

URBAN GARDENING IN LEIPZIG AND LISBON

(An STSM report funded by COST ACTION TU1201)

By

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ABSTRACT

This document presents the results of a Short Term Scientific Mission for the COST ACTION TU1201, undertaken in Leipzig from April 15th until June 15th of 2014. The research goal was to characterize the Allotment Gardens (AG) and Community Gardens (CG) in the city of Leipzig and the city of Lisbon, considering the formal organization of the urban fabric, the types of management of each model, the biodiversity contribution for the city, and produce handling.

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INTRODUCTION

Urban gardening has been a 200 years tradition in northern and central Europe. Old allotment gardens (*kleingärten*) started as a complement for low income workers during industrial revolution, and are still active in cities like Leipzig. More recently, these allotment gardens have been ageing, while new initiatives are becoming more popular among younger citizens who take over brownfield areas in order to create community gardens (*Gemeinschaftsgärten*). In southern Europe allotment gardens were less common but due to the 2008 economic crisis, the cities are implementing new horticultural parks and few community gardens are emerging.

GOALS

The research focused on a comparison between urban gardening experiences in Leipzig versus Lisbon. The specific goal of the research was to study allotment gardens versus community gardens, by defining their differences, analyzing their characteristics and ultimately contribute for the two cities to share lessons.

METHODOLOGY

The research comprised a previous literature review on urban gardening experiences in Leipzig and Lisbon. The field work in Leipzig consisted on surveying a sample of 3 allotment gardens (*Kleingärten*) and 4 community gardens (*Gemeinschaftsgärten*). In Lisbon the field work consisted on surveying a sample of 2 allotment gardens and 1 community garden.

The surveys consisted of questionnaires addressing issues like the physical garden characteristics, the gardener social profile, the garden organization and use, the garden produce and the garden biodiversity (see template on appendix 1). Further research will be performed to address biodiversity more systematically.

THE LEIPZIG CASE STUDY

HISTORICAL BACKGROUND

The German Allotment Garden Federation (BDG- *Bundesverband Deutscher Gartenfreunde*) is the governing body of 20 regional associations with a total of 15,000 allotment garden associations. These associations count about 1 million allotment gardens used by about five million gardeners and covering an area of 47000 ha (BDG, 2013). Presently there are more than one million small gardens in Germany, located mainly in its cities. In Leipzig alone, there are 278 allotment garden clubs covering an area of 837 ha. In 1864, the so-called "Schreber Movement" or *Schrebergärten*, emerged in the city of Leipzig in Saxony, in order to improve health conditions among industrial workers and their families (Leipzig Museumsführer, 2001). In the 19th century the city administrations, the churches or their employers provided open spaces for garden purposes (gardens of the poor). Several replication of the idea happened in Austria and Switzerland. In 1919 the first legislation for allotment gardening in Germany was published. The so-called "Small Garden and Small-Rent Land Law", provided security in land tenure and fixed leasing fees. In 1983, this law was amended by the «Federal Allotment Gardens Act» (Leipzig Museumsführer, 2001).

THE CITY OF LEIPZIG



Figure 1 Leipzig city limits and the location of its centre (A)

The city of Leipzig comprises 531,809 inhabitants (tab.1) within 297km². It went thru a shrinking process after 1990 but, in 2010 the city started to grow again. The city has several large parks and a large riparian hardwood forest along the rivers *PLeiße* and *Elster*. Seven percent of Leipzig is covered by forest and 8% by green space (Strohbach, 2012). Additionally an area of 2.8% is allocated to urban allotments and community gardens (843ha). The community gardens have been prospering after the reunification and provide a meeting point for immigrants, students and artists. These new urban gardens often use urban voids as a result of city shrinkage. The urban gardening ratio is

almost 16m² per citizen (2012), a quite high rate in Europe compared with other cities in Switzerland or Austria.

Table 1. Leipzig social, economic and environmental indicators

Leipzig	
Population (inh.)	531,809 (2012)
Area (km ²)	297
Population density (inh./km ²)	1,800
GDP (per capita)	23,300 (2011)
Unemployment rate (%)	11 (2012)
Latitude	51° 19' 44" N
Climate	Transitional Continental
Altitude (m)	113
Rainfall (mm/year)	595
Mean temperature (°C)	9.3
Area green spaces (m ² per capita)	121
Area of urban gardening (ha)	843
Area of urban gardening per capita (m ²)	16

ALLOTMENT GARDENS OR KLEINGÄRTEN (KG)

Spread across the city of Leipzig there are 278 allotment gardens (*Stadt Leipzig Grünflächenamt*, 2014) accounting for 837 ha of the total urban area (figure2). Twenty six of the original *Schrebergärten* date back to the 19th century and three of them are classified: the KG *Johannistal* e.V. (since 1832), the KG *Südvorstadt* e.V. (since 1874), and the KG *Dr. Schreber* e.V. (since 1864). The last one hosts the *Deutsches Kleingärtner Museum* since 1996.

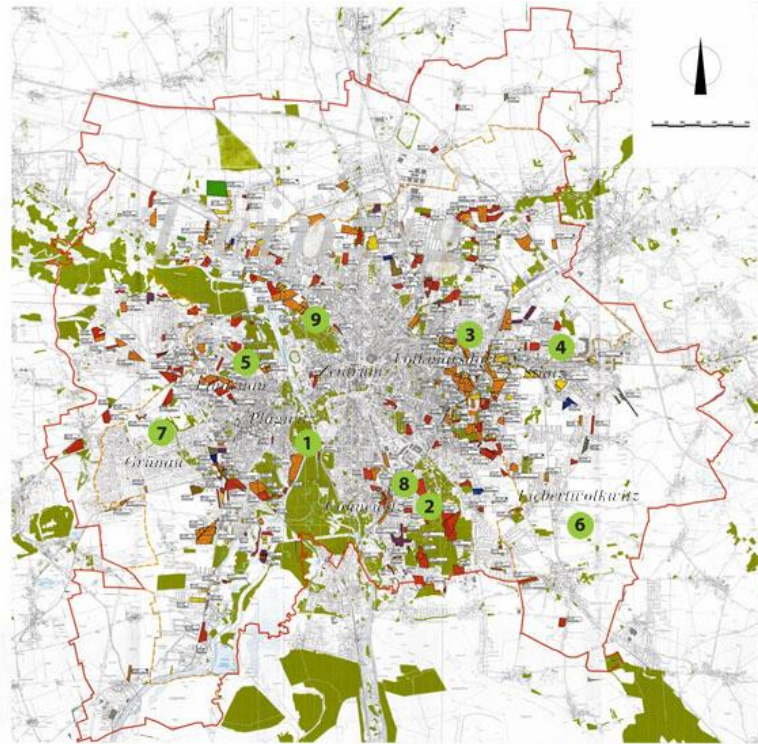


Figure 2. Leipzig urban allotments gardens in 2003 (Stadt Leipzig, 2003). Most UA are city owned (red color), private (yellow color) or belong to parishes (blue color). Mixed ownerships are rare (crossed areas) Source: adapted from Stadt Leipzig Grünflächenamt (2003). The green numbers represent the location of the community gardens or Gemeinschaftsgärten: 1-Annalinde, 2-Stadtgärten Connewitz, 3-Queerbeet, 4-Solidarische Feldwirtschaft, 5-Nachbarschaftsgärten Lindenau, 6-Ernte mich, 7-Kolonnadengärten, 8-VAGaBUND

Two associations are responsible for the urban allotments. The allotment gardens within the old borders of the city of Leipzig are supervised by the 'City Federation of *Kleingärten* Leipzig' /Stadtverband Leipzig der Kleingärtner e.V. (SLK) and includes 208 KGV. The 'District Federation of *Kleingärten*' /Kreisverband Leipzig der Kleingärtner WestSachsen e.V., is responsible for the 70 gardens within the incorporated municipalities. Both SLK (since 1990) and KLV are also part of the National Association for Saxony *Kleingärten* / Landesverband Sachsen der Kleingärtner e.V. (LSK). In the city of Leipzig and according to figure 2, most KGV are city owned, some are privately owned, and very few still belong to the local parish. The KGV are mostly used for recreation, but some used to be food bank suppliers. The *Kleingärten* lot size (KG) is no bigger than 400m² (Gröning, 2005). The yearly rent is low (0.12 €/m²) since it is considered agricultural land.

In 2014 the city of Leipzig has celebrated 150 years over the first allotment gardens. But nationwide KG are now facing a 5% vacancy rate (Gerth *et al*, 2013; Buhtz *et al*, 2008), especially among eastern federal states (without Berlin). Additionally, KG gardeners are ageing, with an average age of 60 and higher. In order to invert this situation, the city of Leipzig (Haberkern, 2014), acknowledged that a new policy is needed in order to attract younger gardeners as well as connecting KG to existing and new green areas with recreational use. One way to accomplish this aim is by making KG codes more flexible. The KG codes are strict and define the plot minimum cultivated area by specifically allocating 1/3 of the space to food, 1/3 to flowers and 1/3 to infra-structures (SLK, 2013) (table 3). The code recommends composting, since some fertilizers are forbidden and herbicides use is limited. Although KG are now mainly used for recreational reasons, most of its produce is meant for family extra food. In 2007, 10% of gardeners donated goods for food banks (Leipziger Tafel e.V., 2011).



