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Urban AgriCulture and Food Systems Dynamics: Urban Gardening and Urban Farming of the Bonn-Rhein-Sieg region, Germany

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ABSTRACT

Agricultural activities within the city boundaries have a long history in both developed and developing countries. Especially in developing countries these activities contribute to food security and the mitigation of malnutrition (food grown for home consumption). They generate additional income and contribute to recreation, environmental health as well as social interaction. In this paper, a broad approach of Urban AgriCulture is used, which includes the production of crops in urban and peri-urban areas and ranges in developed countries from allotment gardens (Schrebergarten) over community gardens (Urban Gardening) to semi-entrepreneurial self-harvest farms and fully commercialized agriculture (Urban Farming). Citizens seek to make a shift from traditional to new (sustainable) forms of food supply. From this evolves a demand for urban spaces that can be used agriculturally. The way how these citizens' initiatives can be supported and their contribution to a resilient and sustainable urban food system increasingly attracts attention. This paper presents an empirical case study on Urban AgriCulture initiatives in the Bonn-Rhein-Sieg region (Germany). Urban AgriCulture is still a niche movement with the potential to contribute more significantly to urban development and constitute a pillar of urban quality of life.

Key words: *citizen participation, sustainable transition, urban green spaces, social empirical research, food systems, regional food production*

Introduction

The amount of population living in urban areas is continuously growing and it is expected that the proportion of urban dwellers will be in-between 66% (FAO, 2009) and 70% (UN DESA, 2014) in 2050. Population growth implies increased pressure on Earth's resources, in such that the available land is insufficient for feeding such an amount of urban residents (FAO, 2009), since it is expected that demand for food will rise by unto 70% until 2050 (FAO, 2009). Not only food security and sustainable food provision will become a crucial issue (Armar-Klemensu, 2000): the efforts in increasing the standard of living and quality of life of people world-wide by the help of the Sustainable Development Goals (UN GA, 2012). In addition more both the market and cropland for organic food are world-wide constantly increasing (FIBL, 2015), indicating a rising demand of consumers for secure food and sensibilisation of consumers.

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However, cities alone cannot feed themselves - more integrated planning which combines the efforts of rural and Urban AgriCulture is needed. Consequently the importance of policies that create sustainable cities has grown and food issues should become more prominent on the agenda of urban planning and decision making (Pothukuchi and Kaufman, 1999; Stockmann, 2012).

This concerns especially local agendas. In the literature there is evidence on progressive food systems policy and planning, which include necessity of municipal commitment to a sustainable food system (Fodor, 2011; MacRae and Donahue, 2013), a robust food policy council (Borron, 2003; Stierand, 2008; MacRae and Donahue, 2013), food policy staff within municipal social planning (Fodor, 2011), as well as a lively and committed city-wide (network of) non-governmental groups working within and across the food system such as Urban Gardening initiatives or transition cities.

Despite individual characteristics of each city, one feature is common for most urban areas around the globe: the growing role of urban food systems on a global as well as local level. Food production in cities has a long-standing history. As long as towns exist, its inhabitants have been growing different types of food (Tasciotti and Wagner, 2015). Yet, nowadays a new movement has emerged where fruits and vegetables are increasingly cultivated within community projects, on balconies or other in small spaces as e.g. mobile gardens or plants growing in buckets and boxes constructed from recycled materials. The positive impact of Urban AgriCulture on the environment, society and economy has been detected in several empirical studies (Bruse, 2003; Rosol, 2006; Knox & Marston, 2008).

By now urban gardeners are increasingly focusing on growing crops and thus the aim to use cities (again) as a vital part of food systems and locations of agricultural production is gaining prominence in the Global North. The tendency to integrate agriculture into urban planning is a return to the garden city movement of the early 20th century, proclaiming self-reliant cities (Philips, 2013; von der Heide, 2014). In the literature various sources of origin of the Urban Agriculture can be found (Baker, 2004; Nomadisch Grün, 2012; von der Heide, 2014). Thus this term is interpreted differently; there is no common definition. In this paper, we refer to Urban AgriCulture, as a broad approach, which includes the production of crops in urban and peri-urban areas and ranges from allotment gardens over community gardens (Urban Gardening) to semi-entrepreneurial/semi-professional self-harvest farms and fully commercialized agriculture (Urban Farming). Urban Gardening und Urban Farming are the objects of our study; we use a common term with our special spelling Urban AgriCulture.

