



# Finding Spaces for Urban Food Production – Matching Spatial and Stakeholder Analysis with Urban Agriculture Approaches in the Urban Renewal Area of Dortmund-Hörde, Germany

MICHAEL ROTH<sup>\*1</sup>, MIRYAM FRIXEN<sup>2</sup>, CARLOS TOBISCH<sup>3</sup>, THOMAS SCHOLLE<sup>2</sup>

<sup>1</sup> Nürtingen-Geislingen University, School of Landscape Architecture, Environmental and Urban Planning, Nürtingen, Germany

<sup>2</sup> plan-lokal Consultancy, Dortmund, Germany

<sup>3</sup> Die Urbanisten e.V., Dortmund, Germany

\* Corresponding author's contact details: E-Mail: michael.roth@hfwu.de | Tel.: +49 7022 201 181

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## Abstract

Using the case of an economically declined neighbourhood in the post-industrial German Ruhr Area (sometimes characterized as Germany's "Rust Belt"), we analyse, describe and conclude how urban agriculture can be used as a catalyst to stimulate and support urban renewal and regeneration, especially from a socio-cultural perspective. Using the methodological framework of participatory action research, and linking bottom-up and top-down planning approaches, a project path was developed to include the population affected and foster individual responsibility for their district, as well as to strengthen inhabitants and stakeholder groups in a permanent collective stewardship for the individual forms of urban agriculture developed and implemented. On a more abstract level, the research carried out can be characterized as a form of action research with an intended transgression of the boundaries between research, planning, design, and implementation. We conclude that by synchronously combining those four domains with intense feedback loops, synergies for the academic knowledge on the potential performance of urban agriculture in terms of sustainable development, as well as the benefits for the case-study area and the interests of individual urban gardeners can be achieved.

## Introduction : From Steel and Coal to Lake and Bean Pole

The Ruhr Area (today Germany's "Rust Belt"), was characterized by mining and steel industry in the 19th and first half of the 20th century. It is a continuous urban agglomeration from Düsseldorf in the West to Dortmund in the East and with 5.1 million inhabitants and around 4,500 km<sup>2</sup> it is Germany's largest and Europe's fifth largest agglomeration. From an urban and regional planning perspective this polycentric metropolitan agglomeration can be seen as an example of the so-called "Zwischen-

stadt" (Sieverts 2000). In the late 1950s, the decline of the mining and steel industry began, leading to a massive structural transformation process. The district of Dortmund Hörde is a model for this structural change. Lighthouse projects such as the conversion of the Phoenix-East steel mill to an artificial lake and residential area, and the conversion of the Phoenix-West steel mill to a technology centre have attracted national and international attention, but also face the criticism of contributing

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to gentrification of the area. In between those two successful transformation projects is the centre of Dortmund Hörde, an economically declined area, strongly affected by demographic change, which is funded in the urban renewal program by the EU, the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, the North-Rhine Westphalian Ministry for Building, Housing, Urban Development and Traffic, and the City of Dortmund to generate new economic, cultural and social development perspectives.

Urban agriculture has proven to contribute to economic (e.g. job generation), socio-cultural (e.g. intergenerational knowledge exchange) and ecological (e.g. urban biodiversity) benefits, especially in old industrial regions (Reid et al. 2012, Pierce-Quinn 2012, Ackerman 2012, Hamway 2013, La Rosa 2014). Despite this potential, sustainable food systems have been a topic neglected in planning in Europe for decades (Morgan 2009, Hardman & Larkham 2014), and still today, the use of urban agriculture as a means of urban development (including urban renewal) is not yet a mainstream topic for the planning discipline (practice and administration) in Germany, with some laudable exceptions such as Stierand (2008 and 2012), Lohrberg (2001), LWK NRW (n.y), and BGALK & ABDO (2006). On a European scale, especially in academia, the topic of sustainable food planning has been well-established, e.g. by the Association of European Schools of Planning (AESOP) through a thematic interest group that gained considerable attention for its annual conference.

Within the urban renewal program Dortmund Hörde, the model project "Querbeet Hörde [Growing across Hörde] – Harvest your City!" was funded as a model project to explore and realize the potential of urban agriculture as a catalyst for urban renewal and to realize the intended economic, social, cultural and ecological benefits.

