenancies are good examples of how urbanised/urbanising societies actively resourced soil fertility to safeguard social reproduction (Vandermaelen, 2019). However, after the breakthrough of a global, industrial-colonial food regime, western urban societies became anything but a good soil steward. The historical, locally embedded arrangements to reproduce soil fertility disappeared. The dismantling of the urban manure systems and the fact that the attention for soil care in the historical organisation of agricultural tenancies didn’t survive the establishment of the first Belgian agricultural tenancies act in 1929 are cases in point. These arrangements were replaced by a capitalistic system with a very extractive character (Smil, 2013), lacking a long term perspective from a soil ecology

38 http://urbanisinginplace.org
perspective. The energetic deficit of the industrial food system, consuming more energy (fossil energy input) than what is being produced (food energy output) is a clear example of this extractive dynamic (Visser, 2013). In 2015, the FAO rang the alarm bell with a report on the ‘status of the world’s soil resources’ (FAO & ITPS, 2015). Current urbanisation processes are considered by the FAO as the greatest threat to soil functions in Europe.

This situation contrasts sharply with the fundamental attention for soil care in agroecology. Agroecological practices actively seek to care for soils. Agroecologists consider soils as a living entity (Balfour, 1943; Gobat et al., 2004) and agriculture as a continuous exercise in teeming with reproductive processes and conditions in the ecological system of soils (Lowenfels, 2013, 2017; Lowenfels & Lewis, 2010). Soil care and the use of the precautionary principle are fundamental in this approach (Puig de la Bellacasa, 2017). However, in the context of the food disabling city, teeming with soil life is not obvious. Agroecological farmers work in a context in which the care for living soils is not mandatory, not common, nor structurally valued or supported. Several aspects of the agroecological practice, such as composting, making long term investments in natural soil capital, harvesting nutrients from ecological succession, or using crop rotation strategies to avoid soil depletion, conflict with characteristics of contemporary urbanisation processes. Dynamics such as a very problematic access to land, the absence of collective infrastructure for the agroecological food system, or policies that impede food production and nutrient recycling in the urban tissue, turns the agroecological ambition to care for soils into a struggle. Addressing these farmers for the management of vast societal, urban challenges is not serious in a context of the status quo.

Embedding agroecology’s soil care principle

We believe urbanism and (food) planning can play an important role in enabling agroecological practices, and thereby enabling the agroecological use of living soils. However, given the limited involvement of urbanism and planning in the urban food question during the past 200 years, the recipes are not yet for the asking. This is why our research is developed in close relation with the agroecological community. After the identification of soil care as a fundamental principle of agroecological practice, and the observation that current urbanisation processes do not account for soil care, we want to study this current state of affairs in depth.

In this paper, we examine to what extent soil care is embedded in the regulation of land use and soil use in Flanders (Belgium). The historical precedents enable us to develop a language of residualisation. We therefore start from the hypothesis that there is currently not very much in place to account for soil care. We use an agroecological farmers perspective to think beyond the residual embedding of soil care, and to begin to re-politicise the soil issue. Kenis and Lievens (2015) identified three “moments” in a profound re-politicisation of the present: 1) a moment of critique of post-political representations of the present, 2) a moment of subversion to disrupt existing ways of seeing/hearing/doing and opening space for alternative practices, and 3) a moment of construction whereby alternative ideas, demands and projects are developed and brought together in a counter-hegemonic discourse (pp. 142-143). The main aim of this paper is to contribute to the first moment, criticising the post-political representations and nature of both existing policies and recent attempts to put the soil issue back on the agenda.

For this analysis, we screened the existing institutional landscape for policies that touch upon the principle of soil care. There are of course many forms of regulation that indirectly affect soil, but the number of practices that explicitly regulate soil is rather limited. At this moment, our analysis is focussed on OVAM (agency of the Flemish government responsible for waste management and soil sanitation), VLM (Flemish land agency), VLACO (Flemish association of governments and companies around composting), the manure agency (embedded in VLM), the regional erosion policies, and the Environment department of the Flemish government. Recently,
there are some initiatives that try to put the soil issue back on the agenda. From a political point of view, the plea for the development of a soil certificate system is the most interesting to analyse. We questioned these existing policies and initiatives from an agroecological, soil care perspective. Leading questions are:

- Are these policies reactive or proactive (precautionary principle)?
- Are soils and soil fertility considered as a static or dynamic given? What to think of these policies from a more than human perspective (Haraway, 2016; Puig de la Bellacasa, 2017)?
- Do these policies enable or disable the agroecological farmers’ pursuit for soil care?

**Conclusions**

Our analysis shows that the **attention for soil care in the regulation of land and soil use in Flanders is limited, fragmented and not coherent.** One cannot speak of an embedding of soil care as such, but rather of a range of policies that touch upon soil. This involves (very) different paradigms from which these policy aspects originate. Policies related to composting for example are strongly associated with a waste management paradigm, the regulation of manure essentially seeks to reduce or avoid environmental pollution, most erosion policies are very reactive and associated measures often aim to reduce nuisance rather than to prevent soil loss. The **post-political representations of these policies are normalised,** disregarding the disabling effect of several policies for agroecological practices and leaving opportunities for enabling them unvalued. **Planners involvement’s in the soil issue are strongly based on the assumption that soil fertility is a static given, a physical characteristic of the soil.** This results for example in attempts to protect, ‘once and for all’, the fertile soils by excluding certain developments. Even though excluding certain developments is of course essential, this doesn’t necessarily mean that soil fertility is safeguarded. As soil fertility is a dynamic given, the actual use of soils and the care for soils within that use still matters. Excluding certain developments is only a partial contribution to enable (agroecological) farmers to care for soils. Pleas to allocate specific soils to specific agricultural practices are also rather common in the planning community. However, a lack of agricultural knowledge, post-political representations of what is proposed, and a lack of tools to establish such land use dynamics make this impracticable. We conclude urbanism and food planning can play an important role, but this will **require a more enabling method of working, an active contribution to the repoliticisation of soils. Giving more centrality to principles of soil care could start by giving voice to the food growers and farmers as caretakers of the soil.** This requires hard work to translate some of the agroecological principles of soil care and soil health in such a manner that they could structurally inform the work of policy making around soil.

**References**


Planning for food through agroparks: room for manoeuvre fostering sustainable farming?

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Abstract
Whereas in the past food has long been regarded as a rural, agricultural or (supra)national issue, cities are now gradually (re-)entering the food governance field and food production receives a growing interest from the planning community. The importance of food production for evolving cities is increasingly recognized, as well as its capacity to contribute to the spatial quality of an urban environment (Verzone 2018). But while more strategically orientated planning perspectives begin to exceed the 'mere' land use planning approach, planning still often relates ‘food’ and ‘urbanisation’ to urban agriculture and local food systems inside the city. In those perspectives, the urban environment is seen as a place where food is physically integrated in the margins of existing structures and even considered risking to compete with other urban needs (e.g. in Verzone 2008). In this paper we would like to go beyond such reductionist visions of the relation between food and urbanisation, and study a planning concept and practice with great potential for territorial innovation, the agricultural park or agropark. Such agricultural park projects are often situated within urban fringes and combine various functions around agriculture (Jarrige & Perrin 2017). The growing attention for such projects illustrates how farming activities are again re-entering the urban domain. As Jarrige & Perrin (2017) argue, the concept supports territorial innovation, as in an original arrangement both in spatial and social dimensions (Giraut 2009), because it can be transformed and appropriated by the actors involved in the regional development, as well as adopted to the specific needs and conditions of an area.

This concept of agropark has been mobilized in Europe for various sustainability reasons such as biodiversity conservation, economic diversification, climate change mitigation and the preservation of open space. In Flanders, however, the concept hasn’t been explored until recently when a first pilot case was developed in Ostend (Vanempten et al. 2018; Vanempten & Van der elst 2018). With this short paper we aim to explore the possibilities of the concept of an agropark as an innovative governance and decision-making structure in peri-urban Flanders. In particular, because agricultural parks or agroparks are a promising possible (planning) tool to keep open space open in a highly urbanized environment.

On a more conceptual level we will explore whether the agropark can offer an innovative governance mechanism that translates rather abstract ideas such as ‘ecosystem services’, ‘socio-ecological systems’ and ‘resilience’ into the day-to-day practice of multifunctional land management in a peri-urban area. Addressed questions include: How did the agropark emerge as a tool to re-integrate agriculture into urban environments as well as into urban planning? Are agroparks effective ways to bring food production closer to cities again? Is it one of the necessary 'logics of urbanisation' (Del-Tor 2017) that enables the contemporary city to incorporate food production (again)? In short, can agroparks be innovation tools to preserve a more sustainable agriculture in peri-urban and urban areas?
The arrival of the ‘agropark’

Although Del-Tor (2017:8) notice that the possibility to control and localise food provisioning has not been considered throughout western urbanisation history, the agropark seems to be a (fairly recent) anomaly to that observation. Whereas parks originally appeared as perimeters to preserve nature in urban or urbanising areas, it was not until the 1970's for them to gain an agricultural focus in Europe (Jarrige & Perrin 2017). Since then, the number of agroparks has increased sharply, mainly in southern European countries. Well known examples include the Parc Agrari del Baix Lloregat near Barcelona, Parc de la Deûle near Lille (France) or the (much older) Parco Agricolo Sud Milano. This agropark model in Europe stems among others from planning reactions to the pervasive nature of urbanization processes, as a peri-urban open space protective tool in particular to enhance farming activities (Fanfani 2018).

The "agricultural park" or agropark is however not a clearly defined concept. Agricultural parks appear in both urban and rural locations, can include soil-bound and non-soil-bound functions, be public and/or private, include large-scale and/or small-scale agriculture, short chain and world market production. They exists in various forms and sizes, from just a few hectares (e.g. the 'Tuinen van Stene' near Ostend, Belgium with 35ha), to entire regions (e.g. the park near Milan that encompasses about 47.000ha in 61 municipalities). Moreover, the set and number of stakeholders involved in the development of an agropark can differ considerably. Whereas the term ‘agropark’ is sometimes used in the sense of highly intensive, industrial food clusters, we focus on other types of agroparks in our research. An agropark can be defined in this context as a network of actors in a peri-urban area, with a specific identity, in which multifunctional agriculture produces food and delivers other social services in close relation to the city or in which a multifunctional use of open space arises wherein agriculture takes part. Jarrige & Perrin (2017) give a political reading, describing it as a potential support for territorial innovation in which a myriad of interests and sustainability visions can converge. Agricultural parks in our exploration are essentially multifunctional, on the level of the environment - not necessarily on farm level, and take on ecological, educational, social, recreational and other functions, with the central focus to inspire the (re)connection between urban centers and the agricultural hinterland. Agricultural activities and food production form the connecting "object" (Vanempten et al. 2018). Concerning the multifunctional character of the agropark, various types can be recognized within Europe: multifunctional on farm level, delivering other societal and economic services next to food production, as well as on the landscape scale level where the farming activity isn’t necessarily multifunctional. Most agroparks strive to support farmers who want to evolve to a multifunctional model better, and/or to facilitate a multifunctional use of the environment. In other words, not all farmers in an agropark need to differentiate their business model or farm activities. Next to the farmer, there are other users of the open space that can contribute to its quality. An agropark could in this way also deliver responsibility and opportunities to other actors (e.g. home owners or energy suppliers) to maintain a qualitative and open environment.

In this paper we therefore explore the agropark concept as a possible step to deal with the often collectively envisioned goal of open space preservation in and around cities, in such a way that social, agricultural and spatial challenges are integrated and kept in line with differing interests and perspectives of local stakeholders. We are in particular interested in the exploration of the possibilities of the concept as an innovative governance and decision-making structure in peri-urban Flanders. Flanders has a high pace of open space reconversion into built-up areas and needs to protect open space in other ways besides legislation such as monofunctional zoning. Whereas the concept seems to have inspired many practices abroad, only one agropark
of very limited size and scope has been developed in Flanders up to date as a pilot or experiment (namely the ‘Tuinen van Stene’ or Gardens of Stene in seaside town Ostend, see Vanempten & Van der Elst 2018b).

Moreover, we would not only like to explore in this paper to what extent the concept of agropark offers opportunities from a planning point of view towards open space preservation, but also towards a transition to a more agroecological farming activity.

The generic idea of the agropark is in line with the ongoing and growing focus on food and the resulting dynamics of multifunctional and city-oriented agriculture, but scales up this focus considerably and combines various types of farming e.g. short-chain, urban agriculture, "Community Supported Agriculture" (CSA) initiatives, industrial farming and mixed practices. Agricultural parks offer opportunities for scaling up and professionalizing existing fragmented initiatives into a fully-fledged alternative. At the same time, they offer opportunities for existing professional agriculture in various ways: through new markets, maintaining a license to produce, maintaining fertile land, ensuring access to land, etc. Vanempten et al. (2018) concluded that agroparks are one of the possible system innovations to reverse the current impasse of both spatial functioning (further urbanization, hardening open space, privatization, climate issues), as well as current agricultural production logic and its consequences (decreasing soil quality, decreasing number of farmers and a social problem, growing corporate debts, low prices, etc.).

In short, the idea of the agropark as we consider it supports dialogue and inspires action, contributes to closing the loop between food production and consumption, and holds a revaluation of (peri-urban) agriculture as a supplier of a broad range of societal services next to food production.

Is their agroecological potential in the concept of agroparks?

In order to discuss the agroecological potential of agroparks, we explored some literature dealing with principles of agroecology. Whereas the field of agroecology is still evolving in scientific terms, there are several publications available that discuss the principles (FAO 2018, CIDSE 2018, Dumont 2016, Altieri 1995, etc). According to FAO (2018) for instance, agroecology equals with:

- diversity; synergies; efficiency; resilience; recycling; co-creation and sharing of knowledge (describing common characteristics of agroecological systems, foundational practices and innovation approaches)
- Human and social values; culture and food traditions (context features)
- Responsible governance; circular and solidarity economy (enabling environment)

As CIDSE (2018) indicate it is the joint application of principles and their underlying values that leads to an agroecological system. The principles of agroecology ought to be considered as an interconnected whole rather than a checklist to determine to which degree a concept or a practice meets the agroecological perspective. Nevertheless, it remains useful to analyze the concept of an agropark as an organizational entity which might or might not foster the underlying values and goals of agroecology. To which principles might an agropark significantly contribute? What can the study or implementation of agroparks contribute to the idea of agroecology and vice versa? Insights into how agroparks could enhance the potentialities of each of the principles, could show more clearly the potential towards sustainable farming, even regardless of how the principles are effectively implemented in practice. Moreover, whereas the principles of agroecology could be recognized and applied by many farmers, not all of them would (like to) or are able to identify themselves as part
of an agroecological movement due to sensitivities in the field. In other words, some agroparks could apply agroecological principles or strive for an agroecological future, yet might not be identified or named in that way.

We consider the principles included in CIDSE (2018) as the best guidelines to date, in particular given their vastness, used methodology and recent date of publication. Using these principles, we investigated the potentials of the idea and philosophy of the agropark concept as described in our study (Vanempten et al 2018) in relation to the various dimensions and principles of agroecology.

Environmental principles

Agroparks stive for multifunctionality and a balanced production environment that also delivers e.g. green services. As such, there is some potential to enhance “positive interaction, synergy, integration, and complementarities between the elements of agro-ecosystems and food systems” (CIDSE 2018:6). The development of an agropark could result in better soil life, improved biodiversity and an optimization and/or closure of resource loops such as biomass and nutrients, but that would imply specific goals and strict standards and regulations, where not all agroparks are set-up to meet high eco-goals. Whereas in several agroparks in Europe, improved biodiversity and an optimization of resource loops is an important result (e.g. Gardens of Stene, or the Arno-river park in Firenze), it wasn’t necessarily the main goal (which is often open space preservation). Moreover, many agroparks include industrial farming activities, next to other types of farming, which impacts biodiversity and soil life possibilities as well as a dependency on external inputs to control pests, weeds and to improve fertility.

In particular the recent agroparks such as Gardens of Stene or the Arno project in Firenze are focusing on climate adaptation strategies or even result from it. Water management for instance was in both examples an important trigger. As such, the agropark concept could foster climate adaptation and resilience strategies in various ways.

Socio-cultural dimension

Agroparks can’t exist without being embedded in the local culture or identity. Moreover, they offer an environment for networking and cooperation, both horizontal farmer-to-farmer contact as between farmers and consumers. They also bear in their very essence the potential to enable places where rural and urban populations can meet.

Several agroparks include various short chain initiatives and/or CSA farms. As such, they are able to contribute in more or lesser extent (depending on the specific form of agropark) to “healthy, diversified, seasonally – and culturally- appropriated diets” (CIDSE 2018:7).

Within the examples we looked into so far, there is however to our knowledge never an explicit goal relating to respect of “diversity between people in terms of gender, race, sexual orientation and religion” (CIDSE 2018:7), nor a specific focus or incentives towards gender equality.