The fact that urban food systems and politics inevitably depend on the particular characteristics of a city may be one of the explanations for the great diversity. This includes historical and cultural factors, state and basis of the local economy, geography and availability of natural resources, infrastructure, societal and political factors, such as governance structures and the strength of the state and of civil society.

While in the Global North Urban Farming disappeared from the cities, it remained a pillar of food systems in the Global South (Cofie et al., 2003, Nugent, 2000, Zezza and Tasciotti, 2010). But the increasing prominence of appropriate initiatives in the developed countries nowadays let us assumes that Urban AgriCulture will succeed in contributing to food systems in the future.

Despite its success it still has a niche status in urban structure and food systems and thus there are no investigations on how the Urban Agriculture movement is able to boost the food security of cities yet. Exemplarily for the city of Cleveland Grewal et al. (2012), came to the conclusion, that if urban spaces and roof-tops are consequently used to grow crops, a densely populated western city has the ability to produce a significantly amount of food needed to feed the city. But not only inaccessible ground is a barrier, lack of farming skills, soil quality (contamination), resources needed for farming activities (water, fertilizer etc.) and

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financial means are seen to be obstacles that have to be roomed in the way to make Urban AgriCulture (Cohen and Reynolds, 2014; CoDyre et al., 2015).

In the light of the above, our research was conducted to gather detailed information on the Urban Gardening/Farming activities in the Bonn-Rhein-Sieg region, Germany. This paper offers an overview of a potential significance of Urban AgriCulture for food system dynamics based on empirical primary data collected in a specific region. The motivation for this paper emerged from the fact that the city of Bonn received a new political directive (also due to financial reasons) to make available more "space" for Urban AgriCulture in town: 20 disused green areas could be handed over to citizens for appropriate projects. The main objective of this paper is to document and understand the reasons for and further needs in Urban Gardening/Farming projects in the Bonn-Rhein-Sieg region and to explore whether there are prerequisites for a sustainable urban food system in the region.

Background

Bonn-Rhein-Sieg region

The Bonn-Rhein-Sieg region is situated in the southern part of the federal state of North Rhine-Westphalia (NRW). It is part of the Cologne-Bonn metropolitan area. The region consists of the city of Bonn and 19 towns and communities that make up the Rhein-Sieg district around Bonn. Until 1990 Bonn was the capital of Germany. With the German reunion Berlin became the new capital and the Berlin-Bonn Act decreed that the government, parliament and a major part of the ministries move to Berlin. As a consequence the region underwent major economic and structural developments. Today the Bonn-Rhein-Sieg region is one of the most attractive growth regions in Germany, with a focus on business, science, congress functions and culture As the German United Nations City, hosting 18 UN organizations, Bonn has developed an international profile. The strong growth in the knowledge-intensive services (the amount of employees who are subject to social insurance contributions and possess an academic degree amounts to 32 percent (City of Bonn, 2015)) as well as the close interaction of the city with the business and science communities make Bonn particularly attractive.

Selected Urban AgriCulture pioneers in the region

As mentioned above, the term Urban AgriCulture combines different types of horticultural activities. To gain an overview, representatives of the most common types in the Bonn-Rhein-Sieg region were interviewed. Allotment gardens (*Schrebergarten*) are not considered in this study. In Bonn and Bonn-Rhein-Sieg region there are approx. 27 different Urban Gardening projects (Wissmann, 2015), the predominant type is the urban community garden. For the guided interviews with the pioneers, different Urban AgriCulture types were selected: community garden, international garden, company garden, as well as self-harvest garden:

- *Community garden* is the generic term for all gardens, which are operated by a community in line with community gardens in New York. Rosol (2006) defined common gardens as „gardens, green areas and parks created and operated jointly and through voluntary engagement with the focus on general public". Generally, a community garden is a piece of land planted with fruits, vegetables and herbs in joint voluntary work. The gardening is determined by rules. A large proportion of beds are cultivated collectively or individually. The garden is open to the public for an appointed time. There is no membership restriction.
- *International or intercultural gardens* according to Müller (2002) "differ from community centres for migrants primarily by the fact that people work with each other, that they have soil as a common basis on which they produce essential goods like fruits, vegetables, but also friendships and commonalities". Most

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intercultural garden projects located in Germany since then have been inspired by the *Göttingen experience* (Moulin-Doos, 2013).

