TECHNISCHE UNIVERSITÄT WIEN

DIPLOMARBEIT

URBANFARMING:VIENNA

Urban Farming as a Component of Urban Development Strategies
with reference to Vienna, Austria

-

Urbanfarming als Bestandteil von Stadtentwicklungsstrategien
mit Bezug auf Wien, Österreich

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ABSTRACT

This master thesis investigates the role that urban food production plays in the city of Vienna, Austria and whether such urban farming strategies are feasible for Vienna. Climate change, population growth and urbanisation cause natural resources such as land and water to become scarcer, thus putting agriculture and people's access to food at danger. Food cultivation is furthermore, traditionally produced in designated agriculture areas sometimes far away from the consumers in cities. Therefore, food production within urban settlements is generally not visible in urban development or planning strategies. The data for this thesis was collected through literature analysis covering governance, urban food planning, agricultural planning and urban farming, and semi-structured interviews with experts, such as city officials, farm owners and Start Up founders. To determine whether urban farms are suited for Vienna, a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of urban farms was carried out, as well as an instrument study to establish the extent of the visibility of urban agriculture in Vienna and an actors' study to determine the networks and relationships of the actors in agriculture in the capital city of Austria. Urban farms provide cities, neighbourhoods and locals with multiple possibilities and benefits, such as a decrease in the heat-island effect, cleaner air, fresher and healthier produce, job and educational opportunities and spreading awareness of the environment, nature and nutrition. On the other hand, the implementation of urban farms may be expensive and urban agriculture does not (yet) play a significant role in the planning instruments in Vienna, although these planning instruments are laid out in a very opportunistic way for urban farms and agricultural Start Ups.

ZUSAMMENFASSUNG

Diese Diplomarbeit behandelt die Rolle von Essensproduktion in Wien, Österreich und inwiefern Urbanfarming-Strategien für Wien sinnvoll wären. Anhand von Klimawandel, Bevölkerungswachstum und Urbanisierung, werden natürliche Ressourcen wie Wasser und Boden stark unter Druck gesetzt und die Ernährungssysteme werden gefährdet. Essensproduktion in städtischen Bereichen wird selten in der Stadtplanung oder Stadtentwicklung bearbeitet oder gefördert. Die Recherche wurde durch Literaturanalysen von Governance, urbaner Landwirtschaft und Agrarplanung und Leitfadengesprächen mit ExpertInnen, wie BäuerInnen (aus Wien und den Vereinigten Staaten von Amerika), GründerInnen von Urbanfarmingprojekten und Repräsentierenden von Forschungsinstitutionen, der Stadt und anderen Organisationen und Initiativen, durchgeführt. Um die möglichen Potentiale und die Sinnhaftigkeit von Urbanfarms für Wien zu untersuchen, wurde eine SWOT-Analyse (Stärken, Schwächen, Chancen und Bedrohungen) durchgeführt. Um das Ausmaß der bestehenden Netzwerke und Instrumente in Wien festzulegen, wurden weiters Instrumenten- und AkteurInnenstudien durchgeführt. Urbane Landwirtschaft bzw. Urbanfarms bringen viele Chancen und Möglichkeiten für Städte und Stadtteile, wie beispielsweise eine Reduktion des *Heat-Island* (Hitzeinsel) Effekts, sauberere Luft, gesünderes und frischeres Gemüse, Arbeits- und Ausbildungsmöglichkeiten und Bewusstseinbildungschancen über die Natur, Umwelt und Ernährung. Im Gegensatz zu den genannten Vorteilen, ist die Implementierung und Erbauung von Urbanfarms teuer und urbane Landwirtschaft spielt in den Wiener Planungsinstrumenten, obwohl sie schon optimal dafür ausgerichtet sind, (noch) keine erwähnenswerte Rolle.

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Firstly, I would like to thank my supervisor, Prof. Dr. Alexander Hamedinger for his support and guidance thoughout this master study.

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ABBREVIATIONS

AgSTEP	*Agrarstruktureller Entwicklungsplan*, agriculture structural development plan
STEP	*Stadtentwicklungsplan*, city development plan
ÖREK	*Österreichisches Raumentwicklungskonzept*, Austrian spatial development concept
ÖROK	*Österreichische Raumordnungskonferenz*, Austrian spatial planning conference
LWK	*Landwirtschaftskammer*, agricultural chamber
SWOT Analysis	Strengths, Weaknesses, Opportunities and Threats Analysis
PPP	Public-Private Partnerships
CSA	Community Supported Agriculture
CMA	Community Made Agriculture
MA	*Magistrat Abteilung der Stadt Wien*, Magistrate office of the City of Vienna
MA 18	*Magistratsabteilung für Stadtentwicklung und Stadtplanung*, office for city development and city planning
MA 19	*Magistratsabteilung für Architektur und Stadtgestaltung*, office for architecture and city design
MA 21	*Magistratsabteilung für Stadtteilplanung und Flächennutzung*, office for district planning and land-use
MA 22	*Magistratsabteilung für Umweltschutz*, office for environment protection
MA 49	*Magistratsabteilung für Forst- und Landwirtschaftsbetriebe*, office for forestry and agricultural operations
MA 58	*Magistratsabteilung für Wasserrecht*, office for water law
TUW	*Technische Universität Wien*, University of Technology in Vienna
GB*	*Gebietsbetreuung Stadterneuerung*, area support for city renewal
LGV	*LGV Frischgemüse*, LGV fresh vegetables
BBP	*Bebauungsplan*, building plan
FLWP	*Flächenwidmungsplan*, land-use plan
BMLFUW	*Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft*, national ministry for agriculture and forestry, environment and water management
BMNT	*Bundesministerium für Nachhaltigkeit und Tourismus*, national ministry for sustainability and tourism
USA	The United States of America
UN	The United Nations
EU	The European Union

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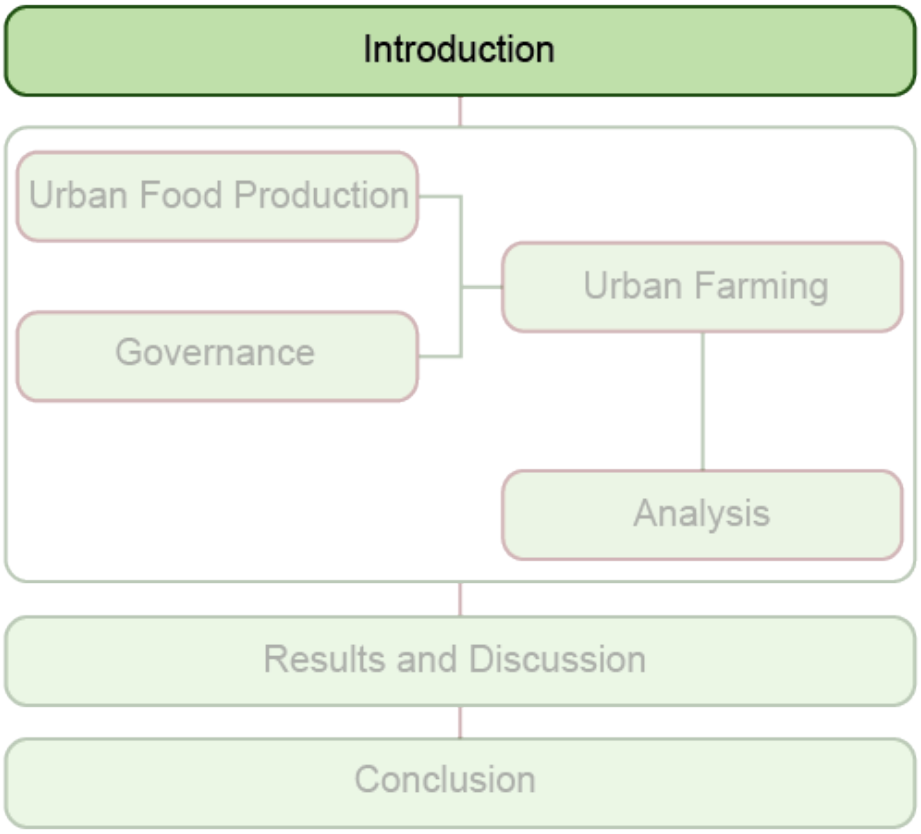
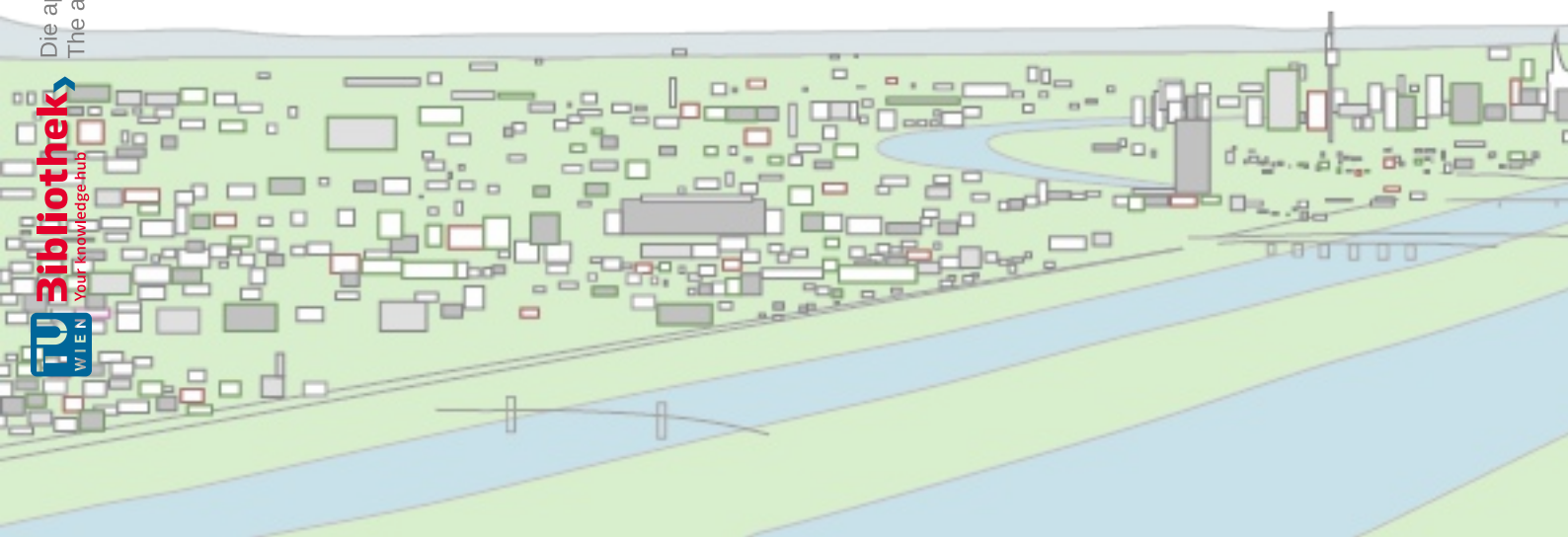




1. Introduction

1.1. Background
1.2. Scope and Relevance
1.3. Research Questions
1.4. Methodology

1. INTRODUCTION

1.1. BACKGROUND

Cities cannot function without access to food and every single human being needs food to survive (Morgan 2014). Food is multifunctional and plays many roles in society, not only to sustain us nutritionally. It plays social, economic, ecological, political and cultural roles as well (Morgan 2014). However, food is rarely included in planning concepts or political agendas, although it would be assumed that these fields are responsible for fulfilling our basic needs (Morgan 2014). Although the role of food in the Global South, where the effects of hunger, climate change and social negligence are most visible and often discussed, the Global North also suffers from malnutrition, both literally and metaphorically (Morgan 2014).

In order to meet the ever-increasing demand for food, agricultural methods and activities have had to expand and adapt. As the population and wealth thereof, continues to increase, the pressure on land and natural resources is also increasing and conflicts arise between the building and the agricultural industries, both vitally important as they provide for the basic needs of the cities. The impact humans have on the environment is ever more noticeable and the climate is changing quickly, putting even more pressure on the already vulnerable agricultural activities and spaces. In the 1970s, this effect (global warming) was first publicly acknowledged to be at least partially anthropogenic. Nowadays, although still heavily discussed, actions are taken to decrease the affect humans have on the environment, placing critique and pressure on the agricultural industry to be more environmentally and socially responsible. This has led to a movement back to regional and locally produced goods with short supply chains. This trend is visible in the city of Vienna, through the increase of regional and organic products offered by supermarkets, the type of products that are being advertised, the spreading of awareness and movements by non-governmental organisations and civil societal initiatives.

If consumer trends continue to develop as they have since the middle of the 20th century (which is predicted), the demand for food will increase by 70% within the coming decades (European Environment Agency 2016, Wytrzens 1994). Currently, urban settlements are home to half of the population and consume 75% of natural resources, while only physically covering 2% of the earth's surface (Thomaier, et al. 2014, Plakias 2016). The United Nations predicts that 66% of the world's population will be living in urban settlements by 2050 (United Nations 2014). As urban populations and settlements continue to grow, immense pressure is put on local, regional, national

and international agricultural land. Agricultural and food planning regarding how to feed the population healthily, sustainably and efficiently, while still maintaining a high standard of living, must become central political and planning themes (Thomaier, et al. 2014).

Nearly a quarter of the Austrian population currently resides in the city of Vienna: Vienna is currently home to 1.9 million people and within the next eight years, it is predicted that it will once again be a 2 million inhabitants city with most of the population being of working age (Statistik Austria 2017, Statistik Austria 2018).

In 2018, the City of Vienna was named the *"most liveable city"* by the Mercer Study for the ninth consecutive year and by the Economist Newspaper for the first time (Wien Tourismus n.d.). This title was received due to the high quality of living that Vienna has to offer, partially due to it being such a green city, with over 280 imperial parks and gardens and over 2000 green spaces open to the public, including the *Lobau*, a national marschland park and the *Wiener Wald*, a protected forest (Wien Tourismus). Approximately 14.5% of the total land in Vienna is agricultural land (Landwirtschaftskammer Wien 2014). Of this, 73% is *Ackerland* (grain), 13.5% is *Gartenbau* (vegetables) and 12% is *Weinbau* (wine), and Vienna is home to nearly 40% of the total greenhouses in the country (Landwirtschaftskammer Wien 2014, Interview 7 2018). Although the parks and gardens of the city are prized possessions, the farmland (excluding the Weinbau) does not receive the same adoration and support from the public or the authorities, and the allocated land-use is often changed from green land or farmland to building land for urban expansion and developmental purposes (Interview 7 2018). Since 2010, a seventh of all the farms in Vienna have closed and 34 Viennese farms were shut between 2015 and 2017 (Landwirtschaftskammer Wien 2017). This is due to increased pressure on (often smaller) agricultural businesses as large agricultural monopoles take over, urban sprawl takes place and little support from the city for small businesses is given (Landwirtschaftskammer Wien 2017, Interview 9 2018, Interview 11 2018).

Historically, there was much more agriculture in the city, in areas such as the Donaufeld, in between urban infrastructure and other land-uses. However, due to the growing population and its pressure on the housing infrastructure, the city has expanded into areas that were previously used and reserved for food production. Many of the farmers

have moved towards the outskirts of the city or even out of the city's borders (Interview 5 2018).

Food and agricultural planning has rarely been perceived as an urban planner's responsibility or been on political agendas in the Global North, as they are considered to be the dilemmas and responsibilities of their rural counterparts (Pothukuchi and Kaufman 2000, Viljoen and Wiskerke 2012, Morgan 2014). Food systems are extensive and complicated chains ranging from production, transportation, distribution, processing, sales and consuming to waste and recycling. These chains are unpredictable and have an extensive (local, regional, national and international) network of actors and infrastructure that all have to work together and be synchronised in order for the system to work (Interview 13 2017). A large section of the food supply chain can be sidestepped by increasing local production as the produce can be transported quickly, sustainably and without layovers or stops. This increases the nutritious values and enjoyment of the produce through enabling the harvesting to take place when the produce is actually ripe (Interview 4 2018). Local production ensures a short supply chain with fewer dependencies and risks. Local produce complies with Austrian and European standards and laws as well as creates a smaller network of actors involved and less dependence on circumstances such as weather, politics and the global economy (which are not within local competences). Morgan argues that *"healthy urban planning is both a means and an end in the sense that it is a democratic and deliberative process that aims to promote positive health outcomes for all"* (Morgan 2014, 3).

This thesis aims to investigate whether urban farming is suitable for Vienna, Austria by looking at the strengths and weaknesses of having food production in or near to a city as well as the actors and instruments available and the role that urban agriculture plays with respect to them.

1.2. SCOPE AND RELEVANCE

This thesis discusses the role that urban food production plays in the City of Vienna and whether such strategies are feasible and sustainable for Vienna.

The field of research of this thesis is topical because food production in urban settlements is not commonly found in urban development strategies or literature and the matter of food accessibility and production is mostly taken for granted by policy makers, planners and politicians (Pothukuchi and Kaufman 2000, 114, Morgan 2014, 1). While, on the other hand, urban agricultural practices and food systems have become the subject of academic and public interest within recent decades (Caputo 2012, 259).