Agroecology starts from **bottom-up** and territorial processes, contributing to **contextualized solutions** for local problems. In that sense conditions should be met so that ‘agroecological innovations are based on the co-creation of knowledge, combining science with the traditional, practical and local knowledge of producers.’ (FAO 2018:2). As the study of Vanempten et al. (2018) shows, agroparks should ideally start from the same participatory basis in order to be successful. Because agroparks essentially start from the scale level of ‘the landscape’ and seek to integrate different stakeholders within a specific region based on some form of common
identity, it becomes ‘easier’ to see and find opportunities to synergize different kinds of human energies and ecological cycles.

Moreover, the incentives for different or new kinds of social relations (between farmers, as well as between farmers and society), can lead to a certain social awareness, even if the starting point of the agropark would consist of economic opportunism. Furthermore, as Olsson et al. (2016) indicate, enhancing food production as part of multifunctional land use bears the potential to improve resilience for urban–rural regions.

The socio-economic frame of the agropark could allow for a more substantive basis for the agronomic activity (that is striving for eco-integration). For instance, in order to start an eco-integration scheme, it is necessary to enhance soil quality in different, non-traditional ways. This requires a new knowledge base, one which could become available to farmers by using the participatory and co-creative setting of the agropark.

**Economic dimension**

In terms of economic opportunities, the agropark idea again bears several potentials that relate to agroecological principles such as promoting fair, short distribution networks, promoting diversification of on-farm incomes, harnessing the power of local markets, or helping to provide livelihoods for peasant families. However, it – again – depends on the form of agropark and the specific goals that involved stakeholders have set.

Underlying the development of an agropark could be the idea of building a social and solidarity economy, but again depending on the choices of involved stakeholders. An agropark such as Belvedere near the German city Cologne is primarily aimed at safeguarding open space and even has not so much to do with providing alternative economic models or markets to the farmer, let alone with providing a social economy. Other agroparks, the Pferdelandpark near Aachen (also Germany) for example, however do stimulate a diversification of on-farm incomes and new opportunities for farmers through recreation, visibility and short chain markets. At the moment, there is little indication or prove that an agropark will reduce the dependency on subsidies and aid. Nevertheless, the possibilities to create extra economic opportunities in agroparks by involving consumers and reducing the distance between producers and consumers might lead to more sustainable livelihoods and maybe a reduction of the aid-dependency in the long run.

**Political dimension**

Most agroparks don’t prioritize according to size of the farmer initiative. Some focus explicitly on small-scale production or strive for it, but most of the parks have a variety of goals, one of which can be short chain or organic production though not necessarily. The development of an agropark “can change power relationships by encouraging greater participation of food producers and consumers in decision-making on food systems and offers new governance structures” (CIDSE 2018:9).

Just as agroecology, agroparks need an enabling political environment with “a set of supportive, complementary public policies, supportive policymakers and institutions, and public investment to achieve its full potential” (CIDSE 2018:9). Without a firm cooperation between local policy makers and farmers, an agropark will most likely not be successful.

Another principle from agroecology concerning the control of seeds, biodiversity, water, commons, etc in the hands of the people part of the food system again depends from the specific type of agropark, though the concept of agropark does offer possibilities to regain control over such assets. In the example of the Gardens of Stene, the watermanagement system has been adapted, leading to better ecological condition as well as an
improved control on water levels by farmers (in cooperation with the water society). The CSA that now has gained a firm place in the Gardens of Stene, together with the public common garden, moreover create incentives for self-organisation and collective action.

Possible questions for further discussion that follow from this analysis of agroecological principles in relation to agroparks:

- One of the central practices within agroecology is ecological intensification, using and creating ecological interactions between system components (Tittonell 2014, Lescourret et al. 2015). How does the agropark lead to eco-intensification? Does it make it possible?
- Does the agropark trigger socially interesting communities and cooperations? What kind of incentives or spatial infrastructure are needed in order to foster such social interaction?
- What would be an interesting agroecological park?

Needs: knowledge, substantive soil quality, actors (i.e. agroecological farmers), (collective?) infrastructure, local market opportunities, valuation of societal surplus value

- Stassart et al. (2018) concluded that the concept of agroecology has transformative potential in Belgium. When related to agroparks, can agroparks foster a transformation?

Reflecting on agroparks from an agroecological perspective, some points of attention

A first matter of interest concerns the lens of the planner that is projected onto a farming reality: it is not because an agropark delivers all the tools for agroecological farming that the farmer also will produce sustainable or from an agroeocological perspective. The trade perspective of the farmer with his competitive mindset could be very different than the theoretical planning perspective. Starting from the perspective of the farmer could be a crucial success factor. That means for instance in cases where the land is not owned by the farmer but e.g. by a public authority, providing long term use possibilities will be a point of attention.

Another possible stumbling block or point of attention for the development of agroparks is the willingness to cooperate. Emery (2015) points out that farmers highly value their autonomy but that they conflate their need for ‘independence’ with ‘individualism’ in that sense fostering a mindset that is often against cooperation. When an agropark aims to be successful the farmers’ need for autonomy will need to be respected but could be re-defined in terms of a collective endeavor to promote the unique and independent properties of the agricultural park. A certain tension between the individual perspective and the collective one remains: an individual producer can still do what he wants (within the current legal limits) on the land he owns or leases. Nevertheless, the reversed situation can also occur: farmers are willing to do something but can't for a variety of reasons. In that case giving incentives could be important and the agropark could be an instrument to improve the 'room to manoeuvre' for instance to take care of societal services (agroenvironmental measures, landscape elements, etc) collectively.

A cognitive aspect that should be added to the previous is that there is also a perceived room to manoeuver. Not only the actual room to manoeuver (created among others by the conditions of the market economy and legislation) is important, but in particular also the way in which the farmer perceives that room for manoeuver. Cooperations could foster other types of market relations, widening that room for manoeuver, while
a farmer might not (immediately) see that. From that perspective, the agropark idea could be interesting even with small budgets, because it can create an emancipatory setting and a network creation.

A last issue to take into account is the manner in which farmers feel appreciated for the work they do. That farmer appreciation also comes from the price he receives for his product. A low food price, is often interpreted as a signal of low appreciation by society. Farmers that economically thrive, usually also take self-esteem out of that. Therefore, the way in which producers relate to the larger organization of the market can be important to consider. Possibilities such as a short supply chains, direct contact possibilities, or increased recognition of agropark products by joint sales and branding, could contribute to the appreciation and self-esteem of farmers for the work they deliver. Moreover, the interpersonal relations could create a new value system that is akin to a form of social exchange based on reciprocity rather than merely supply and demand laws (Polyani, 1944).

**Conclusion**

Western Europe, among other parts of the world, has experienced a rapid process of urbanization over the past decades. This development comprises a physical conversion of open, non-built areas for settlement purposes as well as socio-cultural transitions such as the adoption of urban life styles by the rural population, immigration into rural areas and changes in business structures. This conversion of non-built-up areas has occurred in Flanders almost exclusively at the expense of farmland. At the same time, open space preservation in urban environments stands high on the societal agenda in Europe as a result of climate concerns. Likewise, (peri-)urban food production and more sustainable and varied ways of production are in the spotlight of the urbanite and planner. Despite such attention, the amount of open, unsealed, space is still declining and farmland protection and management in peri-urban areas remains an issue. Strategies for food production are poorly expressed within current spatial planning documents in Flanders. They remain limited to land use planning with monofunctional categories.

With this short paper we aimed to explore the possibilities of the concept of an agropark as an innovative governance and decision-making structure in peri-urban Flanders. Agricultural parks or agroparks are a promising possible (planning) tool to keep open space open in a highly urbanized environment. They are multifunctional, aim to protect open space, with agriculture as the main land user and manager, reinforced with ecological, educational, social, recreational and other functions, and have a clear relation to urban structures and actors. Such explicit focus on the food component of peri-urban environments offers opportunities for both short-chain initiatives and world-market-oriented agriculture and their blends through new market opportunities, maintaining a license to produce, maintaining fertile land, etc. They are also a wake-up call for the urgency to pay attention to the food system since many people aren’t aware of the link between land, open space, and the food they eat every day. Even in cities where food strategies are already being developed, open space in the broad peri-urban border still disappears at a rapid pace, among other things because a spatial reflex is often missing.

However, the agropark as a concept is not only about land position and open space preservation but also about the social role of agriculture, where agriculture is more than “just” food production, and about the need for meeting places for a social commitment to food. Agroparks could be a possible system innovation to reverse the current impasse of both spatial functioning and the current agricultural production logic and its consequences.
Since agroparks in our interpretation can combine several types of farming, e.g. both traditional farmers producing exclusively or in part for the world market, and other types of farmers (organic, biodynamic, etc.) which differ in their technical and economic models, the concept can never fully meet all standards of agroecology. However, because several forms of farming can coexist, the agropark does create a basis to open discussions between farmers, to exchange knowledge, foster cooperation, etc. While it is interesting to apply an agroecological lens to agroparks, not all agroparks have to be and will be agroecological parks. The agropark and the agroecological lense could however deliver the conditions necessary to make more room to manoeuvre for all farmers to evolve to a sustainable and liveable farming system.

Whether the agropark will just tweak the existing agricultural practices or actually transform it, still has to be explored in practice. Nevertheless, the agropark could be a small, though possibly meaningful step to start dealing with the continuing high dependence of urban food on global food systems and related resource flows; an eye-opener; bringing urbanites closer to farmers and the way their food is produced.

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Does food availability differ by socioeconomic status of the neighborhood? A typology of foodscapes in Montpellier, France

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Abstract

Scholars have shown that planning, urban policies, and food and mobility individual practices shape foodscapes, which, in return, could affect food practices. In particular, many studies show relations between food environment and diet, others highlight food deserts. In France, nearly all food stores sell fruits and vegetables. However, are they equally available in all neighborhoods or are they more available in wealthier neighborhoods? Does the diversity of food outlets differ by socioeconomic status of neighborhood? Does this relationship depend on urban morphology?

This presentation will show the diversity of foodscapes of the Montpellier city-region, France, and discuss the findings in relation to the socioeconomic status of inhabitants. We distinguish five foodscapes based on indicators of food availability (density and diversity of food outlets, and density of fast food restaurants), and of built environment, using hierarchical cluster analyses. We identified an inverse relation between food availability and socioeconomic status. In Montpellier city, the poorest sectors have overall a high food availability, while the neighborhood with the lowest number of food outlets is the wealthiest. In suburban localities, this inverse relationship between income levels and food availability is less clear. Food availability is good in village centers and around shopping areas, lower in all residential suburbs. Areas with the lowest diversity and density of food supply are hence mainly wealthy residential neighborhoods, where most households have a car. Such results highlight the importance, for studying the relation between foodscapes and socioeconomic status, to take into account the physical, the economic and cultural dimensions of food accessibility, but also the ways people navigate the foodscapes in their daily journeys (activity spaces).

Introduction

Recently, cities took on food issues and this is a growing interdisciplinary field of research. In France, even if cities do not have specific competences on food, food issues interfere with transport management, urban planning and local economic development, which are competences of French cities. However, in 2019, food issues are still rarely explicitly identified in French urban strategic plans, while examples of such practices are emerging in other countries (Cabannes and Marocchino, 2018).

The study of foodscapes could help to document this relation between urban planning and food issues, by showing how cities can use their competences to improve the sustainability of everyday food procurement. Foodscapes may be defined as the physical spaces and places where people can find food. Scholars showed that planning, urban policies, and food and mobility individual practices shape foodscapes (Steel, 2008), which, in return, affect food practices (Clary et al., 2017). In North America and the United Kingdom, many studies showed relations between foodscapes and dietary behaviors (Caspi et al., 2012), and scholars showed that spatial
distribution of food outlets (food retail and restaurants) is heterogeneous. In particular, in the United States, studies highlighted a relation between foodscape and socioeconomic status of neighborhoods (Beaulac et al., 2009; Walker et al., 2010). Accessibility and availability of healthy food stores, i.e. stores selling fruits and vegetables, are low or null in some deprived neighborhoods, and lower than in wealthier neighborhoods. They are food deserts (Beaumont et al., 1995). Similar observations were made about restaurants. Studies showed that the availability of fast food restaurants increases with deprivation (Fraser et al., 2010).

In France, geographers studied food retail since 50 years (Lestrange, 2016), documenting the diversity of retail stores and their spatial distribution, using employment and spatial data (Renard-Grandmontagne, 2016). They focused on issues such as large retail stores, mobility and consumption behaviors (Deprez et al., 2017). In this context, food availability was not considered as a cutting issue, as nearly all food stores sell fruits and vegetables. However, are fruits and vegetables equally available in all neighborhoods of the city? Does the diversity of food outlets differ by the socioeconomic status of neighborhood?

In this paper, we present a case study of the diversity of foodscape in Montpellier, France, and we discuss these findings in relation to the socioeconomic status of inhabitants.

**Material and methods**

The area under study is the Montpellier city-region (465,000 inhabitants), gathering the core-city of Montpellier (280,000 inhabitants) and its periphery composed of 30 peri-urban municipalities. This city-region is interesting for our foodscape research because social deprivation is important, as are income inequalities between neighborhoods. In 2016, 19.4% of the whole population lived under the low-income thresholds (the 60% of median disposable income). The spatial income inequalities are very high: the annual median disposable income varies from €10,442 to €32,425 among the neighborhoods of the Montpellier city-region.

In order to build a food outlets and restaurants database, we used the French national business register *Sirene* of January 2019. We corrected data using firstly *Google Maps* and *Google Street View*, and collecting secondly data on the field: we walked, biked, or drove through more than on tenth of the surface under study (streets selected through a random sampling method) in order to check every outlet and restaurant. We also validated supermarket data through websites of the supermarket chains. We added open-air markets data identified on the websites of municipalities. Addresses were geocoded using *Mon Geocodeur* software.

All variables were computed using a geographic information system (*QGIS 3.4*) and calculated for each IRIS-area, the smallest statistical spatial unit (tract) available in the French national census. Built environment data were retrieved from the French national institute for geographical information (*BD TOPO 2.2*). Socioeconomic data were retrieved from the French national census. Data of population structure, education and housing are given for 2015, income data for 2014.

Our typology of foodscape was built on indicators of food availability –density and diversity of food outlets or restaurants (Charreire et al., 2010) –, and of built environment (height of buildings and density of urbanization). Then, we defined two indicators: the absolute food density (number of outlets or restaurants by 1,000 inhabitants) provides information on food availability; and the relative food density (proportion of outlets or restaurants from one category among all food outlets, or among all restaurants), provides information on the type of food outlets or restaurants to which people are most exposed. Moreover, the relative food density could help to assess foodscape influences on diet (Clary et al., 2015). Diversity of food outlets is used because it highlights the open-choice consumers may have, both in terms of preferences and prices.
Then, we distinguished types of foodscapes using hierarchical cluster analyses, and the R package cluster. We computed F-tests to characterize clusters using the R package FactoMineR.

Finally, in order to understand if foodscapes differ by socioeconomic status of neighborhood, we compared such typology of foodscapes with socioeconomic indicators (income and presence of specific groups of population), and with food physical access indicators (ownership of a car and Euclidean distance to the nearest food outlets from each category).

**Results**

We identified five types (Fig. 1). The type 1 includes Montpellier downtown (the dense old pedestrian area, with narrow streets and 3 to 6-floor buildings) and one peripheral neighborhood of Montpellier, among the most deprived (mainly social housing built in the 1960’s), where is located the biggest and cheapest open-air food market of the city. This type is characterized by the highest food availability and social deprivation or inequalities. The number of food outlets and restaurants of all categories is significantly higher than in other types, except for hypermarkets and drive-through supermarkets. In these areas, the proportion of students and unemployed people are higher than in other types. The proportion of inhabitants without a car is also significantly higher. The income inequalities are very high, except in the peripheral deprived neighborhood.

![Fig. 1: Typology of foodscapes in Montpellier city-region](image_url)
The type 2 includes the dense urban neighborhoods located around the old downtown of Montpellier, and the village centers of some suburban localities. This type is characterized by high food availability, but to a lesser extent than the type 1. Restaurants are mainly fast foods. Proximity (Euclidian distance) to every categories of food outlets and restaurants is higher than in other areas but also their absolute and relative densities. As for the type 1, the proportion of students and unemployed people are high in the type 2. The proportion of inhabitants without a car is also significantly higher than in other types.

The type 3 includes most of the suburban areas, and, in Montpellier, the neighborhoods located on the outskirts of the city perimeter, the furthest from the old downtown. This type is characterized by low food availability in low-density and socially homogeneous residential neighborhoods (single-family detached houses) relying on car-mobility. Proximity to all categories of food outlets and restaurants and the absolute and relative densities are lower than in other types (e.g. the mean Euclidian distance to the nearest bakery is 714m while it is 504m for the whole populated areas). The population density is significantly low as well as the proportion of inhabitants without a car. The proportion of students and the income inequalities are also low.

The type 4 includes the wealthiest suburban low-density residential neighborhoods, where food availability is particularly low. Proximity is the lowest for all categories of food outlets. Bakeries and butchers are the only food outlets that can be found in these areas. As in the type 3, but to a lesser extent, population density and the proportion of inhabitants without a car are significantly lower in type 4 than in other types.

The type 5 includes only suburban shopping areas, where population density is the lowest. The availability of supermarkets in these areas is the highest and supermarkets represent almost a third of the total number of food outlets. There are bakeries and groceries but shops such as butchers, fishmongers and greengrocers, as well as open-air food markets, are almost totally absent.