- *Company gardens*. The term was established by the German national *Company Garden* competitions (in Hannover (2002), in Bremen (2006) and in Osnabrück (2009)), funded by the *Federal Ministry of Transport, Building and Urban Affairs*. *The Green City*- Foundation for life quality by green in the city – organized in its own *Company Gardens* competition. In the *Science Year* 2012, within the framework of the project ERDE, the call for the Project *Urban Gardening 2.0* was announced, with which the *Leibniz-Centre for Agricultural Research* and (ZALF) and *Humboldt-University* of Berlin collaborated.
- *Self-harvest garden* is a co-operation of consumers with (commercial and sometimes organic) farms. Farmers plant a wide variety of vegetables in long rows on arable land which is within easy reach of a city. The field is divided up into strips so that the whole range of vegetables is grown on each strip. For a small fee a strip can be leased. Community projects with farms are usually a good extra income for farmers (Interview with Burkhard Sagel, http://www.bauernhof-sagel.de/).
- *Community Supported Agriculture (CSA, in German – Solidarische Landwirtschaft, SoLaWi)* is a community-based cooperation of a farmer with consumers. The members of CSA agree to provide direct and upfront support for farmers who will produce their vegetables. The farmers agree to provide a sufficient quantity and quality of food to meet the needs and expectations of the consumers (Lamb, 1994). The principle of work is community-democratic; arrangements vary from farm to farm, from *SoLaWi* to *SoLaWi*.

Certain Urban Gardening/Farming projects in Bonn have existed for several years. The oldest project in Bonn is the *International Garden WiLa Bonn* established in 2007 by the Science Shop (Wissenschaftsladen, WiLa); the best-known gardens are the mobile community garden *Ermekeilgarten* and the self-harvest garden *Meine Ernte* (*My Harvest*) established in 2011 and 2010 respectively. The international garden in Sankt Augustin *Gärten der Nationen* (*Gardens of Nations*) was a part of the project *Das grüne C* (*The Green C*). A company garden is located at the *German Aerospace Center* (DLR): *Himmel und Äd* (*Heaven and Earth*, a dialect term for a regional dish) founded in 2012. *Schmetterlingsgarten im Gries* (*Garden of Butterflies*) is a community garden which was established in a difficult residential area in 2012 with the object to alleviate existing social problems. *Soziale Landwirtschaft Bonn* (*SoLaWi*, *Community Supported Agriculture Bonn*) is a cooperative founded in 2012, established from the *Transition City Bonn* (*Bonn im Wandel*), practices organic agriculture in cooperation with two local farmers.

Methods

After literature review on the subject, seven Urban AgriCulture projects (pioneers) were visited in the Bonn-Rhein-Sieg region. In guided interviews they were questioned on (1) profile of garden initiative (year of establishment, size, number of members); (2) type of garden (organization form, management); (3) motivation behind the activities; (4) key stakeholders indispensable for founding and developing an initiative; (5) resources needed; (6) sustainability habits related to the activities. All interviews were audio recorded and documented in writing.

The selection of the projects was based on desktop search on Urban AgriCulture initiatives in the Bonn-Rhein-Sieg region and on prior knowledge from projects with local municipalities. Initiatives were selected which had existed for at least one year at the beginning of this research (June 2015). Furthermore there should be at least a choice of three different types of Urban Gardening/Farming projects (see Table 1).

Table 1: Selected Urban AgriCulture pioneers in the Bonn-Rhein-Sieg region

Initiative	Type	Size	Year	Motivation

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Ermekeilgarten	Public	ca. 800 m^2	2013	• Area revival • Sense of community • Passion for gardening
Internationaler Garten WiLa Bonn	Public	3.000 m^2	2007	• Make people feel at home • Green space for people living in nearby high-rise buildings • Cultural exchange
Meine Ernte	Commercial	Among Germany: 400.000 m^2	2010	• Recover in nature • Create consciousness of nature • Gain gardening experience • Raise awareness and education re. environmental questions • Grow food for individual consumption
Gärten der Nationen	Public	24.500 m^2	2013	• Opportunities for integration in difficult residential areas • Sense of community • Option to do social work through garden association
Himmel und Äad	Company	400 m^2	2012	• Time-out from office work • Cross-departmental exchange
Schmetterlingsgarten im Gries	Public	40 m^2	2012	• Attractive place to meet • Opportunities for integration in difficult residential areas • Raise awareness and education re. environmental questions
Solidarische Landwirtschaft	Semi-Commercial	30.000 m^2	2012	• Strengthen regional food production • Producing organic food in the vicinity of the city • Shorten transport paths • Preserving ecological diversity • Independence from food imports, market structures and agribusinesses

In addition to this, a questionnaire based survey for citizens interested in the topic of Urban AgriCulture was carried out during the workshop (so called *1st Bonn Urban Gardening Day*) on November 14th 2015, where the authors of the paper actively participated, established new contacts with existing projects in Bonn-Rhein-Sieg and accompanied the event with scientific research.