### **The Project Approach: Querbeet Hörde [Growing across Hörde]**

Looking at approaches to implement urban agriculture throughout the world, three main types of project paths can be observed, according to a working typology developed by the authors:

First, there are a lot of successful projects with strong community involvement that were realized without expert planning or concepts, mainly following bottom-up strategies, sometimes in a legal grey zone on other parties' land or as interim usages. Once these projects are successful in terms of reviving the neighbourhood, increasing the open space quality and other positive effects, they often face the threat of other economically more profitable uses on the land they have been implemented on. Prominent examples for this threat are South Central Farm in Los Angeles in 2006 (cf. Broad 2013) or Prinzessinnengarten in Berlin in 2012.

Second, there are numerous examples of top-down planning and design approaches to master-plans or general frameworks for urban agriculture in specific cities. These approaches often lack the full political support and financial aid for specific implementation, yet serve an important purpose in raising public awareness and keeping the topic on the (policy) table.

Third, there is a series of publications providing guidance to planning, designing, constructing, maintaining and managing urban agriculture projects, based on successful projects described in colourful illustrations (such as Philips 2013, Plantinga & de Sera-de Jong 2013, Gorgolewski et al. 2011 or Nomadisch Grün 2012). These publications can be very motivational, but they cannot provide specific directions and assistance for potential urban farmers in terms of the local environmental, social and legal conditions.

The second (more planning-oriented) and third (more design-oriented) project path can be considered top-down strategies, where artistic design quality or intended benefits influence the project design sometimes more than the needs, wishes and potential contributions of the local population affected.

Taking the advantages of the three approaches described above and trying to avoid the disadvantages, we developed a mixed top-down and bottom-up approach for the model project in Dortmund Hörde.

Based on a profound expert analysis of relevant spaces (e.g. brownfields, neglected open spaces, semi-private green spaces), and an analysis of stakeholders and network structures, a modular toolkit and concept for urban food production were



**Figure 1:** Dialogue with local inhabitants while distributing seed mixtures during spring market festival. Photo Credit: Michael Roth, 2014

developed. A strong participatory approach was followed, linking bottom-up and top-down planning approaches to include the population affected and foster individual responsibility for their district, as well as to strengthen inhabitants and stakeholder groups in a permanent collective stewardship for the individual forms of urban agriculture to be developed and implemented within the model project.

Designed as a model project which can be transferred to similar regions affected by structural transformation, demographic change and economic decline, "Querbeet Hörde – Harvest your City!" is characterized by focussing on experimenting with different conditions. Various approaches of participation and implementation are tested. Despite the specific focus on the local situation, general recommendations can be derived due to the accompanying (action) research, monitoring and evaluation. Although several approaches to use urban agriculture as a catalyst for urban renewal can be found, especially in North America for example by looking at the cases of Detroit or San Diego (Monardo, 2013), they cannot be easily transferred to the German context (with its specific planning system, geographical and legal conditions).

We want to explicitly state that urban agriculture (in

terms of food production) was used as a means to achieve mainly social goals within the project, but the amount of food produced was always second priority as compared to the following main goals:

- Creation of identification of the inhabitants with their neighbourhood/district, by actively farming open and green spaces.
- Creation of intercultural, inter-generational and social-class-overarching dialogues through collective farming activities.
- Establishing sustainable actor networks to maintain the farming activities started even after the end of the funded model project.

### **Methodological Concept: Urban Agriculture as a Catalyst for Urban Renewal**

In order to achieve the above mentioned goals, a methodological concept following the approach of participatory action research (PAR) was used. PAR can be characterized as an attempt "to merge theory with practice and to collaboratively generate solutions to practical problems" (Fahy, 2015). It included working closely with local communities "to produce knowledge in the interest of social change (Torre, 2015). A strong visibility of the project and potentials of urban agriculture in Dortmund-Hörde was a central



part of our approach, already in the first phase of the project, which mainly dealt with expert analysis (spaces, stakeholders and network structures) and concept development. To realize this, low-threshold activities were offered during local festivals. During a very popular local festival, cost-free mobile juice-pack mini-gardens were planted together with visitors, which they then could take home. Thus, several hundred people carried juice packs with lettuce, herbs or kohlrabi over the festivals, stimulating public discussion about urban agriculture. A second example of such activity was Dortmund's longest salad bar, a line of 100 large plastic boxes, planted with different types of lettuce, which was placed at a very central area in the district and later on that day collectively harvested and consumed in a school building nearby. Also, seed mixtures (herbs, lettuce, and radish), in a bag hand-printed by a local youth initiative was given away during the local spring market, together with a project flyer and a cultivation manual. The visibility of the project in the area and beyond was also ensured by constant public relations work in print newspaper (free and paid ones), on local/regional web platforms, and via posters and leaflets.