The City of Vienna publishes an urban development plan every 20 years (the *Stadtentwicklungsplan*, STEP) entailing the developmental goals and the selected areas of development for the next 20 years (Magistrat der Stadt Wien (b)). The STEP 25 is the most recent STEP, published in 2004. This strategy mentions that urban agricultural spaces are necessary and should be preserved, condensed and made more sustainable (Magistrat der Stadt Wien (e)). The STEP 25 gives the *Landwirtschaftskammer Wien* (LWK, agricultural chamber) the authority to determine which steps need to be taken in order to achieve these goals (Magistrat der Stadt Wien (e)). The Landwirtschaftskammer published the AgSTEP (Agrarstruktureller Entwicklungsplan, agriculture structural development plan) in 2014. This plan identifies areas where agricultural activities can be maintained and suggests an action plan to achieve this (Landwirtschaftskammer Wien 2014). Additionally, the Landwirtschaftskammer publishes a report every two years on the developments regarding agriculture within the administrative borders of the city.

In March 2011 the initiative *Smart City Wien* was announced. This initiative aims to provide Vienna with ways to develop positively with the challenges of the 21st century, while maintaining and improving the living quality of the city (Magistrat der Stadt Wien (b)). This initiative aims to provide long term and wholesome strategies with focuses on the relevant topics, namely: education, digital, energy, buildings, health, infrastructure, innovation, mobility, social affairs, urban development and the environment (Magistrat der Stadt Wien (o)). The word *Landwirtschaft* (agriculture) is only mentioned once in the document "*Smart City Wien, Vision 2050, Roadmap for 2020 and beyond, Action Plan for 2012-2015"* on page 10 in regard to energy usage, stating that agriculture

accounts for 11% of energy usage in Vienna in 2009 (Magistrat der Stadt Wien (f), 10). The term *urban farming* is mentioned in the action plan of the strategy on page 42, *"Aktion 8.5: Demonstrationsprojekt Liesing Mitte"* (Magistrat der Stadt Wien (f), 42). The plan aims to include urban farming projects (Magistrat der Stadt Wien (f), 42). Although the Smart City Wien concept includes all fields that are very relevant for food production (such as infrastructure, education, energy, health and innovation), food production and urban agriculture are not included in this strategy. Even though, food security is an issue of the 21st century and agriculture has a traditional and functional role to play in the City of Vienna.

Therefore, the subject of this thesis is relevant, also on a local scale, for the City of Vienna. It is not a topic that is researched or implemented adequately, nor does it play a significant role in the city's developmental strategies or goals, although food is a basic need and it must, therefore, be addressed.
The scope of this thesis is to investigate and analyse the food production section of the food system in Vienna, with relation to the actors and instruments that exist and to discuss the strengths, weaknesses, opportunities and threats of urban farms with regard to Vienna. The aim is to determine the feasibility of introducing an urban farming strategy to the city and promoting urban agriculture in a green and smart city, with respect to Vienna, Austria.

1.3. RESEARCH QUESTIONS

This thesis focuses on the role that food production plays in urban planning and how urban farming strategies may be a solution for urban food and agricultural planning issues, especially with regard to the City of Vienna, Austria.

The following research questions are investigated through literature research and expert-interviews:

1. **What role does food production play in urban development in Vienna?**

2. **To what extend is urban farming a feasible strategy to contribute to food planning solutions in Vienna?**

3. **To what extent are urban farms feasible for Vienna?**

1.4. METHODOLOGY

This master thesis consists of five main sections. The first two sections build the backbone of the thesis. The first section establishes the importance of food in cities, the role that food production plays in urban settlements and the limitations of urban food planning. This section is achieved through literature analysis. The second section of the thesis is based on literature analysis and covers the theory of governance and co-governance in particular. Section three builds up on these two sections as it combines the technical aspects of urban food production and the social aspects of governance by analysing urban farming as a possible solution for urban food planning issues.

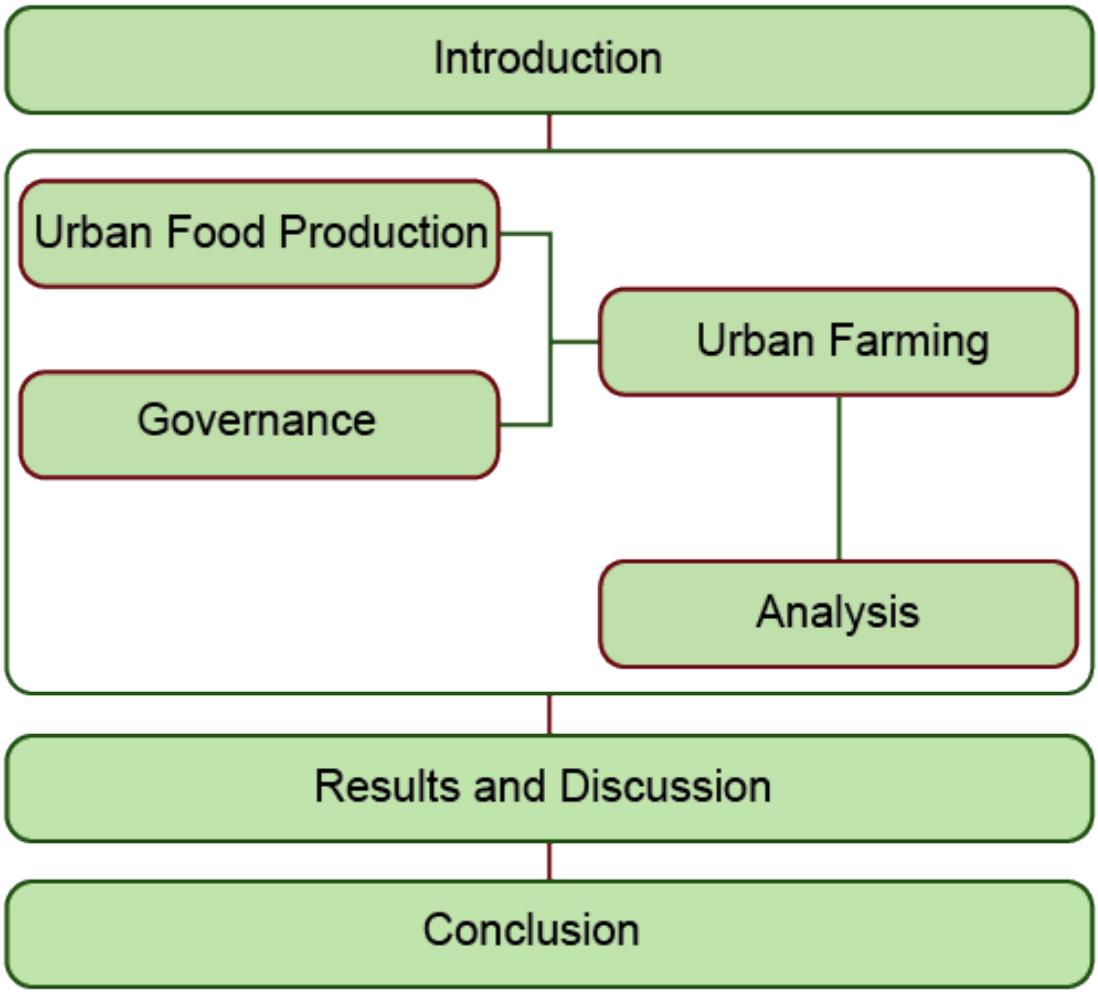
Urban farming is a system that requires networks and interactions between different disciplines and actors with different interests in order to be successful. Therefore, the third section of this thesis investigates *urban farming*, how it works theoretically and what it requires to be successful. The first half of this section is literature based, while the second half is based on best practice examples from the United States of America and also gives eight examples of farms in Vienna. These two parts are carried out through Internet research and expert-interviews with representatives from various farms, institutes and authorities.

The fourth section of the thesis is the analysis of the urban farming potential in Vienna through a 'strengths, weaknesses, opportunities and threats' (SWOT) analysis, an instrument study and an actors' study. This section is vital for answering the research questions and for determining whether an urban farming strategy is feasible for Vienna. This section is built up on all three previous sections, as it requires the knowledge gained in them to carry out the analysis and studies and evaluate the results thereof. These four sections build the body of the thesis.

The fifth section presents the results of the study and discusses these results from the perspective of future urban planning in Vienna. Providing the reader with suggestions and thoughts that the author has concluded, are relevant and even vital for future urban planning concepts.

Like is typical for scientific works, there is an introductory chapter consisting of the setting, research questions, scope and relevance and methodology of the thesis and a concluding chapter summarising the work, concluding and evaluating the thesis and

Figure 1: Navigation of thesis (own representation)



presenting the reader with further research points.
The structure of this thesis can be observed in Figure 1. This aims to help the reader navigate his or her way through the thesis. Please note that the sources of the images are not mentioned above the images, unlike all figures. This is the case throughout the thesis, the sources are indicated in the Bibliography section 8.2.

Articles, books and peer reviewed research papers in English and German were searched for on the academic search engine 'Google Scholar', through searches including the following keywords: *urbane Landwirtschaft, agriculture, urban agriculture, urban farming, food policies, food politics, food planning, agricultural planning, Agrarplanung, Landwirtschaftsplanung, governance, co-governance* and so on. The same keywords were used to find books and journals in the libraries of

the University of Technology in Vienna (TUW) and the Spatial Planning institutes of the TUW, through the catalogue search engine 'CatalogPlus'. Apart from articles and books, websites and documents from these websites were also used. These websites include the official website of the City of Vienna (for the STEP 25, for example), the *Landwirtschaftskammer* website, the *Stadtlandwirtschaft* website and more to find farms in Vienna and information on the City of Vienna (such as the development plans).

Interview partners were found using the search engine 'Google' (through keywords such as *urban farming Vienna* and *städtische Landwirtschaft Wien* (urban agriculture Vienna) and through word-of-mouth (by asking the interview partners and acquaintances whether they know of any urban farms or experts in Vienna) and were contacted via e-mail or phone call inquiring about the possibility of conducting an interview. Many sources were found through informal exchanges with urban farming practitioners (with whom interviews were held, or through e-mail or mobile exchanges). This method of data collection created a snowball-effect, ultimately presenting a non-random, and probably biased pool of interview partners and sources, as the knowledge was acquired partially through the personal networks and connections of interviewees (Schnell, Hill and Esser 2011). Therefore, it is important to note that the results of this thesis are most likely not totally objective and emotions are involved, as the topic involves people's livelihoods, health and the environment.

Semi-structured interviews were the chosen qualitative research method. As an instrument of qualitative social research, it provided insight to the relevance and experiences of the interviewees, while still covering certain topics, to enable (some) comparison (Schnell, Hill and Esser 2011). Furthermore, it closely resembles an every-day conversation, creating a relaxed setting where both the interviewer and the interviewee can feel comfortable to discuss the topic at hand (Schnell, Hill and Esser 2011). This form of interview gives the interviewee the freedom to share knowledge that they feel is important and related to the topic, while still providing the interviewer with a structure to return to in order to steer the conversation in a desired direction, through the preparation of a discussion guide and set of questions that can be worked through and returned to in any order, as well as be expanded as needed (Schnell, Hill and Esser 2011). Weaknesses of this social research method, however, are that the preparation is time-intensive and the results are not always comparable or evaluable

(Schnell, Hill and Esser 2011). The expert-interviews were carried out, focusing on the strengths, weaknesses, opportunities and threats of agriculture in the city, the actors of agriculture in the city, the importance of urban food production or urban food as a whole and the changes that could be made to make urban agriculture more profitable and accessible as well as how the documents and instruments such as the land-use and building plans would need to be altered in order to allow for more agriculture in the city. Semi-structured interviews were the chosen method of data collection as they allow the interviewee to remain uninfluenced by the interviewer while still setting a desired direction of the conversation. The interviews have been transcribed or summarised and are included in the Appendix (chapter 9.1.) of this thesis.

Sixteen interviews were carried out with various farmers and Start Up founders, administration offices and chambers of the City of Vienna, research institutions and civil society movements. The interview questions were prepared beforehand and sent ot the interviewees in advanced in order to give them time to prepare. Depending on the field of expertise and activity of the interviewee, the focus of the interviews shifted slightly, however the focus points generally were the establishment processes of urban farms, the motivation behind the farms, the advantages and disadvantages of the farming methods and administrative processes as well as the struggles and obstacles that they encounter. The method of analysation of the interviews is the content analysis by Mayring (Larcher 2010), focusing on the topics mentioned aforehand and evaluating relevant information with the research questions in mind.

As the author of this thesis is proficient in both German and English, literature in both languages were used and the expert-interviews were mostly carried out in German, as most of the interviewees were situated in Vienna. When the German sources are used directly (as quoted) or indirectly, they were translated by the author or using ‘Google Translator’, in order to keep the language of this thesis English. Occasionally German vocabulary is used, with an English translation following immediately after.

The information acquired through literature research and the interviews was analysed in order to answer the research questions. This was done in three ways: a SWOT analysis, an actors and an instrument study.

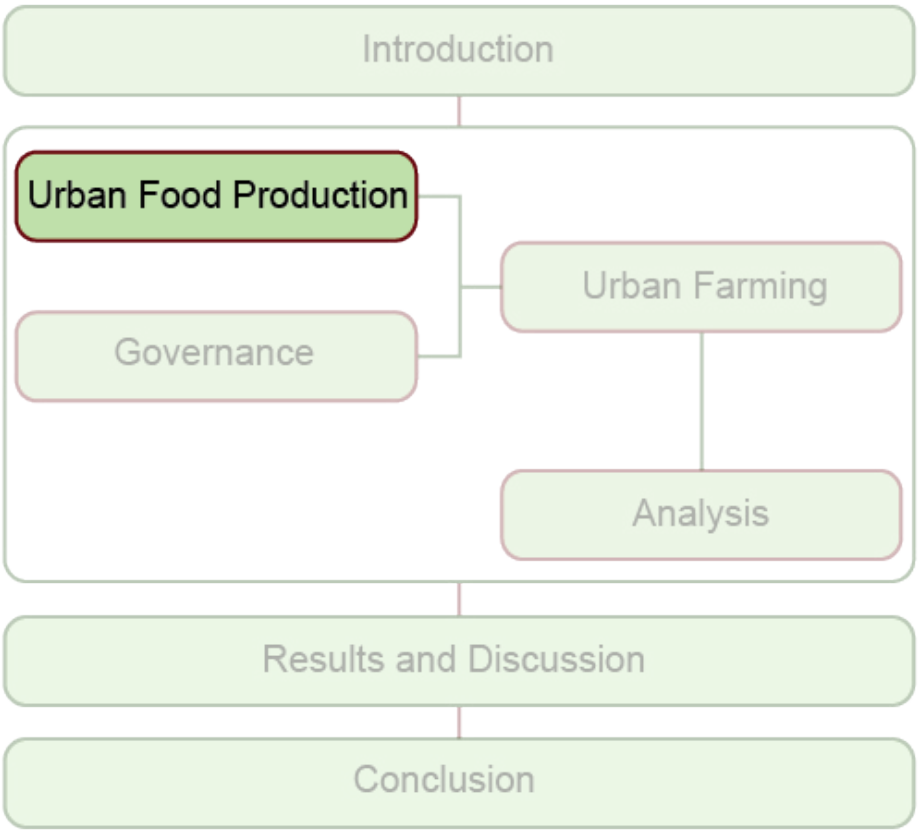
A SWOT analysis is a strategic tool, that in this case, is carried out to determine the

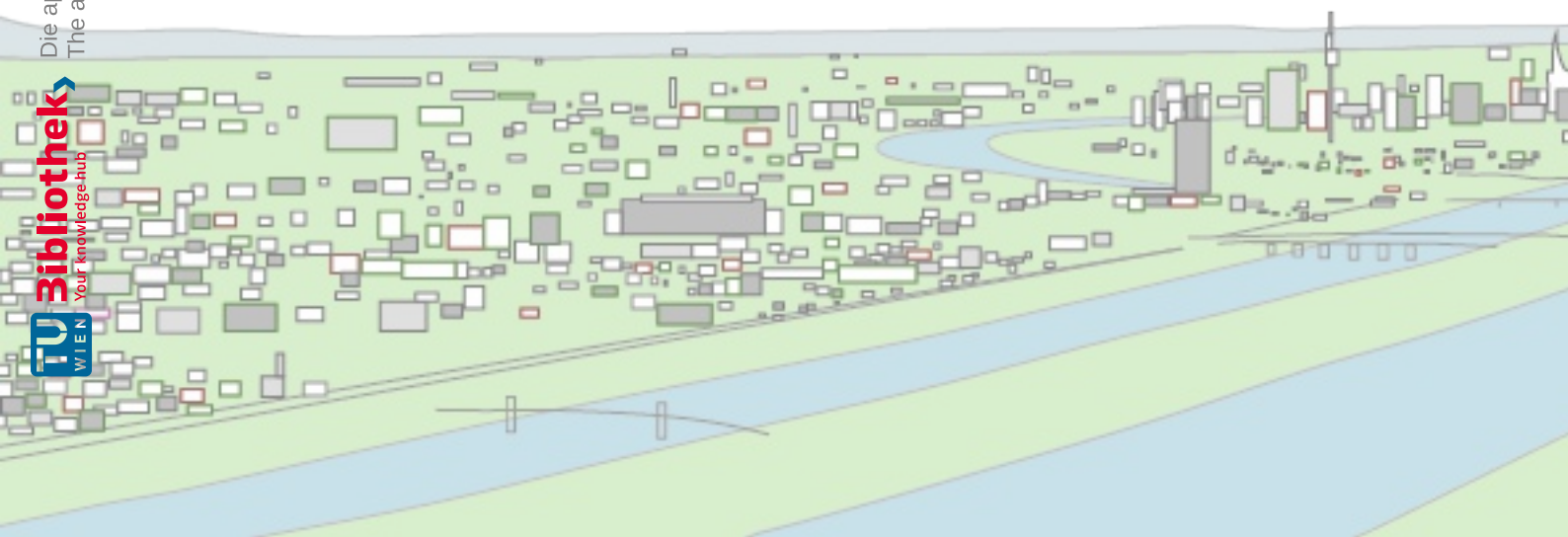
strengths and weaknesses of urban farming and the opportunities available to urban farming and threats that urban farming faces (research-methodology.net 2018). SWOT analyses are carried out to determine whether businesses, concepts or strategies are worth pursuing and implementing. *"The results of SWOT analyses help ensure that a balanced perspective is taken in making decisions"* (Leigh 2010, 139). The strengths and weaknesses of the project are controlled internally and can often be used to the advantage of the business or strategy, in this case, urban farming in Vienna (research-methodology.net 2018). They are a result of the capabilities of the project, the resources at its disposal, its values and goals as well as its systems and activities (Leigh 2010). The opportunities and threats of urban farms are not within their control, as they are a consequence, experienced by urban farming, due to the suppliers, authorities, policies and laws, market demand and more (Leigh 2010). Although the SWOT analysis provides an overview of the strengths, weaknesses, opportunities and threats of projects, in this case urban farming, it is often criticised as strengths and weaknesses are not always totally internal, nor are the opportunities and threats totally external (Leigh 2010). The SWOT analysis is based on the interviews that were carried out.