**Discussion and Conclusion**

To our knowledge, this is one of the first studies that characterize foodscapes in France and the very first to investigate the relation between foodscapes and socioeconomic status. Our methodology is helpful to distinguish foodscapes, based on urban landscape and food availability. The five types show the weight of the urban morphology. In further improvements, we thus think of including the median date of constructions for each neighborhood in the clustering.

In response to our research question, we found a relation between foodscape types and socioeconomic status of neighborhood in the Montpellier core-city. The poorest sectors (high income disparities and/or low median income) have overall a high food availability, both in terms of the number of outlets/restaurants and of their diversity. On the contrary, the neighborhoods with the lowest number of food outlets are the wealthiest. In the suburban localities, this inverse relationship between income levels and food availability is less clear. Food availability is good in village centers and around shopping areas, lower in residential suburbs. Areas with the lowest diversity and density of food supply are mainly wealthy residential neighborhoods, where most households have a car.

Our results hence differ from what was found in North America. In Montpellier, deprived neighborhoods are not food deserts. However, beyond food availability, our results hence invite to consider physical, economic and cultural accessibility to food supply. People may live in a neighborhood with good food availability, but healthy food may not be affordable or culturally adequate for all of them. They are facing food mirages (Breyer and Voss-Andreae, 2013; Short et al., 2007). Availability is not enough to achieve food security.
Our results also invite to consider individual activity spaces, people’s daily journeys and the ways individuals navigate the foodscapes (Hammelman, 2018): living in a wealthy residential neighborhood without any food stores may be a problem for an ageing person with lowering mobility, but not for active households with a car or used to online shopping. Such limitations highlight the interest to conduct a place-based research design, combining mapping methods with interviews, in order to collect also foodscapes perceptions and to understand social and spatial practices of food procurement.

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Urban food strategy of Madrid: an evaluative case-study

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Keywords: food security, good governance, food democracy, food systems, urban food governance

Abstract

While the role of cities as new food policy actors has attracted increased interest, few studies have critically analysed urban food governance. This study attempts to use Madrid city as a case to assess how these new food governance configurations ensure good governance for food security. In doing so, it aims to make recommendations to improve Madrid’s food governance and recognize best practices for other cities. An evaluative case study design was used. The general unit of analysis was the Urban Food Strategy (UFS) of Madrid city with its food policy platform as an embedded unit of analysis. The study applied an adaptation of FAO’s analytical framework for good governance for food security and used direct observations, semi-structured interviews, and a document analysis to meet its objective. A pattern matching technique was used for data analysis using a previously developed “idealized” scenario. Study findings suggest that the case complies to a certain extent with principles of good governance. Urban food governance has been enhanced through new participation mechanisms; management instruments; and transparency. Nevertheless, there is a need for an indicators’ framework and more inclusive participation mechanisms; equality and fairness require attention; and there is a low level of responsiveness. Moreover, a lack of capacity; continuity; and administrative challenges were identified as barriers for food governance. On the other hand, the motivation of stakeholders, external funding and the social relevance of food were regarded as main enablers. Overall, the study concludes that Madrid’s UFS and food policy platform have helped to improve urban food governance. However, it also highlights that the presence of new governance tools does not guarantee good governance, and many challenges remain. More broadly, this study demonstrates that critical assessments of food governance can result in the identification of deficiencies that need to be addressed to achieve better food security outcomes and challenge barriers to good governance in a given context.

Introduction

The “silod” approach of global and national food governance has been unsuccessful in answering the problem of the triple burden of malnutrition (Ana Moragues-Faus, Sonnino, & Marsden, 2017; Sonnino & Spayde, 2014). In this context, cities have surfaced as new food policy actors around the world thereby rescaling food governance to the local level (AM Moragues-Faus, Adlerova, & Hausmanova, 2013; Pothukuchi & Kaufman, 1999).

Contrary to higher governance levels, cities have particularly recognized that food security challenges are interrelated and that integrated policies are required (IPES-Food, 2017; Sonnino, 2017). This has constituted the creation of Urban Food Strategies (UFS) and new governance mechanisms that connect civil society, private actors, and local governments (Ana Moragues-Faus & Morgan, 2015). Policies created in these spaces have found their own place in the international agenda through the Milan Urban Food Policy Pact (MUFPP) which is now the steering force behind UFSs worldwide (López, Alonso, & Herrera, 2018).
In the Spanish context, many cities have signed the MUFPP and have increasingly developed UFS and food policy platforms (Renting, van Veenhuizen, Dubbeling, & Hoekstra, 2017). Madrid is an example of such a city, as exemplified by the signing of the pact in 2015 and the recent development of a UFS. The strategy tries to develop a new food governance structure, that is more inclusive and effective than the previous one using an exhaustive participatory development process, the inclusion of new members to its supervising platform, and a new governance framework. Notwithstanding, there is still no documented assessment of the weaknesses and strengths of the current governance configuration.

Consequently, by means of a case study methodology, this study attempts to critically assess the newly implemented UFS in Madrid by using an adapted good governance for food security analytical framework developed by the Food and Agriculture Organization of the United Nations (FAO). It includes seven governance principles: effectiveness and efficiency, transparency, accountability, equality and fairness, participation, and the rule of law. This framework has been selected, as good governance principles are believed to address the underlying causes of food insecurity and malnutrition and, therefore, seem necessary to achieve the desired objectives of UFSs (FAO, 2011). The use of such a framework and the assessment of the strategy of Madrid city can help recognize governance shortcomings and best practices which could be used as an example for other cities and improve Madrid’s current food governance. Hence, it may contribute to develop better and more comprehensive solutions for food challenges.

**Objectives**

The study has the following general objective: To assess how the new Urban Food Strategy of Madrid assures good governance for food security and to understand what can be learnt from it using a case-study approach. To achieve this general objective these specific objectives are met:

1. To evaluate essential components of governance of the strategy based on a good governance framework for food security
2. To identify the major barriers and facilitators regarding good governance for food security in Madrid city

**State of Art**

A lot of research has been done surrounding urban food governance with a focus on the effectiveness of UFSs and governance structures using the synthesis of common lessons from case studies (Clayton, Frattaroli, Palmer, & Pollack, 2015; Gupta et al., 2018; Ana Moragues-Faus & Carroll, 2018; Schiff, 2008; Sonnino & Mendes, 2018; Sonnino & Spayde, 2014). However, few studies use a critical and holistic approach. In addition, few studies use a specific analytical framework for food governance. Different authors have stressed the need of more research using in-depth studies with critical approaches to new forms of governance to understand the role of coordination of food systems in cities. Some even highlight that it would be useful to go past the comparative analysis of UFSs and focus on the real effect that these mechanisms have in each case study (Ana Moragues-Faus & Morgan, 2015; Sonnino, 2016; Sonnino & Spayde, 2014; Toldo, Pettenati, & Dansero, 2015).

**Methodology**

The study was conducted following a pragmatic research paradigm using an evaluative single case study design (Goldkuhl, 2012). The general unit of analysis was the UFS of Madrid city. The case included one instrumental subunit of analysis to facilitate its understanding: the food policy platform of the city of Madrid which supervises the strategy’s implementation. The case study involved the collection of multiple sources of
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evidence and qualitative techniques for data collection such as: direct observations; semi-structured interviews with key informants and document analysis (Yin, 2009b). To successfully answer the objectives of the study, a case study protocol that reflected the line of inquiry was developed.

A purposive sample was used to identify key stakeholders related to the strategy (Gray, 2018). Participants were asked to suggest other key informants that had profound insight of the case, following a snowball sampling technique (Atkinson & Flint, 2011). The selection of participants aimed to have a mixture of interests and knowledge, and representation of the local authority. The number of interviewees was seven (Creswell, 2013). Participants included representatives of four social movements with different core areas of action (agroecology, right to food, and social exclusion), one city council representative, a member of an international organisation (FAO) and an urban food policy expert, all of which have direct participation in the case. The interviews were semi-structured with open-ended questions but were conducted in a flexible manner (Gray, 2018). The case study protocol was used as a basis for the interview guide which covered the development of the UFS and food policy platform, good governance principles, and barriers and facilitators. Documents were taken from the webpage of the city council and relevant social movements, internal documents of the municipality, and minutes of meetings and reports. Data collection from direct observations was based on comprehensive field notes of one food policy platform meeting, and the 2019 annual assembly related to the evaluation of the strategy.

The overall data analysis was based on a pattern matching technique using a previous developed “idealized” scenario based on the good governance for food security framework (Yin, 2009a). To be able to analyse each of the principles more effectively, each principle was allocated a set of governance indicators selected from the monitoring framework of the City Region Food Systems project of the FAO Food for the Cities Programme and RUAF Foundation, and the MUFPP monitoring framework for food governance (MUFPP & FAO, 2018; RUAF Foundation, FAO, & Wilfrid Laurier University, 2017).

Separate datasets from semi-structured interviews, documents, and field notes were analysed using a directed content analysis technique to group information to the predefined good governance principles according to the concept model described above (Hsieh & Shannon, 2005). Inductive analysis was used to identify key themes related to the barriers and facilitators (Kennedy, 2018).

Results

Good governance for food security in Madrid city

The assessment of effectiveness and efficiency was intended for the processes that try to assure successful collaboration of stakeholders related to the strategy, as well as coherence among actions. Network management has gradually improved due to specific management tools and the presence of a technical secretary. Nevertheless, the inclusion of new food policy platform members has challenged this and questioned how meetings should be carried out to ensure deliberation. Consequently, specific clauses for members renovation and the format of meetings have been included. Furthermore, clearer rules regarding the platform’s functions, participation terms and decision-making mechanisms, have also been introduced. Nevertheless, the current length of meetings may hinder in-depth debates. Similarly, the fact that there is still no clear definition of roles and expectations of members has affected collaboration, especially now with the increased number of members. Moreover, there is a lack of mechanisms to monitor actions and to address blockages or conflicts. Likewise, although coherence among stakeholders has improved through the strategy, there are still some contradictions or duplications in practices.
Regarding equality and fairness, the analysis revealed that while this principle has been considered during the formulation of the strategy, attention is still needed. Policy measures and instruments that try to address food insecurity are included in the strategy. However, there has not been any significant change in the food access of vulnerable communities. Interviewees related this to an “invisibilization” of food insecurity in Madrid city. On the other hand, although a gender perspective was included in the elaboration of the strategy and it’s stated in the final document, there is no clear evidence that strategy’s actions unwind with embedded gender equality concepts.

With regards to accountability, monitoring and evaluating mechanisms are still not in place. Until now, no indicator framework has been developed, despite the use of accessible food-related indicators to provide a basis for future monitoring. According to interviewees, the main action taken by the municipality to assure accountability has been the annual assembly for the evaluation of the strategy in which the municipality reports to civil society about the progress of the strategy. To be able to showcase the progress of the strategy's initiatives, a memory of actions was presented during the assembly. However, it displays that there is no collective framework to systematically evaluate and monitor process, progress and impact.

Responsiveness in urban food governance relates to the ability to respond to external stressors and sudden shocks to the food system. In this regard, although there is a municipal emergency plan for the city of Madrid that briefly mentions the food provision in case of emergencies, no food emergency/resilience management plan related to the strategy has been found. This was corroborated by the interviewees and some even said that this aspect was never thought of during the strategy development process and seemed illogical for the situation of Madrid city. Nonetheless, one of the objectives of the strategy is to augment food sovereignty and therefore acknowledges resilience aspects of Madrid’s food system.

Regarding transparency, one of the aims of the food policy platform since its beginning has been to establish visibility regarding the commitment that the city council has towards the MUFPP and related processes such as the strategy. This has been reflected through many initiatives such as a communication campaign during the launch of the strategy. However, while the quantity, quality, and access to information has been improved and there is a transparent attitude from the local government, information does not reach the general public and the strategy and governance structures are still unknown by regular citizens.

In relation to participation, the new configuration of the food policy platform forms a rich pool of knowledge from the social, private and public sector. However, despite the assertion within the new governance framework that the most relevant stakeholders of Madrid’s food system are represented, interviewees agreed that there is still a lack of inclusion of hard-to-engage groups, the general public and communities in risk of exclusion. Furthermore, while there was a high level of participation in the development of the strategy, participation in the implementation of actions has not evolved as much. The strategy is perceived as a commitment of the municipality and thus, the social sector is not highly involved in its execution nor does it have the same power as the municipality in final decisions.

Regarding the rule of law, as a signing city of the MUFPP, Madrid city has made a commitment to use an action framework based on rights. In this sense, the strategy has assumed a right to food approach within its objectives and initiatives. Notwithstanding, despite the demonstrated efforts, no evident legal basis for various food security initiatives that concentrate on the right to food was found. This may be because the city council has limited competences in developing legislations related to the right to food.
Barriers and facilitators

The main barriers identified regarding good governance for food security are the lack of capacities and competences of the local municipality of Madrid, as well as the challenges related to the feasibility of transcending electoral cycles. On the other hand, almost all interviewees agreed that the main facilitator for the development of the strategy and the effective functioning of the platform has been the motivation and commitment that the related stakeholders have had to change Madrid’s food system. In addition, other facilitators have been the overall social relevance of food, the previous existence of measures related to food, and external funding.

Discussion

Overall, the UFS and the food policy platform have helped to gradually improve governance for food security in Madrid city. The aforementioned principles based on the adapted good governance framework of FAO (effectiveness and efficiency, equality and fairness, accountability, responsiveness, transparency, participation, and rule of law) were present to a certain extent in the case. However, there are still improvements to be made when compared with the previously developed “idealized scenario” for urban food governance, as well as with the food governance literature (Coppo, Stempfle, & Reho, 2017; FAO & MUFPP, 2018; RUAF Foundation et al., 2017).

The application of the good governance framework in Madrid’s case showcases that having established urban food governance mechanisms like an UFS and a food policy platform does not directly ensure an increased quality of governance in all aspects and many challenges remain that may be due to contextual influences but also to the way how these tools are translated into practice. For example, while having a technical secretary does improve coherent and uncomplicated network collaboration, other management mechanisms are needed to avoid negative effects in stakeholders’ interactions. This has also been appointed by other relevant food governance scholars (Bock & Caraher, 2014; Mansfield & Mendes, 2013; Ana Moragues-Faus & Morgan, 2015). Moreover, despite the presence of several initiatives regarding equality and fairness in Madrid’s strategy, attention is still missing in practice. Other comparatives case studies have also identified this emerging issue (López et al., 2018). Similarly, the case also shows that aligning efforts to increase transparency is not enough to go beyond the interested civil society and reach the general public. Moreover, although a monitoring and evaluation mechanism was contemplated, it still has not been developed. This may be one explanation of the failures in other principles as current work signals the importance of the presence of an indicators’ framework to detect inefficiencies and ineffectiveness in the operationalization of UFSs. (Moragues-Faus, Ana.; Marceau, Alizée and Andrews, 2016). Additionally, resilience of the city’s food system as a concept has not fully matured which leads to a low level of responsiveness. Regarding participation, there is still the need of a more inclusive framework that includes vulnerable communities and allows for the confluence of efforts of civil society, the private sector and the municipality in food-related actions. Finally, the limitations of the city of Madrid regarding the rule of law highlight the importance that recent literature has appointed to the reinforcement of the communication and institutional interplay among different levels of food governance (Ana Moragues-Faus, 2017).

Limitations

While this study attempted to pursue an in-depth analysis to devise a comprehensive response and recommendations for good governance in Madrid city, it is important to understand that due to time constraints the reach and depth of analysis has been limited. Consequently, it provides an initial assessment and overview of Madrid city UFS and food policy platform. Moreover, whereas case study methodologies strive towards
analytical generalization or transferability, it would be naïve to draw conclusions regarding urban food governance based on solely one case study.

Other limitations include the lack of interview participants representing the private sector and the greater representation of civil society. Therefore, results may have been biased by the predominance of views of the social sector and may not display a diverse pool of perceptions. Moreover, as the researcher carried out the document analysis first, interviews may have been guided following the results of this analysis and thus, there may be the presence of researcher bias. Nevertheless, this limitation was addressed by sharing preliminary results of the whole case with study participants. Another limitation is that the study uses a novel analytical framework that has not been used in other case studies or research. However, as the framework is based on Human Rights principles and the UNESCAP definition of good governance, it reinforces the case’s relevance.

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Agroecological transitions confronting climate breakdown: Food planning for post-carbon city


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Exploring the spatial planning dimensions of urban informal food systems in China

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**Keywords**: Equitable urban space, informal food systems, spatial planning, sustainable food systems, vendors

**Abstract**

This research aims to optimize urban space for informal food systems and to maximize their benefits while reducing the associated risks. Informal food systems can be considered as an integral part of viable strategies for sustainable and equitable urban development. By establishing a space assessment system of food supply chains, this research evaluates and compares informal food systems at different levels and analyzes their positive and negative impacts on city space, so that to improve connections between urban space and informal food chains. Through the urban morphology analysis of urban space occupied by different parts of the food chain and its evolution rules, the research will propose spatial planning principles for informal food systems.