Hereafter interviews are summarized (Fig. 1) and complemented with results from literature research. The interviews were structured by the following categories, based on an inductive approach: (1) motives and objectives to establish an Urban AgriCulture initiative, (2) necessary stakeholders for establishment and running an initiative (3) resources needed. These three categories are presented as a mind map in Figure 1. The responses of the different initiatives are grouped around the specific category.

The legend shows all interviewed projects which are represented by one specific colour. In addition, similar statements are grouped into circles to ensure better visibility about their frequency.

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Results

The researched Urban AgriCulture pioneers show certain characteristics. Similarities and differences are described below.

Motives and objectives

The most frequent objectives to establish an initiative are to: offer a place for gardening, create a sense of community, get time-out from office work, create integration opportunities in problematic neighbourhoods, and facilitate self-sufficiency. This is in coincidence with Bell et al. (2016) who provide an overview on the findings in the literature on the motivation to participate in Urban AgriCulture, as they list ecological and cultural benefits, local, fresh and healthy food, environmental concerns as well as social integration and socializing among the drivers. (Rosol, 2006) also highlights that people see gardening as a balance for a stressful working life. The Bundesinstitut für Bau-, Stadt- und Raumforschung (Federal Institute for Research on Building, Urban Affairs and Spatial Development, BBSR) has recently published a study *Gemeinschaftsgärten im Quartier* (2015) which shows the significance of Urban Gardening for a difficult neighbourhood: "Urban Gardening is an important contribution to the development"; gardens revalue problem neighbourhoods. Urban AgrCulture might contribute to public security. Examining a possible negative relationship between the greening of urban spaces and various crimes in Philadelphia, Branas et al. (2011) found evidence for that urban greening might reduce crime. While in developing countries Urban AgriCulture activities contribute first and foremost to the food security and the generation of family income (Armar-Klemesu, 2000), the food self-sufficiency in developed countries has more a side effect. There the Urban Gardening/Farming initiatives do not anticipate an immediate and complete self-sufficiency, but a desire for self-empowerment, self-determination and other social components play a role (Rosol, 2004; Müller, 2011; von der Heide, 2011).

Stakeholders

The key stakeholders mentioned in almost all interviewed projects are the local authorities and participating volunteers. The municipality, according to Gehrke (2012), plays a crucial role in the Urban AgriCulture movement. Without its support, usually individual citizens cannot progress with their initiative. In case of Bonn, initiatives sought out contacts with the municipality of Bonn. But different departments were responsible e.g. planning authority, building authority or *Urban Green Space Department*.

Furthermore, in the literature there is evidence on the role of municipalities for Urban AgriCulture with regards to obtaining suitable plots of land might be a problem. Also, long term sustainable use of urban areas can only be achieved in cooperation with the municipality. Von der Haide (2014) referred to Rosol (2006) when she underlined the importance of municipal administrators and politicians who are open-minded and supportive towards emerging Urban AgrCulture initiatives. Wunder (2013) emphasises a lack of acknowledgement by public administration of the provisory services gardens as barriers for the Berlin Urban Gardening project *Allmende Kontor*.

Rosol (2004; 2010; 2012) speaks about government-beyond-the-state, an emergence of the new political acceptance of autonomous projects such as Urban AgriCulture initiatives and active citizen participation. She mentions that these projects can be understood as a form of outsourcing of former local state responsibilities for public services and urban infrastructure (Rosol, 2012). Such examples of government-beyond-the-state in Bonn might be the transition city movement in Bonn (*Transition Towns movement - Bonn im Wandel*) – co-establisher of the *SoLaWi Bonn*, who are at the same time members of Urban AgriCulture initiatives, in Panel on Climate Change.