In order to establish whether urban farming is a part of Viennese planning instruments, an instrument study was carried out. Instruments were searched for through the Magistrate of Vienna's website, as well as enquired about in the interviews. The instruments were clustered according to level of concreteness and involvement. They were separated into macro, meso and micro levels, macro being the least concrete and highest political levels, while micro were the district level projects, very concrete and personal, involving the locals, farmers and businesses directly. Although many of the instruments do not currently involve agriculture, especially in an urban context, they provide the parameters for urban agriculture to flourish. The results are presented in a map, similar to that of the actors' study.

The actors' study is done using the actors mapping methods presented by the German Society for Technical Kooperation (Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH) from the series: *Förderung partizipativer Entwicklung in der deutschen Entwicklungszusammenarbeit* (promoting participatory development in German development cooperations), written by Arthur Zimmermann. This map takes the form of a rainbow or semi-circle. The benefits of this form of actors' study, are that

the results are presented with more clarity; the different sectors or groups of actors and their relationships can be clustered more easily, creating less confusion for the viewer (Zimmermann). The actors were established partially through the instrument study and partially through research and the interviews. The topic of consideration is an Urban Farming Strategy for Vienna and the actors are analysed according to their role in the achievement of this goal, in this case urban farming in Vienna. The actors are clustered according to the role that they play in urban farming in the city, directly or indirectly. There are four groups of actors, depending on their influence and importance in reaching the goal. The key actors are the ones actively involved in the urban farming processes (for example, the consumers and the producers). The primary actors (for example the research institutes and the agricultural chamber) have relationships with the key actors and the secondary actors (for example the government, municipality, UN and the EU) have an effect on the other actors (for example through regulations). Furthermore, veto-actors are actors that are vitally important for the goals and processes to take place and be reached (Zimmermann). Actor mapping can allow the researcher to make conclusions and gain insights on the relationships between actors, the power structures and potential conflicts and co-operations (Zimmermann). The relationships between the actors, and the power structure are shown using different symbols and by visually connecting actors to one another.

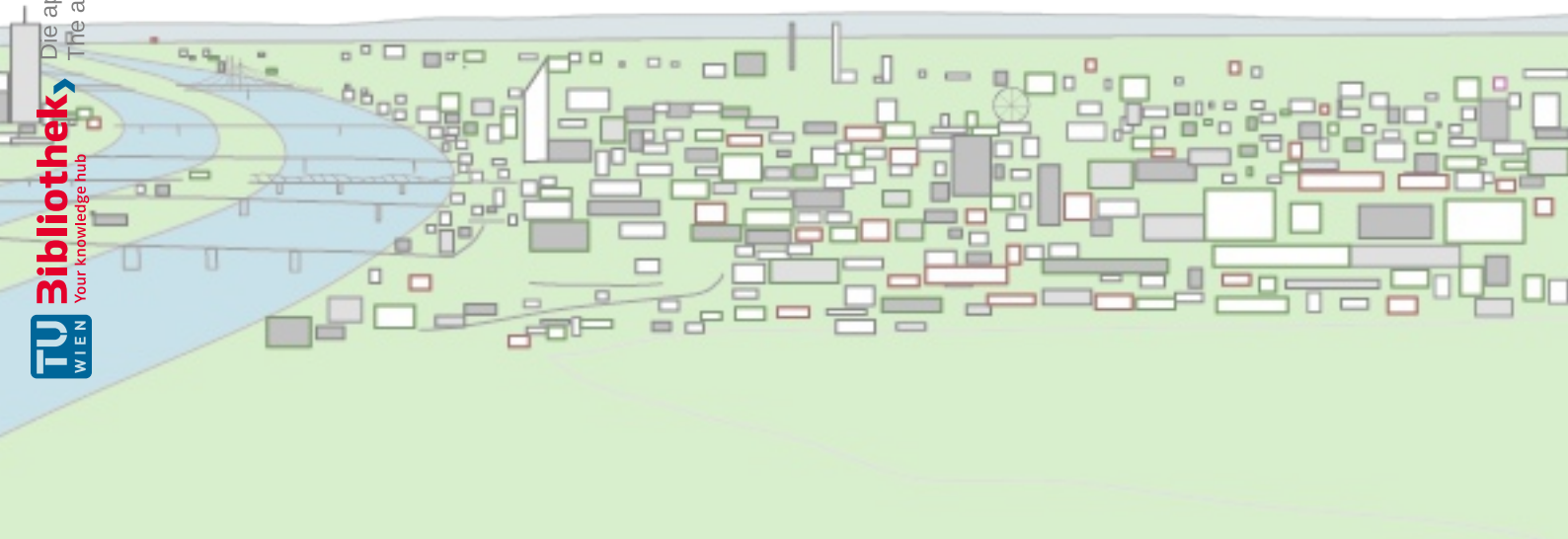




2. Urban Food Production

2.1. Importance and Relevance of Food Production in Cities of the Global North

2.2. Urban Food Planning



2. URBAN FOOD PRODUCTION

2.1. IMPORTANCE AND RELEVANCE OF FOOD PRODUCTION IN CITIES OF THE GLOBAL NORTH

2.1.1. Food in cities

The ways in which people nourish themselves have changed over the centuries. According to Wytrzens (1994), there were three stages of nutrition in more recent times in the Global North: firstly, when the populations were respectively small in comparison to the land available for food production, the consumption of meat was more popular and farming took place in and around urban settlements. However, as the populations grew, an emphasis was put on grain production as it produced much more food than livestock per squared meter and agricultural space was under pressure due to expanding urban settlements. The third stage is the most recent, where the food available has become more diverse and the meat consumption has increased again due to technological advances, globalisation and increased wealth (Wytrzens 1994). The diet trends and habits of populations are dependent on the affect the consumer expects to experience through their consumption of a certain produce (i.e. the nutrients, minerals and energy content levels), the enjoyment of the produce (i.e. taste and smell), wealth, and social and ethical trends (Wytrzens 1994). Wytrzens claims that in times of abundance, the people put more emphasis on the enjoyment of their nourishment and in desperate times the emphasis is on food with high nutritional-values (Wytrzens 1994). Furthermore, he says that there is an obvious trend since the 1950s, closing the gap between wealthier and poorer groups' consumer habits, as well as between rural and urban consumer habits (Wytrzens 1994). This means that people eat more, consume more luxurious food and food is no longer seasonal or local and regional due to globalisation and technological advances (Wytrzens 1994).

Furthermore, there is a positive correlation between diet and chronic illnesses. The World Health Organisation predicts, that almost 75% of all deaths in the year 2020 will be due to chronic diseases, if the world's mentality towards food does not have a drastic change and become more health orientated (Freisling and Elmadfa 2006). With easy access to lots of cheap food, many people eat unhealthily and much more than they need to, leading to higher percentages of the population suffering from overweightness and obesity.

While the demand is growing, the prepared monetary expenditure for food, with increasing income is not increasing much (Wytrzens 1994). People want exotic and

diverse produce available conveniently all year round, but are not willing to spend more money for this luxury (Wytrzens 1994). Furthermore, wealthier families spend a smaller percentage of their income on food than poorer families (Wytrzens 1994). As people's incomes increase, they also want to spend money on other luxuries and luxury goods and not only cover their basic needs (which food, even luxurious food is perceived as) (Wytrzens 1994).

Food consumption trends are also dependent on marketing strategies and advertising, which are suggestive and aim to influence the consumers' habits in order to make a profit. The population's mentality, values and ethics also play a significant role in their consumerism (Wytrzens 1994). Although food is one of the vital needs to sustain life, it is not treated as such in planning (Morgan 2009).

2.1.2. Food production in cities

Steel argues that *"of all the resources needed to sustain a city, none is more vital than food"* (Steel 2012, 37). No city escapes this truth, however, resources required to sustain life in urban settlements must be imported, so city lifestyles are sustained from a distance (Steel 2012). In pre-industrial times, this was not the case. Due to limited transport and preservation possibilities, produce was consumed seasonally and grown locally often in urban areas, as there was no other way of maintaining urban existence (Stierand 2012). Early forms of cities lived in harmony with their country-counterparts; the roles were clear, well known and respected (Steel 2012). Nowadays, cities have been emancipated from geography - losing all meaning and touch with time, season and space, so cities are able to grow and expand as they wish, without having to worry about where the resources come from, as they can be produced anywhere and transported easily and quickly (Steel 2012, Stierand 2012). *"The domains of agriculture and urbanity have traditionally been perceived as mutually exclusive despite their extreme interdependence"* (Verzone 2012, 517). The city dweller became a passive participant in the food system and lost touch with where food actually comes from and how it comes to be sitting on a supermarket shelf or restaurant plate (Stierand 2012). Furthermore, the local food market has become redundant, as the local farmer produces for the global market and the local supermarket is supplied by national and international suppliers (Stierand 2012). The consumers are the only part of the current, global food system that is geographically predetermined, as every city dweller needs

to eat: regardless of where the food comes from, it has to come to the consumers to be consumed (Stierand 2012). The food demand is shifting towards more fair, healthy and sustainable food choices within the food system (Stierand 2012).

Although food does not actively play a demanding role in urban planning, pre-industrial cities were designed in such a way that it took food and the production thereof into consideration, as it was vital for urban life (Steel 2012). Nowadays, this is not the case: there is a fundamental flaw in the economic system as it relies on constant and unsustainable growth, that became evident in the food and banking crises of 2008 (Steel 2012). The cost of food is much more than what we pay for it in stores, as these prices do not compensate for all the negative impacts modern-day agriculture has on the environment and society (Steel 2012). Society therefore, fails to value food appropriately and has a misconception of what it costs to produce food (Steel 2012).

Urban food production as an entrepreneurial opportunity is gaining a new role in developed countries, due to its environmental and social benefits and economic opportunities (Caputo 2012, van der Schans and Wiskerke 2012). Cities all over the world are trying to reconnect to food production. They are creating spaces for urban food production and networks to bring consumers and the producers together locally, therefore also by supporting local food production (van der Schans and Wiskerke 2012). Cities are seeing the potential in enabling and promoting food production locally in uplifting deteriorating city areas, rehabilitating green spaces, demolishing social division and creating awareness and educating about environmental issues and healthy living (van der Schans and Wiskerke 2012).

Caputo argues, that food production in proximity to the consumers has the potential to create a resilient food system and therefore, food production in cities, i.e. urban agriculture should be implemented as a strategy to respond to the high demand for food in cities, but also to create a sustainable and resilient food system with an adaptable food chain (Caputo 2012).

2.2. URBAN FOOD PLANNING

The range of responsibilities of urban planners has widened in scope due to urban problems that are redefining the understanding of urban systems (Nasr and Komisar 2012). Food and the gap between people and food production is one of the problems influencing planning (Nasr and Komisar 2012). Knowledge and awareness of the challenges of the food system (and its impacts) are spreading, making people more aware of the challenges that planning and cities as a whole, face (Nasr and Komisar 2012).

The growing concern regarding food and agriculture due to all the negative impacts it has on the environment and the population's health, is changing the food geography, demanding a role in politics, science and planning (Watts, Ilbery and Maye 2005, Viljoen and Wiskerke 2012). This new food geography is more than just food and energy to meet our body's needs. It links environmental pollution, degradation and quality, transport, health, employment, social equality and education (Viljoen and Wiskerke 2012). As food has become an integral territorial geography, science, planning and politics must also adapt to manage this new phenomenon (Viljoen and Wiskerke 2012). Therefore, an integrated approach to food is required, in which planners; politicians and academics must widen their disciplinary and departmental borders to find sustainable solutions (Viljoen and Wiskerke 2012). Every city and region is different geographically, politically, socially, structurally, economically, environmentally and demographically, therefore every city has different challenges and every city will have different solutions. Thus every urban food strategy must be uniquely developed for every individual city (Viljoen and Wiskerke 2012). The role that planners play in changing the food system is new and still developing. Planners are increasingly being expected to take charge in tackling food system challenges (Nasr and Komisar 2012). This pressure is coming from within the planning world, where planners see that they have the instruments and the know-how to make a difference, as well as from the civil community and food advocacy movements, where people are becoming more active and aware of the food system (Nasr and Komisar 2012). Tornaghi claims that *"it seems that the ability of local and regional institutions to respond to these new demands are limited and constrained by planning traditions that have not been permeable to emerging urban cultures and their needs, failing to create flexibility or more adaptable public spaces which reflect the fluidity of society"* (Tornaghi 2012, 350).

Food and agriculture (i.e. agricultural planning) are rarely part of urban planning

concepts or taken into serious consideration by city planners, as they are considered to be rural planning's responsibilities (Pothukuchi and Kaufman 2000, Viljoen and Wiskerke 2012). Food systems are extensive and complicated chains ranging from production, transportation, distribution, processing, sales and consuming to waste and recycling (Interview 13 2017). A considerable section of this chain can be side stepped with local production as the produce can be transported quickly, without layovers or stops and it can be done so more freshly and effectively (Interview 4 2018). Urban food planning should ensure that cities are well equipped with nutritious food, while attempting to keep the chains and systems as efficient and uncomplicated as possible. Pothukuchi and Kaufman (2000) argue that a conceptual hole exists in urban planning, when it comes to food systems, although planners directly and indirectly influence the food system continuously and are in a position to impact it positively. This hole may lead to weakened food security and other food planning related problems. Furthermore, they argue that the *"the emerging "healthy cities" and sustainability movements in urban planning have raised the importance of goals related to healthful food consumption and regional self-reliance in food. Together with the community food security movement, these efforts might well result in more active and systematic involvement in the food system by planners"* (Pothukuchi and Kaufman 2000, 121). They also argue, that planners are unaware of the benefits of urban agriculture and that there may be a lack of political will, which is evident in the lack of space and resources set aside for agricultural practices in urban settlements (Pothukuchi and Kaufman 2000, Caputo 2012).

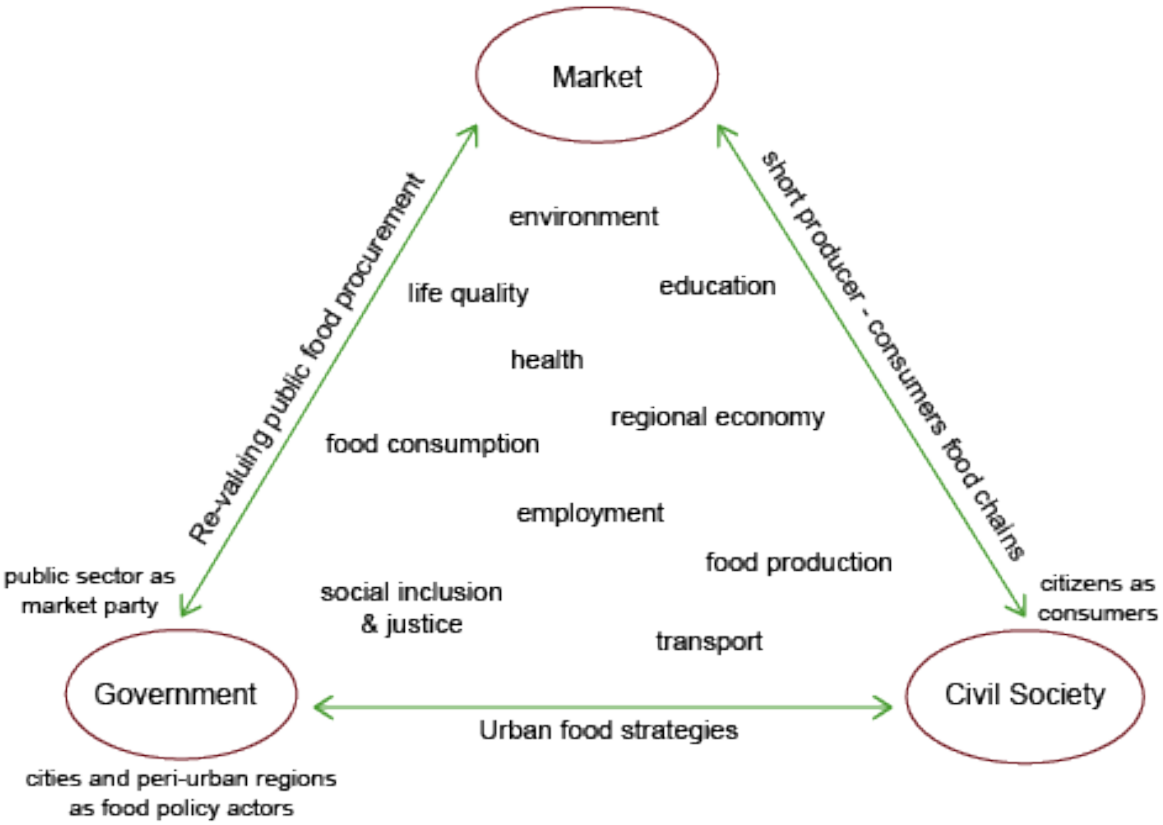
Wiskerke and Viljoen further argue that there are three reasons why food is not a subject of urban planning (Viljoen and Wiskerke 2012). Firstly, that most western city dwellers take food for granted, as they are oblivious to where their food comes from and rarely think about the processes it undergoes before appearing ready to be eaten on a plate (Steel 2008 in Viljoen and Wiskerke 2012, Interview 7, Interview 12). Secondly, they suggest that the industrialisation and globalisation processes distanced food production and processing from the consumers, as food production and processing processes became mechanicalised and distances became obsolete. So the producers and processors are not geographically bound to the consumers anymore and require smaller and often cheaper workforces through automisation and outsourcing (Viljoen and Wiskerke 2012). Finally, food is not a common part of urban planning practice, because it is not considered to be relevant for urban settlements

as food and agriculture are seen as a traditional and typical rural issue (Viljoen and Wiskerke 2012). This geographical and mental distance that has developed between urban settlements that consume the food produced rurally and their rural counterparts, as well as cities' lack of interest in prioritising food challenges in urban planning, have created a hole in the fields of urban food research, policy and planning (Viljoen and Wiskerke 2012). These holes are evident as although cities have the largest food and resource demands, studies are mostly only done on food provisions in rural and regional planning contexts, and food policy is seen as a rural and regional strategy (Viljoen and Wiskerke 2012). The image of food in the city is slowly changing, noticeable through exhibitions such as the Edible City in 2007 and the Foodprint in 2009 and numerous publications implying that *"food related spaces within urban design should be thought of as 'essential infrastructure'"* (Viljoen and Wiskerke 2012, 20). Moreau and colleagues recommend the incorporation of urban agricultural practices into municipal and regional planning, increased research and data collections within urban settlements and regions to quantify urban agriculture to achieve reliable estimates and to create regional networks to support educational programmes (Moreau, et al. 2012).