Figure 3, 4. The Deutsches Kleingärtnermuseum is located in a Schrebergarten on Aachener Straße 7 (left). The site plan (right) shows the playground area in the middle of the Schrebergärten.



Figure 5, 6. The streets conduce to several lots. Sculptures animate the long streets.

Table 2. The characteristics of Kleingärten and Gemeinschaftsgärten

Leipzig		
	KGV	CG
Area (ha)	837	6,08
number of units	278 KGV (Ab in den Urlaub,2013)	8 (Garten Leipzig,2014)
Lot age	Varies from years 1800, 1900 and 2000	Since 1993
Lot use	Recreational, 10% food banks suppliers	recreational
Lot Size (m ²)	300-400	Local communities
management	<u>national</u> : BDG; <u>Locally</u> : 2 entities (see text)	NGO`s, Legal associations, neighborhood groups
yearly cost (€/m ²)	0.12 + maintenance	interim occupancy/leasing

THE COMMUNITY GARDENS (CG) / GEMEINSCHAFTSGÄRTEN

In addition to the formal allotments, the shrinking city has created urban brownfields and spontaneous greenery that in part are used as community gardens (c.f. Muschak et al. 2009, Lorange & Haase 2011). In the last years, the Leipzig community gardens have prospered and today there are already 8 community gardens or *Gemeinschaftsgärten*, within the city boundaries (table 2) using little over 6 ha. The oldest initiative is called *Stadtgärten Connewitz* ¹, dates from 1993 and is run by a local NGO, Ökolöwe (*Umweltbund Leipzig*). One of the most recent initiative is called *VAGaBUND* ², dates from 2013 and has been initiated by the german NGO called BUND (*Bund für Umwelt und Naturschutz Deutschland*). These gardens are used mainly for recreation and pedagogic purposes. Most of them

¹ oekoloewe.de

² bund-leipzig.de/themen_und_projekte/urban_gardening/vagabund/

have become meeting points for students, artists and immigrants, such as the *Annalinde* garden³ (since 2011) and *Nachbarschaftsgärten Lindenau*⁴ (since 2003). In community gardens there are usually less rules, nevertheless organic gardening procedures are standard (table 3). In the cases where a legal association exists such as in *Annalinde* pedagogic programs are provided and financed by EU projects or programs like Agenda 21. Usually the right to use these areas as gardens is time limited, because the municipality/private owner may later reclaim the lot. Therefore gardeners pay only a symbolic rent to the city or to the private landowner. The produce in CG includes mainly vegetables and it is used for self-consumption and seldom for sales. Few CG breed small animals such as chickens, rabbits and beehives. The biodiversity is usually high and gardeners are acquainted with the concept of ecosystem services.



Figure 7, 8. Representation of Annalinde Offner Gärten and entrance wall painting at Zschochersche Str. 12

Table 3. Urban gardening management and techniques

Leipzig		
	Kleingärten	Gemeinschaftsgärten
Gardeners selection	na	proximity
Gardeners age	Ageing	young
Financing of gardening	no financial aid, <i>Tafel</i> organization (formerly)	city provides water, european institutions support
Area/function ratio	1/3 food, 1/3 flowers 1/3 other	Varies
Gardening practices	<u>Permission for:</u> 1 story shelter up to 24 m ² , greenhouses up to 12 m ² , lakes, pools up to 3.6 m wide, aviaries, beehives. <u>Forbidden:</u> Tall trees, livestock <u>Recommended:</u> Composting, limited herbicides are recommended (some fertilizers are forbidden), no disturbance during nesting season (trimming)	Raised beds on contaminated areas No fences in between plots Livestock, insect hotels and beehives are allowed; Organic and permaculture techniques, greenhouses
Handling of gardening products	Self-consumption 10% donations to food banks (<i>Tafel</i>)	Local sale, local consumption

Note: KGV-Kleingärten, CG-Community Gardens, na-non applicable

FINDINGS

Some reports have assessed the Kleingarten in Germany (2008, 2013) and in particularly Leipzig (2005). The Dresden University study commissioned by the city of Leipzig, assessed a large amount of KGV in Leipzig (278). This study meant to assess the demographics and social changes which influenced the allotment gardening and define potential development strategies for the future. The study also includes some data from 1994-96 on soil contamination. At that time, about a quarter of the gardens were contaminated by either arsenic, aromatic hydrocarbons or lead, due mostly to the use of underground water for irrigation (Stadt Leipzig Grünflächenamt, 2005). In order to fight this problem, the city has decided to provide net water supply to all KGV in the coming years.

³ annalinde-leipzig.de/


⁴ nachbarschaftsgaerten.de/

In our study four allotment gardens 4 were selected due to their proximity to nearby community gardens. The sample contains allotment gardens located both in public land and private land. Interviews were performed in 3 allotment gardens and in 4 community gardens. The interviewees were either the community garden official representatives or the allotment garden chairmen. The questionnaires addressed topics like:

- 1- The garden features: size, age, infrastructures.
- 2- The type of management: administrative organization, use, costs.
- 3- The gardener social background: age, occupation, education.
- 4- The gardening processes: selection of species, irrigation, fertilizing, and pest control.
- 5- Produce: yield and handling of produce.
- 6- Environmental knowledge on biodiversity and ecosystem services.

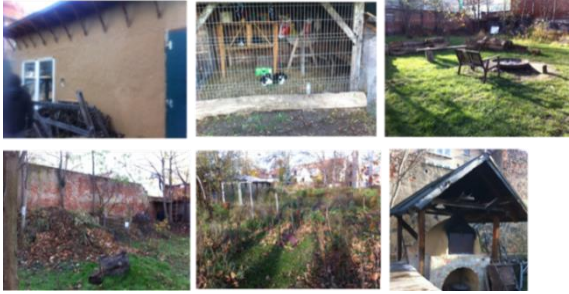
Table 4. Brief description of the sampled allotment gardens and community gardens based on field survey and interviews.

Community garden 1
Annalinde offener gärten



Annalinde offener Garten was open in 2011. The garden lot is next to a public library and it is located on municipal land, which was once used for waste dumping in former GDR times. The garden encompasses 1500m² and consists mainly of raised soil beds and other portable containers for mobility reasons. Some chickens are bred on site and some beehives are also available. The garden produces vegetables, spices, flowers, wild berries bushes, and a few trees. The gardening method is organic due to costs reduction. Most of the production is for local sale. The *Annalinde* gardeners (15) are formally associated and have a 3 years lease contract with the city. The garden is equipped with potable water, electricity, compost toilets, and heating for the greenhouse. There is also access to the adjacent library toilets, and a kiosk is improvised for events. There is partial funding from the European Union and Agenda 21. The garden provides consulting on how to create a community garden under a European Union funded project on Education for Sustainable Development called *Jugend in Aktion* (2012/13) with a focus on sustainable handling of food. Most visitors are from Leipzig. The group interacts with other initiatives like the *Prinzessinnengärten* in Berlin, and *Aprikosengärten* in Dresden. *Annalinde gärten* doesn't contribute to local food banks.


Community garden 2
Nachbarschaftsgärten Lindenau



Founded in 2003, the **Nachbarschaftsgärten Lindenau** is located in private land within a residential area, It encompasses 6000m² and hosts 100 gardeners. In *Lindenau* the lots are divided between the neighbors that pay a symbolic fee for water and rent (40 euros). Some structures are private like the greenhouses. The garden is equipped with water, rainwater storage, electricity and gas for the common kitchen. Gardeners share the composting heap, the animals' shelter, the straw bale house, the warehouse, and the adobe stove. There is also a bike repairing shop. Some social events take place at *Lindenau*. Composting and organic techniques are standard.

Some of the *Nachbarschaftsgärten Lindenau* infrastructures: the straw bale house for gathering and cooking meals in wintertime, the rabbits 'shelter, the barbecue area, the composting area, a private greenhouse and the communal adobe stove.

Community garden 3
VAGaBUND



VAGaBUND started in 2013. The initiative is not legally associated but is funded by a NGO called BUND. The garden has 9 active members. The lot is located in a suburban residential neighborhood. The land is private and there is a no-fee agreement with the landlord for a temporary use which requires a pond to be built. The plot contains several raised soil beds and portable containers, due to existing ground contamination (lead and cadmium). There are no fruit trees since the garden is very recent. The produce is mostly for home and local consumption, very few for donation to friends. Most of the garden is occupied by existing vegetation such as bushes and the infrastructures. The garden is equipped with water from the neighborhood and a compost toilet. There is no power supply, sewage or heating system. Composting and organic techniques are used. Some events take place for visitors, training sessions and school groups. Neighbors appreciate the initiative. *VAGaBUND* doesn't donate produce to local food banks.