In terms of volunteers, interviewees stressed importance of voluntary work within the initiatives. This concerns especially *International Garden WiLa Bonn*, where volunteers are completing tasks comparable with paid

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employee-job. Our respondent spoke about professionalization and adequate payment for such qualified volunteers. Another interviewee from the *Garden of Butterflies* mentioned a lack of volunteers. Rosol (2004) gives an explanation in difference of volunteer work in Urban AgriCulture projects with its additional benefits in contrast to "citizen labor" in other areas. These benefits are namely personal contribution for individual food consumption since gardening has a certain degree of self-sufficiency. In addition to this, Urban AgriCulture supports the production of public goods. Volunteers for example create open spaces, which potentially improve housing and life quality in neighbourhoods.

Resources

Full-time personnel (employees) is the most demanded resource for the successful sustainable continuation of all Urban AgrCulture projects which were interviewed. This request is expressed by both groups of interviewees: state administration as well as gardening initiators. The city of Stuttgart presented to other municipalities in Germany a model example when creating the new position *Coordinator of Urban Gardening*. This position is linked to the Department of City Planning and Urban Regeneration. Both interviewed municipal employees (Head of *Urban Green Space Department* (*Amt für Stadtgrün*), City of Bonn as well as the *first alderman* of the City of St. Augustin) have pronounced a desire to create a similar position. Rosol (2006) showed in her investigations that volunteers asked for full-time employees provided by the local state, whose working hours harmonized with those of volunteers (evenings and weekends).

Funding by the municipal government or private sponsoring is another essential resource which was mentioned by different interviewees. Wunder (2013) confirms a vital need of financial support for Urban AgriCulture initiatives; funding and financial means are an issue and often present a major obstacle (LeJava and Goonan, 2012).

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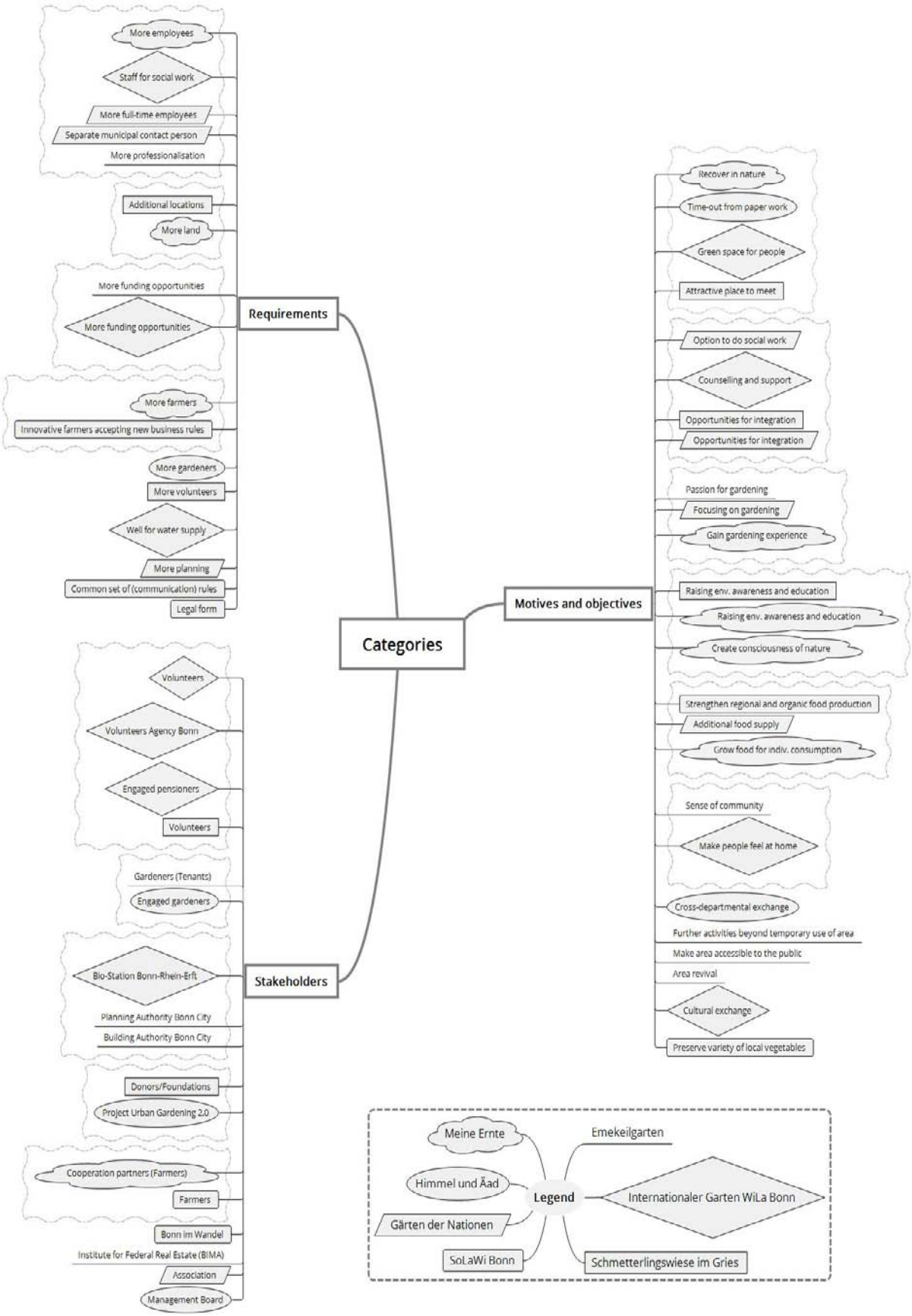