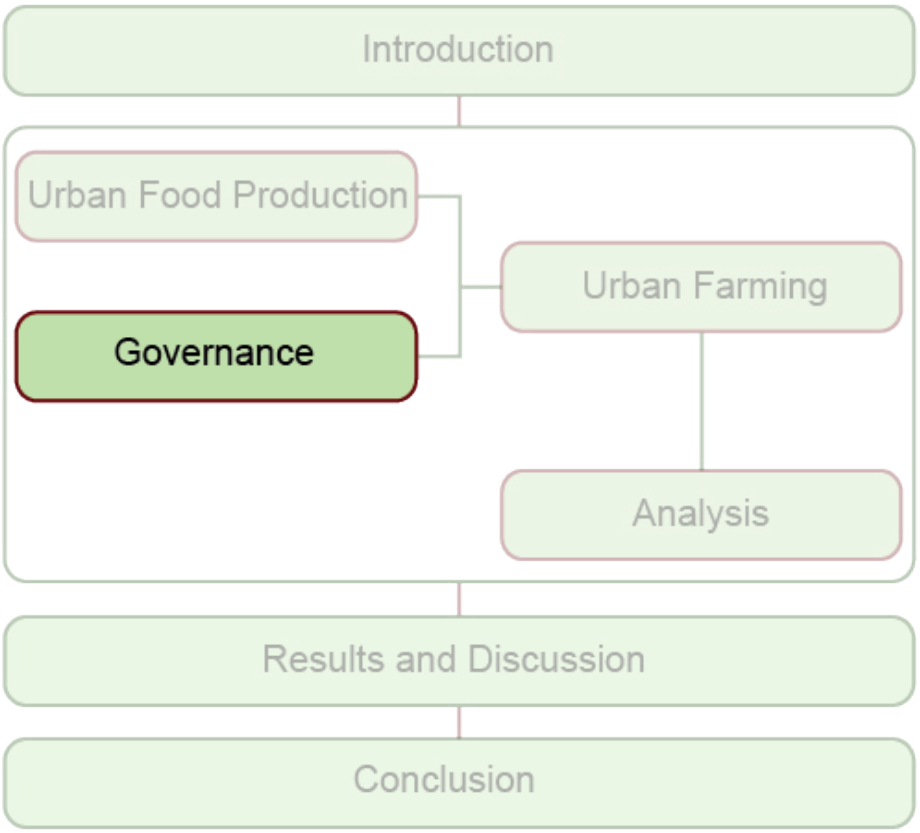
Wiskerke and Viljoen argue that *"the key challenge for the decades to come is how to feed the growing urban world population in a way that can be defined as socially, economically and environmentally sustainable and ethically sound"* (Wiskerke and Viljoen 2012, 21). Food supply chains have become globalised and although this brings many benefits for the urban populations (such as relatively cheap and diverse produce available all year round), it has costs as well (Viljoen and Wiskerke 2012). Through globalisation and industrialisation, the food system has become a demand-orientated system (Viljoen and Wiskerke 2012). The income that farmers can expect has stagnated and even decreased (Viljoen and Wiskerke 2012). An Austrian Farmer receives 30% of the money that the consumer pays for the product (Interview 7 2018). Globally, a drop in agricultural labour, leading to a loss of food production and agricultural know-how is experienced (Viljoen and Wiskerke 2012). Furthermore, current consumer and agricultural habits and practices contribute significantly to climate change, environmental pollution and degradation, waste production, biodiversity loss, water and other natural resources stress and soil degradation due to over cultivation (Viljoen and Wiskerke 2012). It also poses a great risk to human health, due to the chemicals used in modern agricultural practices.

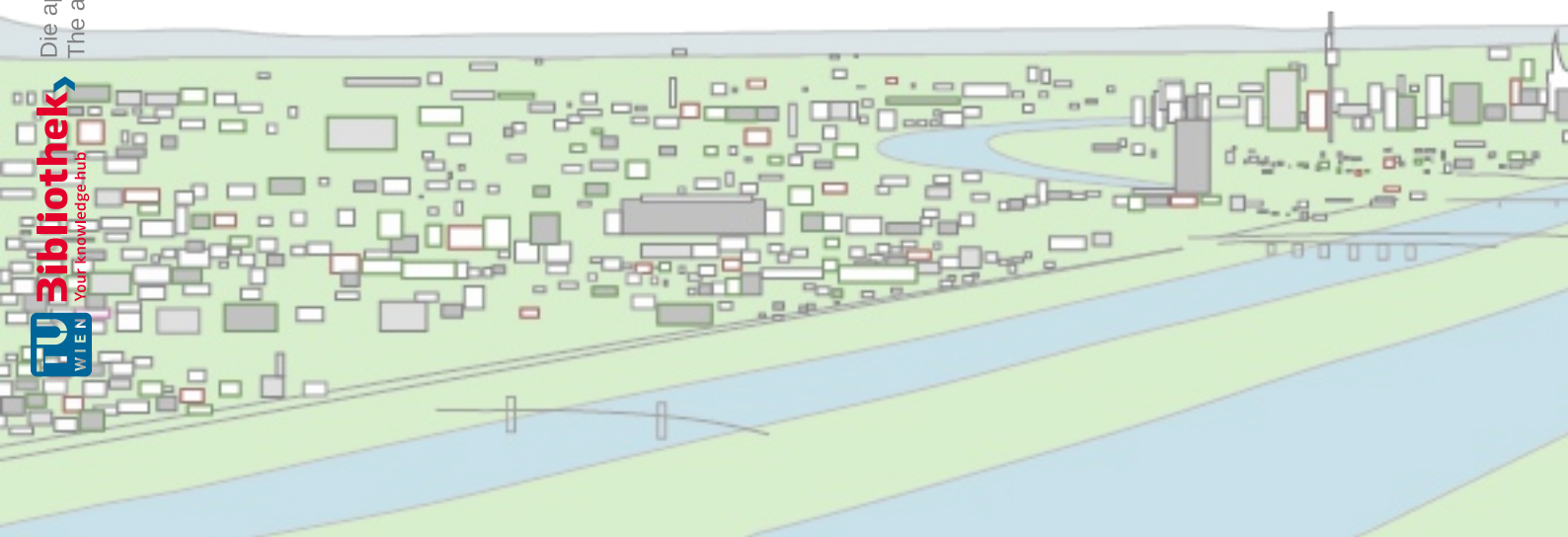
Food policy and planning can create a shift in sectorial thinking and should promote territorial thinking. Wiskerke argues, that food policy must be integrated and has the potential to create synergies between issues and challenges that are connected to food in one way or another, when working towards solutions on a regional level (Wiskerke 2009). Territorial food planning has the potential to connect producers and consumers locally, boosting the local economy (Plantinga and Derkzen 2012).

Figure 2: The New Food Geography adopted from Wiskerke (Wiskerke 2009, 376) and Viljoen and Wiskerke (Viljoen and Wiskerke 2012, 26)



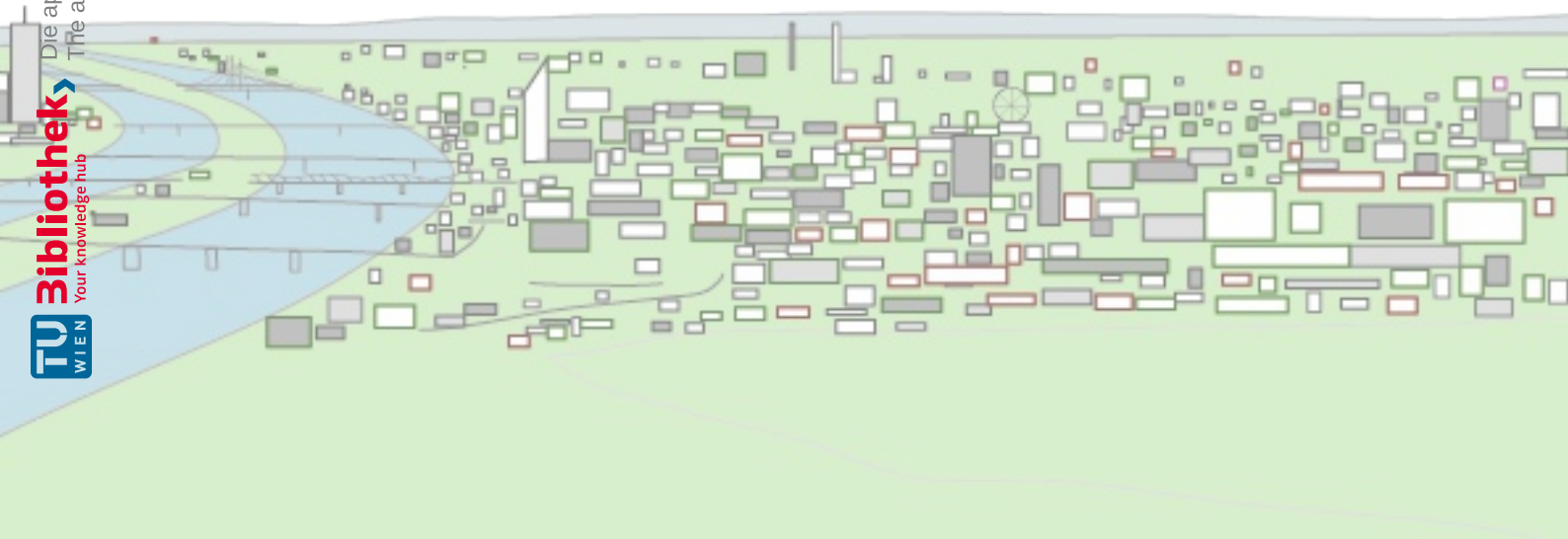
Wiskerke and Viljoen (2012) have observed that the urban food geography is developing in three societal trends (see Figure 2). The chain between the producer and the consumer is becoming shorter, new relations between the producers and the consumers are emerging and authorities are becoming food policy makers. These trends are changing the way that different actors in the supply chain interact with one another and their roles (Viljoen and Wiskerke 2012). The relationships between the civil society and the food supply chain, the public and the food supply chain and the authorities and the civil society are shifting and becoming more transparent and direct (Viljoen and Wiskerke 2012). These relationships were adopted and presented in Figure 2, depicting the shift in the food geography and related actor groups. This figure also shows the areas to which a shift in the food geography brings potential and change. These areas include education, health, transport, food production and social inclusion and justice.





3. Governance

3.1. Types of Interactions and Governance
3.2. Modes of Co-Governance
3.3. Urban Food Planning



3. GOVERNANCE

Democracy is becoming more popular in many forms of politics and planning that previously were top-down systems. The use of governance as the form of democracy is gaining popularity as planners attempt to include actors and stakeholders in planning processes to enable a more democratic form of planning to take place (John 2015). Governance is especially important in fields - such as agriculture or food - where the authority's decisions directly influence the local people and vice versa. Agricultural and food trends are influenced by the consumer's habits, and the consumer's habits are influenced by the advertising and marketing of the shops and distributers. Governance is a form of interaction for decision-making with no political-control of society and where all involved have the opportunity to take part in the decision-making process (John 2015). *"Governance can serve as a bridge for cooperation between actors in urban development"* (John 2015, 84). The key for successful governance is mutual respect and understanding from all involved (John 2015). Good governance, according to Bederke and Schilling, uses strategies such as cooperation, communication and networking instead of power and hierarchy for decision making (Bederke and Schilling 2015).

Urban farming projects can only be successful if interest comes from civil society with help from officials and experts (Interview 10 2018, Interview 11 2018). Urban farming concepts and projects cannot be governed purely top-down or bottom-up and must, therefore, exercise co-governance.

3.1. TYPES OF INTERACTIONS AND GOVERNANCE

The concept of Governance assumes that no one individual has the knowledge and, or power required to solve complicated societal and political challenges and issues (Kooiman 2003). It is an umbrella term that includes all forms and processes of governing, regardless of who governs and how the governing happens, whether by a government, authority, market, cooperation or social group and by using laws, power, language, norms or wealth (Bevir 2013). For governance to take place, an interaction must take place, where at least two parties are involved, both contributing to and benefiting from the exchange (Kooiman 2003). Although Kooiman argues that most societal governance happens naturally without being stimulated, and Bevir argues that social governance is an attempt at achieving order and coordination especially when there is no effective hierarchical authority (Kooiman 2003, Bevir 2013). Kooiman (2003) says that governance includes interactions that are partially or completely regulated by official rules, instruments and players. Bevir (2013) claims that the term governance has been used in social sciences to describe and discuss abstract theories of social organisation, as well as a new politics since the 1970s and 1980s. According to Bevir, this new politics *"refers to a shift in public organisation and public action from hierarchic bureaucracies to markets and networks… from the late 1970s onward, governments at the local, national, regional, and global levels have experienced a vast array of reforms associated with marketization, contracting out, new management fads, joining up and partnerships"* (Bevir 2013, 9). However, governance as such, is not a new concept, and has played an important role in the political and social lives of citizens throughout history (Bevir 2013). Kooiman (2003) claims that there are three types of interactions, in other words, ways in which people communicate or interact with one another, when regarding governance, namely interference, interplays and interventions.

Interference is the exchange of information required to carry out basic human processes and tasks, such as having a family or taking care of the elderly. Interplays are interactions where parties interact together equally, transmit information and organise themselves to achieve goals. Finally, interventions are interactions that are incredibly organised and of an official and formal nature with rules and regulations; where one party is more powerful or knowledgeable than the others (Kooiman 2003). He argues, that these three forms of interaction are vital for differentiating between and understanding the different types of governance, societal groups and institutions (Kooiman 2003).

Governance is diverse and complex, as the networks involved are comprised of individuals, organisations, civil groups, local neighbours, authorities, politicians and experts with different relationships, cultures, aims, wants, needs, priorities, knowledge basins and languages (Kooiman 2003). In order for planning and political processes to be more democratic, it is critical to actively involve actors.

Independently to the forms of interaction, there are three types of governance: hierarchical governance, self-governance and co-governance.

Hierarchical governance is essentially top-down governance. It is the most formalised and vertical form of governance where the governing parties practice different methods of steering and controlling to intervene in processes and influence other parties to achieve the goals that the governing parties wish to achieve (Kooiman 2003). This is the type of governance that most political and administrative authorities and governments implement (Kooiman 2003).

Self-governance is the ability of parties' ability to govern themselves fully and independently (Kooiman 2003). In practice, this form of governance cannot exist alone, as the parties govern themselves until they reach a point or an obstacle that leads to conflict and requires formal intervention (Kooiman 2003). However, according to Kooiman, self-governing bodies have the ability to create and maintain their own identity, displaying *"a relatively high degree of social-political autonomy"* (Kooiman 2003, 79).