**Introduction**

It is predicted that 66% of the world’s population will live in cities by 2050 (UN-DESA, 2018). Accompanying this rapid urbanization process is a phenomenon referred to as the urbanization of poverty (Martin Ravallion, 2001): the population growth is combined with a gradual shift in the locus of poverty from rural to urban areas. Especially in China, most cities encounter great difficulty in creating sufficient formal employment opportunities and to provide adequate basic services for the rapidly growing population. Most urban poor rely on the informal food systems for their survival because of low cost, low risk and citizens’ high demands for cheap food.

Informal food systems are composed of food chains which retailing link are informal sector. Informal food sector (farmers market, morning market, mobile vendors, etc.) provides basic living security for migrant workers and local underclass and contributes to affordable fresh food and social inclusion, but at the same time brings some negative impacts to cities such as social disorder, traffic jams and public hygiene problems. In recent years, the crisis of China’s urban food system has gradually emerged and is becoming more and more serious. The main contradictions lie in three areas: growing population and the demand for food, urban expansion and land use, food distribution and transportation. While informal food systems contribute to biodiversity, supplement of arable land and helps to shorten supply chains and enhance food supply specialization and diversity.

Based on the social background of China, this research analyzes the contribution and risk of informal food system in urban development. It optimizes the informal food system through spatial planning to maximize its advantages (short food miles, cultural diversity, food availability, abundant food sources, etc.) and reduce its negative effects (food safety problems, market disorder, occupation of public space, etc.).
Objectives

This research hopes to solve urban problems through spatial planning that aims to study the coupling of informal food system and urban space system.

Key research questions:

1. What are the advantages and risks of informal food systems in social background of China?
2. What are the spatial relationships in the informal food system? How to assess urban space in informal food systems?
3. How urban spatial morphology and planning influence every link as well as whole food supply systems?
4. How to upgrade the single spatial link in informal food systems into an integrated urban food supply system?
5. What kind of urban space planning is conducive to realizing the resilient and sustainable food system?

State of art

At present, researches on food system mainly include four aspects: globalization and localization of food systems, assessment of resource and environmental effects of food systems, food security and policy research, food system planning. And this research is focus on spatial planning in the informal food system. UN-Habitat published a practical reference for local governments to frame and implement principles, policy recommendations and development initiatives on public space (UN-Habitat, 2015). Food open-air markets are also urban public spaces need to be protected (Levente Polyak).

The theoretical study of food system planning in China is still in its infancy (Guo Hua, 2018). Liu Juanjuan et al. discussed the concept and status quo of food system planning in US and elaborated its development process, guidelines and work scope (Liu Juanjuan, Li Baofeng, Ning Yunfei, Brandon Born, 2013). Liu Chang’an believes that the whole chain of food production, transportation, processing, distribution, consumption and waste disposal should be introduced into the urban living environment and adapted to the community space (Liu Chang’an, Zhang Yukun, Zhao Jilong, 2018). The study of space of informal sector in China more cares about characteristics of this group and most researches are the field analysis of small-scale specific cases.

Overall, the deficiencies in the research on the food system are as follows: 1) Most studies on food system planning focus on the food production sector, which are still fragmented, and lack sufficient studies on the relationship between food supply chains. 2) The current spatial planning of food system only aims at the formal sector, while the research on informal food systems only focuses on policy, economy, etc. 3) Lack of empirical analysis and quantitative analysis. 4) Domestic researches on the food system are minimal and most of them focus on the analysis of foreign research results.

Methodology

Informal sector is a complex and contradictory system, while urban space is a concrete and rigorous system, so this research adopts the method of combining qualitative and quantitative analysis. Firstly, it summarizes the relationship between the urban morphology and activities in informal food system in the past through literature research, so as to obtain the influence of inherent factors (civic culture, ancient urban design thought) on the current urban space (Hillier & Hanson, 1984). Then the
spatial assessment concepts and indexes are constructed by qualitative method to measure the space occupied by the food supply chains. Among them, a very important part is to use the method in urban morphology to quantify the urban space system, and then to build informal food system space assessment system to evaluate urban space in Nanjing. This research also compares Nanjing with other cities from different aspects. Finally, according to the above research results, it is an important part to make planning strategy for Nanjing food system of informal sector.

**Table 1 Methodological approach**

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<tr>
<th>Step</th>
<th>Method</th>
<th>Tasks</th>
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| Step 1: Evolution | Literature research | ![Diagram](image) According to the rule of historical evolution, space is divided into four types (four functions):

1) \( F(x) = x \) space vitality is stronger and stronger
2) \( F(x) = -x \) space vitality is weaker and weaker
3) \( F(x) = a \) space vitality is always strong
4) \( F(x) = a \) space vitality is always weak

and different space attributes (good and bad) will be handled by different means (space protection, space replacement, space filling, space reconstruction).

| Step 2: Assessment system building | Qualitative research | Make principles for resilient and sustainable space system according to Principles of a Healthy, Sustainable Food System (*Food Systems and Public Health Conference Work Team, 2010*) |
| Qualitative research: Urban Morphology | Space syntax: single factor (DepthMapX software) | Convex space modeling (attraction of markets): According to the plan, planar space is represented by a polygonal closed wireframe, and then calculated by software. |
| | | Grid modeling (sight accessibility: morning/evening market attraction): Close impenetrable obstacles with polygonal segments |
| | | Line modeling (traffic accessibility: The space vitality under the influence of social economy): Streets are represented by line segment |
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| Form syntax: multiple factors (RrcGIS software) | Urban plan, building fabric, land utilization: Residents activity intensity and urban space vitality (farmers market, morning market, evening market, convenience market, mobile vendors) |

Results

**Anticipated outcomes**

1) To find the general rules of spatial evolution of informal food system in China.

2) To construct the of informal food system space assessment system based on Chinese social background.

3) To assess the space of informal food system in Nanjing through the assessment system and make suggestions on the space planning of Nanjing.

4) To summarize the spatial planning strategies for informal food system by comparing different cities.

Discussion

At present, China is in a period of rapid urban development. Problems such as the widening gap between urban and rural areas, the loss of agricultural tradition, the transfer of labor between rural regions and cities, and infertile green resources of urban areas and the increasing number of urban poor population are common in this process. Informal food system are not problems to be prohibited and restricted but have a number of benefits and can provide important contributions to answering a number of key challenges encountered by cities.

Based on the comparison of Nanjing (China), Rotterdam (Netherlands) and Cologne (Germany), the case study puts emphasis on the vulnerability of the food system and the characteristics of the informal sectors in Nanjing, and then evaluates the local production capacity of this city. Relying on the strength of the large informal employment population in Nanjing, the self-sufficiency of the city will be enhanced, and the food sources and access channels will be enriched.

1. Nanjing: informal food system planning

At present, there is no research on the spatial planning of China's food system, but the practice of urban agriculture has been fruitful. The policy for developing urban agriculture in Nanjing began in 1996. After more than 20 years of practice, it has made remarkable achievements (Fang Zhongyou, 2016). In 2017, the comprehensive index of modern urban agriculture in Nanjing ranked third in China (Jiang Xiaoping, 2018). However, with the rapid urbanization and industrialization of Nanjing, agricultural land resources are in short supply and decreasing year by year. And with the continuous increase of the floating population in Nanjing, the conflict between people and land is also increasing. This research takes Nanjing as a case to evaluate its status quo of informal food system (characteristics, weakness, potential, etc.) and the space. By comparing and learning from the experience of European cities Rotterdam and Cologne in food system and spatial planning, this study finally proposes a spatial planning scheme for Nanjing.
2. Edible city Rotterdam

Since 2007, a group of experts from various fields has been active in the movement called "Edible Rotterdam" launched by Rotterdam Metropolitan Agricultural Association. They are committed to improving the livability of cities through urban agriculture, which have social, economic and cultural functions, including providing fresh local food, education, exercise, recreation, job opportunities and community activities that can promote social integration (Cretella & Buenger, 2016). Such initiatives can help improve the environment and promote urban ecological and sustainable development. Moreover, it is a great way to promote the formation of regional food system and make urban development more flexible (Wascher, Jeurissen, Jansma, & van Eupen, 2017).

3. Sustainable city Cologne

Cologne can be seen as a forerunner among German cities in the development of a new urban food policy. Some of the successful steps to re-envisioning food as an urban system include joining the Milan Urban Food Policy Pact, the decision of the City Council to become an edible city and the establishment of a Food Policy Council (Hirsch, Heuschkel, & Terlau, 2018). Many different projects such as the edible city, regional direct marketing, sustainable communal catering of schools and kindergartens as well as regional gastronomy and artisanal food production were embarked upon. The people of Cologne tend to be quite partial to their own local food, so it comes as common that regional dishes take top billing on some of the menus at city’s street food markets.

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BOOK OF PROCEEDINGS
ABSTRACTS
Experiences of Communities of (Food) Practice in South Africa

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Communities of (food) Practice (CoPs) link multiple levels, sectors and actors that influence foodsccapes. In contrast to Food Policy Councils, CoPs do not aim to directly inform decision making and policy as their informal make up rarely carries a government mandate, nor do they claim legitimacy to speak for a certain community or geographical area. Rather the participants learn from the experiences and perspectives of other community members, creating opportunities to inform their practice as well as to contribute diverse insights to (co)create new knowledge through joint learning. This paper reflects on the experiences of researchers in South Africa promoting food democracy by establishing and nurturing CoPs on food governance. While most empirical studies present a static picture of CoPs, reflecting structural properties of the community at the time of field study, this study focuses on the evolution of the community, charting its emergence, growth, and structural change over time.

Key lessons are drawn from these experiences about potential types of learning and their roles in food democracy: 1) CoPs can be trans-disciplinary, including members with different perspectives, values and interests. This can lead to tensions and conflict that need to be understood and harnessed in the social learning process of ‘negotiated meaning’ without masking dissent or power dynamics; 2) Learning is not just about learning ‘about something’ but also about learning ‘to be’ (i.e. developing relational bonds, shared values and group identity). CoPs are therefore not just about knowledge (co)creation, they can also galvanise democratic food governance movements; 3) Learning is experienced differently in different parts of the CoP: while members at the core of the community may be more active in debates and creating new knowledge, silent community members still play an important role at the periphery in taking up this knowledge and applying it in their practice. Therefore it is important to consider the ways in which CoP structures accommodate members’ divergent interests, how they serve as platforms for contestation of narrower sectoral interests and support the recognition and validation of marginalised knowledge.

Keywords: Communities of Practice, social learning, co-production of knowledge, South Africa

References:


Food Councils and The Institutional Restructuring of Regional Food Systems

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Traditional agricultural systems have been highly successful and have been thoroughly ingrained in the social and political structures of modern societies. However, increasingly the limitations and adverse effects of the agricultural revolution is becoming clear: high impact on the natural environment, significant greenhouse gas emissions, high use of pesticide and artificial fertiliser, and poor animal welfare are some of the examples. Regional Food Councils (RFC) are an effort to democratise and address some of these issues at a regional scale. In an RFC, governmental actors, companies, educational institutions and social movements jointly map out problems regarding food issues and draw up a policy agenda. This research looks at three of these initiatives in the Netherlands through the lens of Institutional Work Theory. Some of these RFCs gained traction while another failed to persist. The research shows how actions of co-optation and vesting are used to both support and limit the potential impact of RFCs on the food system. At the same time, RFCs are crucial for the upscaling and institutionalisation of new food initiatives that struggle to gain a foothold in the current food infrastructures in place. They use or enable institutional work such as establishing networks, lobbying and the societal promotion of new normative food principals. Regional food systems have increasingly gained traction with policymakers as a more sustainable form of food provision with higher nutritional values and less environmental impacts. In practice, it remains difficult for local food initiatives and RFCs to counterbalance the vested interests and power structures of traditional agricultural actors.

Keywords: Food Council, Institutional Work, Restructuring, Regional Food Systems

References:


Short supply chains and agroecological transition in the Cusco region (Peruvian Andes). Reflections on the hybridization of different sustainability approaches

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For several decades, the “modernization” of the agricultural sector in the Andean region has promoted the development of the agro-industrial model and the spread of polluting agricultural practices. However, at the same time, farmers and the urban population are increasingly mobilizing for a healthy, diversified and affordable diet. In this context, projects of short supply chains of “organic” or agro-ecological products have emerged in recent years. In the Cusco region, in the heart of Peruvian Andes, organic markets, organic food baskets, producers' shops, directs contracts with restaurants, etc. are multiplying, especially since 2010. This territory constitutes a perfect laboratory to analyze this transition process toward more sustainable agri-food systems, to the extent that it is became established as an archetypal globalized territory, where endogen and exogenous, “modern” and “traditional” influences converge.

The purpose of this article is to analyze the implementation of these short supply chains and to evaluate to what extent they contribute to the transition of the Andean territories, promoting the development of innovative and sustainable agricultural practices and enabling new forms of solidarity between farmers, on the one hand, and between farmers and consumers, on the other. The field study, based on semi-structured interviews with a wide variety of local actors (farmers, producers' association, NGO, public authorities, etc.) and observation sessions, highlights the hybridization of different approaches of sustainability (weak or strong) within most of the local transition initiatives. These hybridization and diversification processes appear as necessary conditions toward transition but face a twofold challenge. On one hand, more and more initiatives for the conventionalization of the alternatives (weak sustainability) tend to reproduce some limits of the conventional socio-technical regime (including socio-economic and spatial inequalities among producers and consumers). On the other hand, the propositions put forward for a systemic redesign such as agroecology (strong sustainability) are confronted with socio-technical lock-ins generated by this same conventional regime (among others, lack of public support, the power of collective imaginations around modernity, etc.).

**Keywords:** Agroecology, Short supply chains, transition, Andes, Peru

**References:**


Prosumers in food: an analysis of the everyday food growing in the city of Almere (NL)

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Concerns about the sustainability and healthiness of the current global food system provoke a variety of urban-regional food policies. If local food production is at the policy agenda, policy tend to focus at civic food networks (CFN) which seek for radical innovations of the food system. However, this focus risks the neglect of a broad group of every-day consumers who (partly) grow their own food within the urban realm.

This paper focus at this group and to distinct it from the CFN we introduce the term prosumer. A prosumer is understood as an actor present in both production and consumption. We want to uncover who the everyday prosumers in food are, what they produce, where they produce, and with which rationale? We separated five categories of prosumers: (1) domestic growing in home; (2) domestic growing in the backyard (3) out of home growing with others (like community garden), (4) out of home growing alone (like allotment) and (5) picking the wild fruits (incl. nuts, mushrooms and fish). Our city of interest is Almere, a Dutch new town of about 200,000 residents 30 km east of Amsterdam. To learn the incidence of these five categories in Almere we executed an online survey using the official city-panel (N=1803).

The results of the survey (N=835) reveal that two third of the respondents is prosumer in at least one of the categories, and half of this group is active in at least two categories. Domestic in home growing, picking wild fruits and domestic backyard growing have the highest occurrence in the survey. Prominent reasons to prosum
in food are fun, relaxing, being outside, and being physical active. The daily consumption marginally consists of the own grown produce, the majority of the daily groceries is procured at the conventional shops. A quarter of the respondents would like to grow more food, but lack of time and space withhold them. The results of the Almere survey underline that prosuming in food is a common practice, a practice that food policies should include en route to a change of the food system.

**Keywords:** Prosumer, Food Growing, Food Policies

**References:**

Urban development and sustainable food: towards hybrid systems? Presentation of two case study in France and in the Netherlands

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This paper will present the progress of a PhD research about interactions between the transition towards sustainable urban food systems, and changes in urban development processes. It will focus on how a second case study in the Netherlands (Almere) brings new perspective to the first findings driven from an exploratory analysis of a case study in France (Paris).

The first case study is composed of two ‘calls for innovative urban projects’ launched recently in Greater Paris. These unprecedented initiatives aggregate different evolutions of traditional urban development practices in France (deliberately open specification, central part of real estate developers, privatisation of public plots of land...). They also favour the emergence of sustainable food as a new innovation avenue for urban planning, with more than 65 % of the winning projects referring to agri-food topics.

Analysing the content of these projects, we observed that production is the main, if not the only, component of the food system covered by the projects (through urban agriculture), leading us to hypothesize that frames of references remain siloed between sustainable city and food system specialists. Also, the impact of agri-food matters in urban development processes is weak, questioning therefore urban sector professionals’ motives to address agri-food issues, between mere business strategy and changes in work practices. Finally,
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stakeholders’ profiles indicate the emergence of a new sector crossing urban and agri-food skills, which raises the question of regeneration or standardisation of business practices, considering the near absence of players from the food industry and citizens in these projects.

Almere-Oosterwold development project sheds new light on these results. It places urban agriculture at the center and presents interesting comparison points with the ‘calls for innovative projects’ regarding context and processes of action. Both projects are encompassed within a broader innovation process in the planning field which intend to give room to private initiative, in countries with strong planning traditions. In both cases, agri-food topics are identified as important issues to build more sustainable cities, but with varying levels of constraint and with different relations to urban sector professionals and citizens.