Figure 1: Analysis of the guided interviews (Mind-Map)

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Municipality of Bonn

Following the political mandate and of City Council orders, the *Urban Green Space Department* (*Amt für Stadtgrün*) was given the task to hand over 20 disused green areas to Bonn citizens for Urban AgriCulture projects. Furthermore, there are financial reasons for such hand over of green areas (no financial means for further maintenance).

The Bonn *Urban Green Space Department* is seeking a partnership with some of the initiatives which were interviewed, such as *Ermekeilgarten* und *Meine Ernte*. Together with *Ermekeilgarten* they organized the above mentioned workshop (*1st Bonn Urban Gardening Day*), which took place on November 14th 2015 in the *Ermekeil* barracks. This first information event served to offer collaboration options between Bonn Urban AgriCulture initiatives and like-minded people. Citizens interested in Urban AgriCulture had an opportunity to learn about possible uses of vacant green space. The event provided for the first time an overview on the current development of Urban AgriCulture activities in Bonn.

Citizens

The citizens, who participated in the workshop, were surveyed using a standardized questionnaire. The questionnaire focused on three blocks: (1) understanding and definition of urban gardening, (2) motivation; (3) socio-demographical data.

The evaluation of the survey showed that the average citizen who participated in the 1st Bonn UG Day is female, > 50 years old, resident of Bonn, graduate, living in a rental flat, single household. Most of the interviewed citizens knew about Urban Gardening/Farming (59% were very well informed and 28% had basic knowledge). 34 % of the respondents are already a member of a Bonn initiative; 24% wish to join an initiative (see Fig. 2). 10% of the interviewees had resigned from an initiative before. One of the reasons for this was a move to a place with gardening possibilities. Fig. 2 confirms also the basic assumption that mainly members of existing initiatives participated in the workshop.