Co-governance involves decision-making on the lowest authority level while including people that are interested and affected by the decisions in the process (Quilligan 2009). The aim is to achieve goals that benefit all involved through communication, collaboration and cooperation, and by bringing the different actors closer together, for example, by bringing the producers and consumers together and engaging both sides in decision-making process regarding the resources that affect all involved (Quilligan 2009, Kooiman 2003). Communication between parties, actors and organisations in co-governing practices enables those involved to *"reach inter-subjective understanding for co-governing purposes"* (Kooiman 2003, 101). However, in situations where there is conflict between those involved, communicative governance is difficult to achieve, as unconstructive and harmful objectives may be expressed resulting in

time-consuming negotiations to find a consensus (Kooiman 2003). Social-political collaboration is the action of working on things together within a group or organisation and between different groups and organisations (Kooiman 2003). Kooiman claims that collaboration "*represents, in a direct way, societal diversity, dynamics and complexity in governance, and by doing so illustrates many co-governance issues"* (Kooiman 2003, 99). Social-political cooperation takes place when all parties involved benefit from working together, although the terms collaboration and cooperation are often considered synonymous. Though, in this case they do have slightly different meanings. Kooiman also feels that it is very important to be aware of this, when considering co-governance (Kooiman 2003). Kooiman argues that *"governing actors will cooperate under conditions involving mutual interest, limited numbers, a common concern about the future, and will provide the necessary institutions, in the shape of self-enforcing agreements based upon principles of reciprocity"* (Kooiman 2003, 100). Quilligan argues that co-governance requires non-centralised rules and institutions related to the issues and *"questions of access, control, use, and distribution"* (Quilligan 2009, 38) of the resource, political or societal challenge at hand and that the decision-making and responsibilities must be shared fairly (Quilligan 2009).

Kooiman (2003) argues, that co-governance is a horizontal form of governance that is a combination of top-down and bottom-up processes, where all involved parties are on the same level working together towards common goals and outcomes, yet, often with different motivations and priorities. Bevir (2013) argues, that although co-governance provides the citizens with more freedom and opportunities to play an active role in their political and societal environments, it also raises problems concerning accountability and political control.

3.2. MODES OF CO-GOVERNANCE

The five modes of co-governance are described individually below. Kooiman describes these modes of co-governance as *"semi-formalised 'horizontal' societal interactions in which actors or entities participate more or less equally; these interactions are relatively flexibly organised and aim at a comparatively concrete, but negotiable purpose"* (Kooiman 2003, 108). With this being said, each mode has different levels of flexibility and cooperation, can be long or short-term arrangements and can be comprised of different actor and stakeholder constellations (Kooiman 2003). All co-governing modes generally look for synergetic effects, as they aim to solve societal problems that are too complex to be solved alone or by a particular organisation or authority without the input of and support from other actors and parties (Kooiman 2003). Furthermore, co-governance arrangements that include both public and private parties diffuse the otherwise usually strict boundaries between the state, market and civil society; creating more opportunities for cooperation, collaboration and communication between different, previously hierarchical actors (Kooiman 2003).

Communicative governance is a mode of co-governance, where rationality is presumed. Assuming that all involved citizens are reasonable. This occurs mainly when the parties are confronted with complicated, long-term social-political challenges and issues, as the process includes more actors than purely the authorities and in order to make decisions, the input from citizens is vital (Kooiman 2003). By incorporating the point of views and opinions of the public, the decisions are more defensible and are more readily and easily accepted by the citizens (Kooiman 2003). Kooiman claims that *"joint decision-making is more adequate than traditional coordination by bureaucracy or the market"* (Kooiman 2003, 101). Although this mode of co-governance is useful when the actors have similar motives and opinions, and when they are willing to understand each other's viewpoints, but it is not useful if their opinions contradict one another, as it creates a prolonged and more difficult decision-making process (Kooiman 2003).

Public-Private Partnerships (PPP) is a mode of co-governance that takes place when there is a motive for the public and private sectors to work together and exploit resources, opportunities and benefits that are available to them, purely, due to this cooperation (Kooiman 2003). These collaborations are strategic and last as long as the partnerships benefit both sides. The work and responsibility are fairly distributed and there is no hierarchy between the players (Kooiman 2003). In order for PPPs to operate successfully, the private and public parties must respect and trust one

another; the motives and aims must be common, and the inputs, risks and returns must be communicated fairly (Kooiman 2003). Both the private and the public sides of the cooperation must be willing to adapt and compromise, and the interplays must achieve a positive outcome for all involved (Kooiman 2003).

Co-management *"tries to steer a middle course between government regulation and community-initiated regulation, as it requires users to organize themselves formally."* (Kooiman 2003, 103). This is especially relevant in the management of natural resources, as both the governmental authorities, and the users have responsibility for the welfare of the resources (Kooiman 2003). Co-management is more than consultation. It gives the users a say in official decision-making processes and allows them to share valuable information with the authorities to help them in their decision making and regulating (Kooiman 2003). By involving the users, authorities gain information and knowledge that they would otherwise not have attained, which may lead to more competent and acceptable governing by the authorities. They can make and implement rules and regulations with consideration of the people's wants and needs, while also potentially improving the user's acceptance of said rules and regulations as they were consulted and included (Kooiman 2003).

Networks' interactions are mostly horizontal: usually connecting similar actors with common objectives. However, both public and private players can be included and small hierarchies can develop (Kooiman 2003). The cooperation of players within a network is not a given, although, networks play an important role in the governing of *"societal complexity, express societal diversity, and they can also be seen as a partial answer to the dynamics of modern societies, capable of handling tensions related to these dynamics"* (Kooiman 2003, 106). A diverse range of interests can be represented in a network and if the network is mixed (including both public and private players) it can be a valuable form of governance (Kooiman 2003).

Regimes are *"sets of implicit or explicit principles, norms, rules or decision-making procedures around which actor's expectations converge in a given area of international relations"* (Krasner 1982, 186 in Kooiman 2003, 106). A regime creates an open environment where the expectations of the members' behaviour are known and stable, and *"provide[s] information and standards of behaviour"* (Kooiman 2003, 107). According to Kooiman, successful regimes are coherent, effective and durable

(Kooiman 2003). They are built up on values and therefore are politically aligned and govern using predetermined, agreed upon rules.

Co-governance has many governing benefits and ideally provides players and actors that may otherwise not have a voice, with a say. However, it also creates issues, as it challenges authorities' decision-making competences. It is a delicate form of governing as it is subject to behaviour and only works as long as all involved players are willing to collaborate, cooperate and communicate respectfully and fairly with one another (Roiseland 2010). If, for whatever reason, the situation and relationships change, and the outcomes and responsibilities are no longer fairly distributed or beneficial for all involved, the neglected parties may choose to no longer cooperate, causing conflict and a co-governing crisis (Roiseland 2010).

Co-governance is an important form of governance when it comes to governing and making decisions regarding resources and societal challenges (Quilligan 2009). Involving the people who use the resources and are part of society give the authorities the chance to make better and more long-term successful decisions (Quilligan 2009). Co-governance, therefore, plays an important role for the producers, distributers and users or consumers of resources, and therefore is a fundamental form of governing for Urban Farming Initiatives and food political challenges (Quilligan 2009).

3.3. URBAN FOOD GOVERNANCE

The role that urban settlements have accepted, as a consumer and passive participant in food systems, has made it a dependent actor. Depending on all parts of the system to work in sync, without the city being able to do anything, if for whatever reason, not all the components work appropriately (Stierand 2012). A response to this helplessness and dependency is to make food systems more democratic and a place of governance through implementing Urban Food Councils (Stierand 2012). These networks and partnerships give governments, people from all milieus and representatives from all related organisations the opportunity to bring in their ideas, defend their interests, work together and play an active role in the food system of the city (Plantinga and Derkzen 2012).

Urban food policies and strategies require municipal and governmental authorities to take charge and responsibility as policy makers (Viljoen and Wiskerke 2012). Through the growing power and popularity of large international corporations (monopolising the food markets), local small food producing businesses have been displaced causing food deserts, especially for people with low incomes, making it increasingly difficult to access fresh, healthy food (Viljoen and Wiskerke 2012).

In Europe, food policies have long been viewed as the responsibility of the state or even the European Union - a truth that cities happily accepted for a long time, until they realised the implications of this role (Viljoen and Wiskerke 2012, Stierand 2012). Furthermore, with globalisation and urban sprawl, the economic activities of cities have spread past the political borders of cities, leading to political fragmentation and conflicts (Newman and Thornley 2011). A reaction to the dependency of city dwellers on the food system has been a need to influence the food system on a local level, with which civil societal grassroots food movements and the founding of Food Policy Councils became more popular (Stierand 2012). This implies *"that cities are new actors with regard to food policy design and implementation"* (Wiskerke 2009, 376). Urban food planning can be more specialised and truly specifically designed to meet the demands of the particular city. Urban food policies are individual and vary according to which city they are created for, however they all aim to connect different public domains and create inter-sectorial synergies (Viljoen and Wiskerke 2012).

European cities that already have established Food Policy Councils and have implemented food policies include Bristol, Toronto, Utrecht and Amsterdam. In the

United States of America, there are over 150 Food Policy Councils (Derkzen and Morgan 2012). Food Policy Councils are a governance mechanism and their goals are to: firstly, engage with civil society and make use of their skills, interests and passions; and secondly to overcome the bureaucratic ways in which public policy is usually designed and delivered, by engaging civil society (Derkzen and Morgan 2012). They are networks comprised of a combination of public and private actors, such as farmers, distributers, environmental organisations, governmental organisations, non-governmental organisations, and various fields of policy (Plantinga and Derkzen 2012). Food Policy Councils can be bodies of the government and can also be independent bodies. Independent Food Policy Councils can be more critical of the food system, however, they often do not have access to governmental resources (Plantinga and Derkzen 2012). Governmental Food Policy Councils on the other hand, are less critical, but have more opportunities to implement their ideas as they have more resources at their disposal (Plantinga and Derkzen 2012).

Food Policy Councils aim to map out the local food system in their respective cities and to make changes to achieve a more sustainable food system (Plantinga and Derkzen 2012). This is achieved through consulting, networking, interacting and communicating with different actors and stakeholders, providing leadership, educating and spreading awareness, supporting and conducting research, and writing and publishing reports (Plantinga and Derkzen 2012, Cleveland Botanical Garden).

It is fundamental to understand, that whether they are aware of it or not, every public institution has a food policy as they decide where the food comes from and support certain distributers (Derkzen and Morgan 2012). Food Policy Councils can, however, only make a difference when governments give them the means to do so (Derkzen and Morgan 2012). Derkzen and Morgan say that food cannot simply be seen as an add-on to urban development and political and planning agendas (Derkzen and Morgan 2012). Factors such as land values, lack of personnel and a resistance to interfering with the free market are obstacles in the path of adequate food system planning and lead to a limited capacity for policy learning and adapting (Derkzen and Morgan 2012). Food Policy Councils have the potential to serve as a platform to discuss food related issues, coordinate between sectors in the food system, evaluate and influence policy and support and implement programmes and strategies addressing the local needs and demands, while involving all actors who want to have a say (Harper, et

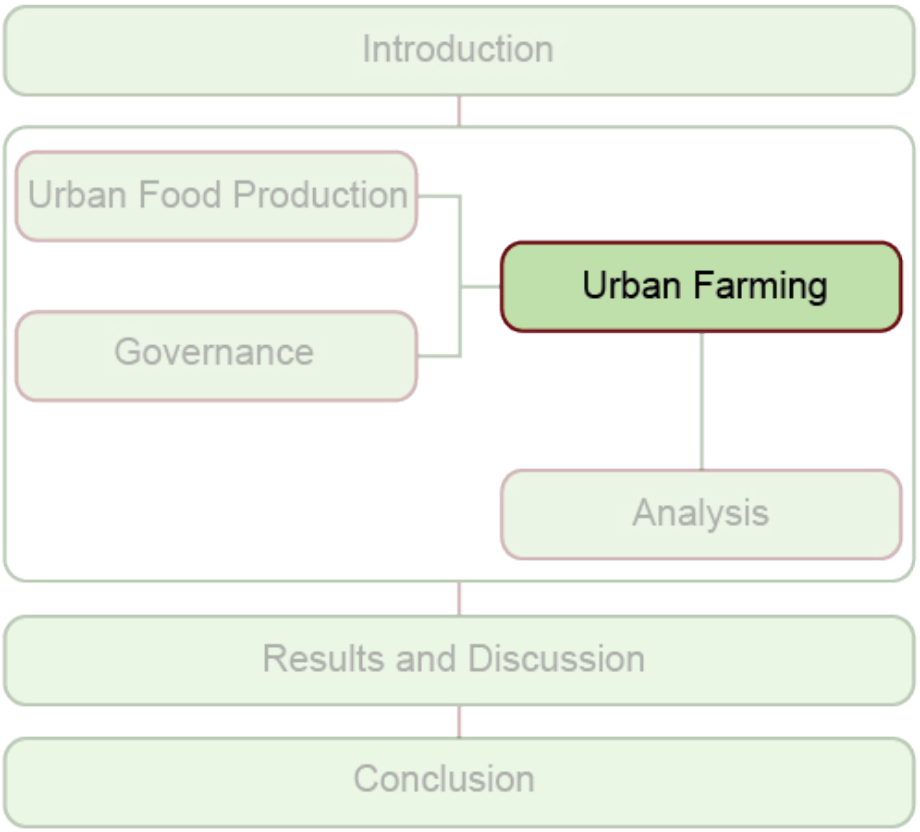
al. 2009, Derkzen and Morgan 2012). Food Policy Councils also help make the food system more democratic and reflects the needs of all involved, as well as improves the relationships between the government, non-profit and other organisations and civil society (Harper, et al. 2009).

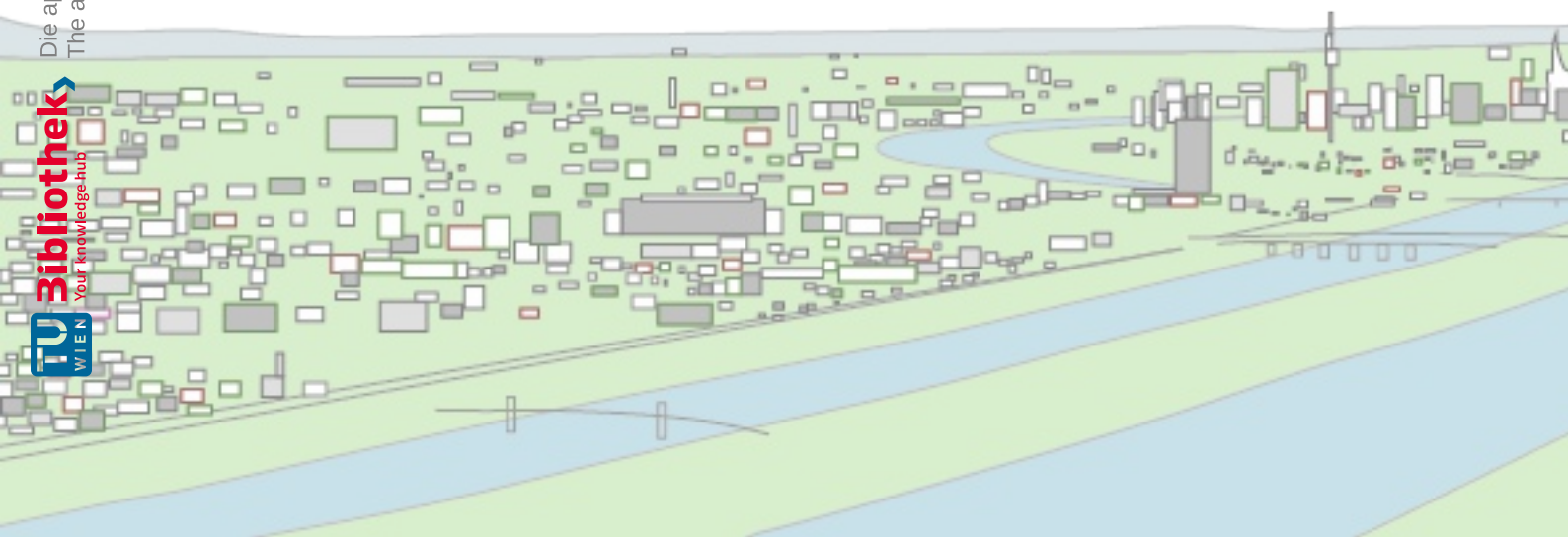
In order for a Food Policy Council to be effective, it requires members from as many sectors involved in the food system as possible, representing different groups, opinions and ideas (Stierand 2012). However, Food Policy Councils that are continuously reliable and functional are rare, with Brighton's Food Policy Council, the Brighton and Hove Food Partnership, being one of the few (Stierand 2012). This partnership works on a cross-sector, urban level and is closely related to the municipality but is open to the public and invites all interested groups to join discussions (Stierand 2012). Food Policy Councils rely on the cooperation, interaction and communication of representatives from different groups to maximise their potential to influence and redefine urban food systems (Stierand 2012).

According to Steel, connecting the producers directly to the consumers is the key to solving food problems (Steel 2012). Social food networks bring the consumers directly to the producers, giving them the chance to build up a relationship of trust and communication (Steel 2012). Currently, food is monopolised by large companies who subsequently control prices and agricultural methods. With social food networks, small businesses have a greater chance of succeeding and providing cities with food that they can experience and observe through all the stages of the food system (Steel 2012). Steel argues, that urban dwellers have the power to create community-led trade, but in order for communities to make these changes, they must be fully aware of and *"understand the full effects of their diets"* (Steel 2012, 42, Bio Forschung Austria). Food Policy Councils, often with civil society initiatives, governmental or municipal support and influence, are being established all over the Global North, aiming to create food policies that bring the consumers and the producers closer together and tackle food related challenges (Nasr and Komisar 2012). The end goal is to improve life in cities and be part of city developmental plans.