Community garden 4
Ernte mich



Founded in Spring 2014, *Ernte mich* is the most recent community garden in Leipzig. It is located in a farming area and encompasses 3, 5 ha. It contains 75 plots and a large greenhouse. The project has started with crowd funding. Organic seeds, culture rotation, composting and no pesticides are some of the techniques. Instead the gardener provides bird houses and fruit trees to attract birds for pest control. Over 25 (up to 40) species are/will be cultivated, although most of the garden is used as meadow. The garden has no electricity, water, or heating. It is equipped with a compost toilet, rain water storage, and also a biological wastewater treatment plant. The owner is an engineering student at Dresden who decided to introduce a new concept of self-harvesting where the buyer pays according to the performed tasks. A future goal includes selling the vegetables online.

Allotment garden A
Westendgarten KGV



The *Westendgarten KGV* was founded in 1912 and encompasses 2,5ha. It is located in municipal land, close to railway roads and a bus station. It has 154 plots with 130m² each, and four of them are empty or not used. The *kleingärten club* is equipped with a restaurant. The plots are equipped with public water and electricity connections but no sewage connection. Vegetables, spices and flowers are the main plantations. The 154 gardeners are organized in a club and use conventional techniques but also composting. The production is mostly for self-consumption. There is one festival that takes place yearly. The *kleingärten club* doesn't provide produce for the Leipzig food bank.

Allotment garden B
Reichsbahn KGV



The *Reichsbahn KGV* was founded in 1908 and encompasses 3,1 ha. It is located in public land (*Deutsch Bahn*) where soil contamination is monitored. The garden is also close to a gas station, a nursery and a cemetery. It contains 109 plots with around 300m² each. The KG plots are equipped with electrical power, public water connection, rainwater storage, and in the visited plot there is also a 3 chamber septic tank. Conventional gardening methods like grain auger, are used for pest control, as well as composting. Most produce is meant for family consumption and donations to friends and others.

Allotment garden C
Naturefreunde KGV



Open since 1932, the *Naturefreunde KGV* encompasses 6 ha of municipal land and it is located in the outskirts of Leipzig, close to a farming area. It contains 120 plots and the average plot size has 400 m². The allotment garden has one big lake and a canal that crosses thru the garden. Most gardeners live in the town nearby (*Liebertwolkwitz*) and drive 12km to the KG. Leisure for adults and kids is rated the most important activity. Soil beds are the majority but raised soil beds also occur for vegetables growing. The chairman checks the PH of the Soil on his own garden. Compost is used for fertilization as well as liquid fertilizer. Flowers are dominant in the garden as well as tall trees. Half the production if for self-consumption and the other half is for donation to others. The plots are usually equipped with power

connection and compost toilet. There is no sewage connection. 90% of water is from rain and only 10% of drinking water is used.

DISCUSSION

Community gardens and allotment gardens represent two different gardening models in Leipzig. Their common recreational service aims different goals: in CG the goal is mostly educational and in AG it is mostly occupational. This is probably caused by age differences among the gardeners. Community gardens are used by younger generations as a social gathering space. In most of these spaces public environmental education is also provided. Allotment gardens, on the other hand, are used mostly by retired people for occupational use and family gathering. Although *kleingärtner* are locally associated and there is a network among the club, events are not as common as in community gardens.

The techniques used in the *Kleingärten* and *Gemeinschaftsgärten* are also different and reflect the age and education of the gardeners. Among *Kleingärtner* there is a trend to use conventional gardening techniques including pesticides. Nevertheless most use composting and some try to use organic seeds. Soil bed is the most common technique but raised soil beds with containers are very popular in community gardens due to soil contamination. This technique can also occur in few KGV for ergonomic



reasons and to prevent animals to eat the crops (in some cases raised beds also provide better solar exposure). Irrigation is usually done thru rainwater in both gardens. Permaculture is used only in community gardens.


The infrastructures among the two garden types also differ, although both usually have potable water and have no connection to sewage. Compost toilets are common in both gardens. In the two gardens eating areas are provided. While most *Kleingärten* usually have a public restaurant and each plot usually has an equipped kitchen, in the case of the community gardens, it is common to see shared facilities like kiosks, a common kitchen and even outdoor adobe stoves.

Terms like biodiversity and ecosystem services among *kleingärtner* were rarely acknowledged by the gardeners, during the interviews. Nevertheless important information is provided thru a manual edited and distributed in 2000 by the Saxony Federal Association of Kleingarten (Landesverband Sachsen der Kleingärtner e.V.) entitled “*Handbuch für den Gartenfachberater im Sächsischen Kleingärtnerverein: Kleingärten grün für Alle*„. The importance of biodiversity is acknowledged not only in the manual but it is also rewarded in competitions such as the “The most natural garden 2014” (*Naturnahen Kleingarten*) which was organized by the city of Leipzig. The assessment criteria included topics like: ratio sealed/unsealed surface; relationship lawn, soil bed area/flower area; structural diversity; composter construction type; rainwater harvesting; ratio of native/non-native species; ratio lawn/meadow species richness; and the diversity of crops. Among 16 contestants, three plots in 3 different KG were awarded 150 euros: KGV *Elsterbogen* e. V. (plot 18); KGV *Gartenfreudne Südost* e.V. (plot 216); KGV *Waldidyl* e.V. (plot 61) (Stadt Leipzig, 2014).

Although this kind of competition is incenting gardeners to manage their gardens in a biodiversity oriented way, still the sampled gardens show that edible species cultivated in KGA are very much similar in the same club, and that among the non-edible species, there are several exotic species and invasive species, which are forbidden by the State Association for Saxony *Kleingärten* code (LSK, 2009) (tab. 5). The local codes (SLK, 2013 & KKK, 2004) also recommend not to grow some species due to their size, soil acidification impact and flammability.

Table 5. Exotic and invasive species not recommended by the SLK code 2009

Exotic Species	origin	illustrations
Giant Hogweed / hogweed	Caucasus	
Japanese knotweed (<i>Fallopia japonica</i>)	China, Korea, Japan	
Sachalin- knotweed Sakhalin (<i>Fallopia sachalinensis</i>)	Kuril	
Himalayan Balsam (<i>Impatiens glandulifera</i>)	Himalayan	
Canadian and giant goldenrod (<i>Solidago canadensis</i> <i>Solidago</i> and <i>gigantea</i>)	North America	
Jerusalem artichoke (<i>Helianthus tuberosus</i>)	North America	
Ragweed (<i>Ambrosia artemisiifolia</i>)	North America	
Potato Rose (<i>Rosa rugosa</i>)	East Asia	
French herb / Hoary galinsoga (<i>Galinsoga parviflora</i>)	South America	

Hornfrüchtiger sorrel (<i>Oxalis corniculata</i>)	Mediterranean countries	
Essigbaum (<i>Rhus typhania</i>)	North America	
Potentially invasive neophytes	origin	
Trailing mahonia	North America / Canada	
China Reed	Southeast Asia	
Ranunculus Bush	Central and Western China	

Among community gardens there is a general acknowledgement about the important role played by biodiversity in a garden. It is also common to find biologists running these gardens and therefore promoting bio diverse crops and native species, including several herbs. Small animals (like rabbits and chickens) are also common in CG and are not allowed in KGV. Although insect hotels are common in KGV and CG, beehives only exist in CG. Flowers are present in both gardens for both aesthetics and as pollinating facilitators.

The produce is not donated in both KG and CG. It is usually consumed on site with the family relatives or friends. Donation to food banks is not available in the CG and in the KGV it is no longer available due to the fact that the city doesn't sponsor the *Tafelgärten in Kleingartenvereinen (2007-2011)* program anymore.

THE LISBON CASE STUDY

HISTORICAL BACKGROUND

In the past, Lisbon's private urban gardens used patios for subsistence complement (Cancela, 2010). Between 1970 and 1987 several non-regulated allotment gardens grew using up to 300ha, due mainly to emigration flow from Portuguese ex-colonies and from rural exodus. Until 1995 this area has been reduced to 100ha and stabilized (Cabannes & Raposo, 2013). More recently, in 2013 the city acknowledged this area to be now 82ha comprising private and municipal land.

THE CITY OF LISBON

Lisbon population has decreased since 1980, losing almost 300,000 inhabitants to its suburbs (INE, 2009). Eighteen percent of the city is covered by trees (the Monsanto Park is the major forest). Lisbon municipality started to implement its new Green Plan developed by Telles in 1998 and approved in 2010. The plan aims to connect most green spaces with ecological corridors and to mitigate the impact of the channeling of the waterlines in pervious areas by creating water basins in strategic waterlines (Telles, 1998; Telles, 2010). Presently the city provides 27m² of green area per inhabitant.