**Keywords:** urban food system – urban production – hybridisation of knowledge and business practices – agri-urban approach

**References:**


The co-production of urban food policies: transforming the state and social movements in Spanish cities

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Municipal governments around the globe are developing food policies to integrate different sectors and actors implicated in delivering food security outcomes. These changes are configuring a new geography of food governance. Recent literature has focused in unpacking the creation of new spaces of deliberation such as food policy councils as well as in analysing the development of specific policies and programmes such as public procurement or urban agriculture plans. In this paper, we problematize the actual process of co-producing policies and how they transform the actors involved, particularly the state and social movements. For that purpose, we rely on recent contributions from political ecology which champion place-based approaches to understand socio-natural relations but also to problematize knowledge co-production processes and their strategic and prospective purpose. Specifically, the analysis contributes to further a critical urban food scholarship by addressing how the historically situated process of co-production of nature and society constructs distinct food systems and power geometries resulting in different policy making processes.

This framework is mobilised to investigate how three Spanish cities (Cordoba, Valencia and Madrid) co-produce urban food policies. The cross-city analysis allows identifying key situated enablers and barriers at play in the co-production of urban policies. The paper concludes by offering a critical account of these co-production processes by discussing how they transform social movements and the state and what are the broader political and material implications of those transformations.

**Keywords:** urban food policies, co-production, social movements, food sovereignty, municipalism

**References:**


Current agroecosystems are facing the urgency of changing industrial metabolism in order to restore their ability to sustain population while maintaining their ecological functioning along time. Inefficiencies behind industrial metabolism resulted in a loss of the integrated management of agrarian funds (society, soil, livestock and associated biodiversity) at landscape level. This research takes advantage from the learnings of long-term socioecological research on the functioning of the agrarian systems prior to the green revolution in order to propose new paths towards reorienting current food systems.

We propose a socioecological non-linear optimization model (Sustainable Agroecological Farm Reproductive Analysis) that allows inferring which could be the most optimal distribution and functioning of the various agroecosystems’ funds that allow to meet certain social objectives through prospective agroecological scenarios at landscape level. Based on the socio-ecological functioning of agroecosystems we obtain the best distribution of these funds (society, land distribution and livestock densities) and the flows among them, based on four different balances: labour and food requirements for society, livestock feeding and biogeochemical cycles in soil. This results in prospective scenarios to facilitate deliberative processes among how to plan agrarian activities.

We run the model under three different goals: maximizing food sovereignty with current diet, the maximum sustainable population with a Mediterranean diet and maximizing total production without taking into account the type of diet. The model allows us to characterize the limits of agroecological landscape strategies, due to the prevailing condition of closing the nutrient cycles. In spite of this, if a rational use of the nutrient stocks of the soil were made, it would be possible to reach sustainable population densities of up to more than 150 people / km². Results show how current diet strongly limits the sustainable population density (around 70 people / km²) due to the high consumption of animal products. As well, the strategy of maximizing production instead of meeting local needs could allow an increase of up to 30% in the final product (in terms of metabolizable energy).

Keywords: Reproductive analysis, Socioecological modelling, Ecfunctional intensification, Agroecology, Land Use Planning

References:

Abstracts

Agroecological transitions confronting climate breakdown: Food planning for post-carbon city


Towards a Landscape Agro-ecological Transition. A new Socioecological Integrated Analysis of the Metropolitan Green Infrastructure of Barcelona

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Joan Marull

As metropolitan areas are increasingly hosting the greatest part of population, the role they play in an agroecological transition is becoming more and more relevant. Green infrastructure framework can arise as a useful tool where to link ecological economics and landscape ecology as long as it is treated by means of multicriterial assessment for land-use planning. This means that analysing current and potential local food systems is relevant not only because of the food production itself but because of the multiple interactions between society and nature.

The Socioecological Integrated Analysis here presented focuses on the multiple dimensions of the contribution of the metropolitan green infrastructure to society. Six complementary and interrelated dimensions are accounted: metabolic efficiency, biodiversity conservation, landscape functionality, global change, ecosystem services (support, regulation, provisioning) and social cohesion. The model is based on a conceptual and methodological framework that allows identifying the different processes of society-nature interactions in the metropolitan system, and using them to guide strategic planning towards sustainability.

Therefore, we apply this model to current situation for the Barcelona metropolitan area (36 municipalities with 63.800 ha and around 3.25 Million inhabitants) but also to different land-use scenarios proposed in the Urban Masterplan and by considering two different socioecological scenarios: maintaining the current conventional agrarian pattern or shifting to organic farming. The model allow for analysing quantitative synergies and trade-offs among dimensions and reinforces how the management of complex socioecological systems is calling for new multi-criterial analysis where the different dimensions are interrelated. Therefore, they do not longer support sectoral policies but rather a systemic vision of the metropolitan territory.

Keywords: Green infrastructure, Land Use Planning, Ecosystem Services, Organic vs conventional agriculture, Metropolitan Areas

References:


Innovations in farmland management to support a transition towards agro-ecology and more territorialized food systems

Coline Perrin, INRA Umr Innovation, Montpellier, France

Farmland preservation is a longstanding challenge on the urban fringe (Paül and McKenzie, 2013; Perrin, 2013; James, 2014). In France, peri-urban farmland is increasingly being considered a public good, contributing to urban sustainability. Initiatives aimed to preserve farmland range from national regulatory frameworks to micro-local public, private or community innovations. However, it is always difficult to identify and assess such initiatives because of the diversity of social and spatial contexts. How do such initiatives contribute to a transition towards agro-ecology and more territorialized food systems? How to support the scaling-up and dissemination of such context-specific innovations? How to facilitate learning processes and transformative action?

Within the JASMINN research project (2015-2019), we studied a series of French local innovations concerning the management of periurban farmland. Our methods combined documents analysis, interviews with key informants, comparative qualitative analysis (QCA, cf. Rihoux and Ragin, 2009) of a 37-innovations sample, and 12 more in-depth case-studies. Innovation is defined here as the process by which local actors collectively imagine and build an alternative way to manage farmland.

Our project identified that such innovations emerge as context-specific responses to worldwide issues: rising land prices and conversion of farmland to residential uses (Perrin et al. 2018), land access challenge for direct market farmers (Horst and Gwin 2018; Manganelli and Moulaert 2019), abandonment of farming and expansion of fallow lands (Debolini et al. 2018). Innovations emerge also in response to urban demands for local food provisioning (Baysse-Lainé and Perrin, 2018).
Our results show that current French innovations in farmland management often rely on the same public instruments: land-use regulations, grouping of farm buildings, public or collective land acquisitions, financial incentives, and direct negotiations with landowners. The QCA highlighted the need to integrate farmers and the specific features of local agriculture from the beginning of the initiative. Public land policies focusing on land/landscapes dynamics rather than on farms/farmers dynamics were less effective over time. The discussion will deal with the governance and tools needed for the dissemination and scaling-up of such context-specific innovations if the goal is to support a transition towards agro-ecology and more territorialized food systems.

**Keywords:** urban fringes, farmland protection, periurban agriculture, land policies, scaling-up

**References:**


Manganelli A, Moulaert F., 2019, Scaling out access to land for urban agriculture. Governance hybridities in the Brussels-Capital Region, Land Use Policy, 82, 391-400.


Productive cities for urban regeneration: the case study of Turin (proGIreg H2020 project)

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Egidio Dansero, Department of Cultures, Politics and Society, University of Turin.
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"One of the relevant concepts that recently emerged in the debate about the urban systems sustainable transition is that of “nature-based” solutions (NBS): “living solutions inspired by, continuously supported by and using nature, which are designed to address various societal challenges in a resource-efficient and adaptable manner and to provide simultaneously economic, social and environmental benefits” (Maes and Jacobs, 2015). The European Union is investing to support the research on and the implementation of NBS in urban areas (e.g. in the framework of the Horizon 2020 program), useful to tackle socio-economic challenges, combining economic growth, spatial cohesion and sustainability (Nesshöver et al., 2017). Among such challenges, there is the sustainable transition of urban food systems, that NBS can support in terms of the sustainable management of production assets and a multidimensional “ecosystems-aware” approach to food security (Cohen-Shacham et al, 2016).

In the framework of the Horizon 2020 project proGIreg (Productive Green Infrastructures for post-industrial urban REGeneration), co-designed NBS are developed and implemented in three front-runner cities (Dortmund, Turin and Zagreb), with the aim of creating productive green infrastructure that can improve living conditions and reduce vulnerability to climate change, providing measurable economic benefits to citizens and entrepreneurs in post-industrial urban districts.

Most of these actions directly affect local foodscapes, e.g. with the creation of new urban gardens, new productive landscapes, new innovative agriculture micro enterprises, urban forestry and the engagement of the local community in the co-design and implementation of such initiatives. Starting from the evidences of the proGIreg activities carried out in Turin (in the post-industrial neighborhood of Mirafiori Sud) this contribution proposes a critical analysis of the potential links between the implementation of nature-based solutions and the sustainable transition of urban food systems, focusing on issues like: food security at the local scale, the regeneration of local resources in postindustrial context, the creation of sustainable productive landscapes, the engagement of communities in the co-design of food-related practices.

Keywords: nature-based solutions; urban food system, Turin, post-industrial, urban agriculture

References:
Kabisch et al. (2017), Nature-based solutions to climate change adaptation in urban areas, Springer.
Striving for food democracy through municipal Food Policy Councils. Experiences from Germany and Canada.

Marit Rosol (University of Calgary, Associate Professor, marit.rosol@ucalgary.ca)

Germany is currently experiencing a boom of municipal food policy councils (FPC). After the creation of two pioneer FPC in 2016 (Cologne and Berlin), there are now about 20 FPC in the country (active or in preparation). Food Policy Councils are mostly civil society driven initiatives that promote networking between different actors to foster sustainable regional food systems and an integrated urban food policy. Common topics include: how to achieve changes in public procurement (especially for school food); strengthening short food supply chains through support for farmers, processing infrastructure and marketing; enhancing food literacy and education and thus promote sustainable consumption practices; preventing food waste and plastic packaging; political lobbying and policy work; and general networking. Many of the German FPC take their inspiration from FPC in North America that have evolved there since the 1980s and can now be found in more than 300 cities, towns and regions (see http://www.foodpolicynetworks.org).

This presentation explores current dynamics with a focus on two current German Food Policy Councils, Berlin and Frankfurt. It is based on interviews with activists, participation in food-related events and project visits conducted since 2017. I will show first results regarding the different rationalities and motivations, governance models and strategies, accomplishments and challenges. I will also briefly discuss similarities and differences in relation to Canadian examples, especially the Toronto Food Policy Council which I also studied. Finally, I will discuss my findings with regards to the broader debates around food democracy, food justice, and urban and civic food movements.

Keywords: Food Policy Councils, Germany, Canada, civic food movements, food democracy

References


From Leisure to Necessity: Evolution of urban allotments in the province of Alicante in time of crisis

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"Traditionally, Spain has been an agriculture based country with strong connections between local production and consumption. As the majority of medium-sized cities were surrounded by active farms, which also employed a substantial part of the workforce, urban agriculture was never seen as a priority. Consequently, the history and evolution of urban agriculture in Spain differs from Northern and Central Europe or North America.

The massive urbanisation process, and the spectacular housing boom linked to tourism in coastal areas and their hinterland, dramatically transformed the rural and peri-urban Spanish landscapes and devaluated the social, spatial and economic contribution of agriculture. In the province of Alicante, after two decades of Spain's “urbanization tsunami”, a new way of combining urban life with agricultural functions emerged in the mid 2000s: through allotments, municipalities intended to promote environmentally-oriented leisure activities, enhance urban green landscapes, and revive traditional vegetable gardens (huertas). At first, these projects catered mostly to pensioners, including foreigners from countries with long traditions of urban allotments. As the economic recession, which in Spain was strongly related to the burst of the housing bubble, intensified in 2009, allotments had to re-define their goals in a social environment now defined by high unemployment and impoverishment. Today, most of the projects target people at risk of poverty and social exclusion and their primary functions are productive, therapeutic and educational.

Based on a comprehensive study of allotment gardens in the province of Alicante, this presentation enhances research on urban agriculture in two ways. First, we explain the specific histories
of urban allotments in Spain. Second, we show that a focus on urban allotments can provide a better understanding of changes in the economy, in land-use and in urban-rural relations in times of crisis. We also show that, in a way, the global economic crisis of 2008 contributed to the revaluation of agricultural land use, although the spectre of land-speculation is still very present.

**Keywords:** Spain, Alicante, urban allotments, deagrarization, housing bubble


**References:**


Spatial planning as a lever for agroecology, the missing ingredient in the re-localization of food system in the Mediterranean basin

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José Fariña Tojo, Universidad Politécnica de Madrid (Spain)

Re-localized and organic agrifood systems are regarded as a mean to face global challenges associated to climate change and overconsumption of resources. Local food and urban agriculture are in the social agenda and are expected to have an impact on the land and farming systems dynamics, especially in periurban areas. Although these messages are permeating both the political discourse and the academic research, in the field changes take a slower path and agroecology is in most cases, absent, according to the results of the research project DIVERCROP.

The DIVERCROP project aims to highlight the interactions between current dynamics of the Western Mediterranean agricultural practices and local food systems at multiple spatial scales. The case studies in Algeria, France, Italy, Malta, Portugal, Spain and Tunisia include interviews with relevant stakeholders and a participatory "Game of the territory" to make a diagnosis and define scenarios and actions. We analyze the results to discover whether agroecological appears as a relevant issue and spatial planning is considered a key factor influencing the land and farming dynamics, or not.

All case studies point out that the consumers' increasing demand for food quality is a driver of changes, and some specifically refer to the niche of organic food (for those who can afford it). Agroecology is hardly ever mentioned, not even when defining the desired scenarios. Only in the case of Portugal (Baixo Alentejo) and Spain (Madrid), they recognized that food sovereignty movements (also at governemental levels) are having some local influence in the evolution of the food system. Spatial planning is mostly considered in terms of the negative impact that urban expansion at the expense of agrarian land has. Regulation and plans emanated from Regional or Natural Park's protection contribute to the preservation of agriculture. In most cases stakeholders underline difficulties associated to lack of facilities (like storage spaces, municipal slaughters and alike) and the provision of public services in rural areas. These constrain factors that limit the potential of farmers to re-orientate their production to local markets could be eased by food planning and specific spatial measures, but this connection and the potential contribution of spatial planning is hardly ever acknowledge by stakeholders.

For decades policies and planning instruments have been designed to foster competitiveness, land specialization, enlargement and "technification" of farms, building a non resilient food system that does not suit well to its re-localization nor to short supply circuits, or to the spread of agroecological practices. A different planning approach is needed, but it is not clear how it might be designed, and who may lead the process, considering that most stakeholders do not even perceive it as useful.

**Keywords**: urbanism, public policies, participatory research, local food system

**References:**
Urban agriculture and the food-water-energy nexus: Comparison of policy documents of five metropolitan regions in Europe and the U.S.

Kathrin Specht, ILS, Dortmund, Germany, Julian Schimichowsi, Runrid Fox-Kämper, Nevin Cohen, Baptiste Grard, Lidia Ponizy, Silvio Caputo, Victoria Schoen, Joshua P. Newell, Benjamin Goldstein, Liliane Jean-Soro

"Urban agriculture (UA) has been addressed as a practice with multiple benefits, including healthy food and lifestyles, food security, reduction of food miles, higher biodiversity and community building. Nevertheless, UA faces multiple barriers if it comes to the practical implementation of projects and the adaptation of resource-efficient practices. The legal framework and planning context entail numerous uncertainties and regulatory gaps (Specht et al. 2015). The poster presents a framework as well as first results of an analysis of policy documents related to urban agriculture and the food-water-energy nexus. The analysis investigates policy data from 5 case study regions in Europe and the U.S., namely the metropolitan areas of the Ruhr-region (Germany), London (U.K.), Paris and Nantes (France), Gorzow and Poznan (Poland) and New York (U.S.).

The poster presents the analysis of food policies, sustainable agendas, and urban development plans and strategies at local and (inter-)national level. The analysis is based on a systematic review of the literature and existing policy documents. The results show, that on the one hand, there are policies and regulatory frameworks, which are hindering the successful implementation of UA projects and the adaptation of resource-efficient practices. On the other hand, there are planning programs and instruments, which are promoting them. The analysis also points to regulatory gaps and missing links in the policy and planning context.

Keywords: urban agriculture, stakeholders, cross-country comparison, policies

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"Urban agriculture: Definition, presence, potentials and risks, and policy challenges  
LIA Mougeot - Cities feeding people series; rept. 31, 2000

Urban agriculture policy making in New York’s “New political spaces” Strategizing for a participatory and representative system  
“Innovativeness” in urban agriculture: Which novelties in the social, environmental and economic dimension do urban agriculture projects produce?

Kathrin Specht, ILS, Dortmund, Germany, Esther Sanyé-Mengual, Erofili Grapsa; Francesco Orsini and Giorgio Gianquinto

Urban food production has been associated to a wide range of benefits. The literature often stresses the social mission of projects such as educational effects or community building. Potential environmental benefits such as the re-use and recycling of resources are furthermore claimed, just as new economic opportunities. Nevertheless, urban food production also entails diverse risks and uncertainties. The practices in urban agriculture (UA) projects are often addressed as “novelties” or “innovations”.

The goal of this paper is to (1) characterize different kinds of novelties applied in UA (2) evaluate the “innovativeness” of those social, ecological and economic novelties and (3) estimate their potential towards the sustainable development of UA projects. The study was based on the evaluation of 11 case studies in four European countries (Italy, Germany, France and Spain). The analyzed case studies include peri-urban farming, ground-based UA, rooftop agriculture and indoor farming. They furthermore represent different organizational forms, such as community projects, co-operatives, or commercial businesses.