It is important to note that, adaptive co-governance is the mechanism for local policy making (Barmeier and Morin 2012). *"By 'adaptive co-governance' we mean a system of distributed interdependent responsibility that is capable of change over time."*

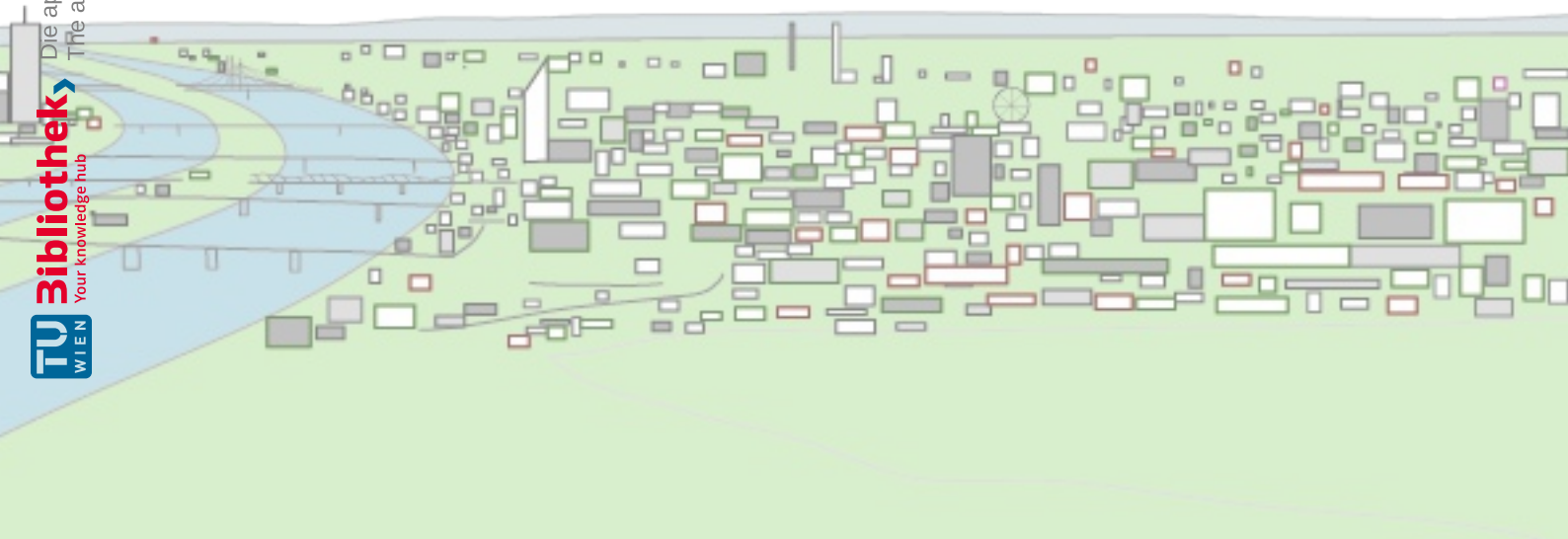
(Barmeier and Morin 2012, 161). Apart from being resilient and able to adapt to future times, changes in relationships and the situation of the city, this form of governance requires all actors to be on the same level. So the authorities need to shift downwards to the local level and horizontally to private entities (Barmeier and Morin 2012). Co-governance does not require an authoritative actor in order for it to work, as long as the actors are able to establish a mechanism for decision-making that is effective (Barmeier and Morin 2012). This is also the case for food planning, although, it does require municipal support to be part of urban developmental strategies.





4. Urban Farming

4.1. Agriculture in Vienna
4.2. Urban Agriculture
4.3. Best Practices from the USA
4.4. Viennese (Urban) Farms



4. URBAN FARMING

Globally, the interest in urban farming is growing and its advantages are clearly visible. However, projects that are economically profitable, while environmentally and ethically sound, are scarce (de Graaf 2012). The biggest advantage that urban agriculture has compared to rural agriculture is that the food production takes place near to the consumers, making it more visible and leading to greater acceptance of agricultural practices (Morgan 2014). The challenge urban agriculture faces, is to take advantage of the opportunities and resources that cities provide. This opportunistic nature, however, also requires the forms of agricultural practices to be very diverse and resilient, as every city and even neighbourhood is different, geographically, typologically, environmentally, socially and demographically (de Graaf 2012). Urban farming can play an important role in the water, waste, energy and, of course, food systems of the city (de Graaf 2012).

Smit and colleagues define urban agriculture as *"an industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city, or metropolis, on land and water dispersed throughout the urban and peri-urban area, applying intensive production methods, using and reusing natural resources and urban wastes, to yield a diversity of crops and livestock"* (Smit, et al. 1994, 1).

Mougeot argues that urban agriculture *"can be described as the growing, processing, and distribution of food and non-food plant and tree crops and the raising of livestock, directly for the urban market, both within and on the fringe of an urban area"* (Mougeot 2006, 4). He also argues that urban agriculture takes advantage of the resources the city has to offer. Namely: unused or under-used space, organic waste, water, services and products that are specific to urban settlements (Mougeot 2006). The outputs of urban agriculture are green areas, increased biodiversity, recycled resources (such as compost), services (such as therapy and education) and products (such as vegetables and dairy) for the immediate urban area (Mougeot 2006). Urban agriculture's proximity to and relationship with other urban services and opportunities gives it the opportunity to intertwine with the city's economy and ecology. It does not and cannot replace rural agriculture, but rather compliments it (Mougeot 2006).

Sieverts (2003) argues that urban agricultural practices must be included in urban policy as they create *"a new urban landscape that merges cultural, social and productive*

functions" (Caputo 2012, 263). Caputo (2012) concludes, that urban agriculture can improve the city's biodiversity and microclimate, contribute to integration and provide an effective method to reuse organic waste and significantly reduce the use of resources required for food production.

Although urban agriculture is not a new phenomenon and is very present in cities in the Global South. In cities of the Global South urban agriculture *"is generating products valued in the tens of millions of USD, year in and year out"* (Mougeot 2000, 1) and provides the local people with an income and food. Cities like such include Nairobi, Dakar, Fortaleze, Cagayan de Oro, Addis Ababa, Harare, Lima, Habana, Brazzaville and Lomé (Mourgeot 2000). Urban agriculture is a phenomenon that has not been a part of modern society in the Global North. Since the industrial revolution and the invention of fast transportation methods enabled food production to take place far away from the consumers. Urban agriculture is becoming more popular in the developed world (again), as it provides citizens with business opportunities that have positive environmental and social impacts (van der Schans and Wiskerke 2012). This confronts urban planners with challenges that they previously believed to be reserved for rural areas, while having to cope with urban challenges as well (Morgan 2014).

4.1. AGRICULTURE IN AUSTRIA

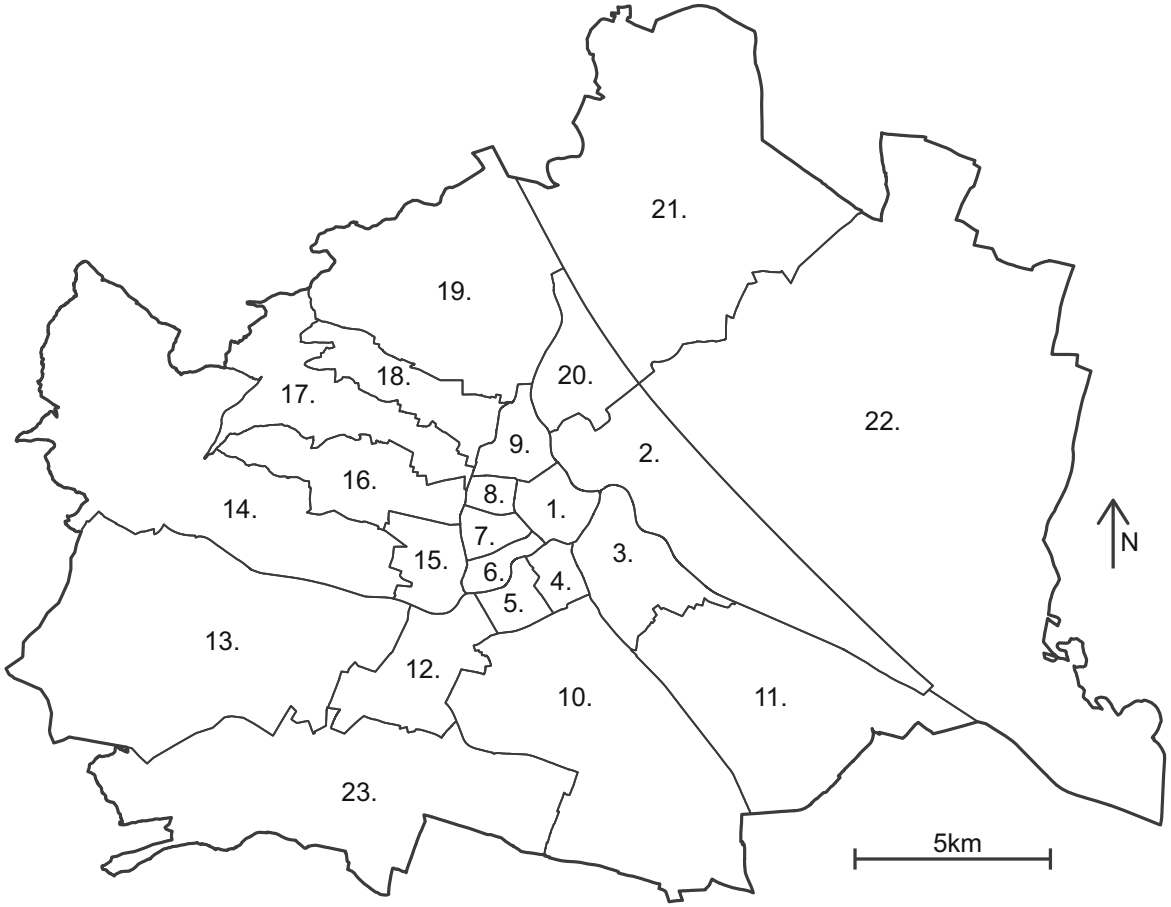
Agriculture is a direct interaction between society and nature (Gaube and Haberl 2006). In Austria, it can be observed, that the agricultural trends have changed drastically since the 1950s, where food was not that easy to come by, and to upscale production was urgent (Gaube and Haberl 2006). In order to understand these trends, one first has to determine what agriculture actually is.

Agriculture intends to fulfil the basic needs of the population (Wytrzens 1994). According to Gabler's Wirtschaftslexikon the term *Landwirtschaft* (agriculture) describes economic activities in which land, livestock, plants, work, capital and know-how are input factors and agricultural products are the results (Gablers Wirtschaftslexikon). Furthermore, the term agriculture, or Landwirtschaft is difficult to define strictly as there are many different forms of agriculture, ranging from hobby gardening to large scale industrial production. There is no definition separating a hobby farmer from a fulltime farmer, as long as they produce food they are farmers. However, regardless of this, agricultural activities require space, resources and a market (Wytrzens 1994). According to Austria's legal definition for agriculture it must either a) produce plant products including wine and fruit growing, horticulture and nurseries; b) keep livestock and produce animal products or c) hunting and fishing activities to take place (Wytrzens 1994). Agriculture intends to fulfil the basic needs of the population (Wytrzens 1994).

Agriculture is an ancient profession and has historically been practiced near and in cities as well as separated completely from urban settlements. Agriculture in developing countries still plays a very big role in cities and is vital for many people's survival. Before the industrial revolution and the technology to mass-produce and transport food quickly and efficiently, food was grown locally and agriculture played a role in every city (Laa 2017). Nowadays, there is a strict line between urban and rural: people are either urban dwellers or rural residents - there are no grey areas (Lohrberg, et al. 2016). Urban settlements are associated with trade, education and legal systems, while rural settlements are known for farming food and producing other commodities (Lohrberg, et al. 2016).

Vienna has been experiencing the same changes in its agricultural structure as is evident all over Europe and the developed world. Since 2010, every 7th Viennese farming business has closed down; the large farms are growing and pressure is immense on small businesses (Landwirtschaftskammer Wien 2017). Between 2015

Figure 3: Map of Vienna's districts, adopted from the AgSTEP (Landwirtschaftskammer 2014, 11), edited



and 2017, 34 farming businesses shut down leaving the number of Viennese farms at 645 (Landwirtschaftskammer Wien 2017). When exploring the suburb districts of Vienna, such as the 21st (Floridsdorf) and 22nd (Donaustadt) districts (see Figure 3), it is very noticeable that there are many construction sites, most of which are building apartment buildings or complexes of small houses. In the last 10 years the development and growth of the city into previously agriculturally dominated areas is undeniable.

City dwellers have lost touch with where their food comes from. Food production does not usually take place within city districts and most people have not been on farms or even grown their own food before. People have lost the connection with agriculture

and nature and often do not understand where their food comes from, which causes conflict (Wytrzens 1994). There is a movement of scepticism and uncertainty towards farmers and agriculture within the general population, as evidence of agriculture's contribution (due to modern agricultural practices) to climate change, poor health, social and ethical issues associated with and due to modern agricultural practices which are becoming common knowledge. Awareness of the environmental and societal impacts of our consumerism and behaviour is a newer concept and phenomenon, which has only been acknowledged publicly since the 1970s (Wytrzens 1994). Since then, societal changes occurred which have led to industrial agriculture's reputation as being environmentally irresponsible and incriminating, leading to farmers receiving a negative reputation (Wytrzens 1994). According to Wytrzens (1994), within the last few generations, farmers have been forced to change their cultivation methods from organic, traditional methods to keep up with the demand for food and other commodities by implementing industrial and chemical methods. Currently it is expected that farmers still meet the demand, while moving away from industrial and chemical practices and back to traditional methods or to implement costly, innovative farming techniques (Wytrzens 1994). Accordingly, Wytrzens claims, that there is a decline in new farmers and people choosing an agricultural career path, as the profession is no longer as prestigious and profitable as it once was. The agricultural structure of Austria is changing as a result. Nevertheless, the agricultural sector is cleaning up its act and is gradually becoming a cleaner and more environmentally and socially competent sector involving other actors and sectors (Wytrzens 1994).

Generally, for a farm to function, it needs land, natural resources (such as water, seeds, animals and soil), a labour force, capital and farming and food production knowledge and experience. It is important to note, that a farm's output is much more than solely the food or goods that it produces. A farm has a social function and impact, an environmental impact, takes care of fields and forests, and produces food and goods upon which society is dependent (Wytrzens 1994).

4.1.1. Agriculture in Vienna

Agriculture plays a vital role in the structure of Vienna (see Figure 4). Approximately 14.5% of the total land in Vienna is used for agriculture, of which 73% is Ackerland, 13.5% is Gartenbau and 12% is Weinbau (Landwirtschaftskammer Wien 2014) (See

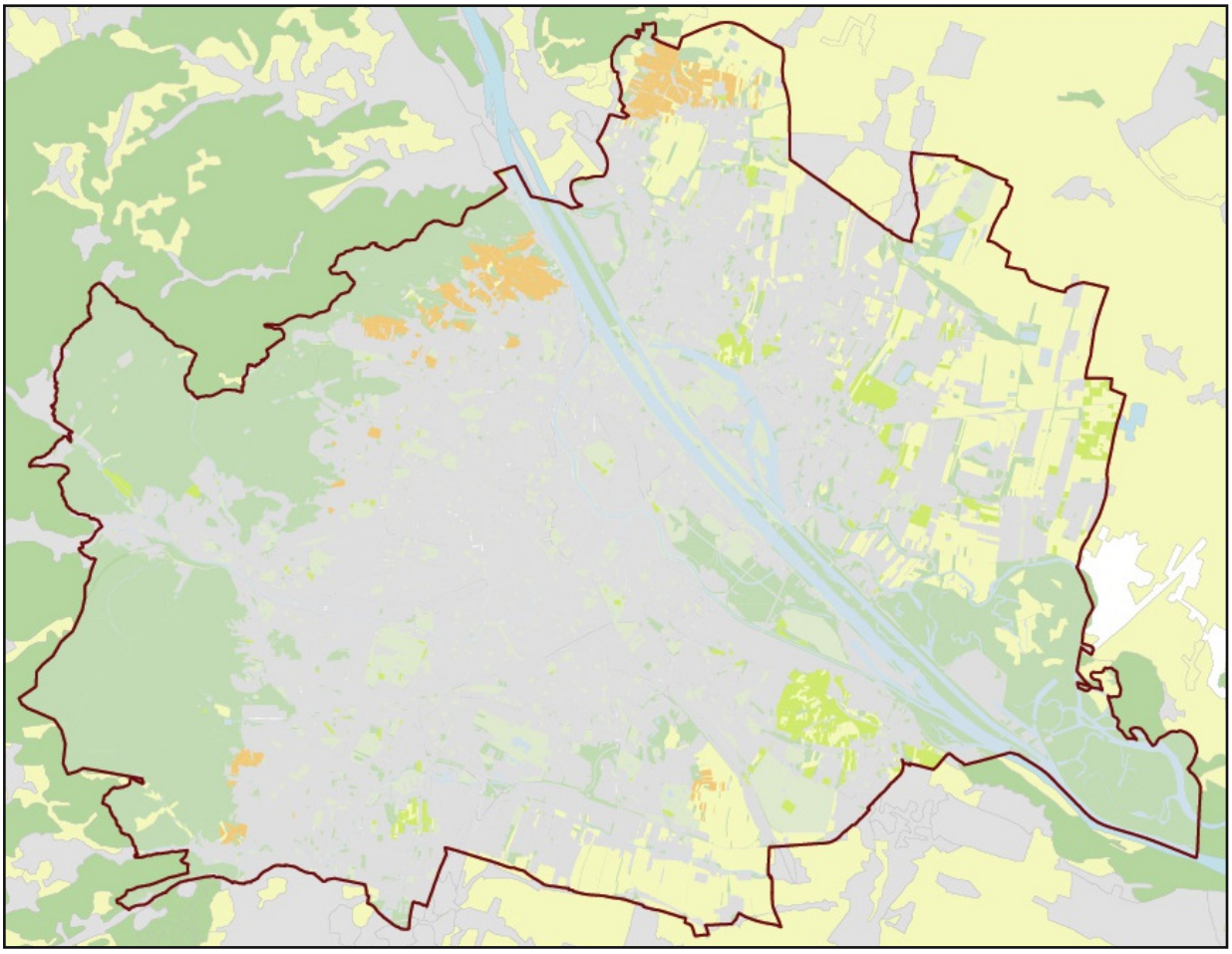
figure 4). Furthermore, Vienna is home to nearly 40% of the total greenhouses in the country (Interview 7 2018). Historically, there was much more agriculture in the city, in areas such as the Donaufeld, however, due to the growing population and its pressure on the housing infrastructure of the city, the city has expanded into areas that were previously used for food production. Many of the farmers then moved towards the outskirts of the city, where the pressure was significantly lower (Interview 5 2018). Currently, the city is expanding into its outskirts, and more and more farming land is being developed to ease the pressure on housing and other infrastructure. Even large projects, such as the Aspern Seestadt project in the city's 22nd District, one of the largest city development projects in Europe is located in the middle of farmland, with the vision of being a city centre for future development and one of the planned polycentres in Vienna, is being built on previously farmland and is still surrounded by farmland (Wien 3420 aspern Development AG). Once the construction is finished in 2028, Seestadt will be home to over 20 000 people and provide 20 000 potential workplaces (Wien 3420 aspern Development AG). Farmland is being and has been converted into building land and is most often not replaced or compensated for elsewhere. Once farmland has been built on and given over to urban development and building expansion, the production of the soil can never be regained and the farming space is forever lost (Interview 7 2018). Images 1 to 4 illustrate farmining practices in Vienna. The sources of all images can be found in Section 8.2.