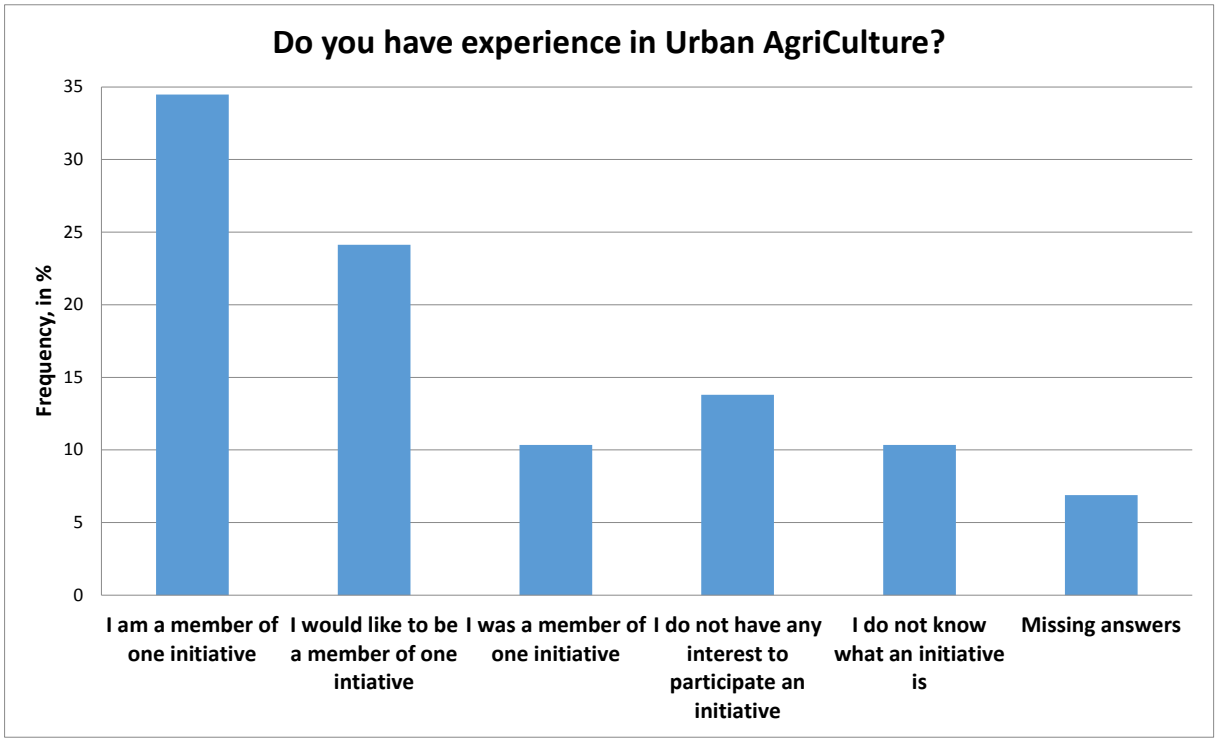

Figure 2: Experience in Urban AgriCulture. *Questionnaire block on understanding and definition, Q3, n=29.*

Personal motivations of the respondents (see Fig. 3) to get involved in an Urban AgriCulture initiatives focus quite strongly on production of safe and organic food. This supports Spiller et al. (2012) in so far that citizens

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have an increasing desire to know where their food comes from and how it is produced, and suggests why regional products, direct selling, organic and animal welfare labels could be a sign that people feel uneasy about industrialised agriculture.

Furthermore for citizens who are interested in Urban AgriCulture projects stated that an improved quality of life and satisfaction of personal needs are important. Literature shows evidence for such motives with respect to Urban AgriCulture in developed countries. Gehrke (2012) explains the satisfaction of gardeners when harvesting their own fruits or vegetables, observing the development from seed to product. Thus gardening contributes to a sound work-life-balance. The growth of a plant cannot be accelerated and forms a contrast to the modern working world where quick and efficient functioning is often required. However, the harvest is rarely the objective of Urban Gardening. It is mostly about activities in the (garden) community and active participation (Gehrke, 2012).

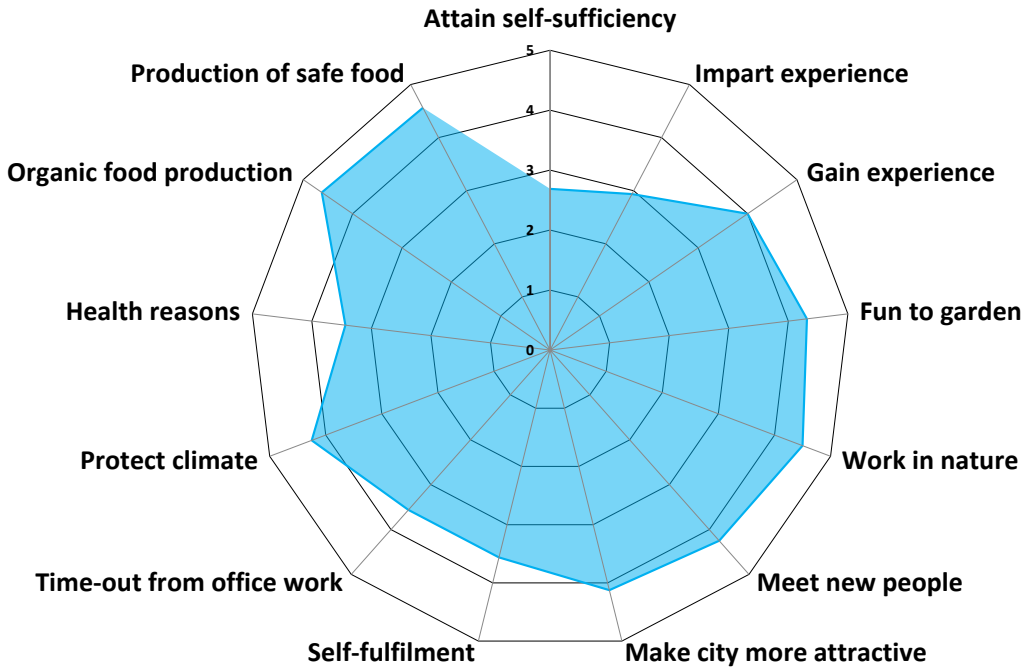

Figure 3: Personal motivation to get involved in an Urban AgriCulture project located in the Bonn-Rhein-Sieg region. *Questionnaire block on motivation, Q5, n=29, multiple answer option.*