In order to maximise the network effect in web communication, we decided to use existing local and thematic online platforms for project communication. Separate sub-sections within the website of the local district agency (Hörder Stadtteilagentur, <http://hoerder-stadtteilagentur.de/>) and the website of a region-wide urban agriculture platform (Urbane Oasen, <http://urbanoasen.de/>) were established, to use existing platforms for dissemination and to link our project to other local initiatives in Hörde, and other urban agriculture projects in the Ruhr area.

The analysis of potential spaces for urban agriculture gives a quick overview of suitable spots for different activities by providing information on the location, size, exposure to sunlight, distances to public transit and local infrastructure such as schools, stakeholder groups in the surroundings, land owner, and an assessment of the potential uses. An orientation map, photos and a verbal description are also included for each location. Around 60 stakeholder groups, initiatives and institutions were researched in the area (commercial institutions, schools/preschools, restaurants, social institutions, and housing associations). For several

of them, in-depth-interviews were conducted to identify potential links to urban agriculture, their motivation and wishes, potential areas of collaboration and project ideas.

A network of co-operation partners was established, reaching from local and regional administrative bodies, commercial enterprises and job initiatives to schools, church and social institutions and non-governmental organisations.

To support future urban agriculture bottom-up initiatives, projects and individuals, a toolkit was elaborated, illustrating various cultivation methods (e.g. sack gardens, raised beds, bottle gardens, box gardens) and potential crops suitable for the area in a simple language and with easily readable illustrations. By making expert knowledge available to the general public in a layperson-compatible format, the risk of failure and mistakes which is an inevitable part of community gardening (Nomadisch Grün 2012, p. 129) could be reduced.

Based on the spatial analysis, potential actor analysis, network and toolkit, several project ideas were developed, that were discussed with the stakeholders. One central feature of the concept was to explore the potential of using the numerous brownfields in the area for establishing community gardens. On a theoretical and empirical level, this potential has been proven by Tobisch (2013). The spatial analysis described above exposed a derelict former open air pool area that was fed by hot sulphuric slag water to help mining and steel workers with respiratory and rheumatic diseases. The network analysis revealed a gardening initiative that was looking for a space to garden, due to the eviction from their formerly used land. In an intensive co-ordination process with the owner of the area (Thyssen Krupp Steel Factory), the tenant of the land (a local soccer club), the gardening initiative, the city administration and the local district agency, an initial three-year leasing contract was prepared and signed. Although the main focus of the gardening initiative was not growing food, but the integrative aspects of gardening before, they were very open for the idea of urban agriculture and took up the concept and toolkit elaborated in the model project Querbeet Hörde.