Novelties could be found in the environmental dimension (e.g. new ways to improve resource efficiency or new remediation techniques), in the social dimension (e.g. new networks or new ways of leading) as well as in the economic dimension (e.g. new cooperation for distribution or introduction of new products to the market). As the results further show, the start and origin of new activities could often be traced back to some kind of “crisis”. In the majority of cases, external stakeholders also played an important role in supporting the projects.

Keywords: urban agriculture, innovation, sustainable development

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K Specht, R Siebert, I Hartmann, UB Freisinger, M Sawicka, A Werner, ...
Agriculture and human values 31 (1), 33-51


URBAL : a tool to unfold the impacts of urban-driven innovations on food systems’ sustainability. The example of two case-studies in Montpellier (France)

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Olivier Lepiller, CIRAD, Montpellier, France

In the field of food system assessment, numerous projects have aimed at identifying relevant indicators to assess food system sustainability. These often are time- and money-intensive methodologies that cannot be used easily by local authorities or innovators to better inform their decisions and actions in a context where budgets are limited. For these reasons, the URBAL project builds from this necessity to explore simpler and participatory methodologies that can foster social learning in the context of public policy.

URBAL builds and tests a tool that can help policy makers and practitioners to identify the potential and risks for different sustainability dimensions for urban food system innovations. It builds a cognitive map or logical frame that makes explicit the impact of innovations on sustainability, i.e to identify the actual changes produced by the innovation on sustainability, the ways they are induced by the activities performed by the innovation, and the ways they interrelate. The chosen approach will therefore assess not only the intended and unintended impacts on all sustainability dimensions, but also the pathways that led to these changes, emphasizing positive and negative feedback loops.

Testing this low-tech and low-cost methodology on various innovations in diverse contexts allows us to present an analysis of the actual effects, the potentialities, the limits of urban innovations on the sustainability of food systems. It is a tool for policy-makers, innovators and funders that helps to capture the very effect of their actions and give them resources to be more reflexive and strategic about their innovation pathway, for their organization, as well as for their communication with policy makers and investors. This way we believe the methodology helps facilitating learning processes and transformative action.

In this paper, we present the backbone of this methodology in progress, as well as the very first results of the tests conducted on two case-studies in Montpellier: one on a cooperative supermarket, another one on the urban food policy dedicated to the public canteens. We focus in particular on the reflexive impact of this methodology on the project, the vision and the strategy of both of the innovations.

Keywords: impact pathway assessment, food innovation, sustainability

References:

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Agricultural Landscapes of Densification. The Case of Luxembourg

Ivonne Weichold, University of Luxembourg

"Luxembourg’s increasing attractiveness as a place for working and living puts the development of urban and agricultural territory under high pressure, often prioritising economic viability over environmental sustainability. Urbanisation threatens food productivity of agricultural land and reducing the capacity of the hinterland to support the growing urban population. Understanding how the agricultural landscape can be transformed to accommodate intensive population and commuting growth without losing productivity in a sustainable manner is a crucial and difficult challenge. The exploration of alternative development trajectories offering both spatial and adaptable alternatives is necessary.

This paper will present first results for prospective land use scenarios accommodating a population growth of half a million inhabitants in Luxembourg by 2060 (Eurostat, 2017). It explores alternative model developments, responding to (i) the country’s intensive population and economic patterns and (ii) its unsustainable spatial materialisations that affect the agricultural landscape.

The research accentuates a multi-scalar nature by articulating three components: (1) The development of a hybrid landscape classification through the investigation of geospatial analysis and modelling, urban design and agricultural landscapes typologies. (2) The identification of sustainable and ecological criteria that go beyond conventional dichotomies of existing fabrics. Based on that, Luxembourg will be re-mapped in order to uncover new potential areas for optimised urban development without giving up productive agricultural land. (3) Eventually, the research will explore future land use scenarios of agricultural landscapes of densification with alternative typologies for future growth projections.

The benefit of this research will provide spatial planning guidance on productive agricultural landscapes in Luxembourg.

**Keywords:** Luxembourg, Land-use Scenarios, Typologies, Sustainability, Peri-Urban

**References:**


Background, Introduction

The European food systems are unsustainable, within a Europe confronting increased environmental degradation, diet related diseases and inequality. Healthcare systems have the capacity to influence the current status quo of food systems towards sustainable means. Health professionals are widely recognized experts who bring tremendous credibility and influence; with a role to play in achieving the public policy changes that will create a sustainable food system. European hospitals have more than 2.5 million beds (6.5% long stays), inferring a direct impact on public food procurement patterns. Moreover, health professionals are the main sector that citizens obtain prescriptive advice in eating patterns. However sustainable food system policies are recent and yet poorly implemented within the European health Services.

Objectives and Methodology

The objective of RENASCENCE is to explore the food system processes related with the economic and educative channels of the European health services from a sustainable dimension and to develop the first System of Indicators (SOI) that will aid up in the decision making of those processes. With this, the goal is to provide a tool both to assess the processes of food supply and food prescription, and to give guidelines for changing them towards sustainable processes.

Methodology:

Results, Conclusions, References

- RENASCENCE is in its initial phase. Currently gathering results from the scoping review and nourishing the following phases.

- The Participatory Action Research (PAR) nature of this project, acknowledges the importance of presenting this short communication in order to make the project visible, and invite to those interested to participate to please contact us for further information.

Expected results:

- RENASCENCE will become a tool with which European health services will be able to plan and design their food system related policies fulfilling the sustainability criteria from the economic, social, environmental and health views.

- The knowledge obtained in this project will be used to develop strategies to target more efficiently the sustainable goals of the United Nations 2030 agenda in European health services (specifically goals 2 and 12, with direct impact on goals 3, 8 and 11).

DEVELOPING A HEALTHY AND SUSTAINABLE FOOD ECONOMY IN LETCHWORTH GARDEN CITY, UK

Andre Amelie
Supervisors: Dr. Susan Parham, Prof. David Barling, Mr David Ames

AIMS OF THE RESEARCH

- To examine the potential role of leadership and governance in the Garden City model to support a healthy and sustainable local food economy.
- To investigate whether these principles can link the food economy as a socio-spatial experience on site, including health and sustainable benefits.
- To explore whether Garden City features could be possibly replicable or potential recommendation inputs for food policy, land stewardship, and food planning.

The research problem is the interplay between the Garden City principles, land ownership and land value capture being the core guidelines, to support a healthy and sustainable food economy in Letchworth today, considering the role of local government, social cohesion and the spatial urban layout to help it.

How can the Garden City as a model of infrastructure potentially underpin and enhance a healthy and sustainable food economy?

How can the town’s genesis and historical features potentially influence an interplay between social strengths, spatial layouts, and a sustainable food supply sequence?

Could the model of the Garden City as a spatial and political model help create alternatives for a local, accessible, healthy, and sustainable food economy and provide a framework for a local food strategy?

1 - GARDEN CITY MODEL FOR NEW COMMUNITIES

This study looks at the features of the World’s first Garden City, Letchworth Garden City, and their influences on the financial and social outcomes revolving around different food-chain stages, from production to waste management, including transformation, processing, supply transportation, retail, and consumption. This research is a case study of the world’s first Garden City, Letchworth. It explores the threefold question of sustainable food systems, urban planning, and governance through the lens of Garden City principles.

2 - MIXED-METHOD INVESTIGATION

The project is situated within a multi-disciplinary conceptual scope. The food economy is interrogated as part of a place-based study, which orients the food economy towards spatial design, local governance and decision-making processes that support what are argued to be healthy food accessibility, and sustainable individual practices.

3 - EARLY FINDINGS AND DISCUSSION

The shift of food paradigms curiously resonates with the Garden City’s genesis. Facing globalised organisations, cities are increasingly providing the means to monitor environmental damage and improve sustainable food policy. The Garden City principles mentioned in food planning experts’ articles are mostly focused on its theoretical approach. The purpose of the research is to investigate the Garden City principles theorised and applied for the potential support of a healthy and sustainable food economy.

Reinforced by Howard’s principle applied in the present day, investigations on site suggest that the town’s genesis could carry values around which a community engaged in alternative and sustainable food networks federates. Howard’s key principle of land-value capture is a significant asset for urban agriculture. Richness of the urban design and land stewardship in Letchworth Garden City could influence the interplay between social strengths, spatial layouts and food supply sequences, and embed them into everyday practices.
Urban, circular economy mushroom farm has large climate change impacts from transport

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1. AgroParisTech UMR SadApt, 2. INRA, UMR EcoSys

Background, Introduction
Mushroom farming is a growing form of urban agriculture. It has the potential to fill an (urban) ecological niche, and grow food with minimal environmental impacts. Mushrooms grow on a large variety of materials, and after the substrate is used at mushroom farms, it is sold as compost for soil-based agriculture. Urban waste can be used as a substrate material, and this upcycling avoids waste treatment (landfilling or incineration) and the related environmental impacts. Furthermore, transforming this waste into useful soil amendment allows farmers to avoid purchasing fertilizers. This reuse of materials exemplifies urban mushroom farming’s contributions to a circular economy, which can come with overall reduced environmental impacts. Additionally, as with all forms of urban agriculture, urban mushroom farms claim environmental advantages due to their reduced transport distance to the customer.

Objectives and Methodology
The above unique advantages of circular economy and short transport distances in urban mushroom farming remain hypothetical, because the actual environmental impacts of this type of production have never been quantified. To address this, we:
1. quantified the environmental impacts of an urban mushroom farm,
2. identified the most impactful stages of production, and
3. designed solutions to improve the farm’s environmental sustainability.

We assessed production at a mushroom farm in Paris (France). Data was collected through interviews and farm records, and life cycle assessment was used to calculate our results.

Results, Conclusions, References
The mushroom farm successfully mitigates the impact of the materials they use through circular economy and upcycling, as evidenced by the mere 5% contribution of these materials to climate change impacts (Figure a). However, even though the farm has a strong focus on local supply chains, they incur large impacts from the transportation activities (22% of the total) due to frequent deliveries- daily delivery of mushrooms and weekly deliveries of the major input materials, coffee grounds and mycelium. We found that by reducing the delivery frequency in half for the mushrooms and materials, climate change impacts could be reduced by 10% (Figure b).

![Diagram of Climate change contributions of production stages and major activities](image)

![Diagram of Climate change reductions by efficient supply chains](image)

About the farm:
- The substrate is largely composed of used coffee grounds.
  22,000 kg of used coffee grounds upcycled in 2018.
  (2.52 kg/kg mushroom produced).
- Waste (mushroom compost) is used by local farmers.
  51,000 kg compost produced in 2018.
  (5.87 kg/kg mushroom produced).
- Supplies are sourced locally, and mushrooms are delivered locally.
  Half of transport is done within 40 km of farm.
Moving to town: urban appropriations of agroecology in Madrid and Quito

Émilie Houde-Tremblay, Geneviève Cloutier and Alain Olivier
Université Laval, Québec, Canada.

With the collaboration of Marian Simón Rojo (Universidad Politécnica de Madrid) for the Madrid case study.

**Context**

- Agroecology is diffusing across scales and territories
- Tensions in integrating social and ecological dimensions
- Cities have shown a wide range of transformative potential regarding food issues

Why, how and with what consequences do we appropriate agroecology in an urban context?

**Research Objectives**

1. Explore how ideas and practices related to agroecology circulate
2. Understand the processes through which agroecology takes shape
3. Explore the transformative scope

**Theoretical Framework**

Understanding agroecology as both relationally and territorially constructed using the pragmatic and critical perspectives of policy mobilities and experimentations.

- Agroecology as a circulating idea
- An experimentation process through which agroecology is appropriated
- A complex transformative scope
- How have people arrived at agroecology? (1, 2)
- How are agroecological experiments made, maintained and lived? (3)
- What transformative scope is observable? (4)

- A local context favorable to its appropriation
- A contextually translated and negotiated agroecology

**Methodology**

Process-based and inductive research approach

Contrasted comparison as a strategy and a posture to build bridges between experiences, while valuing differences

Operationalised through:

- 4-month stay in each city (September 2019 to May 2020)
- Triangulation of document analysis, observations and semi-directed interviews
- Cross case analysis for each objective of the thesis

**The Cases**

**Madrid**

Variations in historical urban-food relationships and in how agroecology has been promoted, but convergences in recent agroecological experiences

3-5 sub-cases of self-claimed agroecological initiatives (production and distribution, with various settings)

Interviews with core actors, active participants and peripheral key actors (networks, institutions, etc.)

**Quito**

For more information, come and see me, or contact me at emilia.houde-tremblay.1@ulaval.ca.

References
Food sovereignty in a globalized urban world. Strategies, arenas and actors in the current food movement in Bucaramanga, Santander, Colombia

Laura Mendoza Sandoval, MSc Integrated Urbanism & Sustainable Design, PhD Student COSMOS

Introduction

Framing the problem
- As the nature culture and the urban-rural is a false and unnatural dichotomy
- Food sustainability can not be without sovereignty

Contemporary Food Challenges
- Global food system is overproducing goods. Food is commodified and has lost its use value. Undernourishment and hunger still persist.
- More than 70% of population will inhabit in cities in 2050 (in Colombia already). Cities must be part of solution to food issues
- Food producers are struggling with corporate power and environmental degradation. Urban lifestyles are determinant to allow a shift on diets.

Overcoming the binarism?
- Contentious politics and protests have been historically manifested, specially from peasant and indigenous movements.
- Beyond the solidarity during them, are cities and citizens appropriating and working for their food sovereignty?

Context
- Peace agreement FARC-State (2016) To end the armed conflict and guarantee an steady and lasting peace
- Emerging food initiatives & citizen awareness
- Beyond fork voting?

Research

Question and objectives
- How are the Urban Based Food Initiatives articulating with the city region food system (URBS) challenges in Bucaramanga (AMB)?
- Identification of the matters of concern related to food
- Describe the strategies and frames URBI operating in region

Theoretical framework

Social Movement Studies

Methodology

Critical ethnographic approach

Techniques
- Strategies
- Frames
- Arenas

Activities

Spaces

Alles

Location

Conclusion & discussion
- In practice in the context studied the concept of sovereignty is alien due to its association to leftist ideologies in a very polarized country.
- National Agrarian Policies and Free Trade Agreements are contrary to food sovereignty.
- Commodification of food in the region means commodification of landscapes. A diversification of the epistemologies of rural urban bridges is needed, and includes the recognition and appropriation of landscapes and communities of the region.
- Some URBI have rigid values and principles that impede the negotiation with others to create collective goals.
- Not many conflictual relationships between URBI, but not necessarily cooperating. Envy and jealousy accounted as a hindrance for collective actions.
- Private sector initiatives (with gastronomic activism as an example) remains as an potential way of bridging rural urban without proposing a counter politics of food system.
- Friendly vs popular practices are different mainstreamers of alternative circuits/identities.

References & credits

Agroecological transitions confronting climate breakdown: Food planning for the post-carbon city

INTERNATIONAL CONFERENCE AESOP-SUSTAINABLE FOOD PLANNING

ETSAM MADRID 7-8 XI 2019 Organized by: GIAU+S and Surcos Urbanos
RELACIÓN ENTRE LOS HUERTOS SOCIALES, KILOMETRAJE DE ALIMENTOS Y EXISTENCIA DE DESIERTOS ALIMENTARIOS AGROECOLÓGICOS

Introducción

El objetivo de la investigación es relacionar la existencia de huertos sociales con el kilometraje recordado por una persona en la Provincia de Málaga para acceder a alimentos frescos y agroecológicos, de esta manera establecer si existen o no desiertos alimentarios agroecológicos.

A finales de 2018 dentro del proyecto Cree Huertas fue realizado el mapeo de la ubicación de los huertos sociales existentes en la provincia.

Contextualización

Debido a que los huertos sociales cubren aspectos culturales, de soberanía alimentaria y sociales para los habitantes en una región, con un tema que se toma en consideración cada vez más en las agendas de políticas públicas. Además, son una estrategia de resiliencia frente a presiones sociales de turismo que anteriormente estaban dedicados al manejo agrícola y actualmente brindan un amplio rango de posibilidades para compartir con otros y conocer el conocimiento tradicional acerca de cultivar sus propios alimentos. Desde finales de 2018 hasta mediados de 2019 se ha habido un incremento del 17% de iniciativas de huertos sociales dentro de la provincia, mayormente como parcelas alquiladas.

Al identificar la dificultad en el acceso a alimentos frescos, sano, socialmente justos y producidos sin agrotóxicos a través del presente estudio, se visibilizará el escenario que se le da a las tierras malgaches en producción agroecológica. Con el potencial productivo del territorio se podría hacer frente a desafíos ambientales y contribuir a la eliminación de deslocalización rural.