Figure 9. Aerial photo of the city of Lisbon showing the Tagus river estuary, the Monsanto Park (in dark green) and the city center (point A). Source: adapted from Google maps

Table 6. Lisbon social, economic and environmental indicators

	Lisbon
Population	547,631
(inh.)	(2011)
Area (Km ²)	84
Population density	6,458
(inh / Km ²)	
GDP	23,000
(per capita)	(2012)
Unemployment rate	10
(%)	(2010)
Latitude	38° 43' 0" N
Climate	Mediterranean
Altitude (m)	77
Rainfall (mm/year)	753
Mean temperature (°C)	16.8
Area green spaces (m ² per capita)	27.8

Area of urban gardens (ha)	82 (2013)
Area of urban gardening per capita (m ²)	1.5

In 2008 the city got hit by the 2008 economic crisis and the municipality has started implementing some gardening policies in its Municipal Plan, creating allotment parks (municipal regulated horticultural parks) since 2011, which have become very popular (Mata, 2014). These areas now account for only 1.5m² of urban gardening area per inhabitant. Community gardens initiatives, on the other hand, are still scarce and very recent, the oldest one dating back to 2011 (figure 9, dot A).

ALLOTMENT GARDENS / HORTICULTURAL PARKS

Nowadays, the total area of urban horticulture (both private and public) is 82ha, but with almost 12ha of organized municipal parcels being located on ten Municipal Urban Allotments Parks (Mata, 2014). The Urban Allotments Parks Program (2011-2017) intends to implement more than 20 urban allotment parks until 2017 (fig.10).



Figure 10. Lisbon urban allotments gardens (2013-2017). Existing AG are shown in dark grey and listed. Light grey represents green spaces. (Source: adapted from CML-Lisbon Municipality, 2013)

Table 7. Lisbon AP and CG characteristics

	Lisbon	
	AP ⁵	Other
Area (ha)	84	<0.1
Number of units	10 parks in 2014; 20 parks until 2017	3
Lot age	since 2007	Since 2011 ⁶
use	Social (food production), recreational, Pedagogic	Recreational ¹⁵
Lot size	100(social); 50(recreational and pedagogic) ⁷	nA
Ownership	Lisbon municipality	Private or illegal occupation ¹⁵
Annual Cost (euros/m ²)	1.60 plus maintenance ¹⁹	nA

⁵ Mata, 2014

⁶ Horta biológica do CNN, 2011; Horta do Monte, 2010

⁷ CML, 2013

The main goal is to create mixed uses areas connecting allotment gardens to conventional parks and gardens. These new allotment parks (HP) are owned by the city and supervised by the municipality (table 7). Their size depends on their role: the social allotment units can be as big as 100m² if meant for subsistence, or only 50 m² if meant for recreational or pedagogic uses. Their annual rent is € 1.60/m² plus maintenance. *Vale of Chelas* is the biggest allotment park in Lisbon (and probably the largest cultivated allotment park in Portugal) covering about 15ha, among which there are 6.5ha of allotment plots (fig. 11). In 2010, 400 plots with an average area of 150m² were provided to families in *Chelas* that were already cultivating, without any regulatory framework (Cabannes & Raposo, 2013). A neighborhood association called AVAAL (AVAAL, 2014), will be opening in July 2014, the PAAL (Alta de Lisboa Allotment Park) which consists of the first associated allotment project in Lisbon (Cancela, 2014) and will comprise an area of 2ha (see table 8-A). Another allotment park is Quinta da Granja created in 2009, next to an old farming property in central Lisbon (see table 8-B) In Portugal and since 2010, there is a national association for urban agriculture which is called the Portuguese Urban Agriculture Network, and serves as a national forum (PORTAU, 2013).



Figure 11. Chelas Allotment Park

COMMUNITY GARDENS/ HORTAS COMUNITÁRIAS

Simultaneously and according to Cabannes & Raposo (2013), environmental groups inspired by the Transition Towns Movement, are recently occupying space for urban gardening, considering them spaces of resistance. This is the case for instance of *Horta do Monte* (from 2010 to 2013 – recently it was turned into an allotment park) located in *Graça* Neighborhood, or even *Horta Biológica do CNN*, created in 2012 (see table 8-1) owned by a public swimming club CNN (National Swimming Club) (*Horta Biológica do CNN*, 2014). As part of the Transition Portugal movement⁸, the University of Lisbon communitarian garden called *Horta da FCUL*⁹ was created in 2009 by the College of Science students. Another temporary contribution came in the summer of 2014 from an artistic event called (*Uma horta em cada esquina*¹⁰) which involved the creation of temporary gardens in a roof and in a lake, and both a vertical and permaculture installation (fig. 12). More information is available on appendix 2.

⁸ <http://permaculturaportugal.ning.com/>

⁹ <http://www.tu-fcul.net/actividades/hortafcul/flor>

¹⁰ <https://sites.google.com/site/umahortaemcadaesquina>



Figure 12. Temporary gardens in the CGD headquarters (lake and roof installations) and in a void area (Horta Mandala)

In Lisbon, the municipal allotment parks tend to be rented to local residents with low incomes. The city provides 100m² lots with a composter, a common shelter, water and a fence or green barrier included.

The code recommends organic procedures (after technical training from a city official) such as composting, which means no chemical pesticides or herbicides, no Genetic Modified Organisms (GMO) and no use of infesting species. It is also forbidden to keep livestock, use electrical machinery, rainwater collection or shelters (table 8).


The city allows social farms produce to be used for family consumption or to be sold to bio cooperatives. In recreational/pedagogical gardens the produce should be used exclusively for local consumption (CML, 2013).

Table 8. Gardening management and practice in Lisbon

Lisbon		
	HP ¹¹	Others ¹²
Financing of gardening	City provides: Composter, shelter, water, fence or green barrier	Local sale revenue
Area/function ratio (m²)	50-150	nA
Gardening practices	Forbidden: livestock, electrical machinery, rainwater collection, shelters Recommended: Bio production after technical training (no chemical pesticides or herbicides; no GMO, no infesting species, composting is mandatory)	Recommended: permaculture
Handling of gardening products	Social: mainly for subsistence but selling is allowed to bio-cooperatives; Recreational/pedagogic: only for subsistence	Local sale, local consumption

Note: HP-Allotment Park, GMO-Genetic Modified Organisms, nA- non applicable

Table 9. Brief description of Lisbon sampled allotment gardens and community gardens

Community garden 1 Horta Biológica do CNN		<p>Horta Biológica do CNN started in 2011. The garden is located in a private lot inside the Swimming National Club. The garden encompasses 1200 m2. Divided in two levels. The lowest level is gardened since 2012 and encompasses 300m2.</p> <p>The garden produces vegetables, spices, and a few trees. The garden contains 9 permaculture plots and 3 raised organic plots. Ten chickens are bred on a chicken-tractor technique. Composting is part of the gardening. Most of the production is for local sale.</p> <p>The garden is taken care by 12 people and there is a protocol with the CNN. The garden is equipped with potable water and uses groundwater irrigation. The garden still has an area with spontaneous vegetation. The garden was used for construction waste dumping in 2005 The soil is acid but has been treated with lime annually. The gardeners use the CNN restrooms.</p> <p>Most visitors are from Lisbon. The group interacts with other initiatives like the <i>Horta do Mundo</i>. The garden doesn't contribute to food banks because yield is not sufficient yet.</p>

¹¹ CML, 2013

¹² Cramér, 2014, Clematis, 2013

Allotment garden A
PAAL



priced sold houses. The code recommends the use of organic techniques. The production will be mostly for self-consumption.

Allotment garden B
Quinta da Granja



The **PAAL** horticultural park has 3 phases: a 400m² garden for disabled people inaugurated in 2013, a 1.7ha allotment garden with 70 plots expected to open in 2014 and a 2ha grove and pasture to be open later. It is located in municipal land, close to a speedway and integrated in a suburban neighborhood. The garden for disabled people is equipped with raised beds for accessibility reasons. The future allotment park will have 70 plots with 50 to 100m² each. The plots will be equipped with ground water supply and rainwater deposits. The paths are illuminated with photovoltaic panels. The 100 gardeners are organized in a large association (AVAAL has 300 members) 50% of the gardeners come from nearby social houses, and 50% more come from mid-

Quinta da Granja horticultural park was the first allotment park in Lisbon dating back to 2011 and encompasses 2ha. There are 56 plots with 150m² integrated in a urban park built in 2009 and equipped with a playground and a kiosk. The plots include public water supply, shelters, and composters. 5 of the plots were already installed there before the park and sdon't have accsss to the public net water.

FINDINGS

Literature review on Lisbon urban gardens is restricted to some academic works namely PhD and master thesis (Cancela, 2014, Tedesco 2013), focusing mostly on case studies like PAAAL and on chemical contamination in some allotments and illegal spontaneous gardens. Nevertheless and because the municipal initiatives are growing quite rapidly, a portal is being underway for promoting urban gardening in Portugal (PORTAU).