There are three main types of commercial farming taking place within the administrative borders of the city of Vienna (see Figure 4). Firstly, the city's favourite and most prestigious form of farming is the *Weinbau*, vineyards for the production of wine grapes. The area used for Weinbau is very constant and rarely reduced or lost due to urban development and construction projects; interestingly, more vineyards are actually being planted (Interview 7 2018). Its role in the city is also not debated, the citizens are proud of the wine production; it plays an important role in the culture of the city and is celebrated with various events and past-times, such as walking in the vineyard hills or going to local small restaurants to drink their house wines. The population is very aware and proud of the vineyards and wine production in the city.

The second form of farming in Vienna is *Gartenbau*, the farming of vegetables for consumption usually in greenhouses. This is the most important form of farming in the city as it directly feeds the people. Nearly 40% of all Austrian greenhouses are located

in Vienna (Interview 7 2018). Unfortunately, Gartenbau does not play an important role in the daily lives of the population and the people are not very aware of the production of vegetables in the city. They will see that the vegetables in the supermarkets are Viennese, but more importantly, they do not see Gartenbau as added value and are quite unaware of it. Ironically, Gartenbau contributes to the health and economy of the

Figure 4: Map of Vienna with Land-Use, adopted from the AgSTEP (Landwirtschaftskammer,2014, 11)



city and is the most important form of agriculture in Vienna (Interview 7 2018). Not many cities are able to produce as many fresh vegetables so close to the consumers, as Vienna does. Unfortunately, the land used for Gartenbau is decreasing and becoming unprofitable as the city expands through its urban development actions, disconnecting it from the infrastructure networks.

Finally, *Ackerbau*, the production of grain, corn and cereals, is the form of farmland that is most often considered for city expansion and development projects and is the most at risk (Interview 7 2018). Regardless, Ackerbau areas are often seen as recreational areas, with the locals using them for outdoor activities such as jogging

Image 1: Vineyards

Image 2: Orchards

Image 3: Vegetable Field and Greenhouse

Image 4: Grazing Cows

or walking. Other than for recreational activities near Ackerbau farms, most of the population have little direct contact with these farms (Interview 7 2018).

In order to protect farmland, the city has various zoning categories, that protect or favour farming uses. If the land is zoned as agricultural land then generally, farming is prioritised, buildings required for farming are permitted and the land is generally used for Gartenbau. If the land is zoned as forest and meadowland, then agricultural uses may take place, however, the rules are very strict and no buildings may be constructed, regardless of use - generally vineyards are found in this zone. 30% of active farmland in Vienna already has other land-uses or a building ban. While a lot of farmland, especially in the 22nd District, has not been allocated a land-use yet, as there are many ambiguities (Interview 7 2018).

Vienna is experiencing a large increase in population and it is predicted that by 2029 Vienna will have a population of more than 2 million inhabitants (Magistratabteilung 18 2015). In 2016 the population was at approximately 1.87 million, having grown by around 200 000 people in 10 years (Magistrat der Stadt Wien (a)). In order for the city to cope with this increase in population, it needs to grow compactly and ensure that enough green space is protected in order to guarantee the standard of living in the city. These green spaces, including open-air agriculture, need to be protected as they play a very important role in microclimate of the city. Vienna strives to keep up its quota of over 50% green areas, ensuring that future generations also experience the quality and quantity of green areas that current generations are privileged to have (Magistratabteilung 18 2015).

Currently, there are two forms of solidary agriculture, namely *'Community Supported Agriculture'* (CSA) and *'Community Made Agriculture'* (CMA) in Vienna (Interview 16 2017). The first requires the community to help finance the farm and in return profit by receiving fresh produce regularly (Interview 16 2017). For the second to take place, farmers lease out land, so people can lease land parcels and grow their own food (Interview 16 2017). These forms of solidary agriculture and the initiatives that identify as such, aim to allow the participating citizens to be partially self-sufficient and be able to rely on themselves for their nutrition, freeing themselves from dependency on supermarkets and commercialised produce. Although these forms of agriculture do take place within the city's borders, due to lack of land in the more densely populated

areas of the city, people must be willing to travel to the outskirts of the city to grow their produce. According to the Bio Forschung Austria, who plays an important role in connecting people with farmers who are leasing land and teaching people how to grow food organically, the demand is much higher than land parcels available and farming projects are able to provide for (Interview 16 2017).

There are several alternative farming initiatives in Vienna, such as the *Gugumuck Snail Farm*, the cellar mushroom farm *Hut und Stiel*, the hydroponic fish and vegetable farm *Blün*, the hydroponic microgreens farm *Herbeus Greens* and the *City Farm Schönbrunn*, however not many people know about these farms or initiatives and they are not common practice in the city yet. The support from the city is lacking for small businesses (Interview 11 2018), making it an unattractive venture for people.

4.1.2. Agricultural Planning in Austria

Agricultural planning in Austria is dynamic and interdisciplinary. It is constantly changing and developing due to technological advances, societal and global needs and trends (Wytrzens 1994). The discipline is built up from and depends on various fields of knowledge, such as architecture, geography, sociology, agriculture, business and economics (Wytrzens 1994). The changes that agriculture goes through are not only noticeable in the ways that food is produced (technologically, for example), but in its importance amongst the population, planners and politicians, and the methods of incorporating agricultural planning into national, regional and local planning tools, developments and political strategies (Wytrzens 1994). Spatial planning (including agricultural planning) in Austria is a so-called *'querschnittsmaterie'* (cross-sectional matter), meaning that there is no authority or national institution that is solely responsible for the planning of and taking care of the concerns of this field, in this case agricultural planning (Wytrzens 1994). Therefore, every administrative area is responsible for the agricultural planning that takes place within their borders (Wytrzens 1994). Every province is responsible for its own agricultural and local planning (Wytrzens 1994). However, since agricultural planning, and spatial planning in general, requires inputs and expertise from many different fields and levels, some of which are the responsibility of other (often higher) administrative levels (such as regional, national or international) any agricultural planning developments are complicated and require many resources, voices and much time (Wytrzens 1994). When planning for agricultural activities takes

place, many different people, representing different interests and groups that need and wish to be involved (Wytrzens 1994). These actors include the agricultural ministry on a national level, universities, regional management, the agricultural chamber, various planning institutes, offices and societies, as well as consultants and individuals (such as the farmers themselves) (Wytrzens 1994).

Agriculture is often associated with the countryside and urban areas are associated with more technological or economic disciplines. Therefore, agricultural planning is generally reserved for rural areas and is a political and planning instrument that aims to improve the lives of people living in rural areas. Within this thesis agricultural planning is understood as a discipline that has a close relationship with other social and economic fields such as regional and infrastructural politics and scientific fields such as ecology and water safety, while having intertwining relationships with other planning fields such as traffic and infrastructure planning (Wytrzens 1994). Agricultural planning can influence and be experience through different planning levels, such as international agreements, regional and local concepts and strategies and development instruments (Wytrzens 1994).

According to Wytrzens (1994), agricultural land-use zones only make sense when they are combined with other zones, such as building zones, as they contribute both directly and indirectly toward one another's success and prosperity. Spatial planning and agriculture have gone hand in hand since the beginning of horticulture (Wytrzens 1994). In fact, Wytrzens says, that one can assume that agriculture has played a vital role in spatial planning since its early days. Historically, agriculture has developed along with the population. As the population grew and required more living space, agricultural land was rezoned for housing and agricultural land was rezoned further from the cities (Wytrzens 1994). With the land-use plan being legally binding for future endeavours, agricultural activities in and near cities have been put under pressure in numerous ways (Wytrzens 1994). *"Especially since various insufficient provisions have been made to ensure that agricultural issues are taken into account in the course of zoning planning. This insufficiency manifests itself not only in how the land to be used for agriculture is determined, but also in what consequences farmers may experience for inadequate dedications"* (Wytrzens 1994, 433). As every province is responsible for their own zoning laws, how zones are determined is subjective to these laws. According to Wytrzens, agriculture does not posses the same importance and urgency

as other zones, and is therefore often forgotten or not taken into consideration when land-use plans (Flächenwidmungspläne, FLWP) are created. Planners are often out of touch and do not know which agricultural activities take place and therefore, cannot create a land-use plan that takes the farms into account (Wytrzens 1994). As the zoning plan is legally binding for all future activities, farmers often do not have many options, and the land is often rezoned for other uses, such as residential, with which a farmer can do little (Wytrzens 1994). It is however, important to note, that not only is agriculture often put under pressure by the zoning plan, it can also profit from it, as it can protect agricultural land form becoming building land.

It can be concluded that urban and local planners have a lack of knowledge of the agricultural activities that take place within the city and that this lack of knowledge is manifested as an assumed disinterest in agricultural activities, as their thought may be, if we do not know about it, then obviously it is not important to the local people. Therefore, when talking to certain people, such as zoning planners, it appears that there is no or only little interest for land within the city to be zoned as agricultural land, in other words for agricultural activities to take place within the built-up city, which contradicts other actors, such as farmers and citizens.

4.2. URBAN AGRICULTURE

"Urban agriculture is likely to play an increasingly important role in meeting the most basic food needs of urban residents" (Viljoen and Wiskerke 2012, 28) as urbanisation, stress on natural resources and food prices continue to increase and climate change takes place.

Farmers in urban and semi-urban contexts play a larger role in their respective cities than simply producing food. They must be agile and cope with a variety of different situations due to the density of the cities and the limitations they are confronted with as a result of their location (Kost and Kölking 2017). Agriculture, traditionally, is dependent on land, however, nowadays, there are many forms of agriculture, such as off-the-soil agricultural methods, such as using greenhouses, hydroponic technologies or vertical farms that enables farming activities to take place off of the ground (Kost and Kölking 2017). With this said, urban farming has not been a part of most urban developmental processes recently as the importance of agriculture in urban environments is often forgotten or ignored (Kost and Kölking 2017). Kost and Kölkinger also argue, that urban farming is a vital component of sustainable urban development and cannot be separated.

In order to successfully implement and carry out urban farming projects and carry out sustainable city planning as a whole, the processes cannot be strictly top-down or bottom-up: a form of co-governance must exist. These processes require a synthesis of actors and stakeholders from different disciplines and political levels, including experts and representatives from different departments and fields, as well as interested locals (Kost and Kölking 2017). Farmers, politicians, planning representatives, property owners, and society need to be brought together to discuss current and future developments respectively, at eye level (Kost and Kölking 2017). These players need to work together to create strategies that contribute to the wellbeing of the city and work towards achieving sustainable development for future generations. Agriculture also needs to be taken into consideration more in municipal planning efforts and provide guidelines and strategies for urban farming in the city, while allowing, motivating and supporting local people and businesses to initiate and carry out urban farming projects (Kost and Kölking 2017). For successful urban farming projects, bottom-up initiatives as well as top-down support and guidance are vital (Kost and Kölking 2017). However, this makes projects risky and unpredictable in the eyes of the municipality, as it is not in charge of the processes, leaving the projects and their outcomes up to the people

and businesses involved (Kost and Kölking 2017).

The actors that are relevant for successful urban farming projects are numerous and diverse. Not only must the local population be included, but representatives and experts from relevant associations, politics, administration, planning, science and research also need to participate and be consulted (Kost and Kölking 2017). Urban farming is interdisciplinary and as no two farms are identical, so the planning and implementation processes are time costly. Furthermore, experts are required as the local people often lack expertise in various fields that are of value for urban farming, so experts need to be consulted to make sure that the projects are realistic and achievable (Kost and Kölking 2017).

Farmers have gained a negative reputation in society and are often seen as contributing negatively to the environment due to mass production and factory farms (Kost and Kölking 2017). For agriculture in and around cities to be preserved and prosper, the value of agriculture in the city, and in the eyes of the people, need to be acknowledged, respected and valued. The population needs to be aware of the role important that agriculture plays in an urban setting. The areas designated for urban farming need to provide the people with other, additional uses and benefits, such as recreational and appropriation opportunities (Kost and Kölking 2017). Agriculture that takes place near a city does not only provide the population with benefits such as fresher and local produce, but it is also attractive for farmers to have their farms near and in cities as they have the possibility to integrate into urban society and be near to and build relationships with the consumers (Kost and Kölking 2017). Urban agriculture also increases biodiversity, reuses organic waste, reduces the heat-island effect and improves the microclimate and air quality of the city (Oberndorfer, et al. 2007). Farming activities near and in cities promote the spread of knowledge and awareness of nutrition and nature, and they flourish when local people are informed, become interested and are involved (Kost and Kölking 2017). Society as a whole receives too little information regarding their food, its origin and production process. By making agricultural practices around and in the city more transparent and obvious, the people feel like they are able to trust the local farmers more, improving the image of the farmers while also boosting the local economy (Kost and Kölking 2017).

Education and awareness are vital: children and adults alike need to be educated

about the food-growing processes that are required to sustain healthy diets and need to become aware of the importance of agricultural activities in and near cities (Kost and Kölking 2017).

Land is limited and not replicable. Generally, land is supposed to be used as efficiently and optimally as possible, however, ideally, not more than 15% of land should be developed (Kost and Kölking 2017). This allows the other 85% of the land to compensate for the 15% of land lost through concrete or asphalt (Kost and Kölking 2017). The remaining, untouched land balances the climate and ecosystem of the area by regulating water runoff and seepage, growing vegetation that filters the air and produces oxygen and keeps the microclimate stable. However, as this 15% built up area ideal is unrealistic and impractical in an urban context, the city needs to be observed as a whole with its surrounding area. The surrounding area needs to compensate for the city's lack of ability to contribute to sustaining the environment. This means that cities need large buffer areas around them that remain soil and the larger the city, the larger this area needs to be. Land that is developed and covered in concrete and asphalt are unable to carry out vital environment-regulating tasks, such as regulating the microclimate, and promoting and sustaining biodiversity and ecosystems (Wanner and Camenzind 1995). The agglomeration zones of cities experience the most rapid change in land-use, often with intensive activities taking place, decreasing or permanently stopping the ability of the land to absorb and retain water and nutrients (Wanner and Camenzind 1995). With the development of land, natural ecosystems and habitats are lost, and with human influence, the rate of species extinction has increased massively (Wanner and Camenzind 1995).

Therefore, it is of utmost importance, that open spaces in cities do not lose touch with nature, as they are vital for the natural processes that need to take place to make a city liveable. If open spaces are covered in concrete (such as on squares), this space is also lost for environmental purposes (Kost and Kölking 2017). Open spaces in urban areas have numerous functions that contribute to the quality of life in the city (Wanner and Camenzind 1995). Green open spaces are valuable as they play an important role in regulating the microclimate and biodiversity of the city and are of importance for the comfort and health of the population. Public open spaces (such as parks and squares) play a role as a place for recreation and socialisation for the local population, providing the local people with a space that they can appropriate and the

chance to be outside and amongst their neighbours (Kost and Kölking 2017). Green open spaces also provide animals and plants with a space in the city where they can flourish; they contribute to creating a comfortable microclimate and regulate air and water quality (Oberndorfer, et al. 2007, Wanner and Camenzind 1995). Open spaces can also have economic purposes and can contribute to the livelihoods of the local people (Wanner and Camenzind 1995).

Open spaces in cities, to balance out the concrete jungles that we know as modern urban settlements are vital. However, due to space limitations and pressure on housing development, urban open spaces are not always protected and preserved the way they should be. Although there are planning instruments and regulations in place to protect open spaces, in practice, this is not always implemented (Kost and Kölking 2017). According to Wanner and Camenzing, the microclimate of a city is dependent on the density of the structures, the amount of area that can regulate water flow (water drainage and evaporation) and vegetation in the city and the rate and volume of anthropogenic pollution and greenhouse gas emissions (Wanner and Camenzind 1995).