Material y métodos

- Cálculo de la distancia de los huertos sociales, tiendas y mercados agroecológicos a los poblatedos
- Uso de herramientas de sistema de información geográfica para corroborar distancias respecto a sujetos de adquisición de alimentos agroecológicos
- Desplazamiento hasta los huertos sociales e implementación de herramientas de investigación participativa, cuestionario guiado y encuesta semi-estructurada

Bibliografía


La presente investigación en desarrollo forma parte del proyecto Cree Huertas: Forrando la permanencia en el territorio desde la horticultura. Este proyecto de la Asociación se enmarca en el convenio de colaboración entre la Obra Social La Caixa y la Diputación de Málaga, a través del Centro de Innovación Social La Herraria. Cuenta con la colaboración de Ecoenerencia ICA.
DEVELOPING AGROECOLOGICAL URBANISM:
THE INTERSECTION OF FOOD SOVEREIGNTY AND FOOD DEMOCRACY

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Over the last three years, food sovereignty has emerged as a leading sense-making framework for the nascent conceptualization of an agroecological urbanism (AU). At present, the key dimensions of food democracy occur in urban agriculture practice, but remain isolated from the AU discourse. Using data from municipal food policy in Seattle, U.S.A. and interviews with Seattle P-Patch community gardeners, this research probes the entangled manifestations of food democracy and food sovereignty within a contextualized urban agricultural landscape.

Findings from this study identify two key dimensions of food democracy as notably absent from the food sovereignty framework - including mechanisms that enable vertical deliberation among food system stakeholders and opportunities for strengthened self, and community, efficacy. The results of this study support the conclusions that the pillars of the rural food sovereignty movement alone are insufficient in enabling the deep leverage points necessary to discard unsustainable growth patterns and transform food provisioning in the urban context.

City of Seattle requires 8 hours of volunteer work annually for all P-Patch gardeners. Many dedicate this time to working in community food bank plots, or Giving Gardens.

In the heart of downtown Seattle, this P-Patch is located on a parking garage roof.

Leadership groups within the P-Patch network organize social events and community projects, including composting and irrigation infrastructure, pollinator and biodiversity beds, work parties, and social events.

PLEASE SHARE YOUR THOUGHTS:

How have you seen agroecology manifest in your city?
What do you think is required to further the development of agroecological urbanism?
What do you think is missing from the rural food sovereignty framework to transform urban food provisioning?
How do you engage with green infrastructure in your city?
A Parisian plan to relocate the food system

In May 2018, the City of Paris revealed its strategy for sustainable food. It aims to relocate the Parisian food system and implies a new relationship between local authorities and the private actors involved in the food production, transformation or distribution. Independent food shopkeepers account for 68% of the Parisian offer.

How independent wholesalers and shopkeepers are involved in this emerging food governance framework?

Interviewing food system actors to map the governance framework

A difficult encounter between public and small private actors

Food Governance can benefit from land use lever But it has few tools to address shopkeeper's supply practices

"Let’s say they [supply] wasn’t an historical subject for the Chamber of Commerce. Because sourcing is part of the shopkeeper’s added value, that’s what is going to differentiate him regarding his customers. We didn’t want to give him advice on this field” Chamber of Commerce – leading team’s member

The fruit and vegetable’s industry is closely intertwined due to the product’s specificity

"In general, interprofessional federations are delimited. Ours is complete because the product has to be kept in the same condition from the beginning to the end of the production chain” Interfel – Idem

References


Urban Agriculture and the Food-Energy-Water-NEXUS: Comparison of Policy Documents of five Metropolitan Regions in Europe and the U.S.

Kathrin Specht, Runrid Fox-Kämper, Nevin Cohen, Rositsa Ilieva, Baptiste Grard, Beatrice Bechet, Lidia Poniży, Silvia Caputo, Victoria Schoen, Joshua Newell, Benjamin Goldstein, Liliane Jean-Soro

Background

Urban agriculture (UA) has received much attention over the last two decades as a practice with multiple benefits, including healthy food and lifestyles, food security, reduction of food miles, higher biodiversity and community building (Bell et al. 2016). UA has been acknowledged as a mechanism to address various urban problems, or has been identified as a “marginal anachronism” – but its relationship to the food/energy/water nexus and other urban resource flows has not been examined in depth. Our study narrows the focus of the policy analysis down to the FEW nexus taking into account cities’ food, energy and water policies but also those that are relevant in second order in that context (such as green infrastructure and climate change resilience policies).

Study aim

The aim of this study is to analyse the actual and potential role of UA within existing FEW-related policies in order to answer the following questions:

Objective and analytical framework

1. How do existing food, energy and water policies directly or indirectly affect UA?
2. How are those policies characterised?
3. How efficient are the policies?

Project goal

To develop scenarios of optimal use of urban resources, including ideal NEXUS-driven policies

Urban agriculture case studies

Food energy water meter

Preliminary results

1. Most policies in the investigated field are policies on the local level (total n=69).
2. Most relevant policies are mandatory measures, followed by awareness-increasing policies (total n=72).
3. Policies that consider all three elements of the NEXUS and follow a more holistic view are very rare (total n=90).
4. There are significant differences concerning the number of policies dealing with UA and the integration of FEW nexus between the five cities.

Urban Food Strategy of Madrid: An evaluative case study
Tanya Zerbian, Maastricht University

Introduction
The challenge:

![Visual representation of the challenge]

Cities are emerging as new food governance actors by developing urban food strategies (UFS) and spaces of deliberation such as food policy councils (FPC).

Rationale
- Research concentrates on positive aspects and lack a critical analysis of UFS and FPCs.
- No appraisal if quality of governance is ensured through these new governance tools.
- No assessment of the changes implemented through the new UFS of Madrid.

Objectives and Methodology

General objective:
To assess how the new Urban Food Strategy of Madrid assures good governance for food security and to understand what can be learnt from it using a case-study approach.

Specific objectives:
1. To evaluate essential components of governance of the strategy based on a good governance framework for food security.
2. To identify the major barriers and facilitators regarding good governance for food security.

Data Analysis:
- Pattern matching technique
- Idealised scenario for good governance
- Directed content analysis
- Inductive analysis for objective 3

Results, Conclusions, References

Results 1:
- Effectiveness and efficiency:
  - +: Coordinating bodies with technical assistance
  - -: Lack of participation

- Equality and fairness:
  - +: Promoting inclusiveness
  - -: Poor distribution of benefits

- Accountability:
  - +: Transparency
  - -: Lack of transparency

- Responsiveness:
  - +: Valuation of the food system
  - -: Insufficient representation of stakeholders

- Transparency:
  - +: Increased involvement of stakeholders
  - -: Lack of public involvement

- Participation:
  - +: Increased engagement in governance
  - -: Lack of participation

- Rule of law:
  - +: Clear guidelines and mechanisms
  - -: Inconsistent regulatory framework

Results 2:

Barriers
- Lack of awareness
- Lack of communication
- Insufficient funding
- Lack of political will

Facilitators
- Clear guidelines and mechanisms
- Increased engagement of stakeholders
- Improved funding
- Consistent regulatory framework

Conclusions:
- The UFS and the food policy platform have helped to gradually improve governance for food security in Madrid.
- However, there are still improvements to be made which have also been found in other cases in the literature.
- The implementation of UFS or food policy platforms does not automatically ensure an increased quality of governance due to contextual hindrances and how these tools are translated into practice.
- The utilized framework could serve as a guideline or support self-evaluation to improve current food governance processes.

References:
Exploring the spatial planning dimensions of urban informal food systems in China
Luoman Zhao  Institute of Landscape Architecture/ RWTH Aachen University

Background, Introduction
It is predicted that 66% of the world's population will live in cities by 2050 (UN-DESA, 2018). Accompanying this rapid urbanization process is a phenomenon referred to as the urbanization of poverty (Martin Ravallion, 2001): the population growth is combined with a gradual shift in the locus of poverty from rural to urban areas. Especially in China, most cities encounter great difficulty in creating sufficient formal employment opportunities and to provide adequate basic services for the rapidly growing population. Most urban poor rely on the informal food systems for their survival because of low cost, low risk and citizens' high demands for cheap food.

Informal food systems are composed of food chains which retailing link are informal sector. Informal food sector (farmers market, morning market, mobile vendors, etc.) provides basic living security for migrant workers and local underclass and contributes to affordable fresh food and social inclusion, but at the same time brings some negative impacts to cities such as social disorder, traffic jams and public hygiene problems. In recent years, the crisis of China's urban food system has gradually emerged and is becoming more and more serious. The main contradictions lie in three areas: growing population and the demand for food, urban expansion and land use, food distribution and transportation. While informal food systems contribute to biodiversity, supplement of arable land and helps to shorten supply chains and enhance food supply specialization and diversity.

Objectives and Methodology
This research hopes to solve urban problems through spatial planning that aims to study the coupling of informal food system and urban space system.

Key research questions:
1. What are the advantages and risks of informal food systems in social background of China?
2. What are the spatial relationships in the informal food system? How to assess urban space in informal food systems?
3. How urban spatial morphology and planning influence every link as well as whole food supply systems?
4. How to upgrade the single spatial link in informal food systems into an integrated urban food supply system?
5. What kind of urban space planning is conducive to realizing the resilient and sustainable food system?

Results, Conclusions, References

Anticipated outcomes
1) To find the general rules of spatial evolution of informal food system in China.
2) To construct the of informal food system space assessment system based on Chinese social background.
3) To assess the space of informal food system in Nanjing through the assessment system and make suggestions on the space planning of Nanjing.
4) To summarize the spatial planning strategies for informal food system by comparing different cities.

References
Hillier, B., & Hanson, J., 1984. The social logic of space. Cambridge: Cambridge University Press.

Agroecological transitions confronting climate breakdown: Food planning for the post-carbon city
INTERNATIONAL CONFERENCE AESOP-SUSTAINABLE FOOD PLANNING
ETSAM MADRID 7-8 XI 2019 Organized by: GAU-S and Surcos Urbanos
Demonstration plots in Maputo’s urban agriculture as adaptive instrument to disseminate knowledge and to promote innovation for an agroecological change

C. Z. Seichter, A. Tobies, Centre for Rural Development (SLE) Humboldt University, Berlin

Background

To succeed with the agroecological transition and to break up neoliberal path dependencies a social transition is needed. Thus, Mozambique's capital city Maputo can serve as an example that shows how common perspectives on food production can be changed. For that purpose, a platform to exchange ideas and to transfer knowledge had been established within the urban agriculture that supplies around 40% of the city's population with local produce.

Knowledge transfer is a key component of Maputo's food system and it is primarily being executed by the public extension service, partially in collaboration with (mostly Mozambican) non-governmental organisations. The key dissemination instrument is the demonstration plot (DP), a collective field within the association where valuable and approved techniques are being practised with the help from extension workers. It is a method to show small-scale farmers the advantages of certain techniques, to gather and generate better agricultural practices within their own context and to respond adequately to the issues that go along with climate change (Gaspar, 2013, p. 20).

In order to check, whether DPs can be transferred and adapted to different contexts as a mean to promote a social and agroecological transition, an example from the West European context was chosen: The German allotment garden movement (Kleingärnten) can be compared to Maputo's farming associations especially in relation to their organisational structures, their objective to promote the cultivation of vegetables and the knowledge relevant to that. Thereby, both form (inter)regional lobbies for farmers and for gardens.

By assessing the case of allotment garden associations, it becomes apparent to what extent the implementation of the Maputense model in different contexts is sense- and successful.

Objectives and Methodology

I. Demonstration Plots in Maputo

Examination of the functioning of the DPs in Maputo Evaluation of their potential for the dissemination of agroecological knowledge

II. Transferability to other contexts

Evaluation to which extent DPs are a suitable instrument to foster socio-ecological transition on a territorial scale within other contexts Example: German allotment gardens

‘Action- and Decision-oriented Research’ approach by applying a method mix:

- Semi-structured interviews with extension workers, farmers, policymakers, civil society actors
- Participatory observation during the sessions on the DPs
- Measurement of quantitative data surrounding the physicality of the plots
- Workshop: Verification and Complementation of the results by selected stakeholders

Results and Conclusion

The study revealed that DPs are a form of communal training whose success is highly individual because it hugely relies on the extension worker's abilities and knowledge, the producers' needs, the dynamic within the group and the availability of resources. Many extension workers and farmers describe their work as collaborative knowledge transfer which is a highly valued characteristic that demonstrates the importance of practical and participatory training methods and is generally a successful instrument to disseminate agroecological knowledge in Maputo.

Concerning the implementation of Maputo’s DPs in German allotment garden associations adapted to the specific context the study revealed the following: DPs could not only improve the training sessions of allotment gardeners and of the extension workers who volunteer in allotment gardens but they could also be a tool to strategically pursue the use of more agroecological production methods within the allotment garden movement. Even though, training and show gardens exist, a more widespread implementation as seen in Maputo should be pursued since they can easily be embedded in urban associative structures. Thereby, they can address and mobilise a wide range of urban farmers and transfer knowledge on a territorial scale.

As a format, which can be adapted easily to other contexts, cities could take Maputo as example to strengthen their existing urban food production networks by spreading knowledge on sustainable practices and by collaboratively looking for solutions that benefit everyone. Consequently, they could become places, which promote the increase of social capital in terms of social interaction and skill sharing, which are necessary for a post-growth transition.

References


Lička, L., Scazzosi, L. and Timpe, A. (Eds.), Urban agriculture Europe, jovis, Berlin, Germany.


Background

The representative of the Regional union of Berlin's allotment holders called for action to strengthen the allotment gardens as example to strengthen their existing urban food production networks by spreading knowledge on sustainable practices and by collaboratively looking for solutions that benefit everyone.

Contact

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Agroecological transitions confronting climate breakdown: Food planning for the post-carbon city

INTERNATIONAL CONFERENCE AESOP-SUSTAINABLE FOOD PLANNING
ETSAM MADRID 7-8 XI 2019 Organized by: GIAU+S and Surcos Urbanos
Introduction

Agroecology offers integral solutions for the necessary eco-social transition and, within it, the transformation of the agri-food system. In turn, in recent years there has been an increase in the number of projects certified in ecological and/or linked to short food supply chains in the Community of Madrid. However, many agroecological projects face difficulties in achieving viability, promoting and implementing, development and scaling breaks within it. To address these issues, it is essential and necessary to recognize and define the agro-ecological sector in its characteristics and practices, both on the part of society and on the part of public policy makers.

Objectives & Methodology

Identify and characterize the people and projects that take part of the agroecological sector. To establish the characteristics of the agroecological sector in the Community of Madrid –CM- in terms of production, ecological, economic, labor and social. Outlines a guide to consolidate, boost and strengthen the sector.

Results

How agroecological projects are

- HOW THEY DEFINE THEMSELVES
  - Ecological certified: 44%
  - Appointed: 22%
  - Local: 17%
  - Self-designated: 9%
- AVERAGE AGE
  - 46
- EMPLOYED PEOPLE BY PROJECT
  - 69%
- PLACE OF RESIDENCE
  - Urban: 52%
  - Rural: 48%

Main motivation

- Generate economic activity: 38%
- Change life style: 12%
- Responsible for projects: 34%
- Working in the sector: 39%

Main channels of distribution

- Groups of consumers: 41%
- Specialised shops: 48%
- Direct sale: 11%

Legal forms

- Social economy: 23%
- Limited society: 61%
- Without legal form: 16%

Women in projects

- 34%
- 39%

Characterization and sustainability in agroecological projects

- Agroecological: 40
- Ecological certified: 36
- Not Ecological certified: 24

Conclusions

- The scale leap is already present with different strategies. There is a need in public policies that support this and the agroecological sector.
- The participatory workshops indicate that strategies for the promotion of the agroecological sector have to address the professionalization of producers and the multiplicity of roles that they assume.
- The territorialization of food systems beyond the city of Madrid is necessary.
- Despite the sector’s environmental and social benefits, social economy has little presence in it.

The debate on ecological certification needs to be addressed.
Does it matter which group initiates a co-production?
Testing and developing theoretical relationships between enhanced coproduction types and empowerment outcomes from the contexts of two edible urban greenspaces in La Reina, Santiago, Chile

Introduction and background:
Coproduction is critiqued and celebrated as a magic concept that straightforwardly promises to solve today's complex public goods and service challenges by enrolling citizens as equal partners with the state in the production process. Despite the presence of power asymmetries and often contrasting socio-political characteristics between municipalities and citizen and/or community groups, 'enhanced coproduction' (Osborne & Stroksch 2013) is theorised as an empowering, inclusive and 'win-win' process with the outcomes being worth more than the inputs that each groups contributes. This is because citizens not only participate in the operational mode of coproduction; they also get to enact roles in the strategic mode meaning access to decision-making and the allocation of state resources. Although theorised as an antidote to the epidemic of technocratic managerialism in today's neoliberalising cities, empirical research on the outcomes of coproduction processes is left wanting and the socio-political dynamics remain under-theorised.

Objectives and methodology:
To address these gaps, the research adopts and tests Watson’s (2014) two-part coproduction typology as a valuable starting point to specifically understand how contrasting state-initiated and civic-movement coproductions of edible urban greenspaces relate to empowerment outcomes on multiple socio-spatial levels/scales. To test and develop the theory this research compares variations in the distribution and sequencing of citizen roles between two empirical cases of coproduction representing either side of Watson's typology. The empirical encounter utilises a complementary set of innovative qualitative methods to provide a data rich procedural analysis which generates further understanding into the theoretical linkages between coproduction modes and the role of regular inter-group interactions.