The assessed gardens in this study were fewer that in Leipzig. Interviews were performed in 1 community garden (Horta Biologica do CNN) and 2 allotment gardens (PAAL and Granja). The interviewees were the AG and the CG official representatives. The questionnaires addressed topics like:

- 1- The garden features: size, age, infrastructures.
- 2- The type of management: administrative organization, use, costs.
- 3- The gardener social background: age, occupation, education.
- 4- The gardening processes: selection of species, irrigation, fertilizing, and pest control.
- 5- Produce: yield and handling of produce.
- 6- Environmental education background on biodiversity and ecosystem services.

DISCUSSION

Community gardens and allotment gardens represent two different gardening models in Lisbon. Their common recreational service aims different goals: in CG the goal is mostly recreational/educational and in AG it is mostly subsistence. The CG initiatives which started in municipal land didn't thrive but the ones within private land (CNN, CGD or FCUL) have thrived. The Community gardens are used by younger generations as a social gathering space where some environmental education is also provided. Allotment gardens, on the other hand, are used mostly by retired people for occupational use and subsistence complement. Horticultural parks have not associated members among gardeners since it is the city who brought together these citizens. Nevertheless there is one HP which was been developed by an association (PAAL). In the existing HP there are no events, unlike the community gardens.

The techniques used in the HP and CG are also different. Among HP gardeners there is a municipal rule that obliges them to use biological gardening techniques after getting a training session by the city. Nevertheless most don't use organic seeds. Soil bed is the most common technique in both gardens. Irrigation is usually done thru public net water in both gardens. Permaculture is used only in community gardens.

The infrastructures among the two garden types also differ, although both usually have potable water and have no connection to sewage. Both gardens don't provide eating places. In the HP there are usually public kiosks nearby. In the CG there are no kitchens available.

The knowledge about biodiversity and ecosystem services among HP gardeners is scarce. The amount of species per area in these small plots is small and include mostly vegetables. Among community gardens terms like biodiversity are well known and several herbs, bushes, flowers and trees can be found. Small animals (like chickens) are common in CG and are not allowed in HP. Insect hotels don't exist in both HP and CG.

The produce is not donated in most cases. It is usually consumed in the CG with collaborators and volunteers.

COMPARATIVE STUDY CONCLUSIONS

The study shows that community gardens initiatives in Leipzig and Lisbon have several differences (like area size and use type) but also several similarities (like the techniques used by the gardeners and also their profile).

Allotment gardens in Leipzig have a long tradition and encompass over 800 ha, while in Lisbon only account for 84ha. Per capita the difference is also very wide, since urban gardeners in Leipzig use 16m² and in Lisbon only 1.5m². In fact Leipzig has not only many more allotment gardens, 278 compared with 10 in Lisbon, but also many more community gardens. In the Portuguese capital there are only 2 community gardens (since 2011), which account for 800m², and in Leipzig there are already 9 (since 1993) which account for 6ha. The reason for this difference is due to the city policy of Leipzig to promote these initiatives in empty lots, in order to mitigate urban shrinkage, while Lisbon has not taken any position on this issue so far, but tends to regulate the few existing and successful (although illegal) gardens like (Chelas and Horta do Monte).

Regarding their distribution, community gardens are scattered in the city of Lisbon in high density areas, (with the exception of Chelas and Olivais) while in Leipzig the location is mostly within low density neighborhoods.

Another conclusion is that allotment gardeners and community gardeners, in both cities, have usually no significant interaction. Nevertheless community gardens tend to provide knowledge and training opportunities, in both cities, that sometimes include conventional gardeners, like is the case of Leipzig local NGO (Ökolöwe) and the *Horta do Mundo*, in Lisbon.

As said before, while KGV are ageing and the city of Leipzig is addressing this issue by integrating KGV in urban parks, in the case of Lisbon the new HP are usually grown on existing green spaces or adjacent to existing green spaces, which provide recreational spaces activities. In some cases the city of Lisbon profits from allotment gardeners who keep the former green spaces cultivated and well maintained.

The techniques used by AG and CG gardeners in Lisbon are similar to their counter partners in Leipzig. In Lisbon community gardeners use exclusively permaculture techniques, while horticultural gardeners use mostly organic techniques, such as composting and no herbicides (according to the municipal code).

In the case of Leipzig and in order to maximize occupancy in KGV, it may be important for clubs to implement more flexible rules in order to attract younger generations. In Lisbon it is important that the city supports other community associations to manage HP, like in the case of the PAAL or the *Horta de Telheiras*. It is also critical that the City of Lisbon starts providing info on soil contamination before handling the HP plots to its tenants.

Although the contribution of allotment gardens and community gardens for ecosystem services is already acknowledged (in many European countries), its botanical biodiversity contribution requires more research. The use of native species/ or wild species was not mentioned as a priority by any allotment gardener, but community gardens showed some awareness. In Leipzig the role of biodiversity is visible in both the regulations (which includes a list of botanical invasive and exotic species) and the tradition of providing shelters for pollinators (insect hotels are common in KGV and CG). As for Lisbon, the HP code doesn't recommend botanical native species, neither forbids exotic or invasive species. In both cities, community garden initiatives recognize the importance of using botanical native species when cultivating flowers to facilitate pollination.

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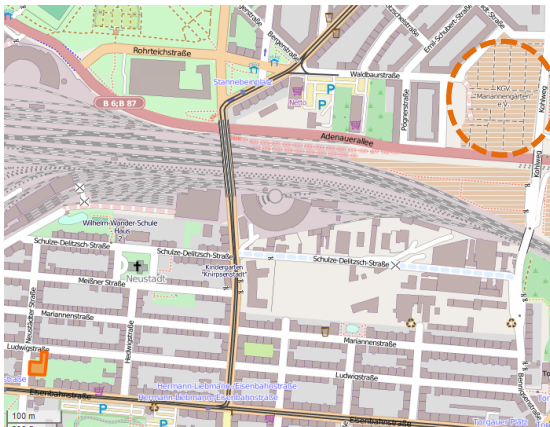


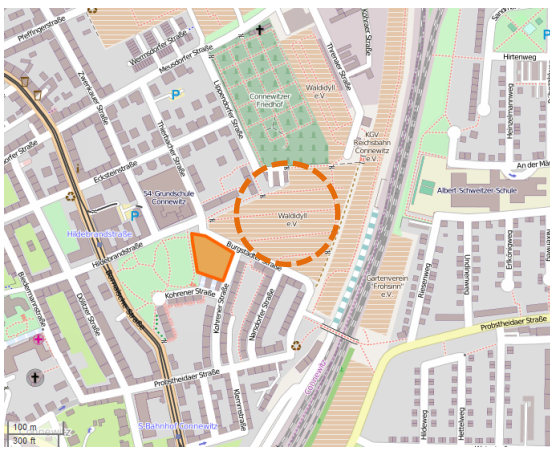


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APPENDICES

APPENDIX 1-LEIPZIG CASE STUDIES: LOCATION AND BRIEF DESCRIPTION

Table A1-The sampled gardens listed according to their contact person, location and main brief description. The ones surveyed are shown in darker.