- 55% of the respondents see in Urban AgriCulture (UA) an option to work in nature.
- 55% of the respondents also indicated that production from UA has to be organic.
- Other motivations to join a UA are: fun to garden (52%), meet new people (52%) and production of safe food (51%).
- Motives such as beautification of the city (48%), self-fulfilment (41%), time-out from office work (38%), climate (protection 48%) health reasons (38%) seemed to be less relevant for the interviewed citizens.
- Self-sufficiency is a motivation least indicated by the respondents (17%)

Conclusion

To conclude, it can be stated that the Bonn-Rhein-Sieg region and especially the City of Bonn offer good conditions for Urban AgriCulture initiatives. The region demonstrates elements of a progressive food system policy and planning, which include an active and committed city-wide non-governmental groups working within and across the food system such as Urban AgriCulture initiatives or transition cities as well as the

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acknowledgement and (formal and informal) commitment to these projects by the municipal government. Moreover, the headquarters of international and national food related organisations like *International Federation of Organic Agricultural Movements* (IFOAM), *Fairtrade Labelling Organizations International* (FLO), German *Ministry of Nutrition, Agriculture and Consumer Protection* (BMLEV) as well as the *Federal Office for Agriculture and Food* (BLE) are based in Bonn. There is a critical scientific citizens' debate around the topic of Urban AgriCulture in Bonn, which led to a relatively late start, in comparison to other German cities such as Berlin, Göttingen or Bottrop, into Urban AgriCulture activities.

It is crucial that a very interested and committed group takes the starting initiative like it happened in Bonn and a suitable piece of land is available. Examples in Bonn are e.g. *Ermekeilgarten* and *Meine Ernte*. Apart from finding financial support, a well updated website (e.g. *Meine Ernte*) or social media presence (e.g. *Bonn in Wandel, Ermekeilgarten*), word-of-mouth recommendation, contact with the media and events in the Urban AgriCulture initiatives are further success factors. For example, the *Ermekeil Initiative*, provider of the *Ermekeilgarten*, offers an all-year program with cultural, political as well as garden related events. As in the literature stated problems may occur when important issues are not regulated from the beginning. It is also advantageous when the city administration works hand in hand with the Urban AgriCulture projects or initiatives seek for dialogue with the city like it happened in Bonn.

Finally, as this paper shows, Urban Gardening/Urban Farming has the potential to make a city more sustainable and liveable. In the Urban Gardening Initiatives/Urban Farms citizens re-develop the sense of seasonality in e.g. self-harvesting gardens (interview *Meine Ernte*) and increase their environmental awareness. It makes a contribution to education for sustainable development. Effects are not limited to horticultural aspects, but it can also change consumer behaviour or introduce political participation (e.g. participation of members of *Bonn im Wandel*, who are at the same time members of Urban AgriCulture initiatives, in *Panel on Climate Change*). Urban AgriCulture projects present new forms of community work, give neighbourhood an additional space, are community-oriented and participatory and act as learning and meeting places in the city.

As the growing number of initiatives show people are interested in urban community gardening. Along with this it can be observed that new organisational structures evolve with new actors in the food system such as *Meine Ernte* or *SoLaWi* which are partnering with organic farmers. Although these partnerships are yet rare, it shows that people are not only demanding changes from the industrialised agricultural and food industry, but they increasingly start to shape it themselves.

However, Urban AgriCulture is still a niche movement, which does not yet guarantee sufficient food provision. This does not pursue immediate complete self-sufficiency as above investigations show. Key resources lacking are financial support, access to (new) areas, and long term sustainable use of these areas as well as permanent staff and professionalization. Also permanent adoption of green areas by citizens such as establish long term cooperation with organic farmers, support green start-ups, use green spaces for an unlimited period is an asset. Deeper research of the Urban AgriCulture phenomenon and its role in food system dynamics is necessary; especially the potential to be a pivotal driver of urban development as well as a contributor to the environmental health and quality of life in cities.

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