Results and conclusions:
The results evidence that enhanced coproductions of edible urban greenspaces, in the borough of La Reina, Santiago de Chile, correlate with empowerment outcomes, particularly for the actively participating citizen/community groups. Furthermore, the civic-movement initiated case correlates with more group and broader community/neighbourhood empowerment outcomes compared to the state-initiated case. Rarely included perspectives of non-coproducing local inhabitants problematize coproductions of public greenspaces evidencing possibilities for ‘win-win-lose’ outcomes which demand further research into how inadvertent processes of enclosure can be prevented.

Community autonomy-centric conceptualisations of empowerment would be complemented by more detailed relational analytics from some feminist scholars who distinguish between ‘power to’, ‘power with’ and ‘power from within’ (Batiwala 1994, Ferguson 2004). Such analytics offer rich insights into the finer detailed and longer-term components of empowerment processes on personal, group and societal levels.

Toby Jones, University of Amsterdam, MSc Urban Studies
Food systems impact in climate change: Fruit and vegetables GHG emissions in Gipuzkoa

Saloa Sese 1,2, and Eduardo Malagon 1

1 University of the Basque Country (Donostia-San Sebastian), 2 The Gipuzkoa Provincial Council

Introduction

- Greenhouse gas inventories are one of the main datasets at national and regional level to measure and design strategies to adapt and mitigate climate change. These inventories analyse the emissions from a sectoral perspective.
- Progress has been made in developing methodologies to measure agriculture GHG emissions. Globally, agriculture contributes approximately 15-20% of total GHG emissions (FAO 2016; Eurostat, 2015; del Prado, 2016). Research shows that emissions of the global food system account for 30-40% (Foley et al., 2011; Gilbert, 2012; Vermuelem, Campbell & Ingram, 2012; Beddington et al., 2012). However, there is no standardized nor agreed method to calculate the GHG emissions of food systems in an integrated way.
- Although global attempts exist, based on meta-analyses estimating food systems GHG emissions, not many researches are developed at local level (Vermuelem, Campbell & Ingram, 2012; Wollenberg et al., 2015; Garnett & Ingram, 2016; Niles et al., 2018).

Objectives

The research develops a theoretical framework regarding sustainable food systems and climate change and makes a first estimation on the GHG emissions at the most consumed fruit and vegetables in Gipuzkoa province: potatoes, tomatoes, onions, peppers, apples, pears, and kiwis.

Methodology

A systematic bibliographic review was pursued using PRISMA method (Moher, 2009). In addition, local and global policy and programs at different levels were reviewed together with a collection of local experiences in Gipuzkoa.

For each studied fruit and vegetable, the GHG emissions created during production, transport, and storage activities were considered. Local Global Warming Potential references were sought for production emissions, and the methodology proposed by Giménez Fernández et al. (2014) was used for transport emissions analysis. The storage carbon footprint was calculated based on a local farmer case study. Available local data was gathered regarding food production, consumption, imports, distances travelled for imports and population under several assumptions.

Results

The current food system is global and gives priority to the economic benefit and expansion of corporations. The need to rethink and restructure the food system is urgent, considering the use of natural resources and its limits. Current governance and policy models as well as power dynamics have to change through an agrological transition, in order to assure the right for healthy food instead of economic benefit and adapting to climate change. Consumption patterns, collective action and community involvement play a key role in the transition.

The components of the food systems must be present: the activities (production, production, production, consumption, and food waste), the stakeholders, and their interactions, relationships, results, impacts, ideas, and values. Ultimately, to support an integrated approach to food system analysis, it is crucial.

Conclusions

- The current food system is global and gives priority to the economic benefit and expansion of corporations. The need to rethink and restructure the food system is urgent, considering the use of natural resources and its limits. Current governance and policy models as well as power dynamics have to change through an agrological transition, in order to assure the right for healthy food instead of economic benefit and adapting to climate change. Consumption patterns, collective action, and community involvement play a key role in the transition.
- The components of the food systems must be present: the activities (production, production, production, consumption, and food waste), the stakeholders, and their interactions, relationships, results, impacts, ideas, and values. Ultimately, to support an integrated approach to food system analysis, it is crucial.
- Together with the transition, the development of new methods, indicators, and databases will be required, to meet the challenge of creating and legitimating shared information systems that encompass social and environmental dimensions.
- Collecting data in regard to GHG emissions of food systems with a holistic perspective at local level is complex. Many are not available as no systematic way of collecting them exist.
- Gipuzkoa is a food import dependent territory with a significant culture and tradition in gastronomy. The first estimations show that selected fruit and vegetables would contribute between 0.01-0.1% CO₂ per capita from the total GHG emissions created from agriculture in the territory. The GHG emissions created from the studied abates are in average 54% production, 25% transport, and 21% imported food contributes 15 T CO₂ per kg. of vegetable/fruit, while local ones contributes 1 T CO₂ per kg.

References


Co-creating and sharing knowledge
Organic Agriculture, Food Systems and Urban Planning
GO PAUSA (IMIDRA, GIAU+S, OTC, OEG, AUPA CSIC)

Background, Introduction
There is a lack of clear channels that give access to information generated in research projects. Given the shortage of public resources for R&D, especially in topics such as agroecology, it is necessary to cooperate and reshape the ways for knowledge transfer and implementation of research results. PAUSA was created to facilitate cooperative data generation mechanisms and to provide an online platform to share and manage information, improving the use of results and facilitating synergies.

Objectives and Methodology

Results

Main areas of interest for different stakeholders

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Sost: sustainability, soil, environment, footprints (CO2, H2O)
Prod: productivity, potential local supply
Form: farming practices, local context, cropping cycles
Lab: labour conditions, exploitations, business models
Com: short supply chain, local markets
Gob: governance, social organisations, gender
Desp: rural population, despoblamiento
Pub: health and nutrition
Decho: Right to food, food poverty, food justice
Pol: CAR public policies and their impact
OT: land use planning, preservation plans, urbanism, agrarian parks, stewardship, landscape
Aess: access to resources, (land, water, facilities, finance).
Use: land use changes, pressures

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Comunidad de Madrid

Agroecological transitions confronting climate breakdown: Food planning for the post-carbon city
INTERNATIONAL CONFERENCE AESOP-SUSTAINABLE FOOD PLANNING
ETSAM MADRID 7-8 XI 2019 Organized by: GIAU+S and Surcos Urbanos
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Jeroen de Vries              LE:NOTRE Institute
Javier del Hoyo              Universidad Politécnica de Madrid/ UPV
Michiel Dehaene              Ghent University
Cecilia Delgado              NOVA School of Social Sciences and Humanities
                            Interdisciplinary Centre of Social Sciences, Universidade
Alexandra Doernberg          Leibniz Centre for Agricultural Landscape Research (ZALF)
Erica Dorr                   AgroParisTech
Carmen Dreysse               CNRS
Nadia Fava                   Universitat de Girona
Romain Feche                 INRA-Aster (UR055)
Runrid Fox-Kämper            ILS Research Institute for Spatial and Urban Development
Mario García Azcárate        UPM-IMIDRA
Carlotta Gennari             University of Coventry
Margaux Girard               University of Orleans
Radu Giurgiu                 MELiSSA Foundation; SEMiLLA bv
Niels Heine Kristensen       Roskilde University,
Verónica Hernández Jiménez   OCT
Emilie Houde-Tremblay       Université Laval
Jan Eelco Jansma             Wageningen University & Research //AERES University of
                            Applied Sciences
<table>
<thead>
<tr>
<th>Name</th>
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<tr>
<td>Laura Jimenez Bailón</td>
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<td>Ewa Kacprzak</td>
<td>Adam Mickiewicz University in Poznań Faculty of Geographical and Geological Sciences</td>
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<td>Luca Lazzarini</td>
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<td>Daniel López García</td>
<td>Fundación Entretantos</td>
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<td>Giulia Lucertini</td>
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<td>Luoman Zhao</td>
<td>RWTH Aachen University/ Institute of Landscape Architecture</td>
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<td>Paula Mace-Le Ficher</td>
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<td>Roc Padró</td>
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<td>INRA Montpellier</td>
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<td>Anna Peterson</td>
<td>Swedish University of Agricultural Sciences</td>
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<td>Giacomo Pettenati</td>
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<td>ETSAM - UPM</td>
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<td>Victoria Schoen</td>
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<td>Saioa Sase</td>
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<td>Lara Sibbing</td>
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<td>Marian Simón Rojo</td>
<td>Universidad Politécnica de Madrid</td>
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<tr>
<td>Debra Solomon</td>
<td>Universiteit van Amsterdam / AISSR</td>
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<td>Kathrin Specht</td>
<td>ILS Germany</td>
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Magdalena Szczepańska  Adam Mickiewicz University in Poznań, Faculty of Geographical and Geological Sciences
Anita Tobies  Humboldt Universität Berlin
Chiara Tornaghi  Coventry University, UK
Elodie Valette  CIRAD
Arnold Van Der Valk  Food Council MRA
Hans Vandermaelen  Ghent University, Belgium
Elke Vanempten  ILVO
Vonthron Simon  INRA
Ivonne Weichold  University of Luxembourg
Anna Wissmann  Taste of Heimat e.V.
Tanya Zerbian  University of Maastricht
Keynote Speakers

Manuel González de Molina
Pablo Olavide University

Full Professor of Modern History. Coordinator of the Agro-Ecosystems History Laboratory (Universidad Pablo de Olavide, Seville, Spain). Co-director of Master Degree Program on Agro-ecology at International University of Andalusia from 1996 to now. President of the Spanish Society for Agrarian History (http://www.seha.info) and member of the editorial board of the ISI-refereed journals Historia Agraria [Agrarian History Review], Anthropoce, and Sustainability. Vice-president of the Spanish Society for Organic Agriculture (SEAE) since 2006 until 2014. Minister of the Department of Organic Agriculture of the Andalusia Government (Spain) from 2004 until 2007. Author of several books, among the most recent: The Social Metabolism. A socio-ecological theory of historical Change (Springer, 2014) Energy in Agroecosystems: A Tool for Assessing Sustainability (CRC Press, USA, 2017). Author of a hundred articles published in journals such as Environment and History, Ecological Economics, Land Use Policy, Environmental History; Regional Environmental Change; Ecology and Society; Agroecology and Sustainable Food Systems; and Journal of Interdisciplinary History, among others.

Luis Andrés Orive
Environmental Studies Centre of Vitoria-Gasteiz (CEA)

Full Professor of Modern History. Coordinating Forestry engineer from the Higher Technical School of Forestry Engineers of the Universidad Politécnica de Madrid. PhD on regional landscape analysis. From 1989 until February 2008, and since 2015 he is Director of the CEA. In October 2007 he was invited as expert of the Council of Europe within the international work group appointed to develop the “Pan-European Ecological Network”. Since June, 2011, he has been Managing Director of the Department of Environmental Strategy, Public Space and Landscape planning in Vitoria-Gasteiz and Coordinator of the EUROPEAN GREEN CAPITAL AWARD PROJECT. He has been member of the “Assessment of Good Practices in Sustainable Development” board of experts of the UN-HABITAT Committee in Spain and member of the Group of Experts appointed by the Basque Government to advise on the re-examination of the Regional Planning Guidelines of the Basque Country and the definition of a New Regional Strategy. Since 2008, he has been a habitual collaborator and assistant professor on the Masters course in Landscape Architecture of New York University (SUNY-ESF) in Syracuse.
Emma Siliprandi

FAO

Agronomist, Master on Sociology, PHD on Sustainable Development (Universidade de Brasilia, Brasil/Universidad de Valladolid, Spain).

FAO Agricultural Officer, Lead Focal Point for the Scaling up Agroecology Initiative, launched in 2018 by FAO jointly with UNDP, WFP, IFAD, CBD, UN-Environment and WHO. She coordinated FAO regional projects on food security policies in Latin America and Caribbean for the last 10 years. Professor and researcher in Masters Course on Agroecology in Spain and Brazil.

Main publications: Women’s perspective on Agroecology (SOCLA/CLACSO, 2018); Gender, Agroecology and Food Sovereignty (Icaria, 2014); Women and Agroecology (UFRJ, 2015), and other articles.
Chiara Tornaghi
Coventry University, U.K

Chiara Tornaghi is a critical human geographer and scholar-activist with a background in politics, sociology and planning. After graduating in Political Science (2001, State University of Milan), she obtained her PhD in Applied Sociology and Social Research Methods (2005, University of Milano-Bicocca, Italy), and a Postgraduate Certificate in European Spatial Planning (2006, University of Newcastle, UK). Chiara has worked as lecturer and researcher at the University of Leeds (2008-15), TU Vienna (2009-10), University of Milano-Bicocca (2005-08) and Politecnico di Milano (2008).

Since 2015 she works at the Centre for Agroecology, Water and Resilience, Coventry University, Coventry (UK) as Research Fellow in Urban Food Sovereignty and Resilience. Her recent work revolves around urban agroecology, food justice, and the politics of urban land. Her most recent publication is: Tornaghi C. (2017) “Urban Agriculture in the food-disabling city: (Re) defining urban food justice, reimagining a politics of empowerment” in the journal Antipode.

Marian Simón Rojo
Universidad Politécnica de Madrid / Surcos Urbanos

Marian Simon-Rojo is an architect, has a PhD in urban and regional planning, and is an adjunct professor at the Department of Urban and Regional Planning (Faculty of Architecture, Universidad Politécnica de Madrid).

Marian is involved in master planning and has participated in various research projects on urbanism, agriculture, food systems, and public participation. She takes part in agroecological movements and was co-responsible for the design of Madrid’s Food Strategy.
COLLABORATIONS AND FIELD VISIT INFORMATION
Catering Collaborators

LAREIRA

LAREIRA is a gastronomic and culinary project which started from the research, tasting and enjoyment in the everyday life. It is a project that aims to reappropriate the knowledge of the good cooking and good eating. Its structure is horizontal and cooperative. The products they use are environmentally friendly in the broadest possible sense, i.e. free from labour exploitation, sustainable in its production and generators of other and more just economies. Many of the ingredients come from the agroecological consumption networks, including the Nodo de Carabanchel. The economic benefits are shared among the local and communal resources used from the neighbourhood of Carabanchel.

Cuidando Paladares

Home cooking service and zero waste catering based on the use of local raw materials provided by local producers or eco-social and Fair Trade distributors. With our work they not only try to promote local and responsible consumption and support productive agro-ecological projects, but they also recover traditional gastronomic techniques and prepare tasty and healthy dishes.

Field trip visits

Centro de Acercamiento a lo Rural (CAR)

A platform that links territory, culture and social change. The CAR is INLAND’s headquarters in Madrid. It is an open, dynamic and inclusive space where all of Inland’s labor is collected, made visible and where urban creative and social processes are born. It’s a space that combines investigation, training and cultural production through different lines of action, from a Documentation Centre and canteen to a Self-Publishing Workshop.

Calle Buen Gobernador 4, 28027 Madrid
http://car.inland.org/

El Fogón Verde

Local food and drink tasting at El Fogón Verde. Meet local producers of beer and cheese. A taste of local food and a talk with their producers, in El fogón Verde, an agroecological restaurant located in the centre of Madrid.

Calle de la Alameda 4, 28014 Madrid
https://elfogonverde.net/

Fundación Burgohondo - Jam Factory

The non-profit organization was born with the idea of becoming a shelter for everyone who needed it. A space where workshops and events for all audiences could take place. They have
also an establishment in the neighbourhood of Entrevías, which works as an academy for children and teenagers. There they get free academic support from the volunteers, as well as ludic activities in summer. The jam factory has the purpose of providing Jobs for people in the neighbourhood. The jams are made from bio and proximity local products, with no preservatives or refined sugars.

*Calle Arboleda 14, 28031 Madrid (Vallecas)*

**Huerto Urbano Comunitario “La Huerta Eugenia”**

It is an ecological, communitary urban garden that started around February 2015. It is part from the urban garden network of Madrid (Red de Huertos Urbanos de Madrid, reHd mad!). Under the principles of organic farming and permaculture they produce compost, grow vegetables, fruit trees, medicinal plants, aromatic, etc. But they also cultivate and produce cultures, renew urban public spaces and create cities on a human scale while respecting the environment.

*C/ Peñaranda de Bracamonte, 28051 Madrid (Vallecas)*

[http://lahuertaeugenia.blogspot.com/](http://lahuertaeugenia.blogspot.com/)

**Parque Agrario Rivas-Vaciamadrid**

The Soto del Grillo Agroecological Park is a municipal initiative that seeks to support and strengthen agricultural activity through the implementation of measures and actions aimed at encouraging the incorporation of new entrepreneurs to agricultural activity, such as the municipal land bank, the preservation of natural and landscape resources and the access to fresh, proximity and ecological food.

*Calle del Dr. Alcorta, 28522 Rivas-Vaciamadrid, Madrid*

**Conciencia Grows**

The agroecological association Conciencia Grows works towards food sovereignty, developing a community of prosume. From their “restless garden” (huerta inquieta) they offer workshops on sustainable beekeeping (http://beefreeapiaries.org). In addition, they offer the service as a group of prosume to supply with baskets of agroecological fruit and vegetables to all Madrid.

*Diseminado Pingarrón 122, 28330, Madrid*

[www.concienciagrows.org](http://www.concienciagrows.org)