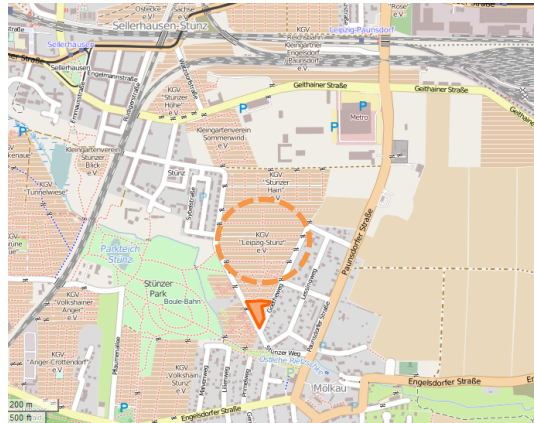
Garden name and contacts	location	description
<p>(1) NACHBARSCHAFTSGÄRTEN LINDENAU</p> <p>Address: Josephstraße 27 04177 Leipzig-Lindenau GPS: 51.333785, 12.334635 Contact: Stefan Schmiedichen schmiedichens@gmail.com www.nachbarschaftsgaerten.de</p>	 <p>Nachbarschaftsgärten (A) Annalinde (B)</p>	  <p>Lindenau: Since 2003; 7248m², located in an urban residential neighborhood; private land; includes a bike repair shop and straw bale building.</p> <p>Annalinde: Since 2011; 1200m², commercial neighborhood; municipal land, raised soil beds; see appendice for biodiversity</p>
<p>(2) ANNALINDE</p> <p>Address: Zschochersche Str. 12 04229 Leipzig, Plagwitz GPS: 51.333601, 12.338510 Contact: Philipp Scharf http://annalinde-leipzig.de info@annalinde-leipzig.de</p> <p>A) WESTENDGÄRTEN e.V.</p> <p>Address: Demmeringstraße 102 Leipzig-Neu-Lindenau 04179 GPS: 51.334989, 12.320107 Contact: Norbert Bornmann Telefon: (03 41) 4 80 75 10/ 0174 – 78 18 168 kgvwestendgaerten@freenet.de</p>	 <p>Nachbarschaftsgärten, Annalinde and Westendgärten e.V. (C)</p>	 <p>Since 1912, 2,74ha, 154 plots, Municipal land, close to railway roads and bus station, 1 restaurant</p>
<p>(3) QUERBEET</p> <p>Address: Neustädter Str. 20 04315 Leipzig, Volksmarsdorf GPS: 51.346177, 12.400626 Contact: Falko info@querbeet-leipzig.de www.querbeet-leipzig.de</p> <p>(B) MARIANNENGÄRTEN e.V. *</p> <p>Address: Waldbaurstraße, 04347 Leipzig, Germany GPS: 51.3499677, 12.4123014 Contact: Burkhard Thom Telefon: (0341) 20019150 drahkrub1@t-online.de www.mariannengaerten-leipzig.de.tl</p>	 <p>Querbeet (D) and Mariannengärten e.V. (E)</p>	  <p>Since 2012, 929m², Suburban residential neighborhood, fenced lot, raised beds, large greenhouse; see appendice for biodiversity</p> <p>Since 1905, 2,78ha, 141 plots, public and private land, Playground, public water access.</p>
<p>(4) STADTGÄRTEN CONNEWITZ</p> <p>Address: Kohrener/Burgstädter Straße 04277 Leipzig GPS: 51.304539, 12.385365 Contact: Frank Vogel Tel. 0341-3065-114 www.oekoloewe.de/stadtgarten.html</p> <p>(C) WALDIDYLL e.V. *</p> <p>Address: Threnauer Straße 19 Leipzig- Connewitz 04277 GPS: 51.3050555, 12.3848129 Contact: Rainer Karfus kgvwaldidyll@web.de</p>	 <p>Stadtgärten Connewitz (F) and Waldidyll e.V. (G)</p>	  <p>Ökolöwe Leipzig.</p> <p>Since 1993, 4700m², former school garden and Brownfield, Suburban residential neighborhood, permaculture, managed by NGO</p> <p>Since 1897, 9,32 ha, 361 plots, suburban residential neighborhood, municipal land, contaminated soil and groundwater. Plot 61 won a prize for being the most natural KGA in the city.</p>

(S) SOLIDARISCH FELDWIRTSCHAFT

Address: Stünzer Weg
04318 Leipzig Stünz
GPS: 51.334182, 12.438176
contact: Marian Schwarz
kontakt@stadt-gaertner.de
Mobil: 0173 5 784 273
http://stadt-gaertner.de/index.html

(D) LEIPZIG STÜNZ e.V.*

Address: Stüntz- Molkauer weg
043118 Leipzig
GPS: 51.3378704, 12.4358761
contact: Mr. Bernd Schneeweiß
Tel: 0341 6516854
www.kgv-leipzig-stuenz.de
verein@kgv-leipzig-stuenz.de



Solidarisch Feldwirtschaft (H) and Leipzig Stünz e.V. (I)



Since 2010, 7000m² suburban residential area, former Brownfield plot, not fenced lot; see appendix for biodiversity



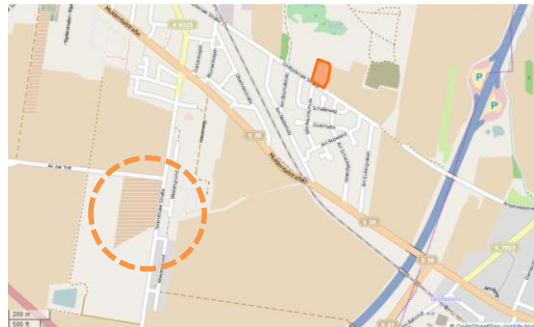
Since 1921, 10,13ha private and public land, soil and groundwater contamination, 1 playground, 1 restaurant, 1 lake, 5 Tafel garden plots

(G) ERNTE MICH LIEBERTWOLKWITZ

Address: Großpösnauer Straße/Alte Baumschule
04288 Leipzig
GPS: 51.276916, 12.479130
Contact: Richard Hagedorn
Tel: 0 177 3273278
Richard.Hagedorn@erntemich.de
www.erntemich.de

(E) NATURFREUNDE e.V.

Liebertwolkwitz/Vorsitzende
Address: Störnthaler Straße 53,
04288 Leipzig
GPS: 51.271612, 12.468124
contact: Herr Fischer
tel: 0341 46 65 41 31/ 0152 53578810
fisdie10@web.de



Ernte mich (J) and Naturefreunde e.V. (K)



Since 2013, 3,5ha, private land, farming area, large greenhouse



Since 1932, former farmland, municipal land, 120 plots, with 400 m² each, 1 lake and a canal.

(7) VAGABUND (VIELE-ARTEN-GARTEN DES BUND)

Address: Wolfgang-Heine-Straße
36, 04277 Leipzig
GPS: 51.306463, 12.373055
Contact: Michael Scholz
finanzen@bund-leipzig.de
Tel: 0341 – 306 5395
www.bund-leipzig.de/themen_und_projekte/urban_gardening/vagabund/

(F) REICHSBAHN CONNEWITZ e.V.

Address: Arno-Nitzsche-Straße 41
Leipzig-Connewitz 04277
GPS: 51.3105801, 12.3917024
Contact: Günter Kabisch
guenter.kabisch@gmx.de



VAGaBUND (L) and Reichsbahn Connewitz e.V. (M)

Since 2013, 1500m², Suburban residential



neighborhood, fenced plot, raised beds, managed by BUND (NGO).

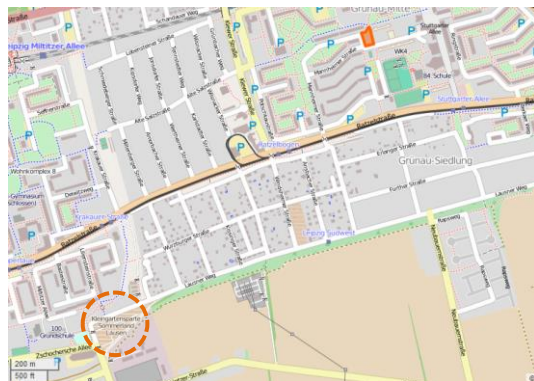
Since 1908, 3,85ha, 109 plots, private and public land, Playground, public water, close to a nursery and a cemetery.

(8) KOLONNADENGÄRTEN GRÜNAU

Address: Alte Salzstraße (in front of Friedrich-Fröbel-Schule)
04209 Leipzig
GPS: 51.326054, 12.325778
Tel.: 0341 – 9 11 23 11
www.kolonnadengarten.de

(G) SOMMERLAND LAUSEN e.V.

Address: Zschochersche Allee 76
GPS: 51.3059785, 12.2743513
Contact Sebastian Petrick
sommerland@lausen.de



Kolonnadengarten (N) and Sommerland lausen e.V. (O)



Since 2008, 3250m², suburban residential neighborhood, Flower garden



Since 1971, 17ha, 36 plots, suburban neighborhood, private and public land, close to farmland.

*Kleingarten where interviews didn't take place due to non availability from the chairmen.

APPENDIX 1.1- LEIPZIG QUESTIONNAIRES (May-June-July 2014)

KLEINGÄRTEN

QUESTIONNAIRE KG A- interview with Mr. Bornamm at the **Westendgärten e.V.**

QUESTIONNAIRE KG B- interview with Mr. Kabisch at the **Reichsbahn e.V.**

QUESTIONNAIRE KG C- Interview with Mr. Fischer at **Naturefreunde e. V.**

GEMEINSCHAFTSGÄRTEN

QUESTIONNAIRE CG 01-interview with Mr. Philipp Scharf at **Annalinde (or Querbeet)**


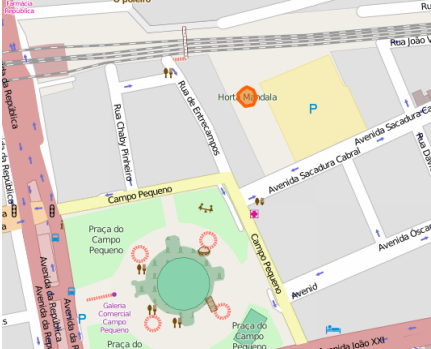

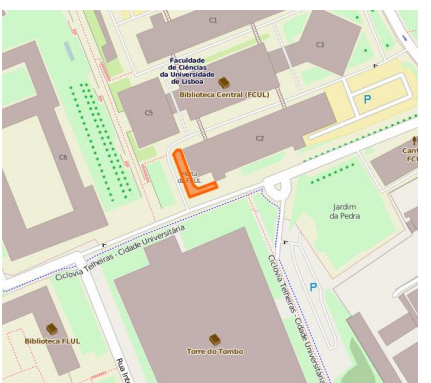
QUESTIONNAIRE CG 02- interview with Mr. Michael Scholz at **VAGaBUND-BUND (or Stadtgarten Connewitz- ÖKOLÖWE)**

QUESTIONNAIRE CG 03- interview to Mr. Richard Hagedorn at **Ernte mich (or Solidarische Feldwirtschaft)**

APPENDIX 2

Appendix 2.1-LISBON CASE STUDIES: LOCATION AND BRIEF DESCRIPTION

Table A8. The sampled gardens listed according to their contact person, location and main brief description. The ones surveyed are shown in darker.