To support the gardening initiative in developing

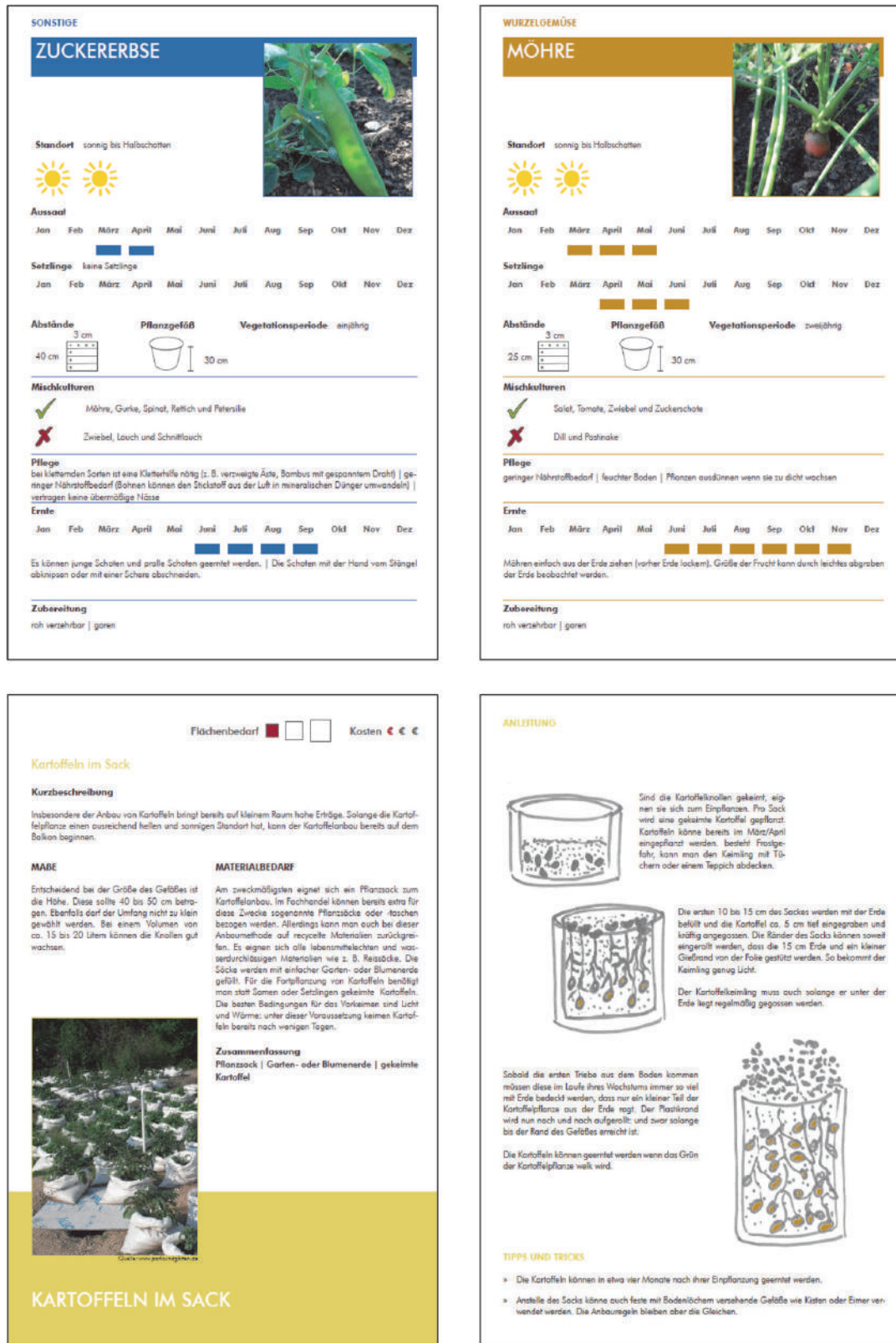


Figure 2: Examples of the toolkit for crops and cultivation methods.

Source: Project Team Querbeet Hörde, 2013

the new community garden and link them with other local initiatives and interested individuals, a half-day planning and design workshop was conducted in the club house of the neighbouring soccer club (fig. 3). Again, this combination of bottom-up initi-

atives with feeding in expert knowledge in a very subtle way proved to be very helpful in avoiding potential pitfall for the starting phase of the community garden. Another positive aspect of the elaborate network established in the concept phase of



**Figure 3:** Community garden planning and design workshop with local gardeners.  
Photo Credit: Miryam Frixen, 2014



**Figure 4:** Building a vertical strawberry garden at a local preschool fence.  
Photo Credit: Michael Roth, 2014



Querbeet Hörde was the possibility to re-use local building materials, for example a fence that was dismantled during the reconstruction of a schoolyard, and thus can be used by the community garden without additional cost.

Children are considered very effective agents and/or multipliers in achieving social change (Linares Pónton & Vélez Andrade, 2007), environmental change (Uzzell et al., 1994, Ballantyne et al. 2006), sustainability (Stuhmcke, 2012), and healthy food purchasing (Wingert et al., 2014). Urban agriculture workshops in preschools (fig. 4), with local teenager initiatives and in schools helped to spread the idea of urban agriculture in the district of Dortmund-Hörde and to realize the intended social, ecological and economic benefits.

### **Results and Conclusions: Planting and Harvesting, Growing and Learning**

Towards the end of the initial one-and-a-half-year funding period of the model project "Querbeet Hörde – Harvest your City!" we can draw a first balance of how the collaborative production of food has generated economic, ecological and socio-cultural "harvest" and contributed to give a new impetus to urban renewal and transformation processes without jeopardizing local identity and increasing the risk of gentrification. In terms of the social sphere, a stimulus for social cohesion across generations, nationalities, income groups has been given. From an ecological perspective, the conservation of urban biodiversity e.g. by growing old cultivars within the city has been promoted. Last but not least, economic achievements e.g. the provision of cheap and healthy food for low income groups have been realized.