<p>1-HORTA BIOLÓGICA DO CNN Rua de Sao Bento, 1250- Address: 219 Lisbon Contact: Mr. Stefan Cramér https://pt-br.facebook.com/HortaBiologicaDoCNN</p>	<p>Location</p> 	 <p>Since 2012, the plot is located in private land. The garden encompasses 400 m².</p>
<p>2-HORTA BALDIO-MANDALA Address: Rua de Entrecampos 1700-201 Lisbon https://sites.google.com/site/umahortaemcadaesquina/horta-baldio-esaf</p>		 <p>It started in May 2014 as a temporary artistic installation. It encompasses 400m² in a derelict residential lot.</p>
<p>3-HORTA DA FCUL FACULDADE DE CIÊNCIAS DA UNIVERSIDADE DE LISBOA, Address: Faculdade de Ciências da Universidade de Lisboa, C2 Campo Grande, 1749-016 Lisboa Contact: 918362396 (Gil) Email: info@tu-fcul.net http://www.tu-fcul.net/actividades/hortafcul</p>		 <p>Since 2009. Located on a university campus. It encompasses 200m².</p>

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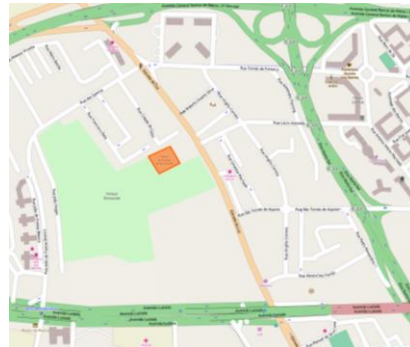
A- PAAL-PARQUE AGRICOLA DA ALTA DE LISBOA
Address: Rua Joao Amaral,1600 Lisbon
Contact: Arq. Jorge Cancela
<http://avaal.org/2014/03/23/parque-agricola-da-alta-de-lisboa/>



residential neighborhood.

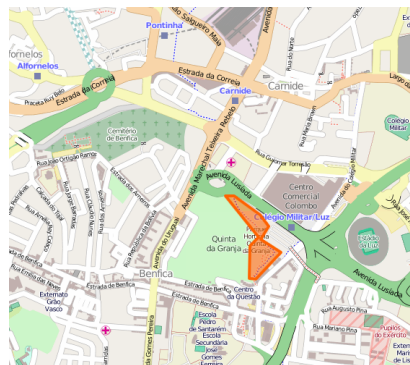
Since 2013, it has a 400m² garden for disabled people; soon will include a 2ha garden with 70 plots (50-100m²); and in future will include 2ha grove and pasture. It is located in municipal land, in a suburban

B- HORTAS DO PARQUE DA BENSÂUDE



Since 2013, Encompasses 1700m² within a 3.5ha urban park. Includes 20 plots (size 80-100m²).

C- PARQUE HORTICOLA QUINTA DA GRANJA
Address: Avenida Lusitana, 1500 Lisbon



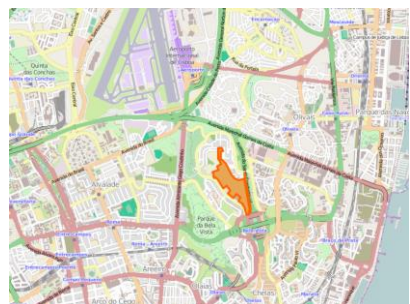
Since 2011. The park encompasses 2ha. There are 56 plots with 150m² each.

D-PARQUE HORTICOLA DE TELHEIRAS
Address: Rua Professor Francisco Gentil 1600 Lisbon



Since 2012. The park encompasses 21 plots (size 80 to 120m²), within Parque Central de Telheiras. It is located in municipal land in a residential area.

E-PARQUE HORTICOLA DO VALE DE CHELAS
Address: Av. Avelino Teixeira da Mota, 1950 Lisbon



Since 2013. The park has 15ha. There are 400 plots with 150m² each. The park is located in municipal land and used to have spontaneous allotment gardens since 1970.

F-JARDINS DE CAMPOLIDE
Address: Rua de Campolide,
1070 Lisbon



Since 2011. The Gardens are integrated in a park of 3.2ha located in a business area. There are 22 plots (size 50- 100m²).

APPENDIX 2.2-LISBON LIST OF INTERVIEWS (performed on July 2014)

QUESTIONNAIRE HP 01- interview with Mr. Cancela (HORTICULTURAL PARKS)

QUESTIONNAIRE CG02- interview with Mr. Cramér (COMMUNITY GARDENS)

APPENDIX 3

APPENDIX 3.1-Questionnaire template

Allotment gardens/ community garden (Leipzig / Lisbon): characteristics

Bachelor Arbeit in Geographie

Victoria Lehmann, Bachelor-Studentin der Geographie, Universität Leipzig (lehmann.victoria@gmx.de)

COST Action TU1201: Urban Allotment gardens in Europe (www.urbanallotments.eu)

Arch. Ines Cabral, Fellow der COST Action und Post-doc-Forscherin am iDiv (minescabral@gmail.com)

Prof. Dr. Ulrike Weiland, Institut für Geographie, Universität Leipzig

1. Interviewers and interviewees

Interviewer	
Interviewees	
Position of the interviewee	O ₁ -Member of the organization O ₂ Gardener O ₃ - Other

2. Which reasons do you have for gardening or which are your goals? (specify in free text!)

.....

3. Have you been inspired by something or someone to establish the garden initiative or to participate?

.....

4. The garden

	All Name:	Nearby 1 Name:	Nearby 2 Name:
Size of the total area of the garden [sqm]?	(1)	(8)	(15)
Average. Size of the individual plots [sqm]?	(2)	(9)	(16)
Age of garden [years]?	(3)	(10)	(17)
Average. Distance to the gardeners residence? [km]	(4)	(11)	(18)
Previous use (s)? Are there still remains (for example, bombing, ruins)? [Free text]	(5)	(12)	(19)
Are these known contaminated sites? If so, what kind? How do you deal with it?	O ₆ yes O ₇ no	O ₁₃ ja O ₁₄ no	O ₂₀ ja O ₂₁ no

5. Assessing the importance of various activities in the garden and their actual duration:

Activities in garden	a)	b)	c) Meet with others		d) gardening		e)	f)
	Leisure, recreation, barbecue etc.	Playing with the kids	Neighbors from KG	Friends and others	Flowers and bushes	Fruit or vegetables	Organization, marketing etc. (secretaria)	Other (please specify)
Average or duration/ weeks during gardening season [h]	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rate 1 - 5, the importance of your activities	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)

1 = very important, 2 = quite important, 3 = important, 4 = not important, 5 = not applicable

6. What kind of bed is used in the plot?

Soil bed

O₁

Portable containers (bags, planters, etc) O₂ if yes, why? _____

Raised bed

O₃ if yes, why? _____

Others

O₄, please name: _____

7. Which plants do you cultivate? (if known, name it)

Vegetables (1)	Spices or herbs (2)	Flowers, ornamental plants (3)	Fruit bushes (4)	Fruit trees (5)

8. Do you know biological processes? If yes, which?

O₁ No

O₂, yes, name it _____

9. Fertilization and Pest control

No

O

Use biological Fertilizer?

O₁

Use conventional Fertilizer?

O₂

Use of biological pest control methods

O₃

Use of conventional pest control

O₄

Unspecified/ No idea

O₅

Which?	Why?

10. If not biologically, how often you use fertilizers and pesticides in?

Fertilizer: O₁ once O₂ twice O₃ three times O₄ more than 3times O₅ no idea

Pesticides: O₁ once O₂ twice O₃ 3 times O₄ more than 3 times O₅ no idea

11. Which Pesticides and Fertilizers do you use?

Fertilizer.....

Pesticide.....

12. Is there soil quality control in your plot? If yes, who does it and how often?

O₁ No O₂ yes, please

specify.....

13 Do you know the "ecosystem services" concept? If so, what does it mean?

O₁ No O₂ yes, specify

14. How do you handle the garden products?

For personal use at home	For common food in the garden	to sale:	Donation	processing:
O ₁%	O ₂%	O ₃% friends O ₄% for Market O ₅%	O ₆% To friends O ₇% others?	O ₈% freeze O ₉ % dry O ₁₀% jelly, jam O ₁₁% others ...?

15. Which area proportions, the various garden uses of the total area of the garden? [%]

	Fruits	vegetables	flowers	Lawn, meadow	Trees	Animals	Infrastructure (everything: arbor, paths, barbecue, etc.)	Other (please specify)total
areas	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

[%]								
-----	--	--	--	--	--	--	--	--

16. Which infrastructure are there in the garden, and how is it developed? (except supply and disposal, see below)

(please designate yes / No or name another)

paths	Garden shed, gazebo	Compost heap	Other infrastructure (please specify)
O ₁ available	O ₃ available	O ₅ available	O ₇

17. What supply and disposal infrastructure has the garden? (please tick or name another)

power supply	heating	Water supply	Sewage disposal	Toilet	Transport link
O ₁ No O ₂ power connector, O ₃ diesel Generator, O ₄ solar system, O ₅ Other:.....	O ₆ No O ₇ for the shelter O ₈ for the greenhouse O ₉ other:.....	O ₁₀ No O ₁₁ Neighbor O ₁₂ fountain O ₁₃ rainwater O ₁₄ Drinking water line O ₁₅ Other:.....	O ₁₆ No O ₁₇ Infiltration O ₁₈ small wastewater treatment O ₁₉ rhizosphere Plant O ₂₀ Connection to sewer system O ₂₁ Other:.....	O ₂₂ None O ₂₃ Compost toilet O ₂₄ Water O ₂₅ : Other: library	O ₂₆ to public transport (train, tram, bus) O ₂₇ Bike O ₂₈ On foot O ₂₉ Car O ₃₀ Other:.....

18. From which sources do you get water for irrigation? Please give percentage for each source.

19. What is the legal status of the garden? (please tick or specify)

City	parish	private	mixed
O ₁	O ₂	O ₃	O ₄

20. What expenses and income do you have in [€]?

Expenses					revenue				
	lease	Construction material, Garden tools	seed, Planting good	Staff costs	others	sale	Donation (private)	Public funding from:: a)..... b)..... c).....	Other (please specify)
[Euro]	(1)	(2)	(3)	(4)	(5)	(6)	(7)	a) (8) b) (9) c) (10)	(11)

21. How do you organize your garden and cooperation?

How is their formal organizational structure (club?)	o ₁ None	o ₂ neighborhood	o ₃ other.....
What organizational structures or 'bodies' are there?	o ₄ None	o ₅ Association	o ₆ other
Who makes decisions?	o ₇ Administrator	o ₈ Association	o ₉ all o ₁₀ others

How are decisions made (vote, by consensus, other)?	o ₁₁ Unanimous o ₁₂ vote o ₁₃ others.....

22. Which professions, training or employment have the gardeners and visitors?

Job etc.	age	Numbers + Information on garden teachers	age	Numbers + Information on visitors
Student, if yes: specialization (s)?	(1)	(2)	(3)	(4)
Gardener (with qualification)	(5)	(6)	(7)	(8)
Otherwise. Training occupation; If so, which (r)?	(9)	(10)	(11)	(12)
Dipl.-Ing. Horticulture, landscape design, etc.	(13)	(14)	(15)	(16)
Other degree, if so, what (s)	(17)	(18)	(19)	(20)
At present, on parental leave/ maternity leave	(21)	(22)	(23)	(24)
Recipients of Unemployment Benefit I or II	(25)	(26)	(27)	(28)
Other (please specify)	(29)	(30)	(31)	(32)

23. When visitors visit you, where do they come from, and how old are they?

opportunity	number	Where are from?	age?
During a normal garden week		O ₁ from the neighborhood / district O ₂ from all Leipzig O ₃ from outside	
Workshop / courses, which:		O ₄ from the neighborhood O ₅ from all Leipzig O ₆ from outside	
During festival, which:		O ₇ from the neighborhood O ₈ from all Leipzig O ₉ from outside	

24. Are you / Is your garden club linked with other initiatives or associations? What is networking?

Specify up to three of the most important for you garden clubs or initiatives!

In Leipzig		Networking with initiatives in other cities		
With which initiative?	What kind of initiative?	With which initiative?	in which city?	What kind of initiative?
	O ₁ visit (at celebrations) O ₂ consulting O ₃ School visit O ₄ Network Meeting O ₅ Exchange O ₆ others:.....			O ₇ visit (at celebrations) O ₈ consulting O ₉ School visit O ₁₀ Network Meeting O ₁₁ Exchange O ₁₂ others:.....
	O ₁₃ visit (at celebrations) O ₁₄ consulting O ₁₅ school visit O ₁₆ Network Meeting O ₁₇ Exchange O ₁₈ others:.....			O ₁₉ visit (at celebrations) O ₂₀ consulting O ₂₁ school visit O ₂₂ Network Meeting O ₂₃ Exchange O ₂₄ others:.....
	O ₂₅ visit (at celebrations) O ₂₆ consulting O ₂₇ school visit O ₂₈ Network Meeting O ₂₉ Exchange O ₃₀ others:.....			O ₃₂ visit (at celebrations) O ₃₂ consulting O ₃₃ school visit O ₃₄ Network Meeting O ₃₅ Exchange O ₃₆ others:.....

25. In your opinion do the residents appreciate your garden?

--

26. Reference to the Leipzig food bank

Do you know the Leipzig food bank?	O ₁ yes	O ₂ No
Do you donate vegetables and fruit for the Leipzig food bank?	O ₃ yes	O ₄ No
If so, how many and how much [kg]?	Vegetables:	Fruit:
Do you produce vegetable and fruit for yourself or to help socially disadvantaged people?	O ₅ For ourselves	O ₆ for others / name of the producer
If you do not collaborate with the Leipzig food panel: would you be interested in growing vegetables and fruits for donation to the Leipzig	O ₇ yes	O ₈ No

food bank?		
------------	--	--

27. For how long have you cultivated the garden? _____

28. Do you get updated with the other gardeners?

(Information, training events, garden expert advice, etc)

O₁ No O₂ yes, Specify the topic

29. Would you say that your priorities within the garden in recent years have changed?

If for example the recreation and leisure value or ecological awareness has become more important?

(If no, go to question 26) O₁ No O₂ yes

30. To what extent and for what reason your priorities have changed?

--

31. Do you know the political discourse on biodiversity / biodiversity?

O₁ No O₂ yes

32. Are you aware of how to manage your garden in order to contribute to the conservation of biological Diversity? If so, which measures do you know?

O ₁ No O ₂ yes, these:
--

33. To what extent do the following statements apply to you?

(1 = fully applicable to, 2 = true in part, 3 = does not apply anymore, 4 = not at all true)

a) My garden is always maintained look, has no place for weeds and other wild plants.

O₁ O₂ O₃ O₄ O₅ don't know

b) To me it is important that I cultivate mainly indigenous plants in my garden.

O₁ O₂ O₃ O₄ O₅ don't know

c) I am interested in endangered crops and ornamental plants and Cultivate my garden with affection

O₁ O₂ O₃ O₄ O₅ don't know

d) I work in my spare time with topics relating to nature conservation and environmental protection, because I always want to be up to date

O₁ O₂ O₃ O₄ O₅ don't know

34. Finally, a few questions about yourself.29. Which age group would you assign to?

O₁ until 39 O₂ 40-59 O₃ 60 and older

35. Which is your highest education degree?

O ₁ without secondary	O ₅ Polytechnic High School of the GDR with the completion of the 10th grade
O ₂ High school (completed primary school)	
O ₃ Secondary school (high school)	O ₆ Technical college, completion of a vocational high school
O ₄ Polytechnic High School of the GDR	O ₇ General or technical university / high school
with the completion of the 8th or 9th grade	

36. What professional training qualifications do you have?

O₁ even in vocational training (vocational training year, trainees / r, Intern / Police /-in)

O₂ no professional degree and no vocational training completed

O₃ Completed company vocational training (apprenticeship)

O₄ Completed school education

O₅ completed training at a specialized school of the GDR

O₆ at a specialized, master, technical school, vocational or technical academy

O₇ Bachelor's degree (college or university)

O₈ Diplom, Magister or Master's degree (college or university)

O₉ promotion

O₁₀ another professional degree, namely:

37. What employment situation applies to you and what profession you come by?

- O₁ Part-time as _____ No because:
O₂ Full-time as _____ O₃ In parental leave
O₄ student

38. Please rank the amount of your net income of the following groups.

- O₁ under 1000€ O₂ between 1000 and 2000€ O₃ 2000€ or
more

Vielen Dank für Ihre/Deine Aufmerksamkeit und Ihre /Deine Zeit!

Der Fragebogen wird im Rahmen der COST Action: Urban allotments in Europa (www.urbanallotments.eu) und der Bachelorarbeit von Frau Lehmann ausgewertet.

Bei Fragen können Sie sich gerne an **Victoria Lehmann** (lehmann.victoria@gmx.de) oder **Ines Cabral** (minescabral@gmail.com) wenden.