The partnership of city administration, using EU, national, federal state and municipal funds, together with academia, planning consultancies, regional associations, NGOs, and local stakeholders and individuals proved to be capable of generating network structures and implementing forms of urban agriculture that already have proven to last beyond the duration of our model project. Without the combination of expert knowledge, a profound networking approach and many enthusiastic individuals in administration, agencies, and initiatives this would not have been possible. The relatively small contri-

bution of urban agriculture to vegetable consumption in a densely populated urban area justifies the focus on socio-cultural goals of our project. McClintock et al. (2013) have used aerial imagery to quantify the potential of urban vegetable production on vacant lots (public and private land) in Oakland, California. They conclude that only 0.6 to 1.5 % of the recommended vegetable consumption could be grown on those plots. Although their focus was mainly on the site inventory and production potential assessment, they conclude that additional site assessments and a negotiation of (potentially conflicting) stakeholder interests are necessary to determine how much vacant land should be committed to urban agriculture. With Querbeet Hörde, the site analysis was combined with exactly these two aspects, plus the establishment of a network of stakeholders and a communication structure to actually realize the ecological, socio-cultural and economic potentials identified.

With the amount of green spaces decreasing in many urban areas and the "promising multifunctionality" of new forms of urban agriculture (La Rosa et al. 2014), the use of brownfields and vacant land for urban agriculture can contribute to improve the sustainability of cities. Similar to the approach described by La Rosa et al. (2014), but without the extensive use of GIS due to the relatively small area of interest (84 ha, 7,500 inhabitants), the physical, ecological and social features of potential urban agriculture sites were analysed. The combination of the site and the actor network analysis, linking bottom-up and top-down approaches, combining expert knowledge and layperson commitment, with strong support by the city administration proved to be a driving factor for successful implementation of urban agriculture. Positive feedback from all parties involved provides an encouraging picture of the potential of urban agriculture to contribute to identification of the inhabitants with their district, to create multiple dialogues between people involved and to generate a new impetus for transformation processes in the neighbourhood of Dortmund-Hörde and beyond.

On a more abstract level, the research carried out can be characterized as a form of action research with an intended transgression of the boundaries between research, planning, design, and implementation. We conclude that by synchronously



combining those four domains with intense feedback loops, synergies for the academic knowledge on the potential performance of urban agriculture in terms of sustainable development, as well as the benefits for the case-study area and the individual urban gardeners can be achieved.

### Future Urban Farming Seasons – An Outlook

Based on the very positive experiences made during the initial one and a half years of our project, we are very confident, that should the funding be extended, we can achieve an expansion of our approach in several ways:

- After a strong focus on the social impacts, we aim at including the economic perspective by stimulating the local economy through small-scale low-threshold initiatives like “crowd growing” for local restaurants and adjacent neighbourhoods. The potential for more technology-oriented forms of urban agriculture such as aquaponics could also create local economic benefits. For Chicago, Taylor & Taylor Lovell (2012) have identified the majority of urban food growing sites in private home gardens and not on public land, using a GIS-based approach with high-resolution aerial images. While up to now, our inventory is based on site visits and mainly public or semi-public land, the inclusion of private home gardens is also one possibility of extension.
- The ecological benefits shall also be more central by linking urban agriculture with the municipal climate protection concept and rain water management concept.
- In terms of a more holistic approach to sustainable food planning, the whole food cycle from production over transport, processing, consumption and waste recycling would be included.
- One social goal that would be more central is to establish links between the new inhabitants of the rich neighbourhood around the new and the (poorer) inhabitants in the old part of Dortmund Hörde.

If the model project continues to be successful, perhaps even an up-scaling to a municipal master plan for urban agriculture would be possible. The city of Dortmund has a very proactive position towards agriculture within the city, as can be seen in their

master plan “Agriculture and Nature Conservation” (Stadt Dortmund 2005). Let’s hope that sustainable food planning will finally find its way into the well-developed formal urban planning system in Germany. The ground has been set and is ready to grow!

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### Conflict of Interests

The authors hereby declare that there is no conflict of interests.

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