Open spaces play many different and important roles in cities. Many different actors like to use the space in different ways, the open spaces are also a space of use conflicts and are under great pressure (Kost and Kölking 2017). Different uses for, and actors of, open spaces have different goals and priorities that are not always compatible and compete with one another. For example, goals for environmental protection are usually not compatible with housing expansion goals, agriculture versus water conservation and environmental protection versus recreational area. Since so many actors with different goals and motivations are involved, securing, preserving and optimising open spaces are large responsibilities for spatial planners and politicians (Kost and Kölking 2017). Furthermore, spatial planning and politics and all their instruments and goals are human-made and therefore, susceptible to changes in political decisions and situations. This changes how open space is used and preserved depending on the goals and motivations of the actors currently involved and their awareness and knowledge (Kost and Kölking 2017). In the past, open spaces played a more urgent role in the lives of urban dwellers as they depended on it, so its protection was of utmost importance (Kost and Kölking 2017). Nowadays, with globalisation and the comforts of industrialisation, this is no longer the case and is reflected as such, in

planning instruments and political decisions and agendas (Kost and Kölking 2017).

Food production, the climate, natural resources and space are inseparable. Urban farming projects produce food in innovative and efficient ways, revitalising space that was previously not used and creating (with open-system urban farms) green hubs that contribute to creating a more comfortable climate and better urban environmental conditions (Oberndorfer, et al. 2007, Kost and Kölking 2017). The short routes that the food has between production and consumption contributes to the health of the population and the climate by producing less pollution and leaving more space untouched (Kost and Kölking 2017). Urban farming projects that are integrated into the buildings and use the waste resources of the buildings (such as grey water and waste heat) noticeably reduce the use of fresh resources of the buildings and of the agricultural activities (Kost and Kölking 2017). The resources that are saved can then be used for other activities and needs, or saved for future generations (FAO 2017).

There are many types of farming that can, and do, take place within the city's administrative boundaries. Greenhouse and conventional farming often take place on the outskirts and agglomeration zones of cities. However, generally most forms of farming take place in a more traditional and conventional manner than urban farming aims to. There are innovative forms of farming that optimise space and resources and grow food very efficiently. Urban farms may be disconnected from their rural or semi-rural counterparts, but they are close to a very large portion of their consumers (Lohrberg, et al. 2016). Although every urban farm has a spatial dimension that defines it, they are not dependent on land (Lohrberg, et al. 2016, Kost and Kölking 2017).

As the people, politicians and other officials are becoming more aware of the importance of high quality food and agriculture in an urban context, the topic is gaining momentum and their value in political decisions and planning processes is increasing (Kost and Kölking 2017). New concepts that promote self-sustenance of urban settlements, through creating urban areas that are productive in more senses than simply to provide people with space to carry out their daily tasks are being created. Productive systems in the sense that the space creates necessities for human and other life, such as food and oxygen, while fulfilling other rolls too, such as creating a green space or recreational area (Kost and Kölking 2017). These spaces are not limited to ground level open spaces, such as parks and fields that have not been built

upon yet, but include existing spaces such as rooftops, cellars and empty buildings (Kost and Kölking 2017).

SkyFarming-projects do not require land in the traditional sense, as the farms are not located on the ground on soil (Kost and Kölking 2017). This type of farming grows food in non-conventional ways, such as on rooftops; on shelves on top of each other inside buildings; in containers or green houses located on rooftops or inside buildings (Kost and Kölking 2017). Image 5 illustrates a simulation of farming in an urban setting. SkyFarms use modern and innovative technologies to limit and optimise resource use, such as hydroponic techniques (Kost and Kölking 2017, 67). Another name for this type of farming is ZFarming, referring to the fact that these farming techniques do not require land or acreage and are, therefore, Zero-Acreage Farms or ZFarms (Thomaier, et al. 2014, Kost and Kölking 2017). These innovative forms of agricultural production are viewed as up-and-coming and thought to have great potential if integrated into urban areas properly (Kost and Kölking 2017). ZFarms and SkyFarms are incredibly versatile and adaptable (Kost and Kölking 2017). Every urban farm has

Image 5: Urban Farming Simulation

individual goals depending on the aims of the farmers and different conditions due to the diversity of the urban area and infrastructure. Generally, urban farming projects can be observed as having a social and educational commitment, aim to provide sustainable food production and are often a recreational and social haven for the local people (Thomaier, et al. 2014). Fundamentally, urban farming aims and pushes to reconnect food production and food consumption, by bringing the production closer to the consumers (Thomaier, et al. 2014). Urban farming is non-selective and allows for farms that are soil-based, hydroponic or involve livestock; are closed or open-systems; located on roofs, in buildings or in cellars and in existing structures or new developments (Thomaier, et al. 2014). See Images 6 to 11 showing different forms of alternative farming methods. The only similarities these farms must have is a large-scale production of food (so not only for personal use) and their independence from land (Thomaier, et al. 2014).

Structurally, according to Kost and Kölking (2017), urban farms can be divided into two categories: open-system and closed-system urban farms. Open-system farms can further be categorised into two types of urban farms. Firstly, rooftop farms that have a business background and are for profit, often near to shopping areas or restaurants. Secondly, edible facades, which are based on the idea of green facades, however the vegetation on the building facades is edible and produce fruit and vegetables (Kost and Kölking 2017). Closed-system urban farms are divided into four types of farms. Roof-greenhouses are greenhouses that are located on the roofs of buildings and they generally play an important social role in spreading awareness and educating the people. Building skins are vertical greenhouse farms that are currently still only a prototype. They are similar to edible facades, only with a second transparent layer outside the building to create a closed-system; thirdly, indoor-farming generally takes place inside abandoned factories and industrial buildings due to their size. It can take place inside any building, and generally mushrooms, salads, sprouts and herbs are grown in this manner. Vertical farms can take place in any multi-storey building and aim to produce food for big cities. The farming happens in a controlled environment and with the implementation of innovative techniques such as hydroponic farming (Kost and Kölking 2017). These types of farms are not mutually exclusive as one farm can combine more than one type of farm.

Image 6: Rooftop Farm in Hongkong

Image 7: Edible Facades

Image 8: Rooftop Greenhouse in Montreal

Image 9: Building Skin Prototype

Image 10: Vertical Farm

Image 11: Hydroponic Farm

According to Hedin (2015), there are four urban farming models. Institutional farms are farms that are run by a social institution such as a school, and aim to provide a recreational area, as well as produce food and educate people (Hedin 2015). Community gardens are taken care of by interested residents and volunteers, with the objectives to create a sense of community, be self-sustaining and for recreational uses (Hedin 2015). Community farms are usually operated by non-profit organisations and have social objectives (Hedin 2015). Commercial farms are for-profit and sometimes have a non-profit counterpart to carry out the social aspects of the business (Hedin 2015). Community gardens are not taken into consideration in this thesis due to the fact that the produce cultivated is used for own use, and therefore the scale of production is small and not adequate for selling or falling under the definition of urban farming used in this thesis.

4.3. BEST PRACTICES FROM THE USA

Urban agricultural activities have popped up all over the United States of America, although local policy was not, and mostly still is not, prepared for this (Cohen 2012). With the realisation that urban agriculture has multiple social, environmental and economic benefits, some cities have started planning for the growth of urban agriculture in their policies (Cohen 2012). Local zoning plans and developmental policies have been evaluated and adapted to support, promote and even regulate urban agricultural projects and initiatives (Cohen 2012). The policies aim to protect urban farms that have been implemented, as well as expand the community developmental and entrepreneurial opportunities for urban agriculture (Cohen 2012). Networks of locals and for-profit Start Ups are putting pressure on city governments to implement these changes and to incorporate and accommodate urban agriculture in city policy (Cohen 2012). Often, the local governments are motivated to accommodate urban farming in their development policies, as they look for low cost options to use land or space that is otherwise unused, and aim to support neighbourhood development, give residents the opportunity to grow their own fruit and vegetables, and provide citizens with healthier, fresher produce (Cohen 2012).

There are multiple good practice examples of urban farming companies from the United States of America, the Netherlands and the United Kingdom, among other countries. Two projects from the United States of America were selected as good practices within the frame of this thesis, as they were accessible to the author and their processes were well documented. These farms are in two different phases, the first, Brooklyn Grange's Rooftop Farms is established (Interview 1 2018), while the second, Ship Shape Urban Farm has only started production in 2018 (Interview 2 2018). Both of these farms are for profit, are civil initiatives and were created and established in cities that previously had no policy framework supporting them. They do, however, both receive considerable support from their respective municipalities and mayors (Interview 1 2018, Interview 2 2018).

Brooklyn Grange (see Figure 5) is a start up company that has built two urban farms on New York City buildings that they run and additionally have built numerous farms and green roofs for clients. Their goal and passion is to provide the local population with fresh, healthy food while giving them the opportunity to learn about food and nature. They also host events such as weddings and yoga sessions on the farms to create more revenue (Plakias 2016).

Shipshape Urban Farm (see Figure 5) is a new Start Up that focuses on farming in repurposed ship containers in Mobile, Alabama using hydroponic technology. Their aim is to enable the production of food anywhere in cities by using resources as efficiently as possible with maximal production in controlled environments, providing healthy food free of herbicides, pesticides or growth stimulants (Interview 2 2018). Another aim is to give people with limited resources and few opportunities the skills and knowledge they need to produce food and thus provide them with a sustainable livelihood (Interview 2 2018).

Figure 5: Locations of Best Practice Examples. Map of the East Coast of the USA, adopted from All World Maps

4.3.1. Brooklyn Grange's Rooftop Farms

Brooklyn Grange implemented and operates two soil-based rooftop farms consisting of more than 1 Hectare (2.5 acres) spread over two buildings in New York City (Queens and Brooklyn to be exact) (Plakias 2016). Additionally, they have built numerous green roofs for private clients and partner organisations (Plakias 2016, 5). Not only are the farms used for growing healthy produce in the city, they are also used for educational purposes and events (Plakias 2016) (see Images 12 to 15). Their aim was to show the world that urban farming can be profitable and positively change the image of cities, while also creating social and ecological benefits for the local neighbourhoods (Plakias 2016).

Image 12: Brooklyn Grange's Rooftop Farm

Image 13: Dinner at the Rooftop Farm

Image 14: Yoga at the Rooftop Farm

Image 15: Brooklyn Grange's Rooftop Farm

Brooklyn Grange's farms are open-system rooftop farms that implement soil-based agriculture. All the labour is done manually, as most mechanical assistance is not possible on top of roofs. Brooklyn Grange's consists of *"11 full-time staff members as well as a network of partner organisations who help make our rooftops a learning laboratory and refuge for students, immigrants, and other New Yorkers."* (Plakias 2016, 5). Generally, when building their rooftop farms, they apply for funding from the Department of Environmental (Interview 1 2018).

The motivation behind the Brooklyn Grange's business ranges from creating a self-sustaining business, to creating spaces where youths and other New Yorkers can appropriate the space and retreat to learn about food and farming. They also want to change the image of cities and show the world that urban farming can be a sustainable industry and should be invested in and supported (Plakias 2016). Brooklyn Grange's wants to provide children and youths with the opportunity to experience green areas and nature (Plakias 2016).

Brooklyn Grange received a lot of support from friends, family, the locals and businesses in the neighbourhoods in their early years. They used fundraisers and crowd funding to acquire funds for their project. The media quickly became interested in the work that they were doing and planning to achieve, and quickly spread awareness of the new business' plans and progress (Interview 1 2018).

The agri-business works with numerous social projects aimed at educating and creating a community for young people, immigrants and refugees who have few other options. They cooperate with the non-profit City Growers to provide young people with the opportunity to learn about farming, food and the environment on the farms. This cooperation gives the City Growers the infrastructure they need to educate and do the educating for Brooklyn Grange, enabling Brooklyn Grange to contribute socially as well. Brooklyn Grange cooperates with the Urban Farm Recovery Project, which focuses on creating a safe haven for Refugees and Immigrants (Plakias 2016). The Municipality, the Mayor's Office of New York City and the Department of Environmental Protection are very supportive of the work the Grange's do, as they desperately want something positive and hopeful for the citizens to be realised and Brooklyn Grange has taken on such a role. The Department of Environmental Protection is supportive of any project that prevents sewage overflow and thus they support green roofs completely.

They even provide funding for the installation of such infrastructure (Interview 1 2018).

They worked closely with the Department of Agriculture of New York City to ensure that they do not accidentally violate any regulations or laws. This department also visits the farms regularly to certify the farms (Interview 1 2018).

Brooklyn Grange's farms' locations were not chosen at random. The deciding factors were the size of the roof and the strength of the building (Plakias 2016). The price of rent of the rooftop was also a very important factor, as the farm needs to make a profit, and with too high rent this would not be possible (Plakias 2016). On a larger scale, the location of the site and the landlord are contributing factors as well. They looked for buildings that were large, strong and cheap in locations near to important transport routes, public transport and residential areas for easy transport accessibility and more possibility of integration into the social communities.

When they started initially looking for their first location, they took what they could get, but now that they have some experience and have created a reputation for themselves, they are able to be more selective about locations and try to look for landlords who are interested and willing to solve infrastructural problems (Plakias 2016). Landlords, who want to make structural improvements, are excited about having a green roof, contributing to the production of local food and want to create a sense of community are the optimal landlords according to Plaskias (Plakias 2016).

Due to lack of information and experience, the team did not apply for a construction permit from the city of New York for the building of the first rooftop farm and were therefore forced to stop construction mid-way until they applied and received the necessary permit (Plakias 2016). They were required to submit a plan, which then had to be approved by the city. In the City of New York, installing a green roof is not considered a large change and therefore does not require a permit. The Brooklyn Grange's team did not realise that this does not apply for rooftop farms (although they are a form of green roof) and therefore the installation and building process cost unexpected time and money (Interview 1 2018).

4.3.2. Shipshape Urban Farm

Shipshape Urban Farm (see Images 16 to 19) is a young start-up that wants to improve the local food system and rebuild it in the city of Mobile, Alabama, USA. They use hydroponic technology in disused shipping containers (Interview 2 2018). The city of Mobile is a port-city and therefore shipping containers are easy to come by. They are also easy to move and place anywhere (such as on the ground, on rooftops and in cellars). The Shipshape Urban Farm business is trying to create an urban farming system that can be implemented all along the gulf coast.

Image 16: Shipshape's Urban Farm

Image 17: Shipshape's Greenhouse

Image 18: Shipshape's Micro Greens

Image 19: Preparing the Soil

Shipshape Urban Farm is trying to build an Agriculture-Tech Company that creates innovative farming technologies to change the food system. The main reason for using hydroponic technology in disused shipping containers is that this method requires low costs, low space and few resources to make a profit and is highly efficient. One container produces about 1 300 heads of lettuce per week (Interview 2 2018). Furthermore, the farm is located in Downtown Mobile, near to the restaurants and bars buying and processing the produce. This is a good selling point for the businesses and the farm as it creates awareness of where the food comes from and people like being able to see where the lettuce on their plates come from (Interview 2 2018).

The Shipshape Urban Farm cooperates with six non-profit organisations on several different projects. One of these projects is the Yes Initiative, the Shipshape team teach individuals how to farm produce using their technology and encourages them to grow healthy food on vacant lots. They then sell the food back to Shipshape, who offers them retail price. Shipshape then sell and distribute the food to the consumers (for example to local restaurants). This gives people who otherwise have few opportunities, the chance to grow and have access to healthy food as well as make money.

"There is a lot of public and high up governmental support for what we're doing" (Interview 2 2018). Dale Speetjens (co-founder of Shipshape Urban Farm) worked for the mayor as a city planner and has used his success in that position and the positive contact to gain a lot of support for the project. The area of downtown Mobile is being uplifted by projects like this and is going from an area where *"you would go to if you wanted to get shot"* (Interview 2 2018) to a nice area with a lot of potential for growth and prosperity.

Social media has spread awareness of the project and due to this and spreading awareness through word-of-mouth, they have not needed to market their business in other ways. An article was published in a local arts and culture magazine and since then their support on social media has spread and increased. The city of Mobile *"was always on the verge of greatness but never there"* (Interview 2 2018).

Speetjens knew that Downtown Mobile was going to be uplifted and that that was the area of the city to invest. Restaurants and bars started opening in the area and soon property prices started increasing. They bought a property in Downtown Mobile at a

bargain. However, due to zoning and other problems and setbacks, they decided to build a test-location in the countryside where they could test out their ideas without having to worry about zoning requirements and limitations (Interview 2 2018)

The location of the farm was chosen mostly due to marketing opportunities. The Farm consists of eight shipping containers and produces the equivalent of a 12-hectare (30 acres) farm (Interview 2 2018). More than half of the production has already been sold to Restaurants in the area. By being near to the consumers, the distribution costs are minimal.

The City of Mobile's zoning regulation dates back to 1962 and does not allow agriculture in any form to take place within the city. In 2009, an overlay was adopted allowing agricultural activities to take place in the city (Interview 2 2018). The zoning plan and overlay are very specific and do not allow the use of shipping containers for agricultural production within the city. This is why the establishment of the farm was delayed. If they were planning on using greenhouses instead of shipping containers, there would be no problem. However, they wanted to make use of disused shipping containers, so they to find a legal way to accomplish this (Interview 2 2018).

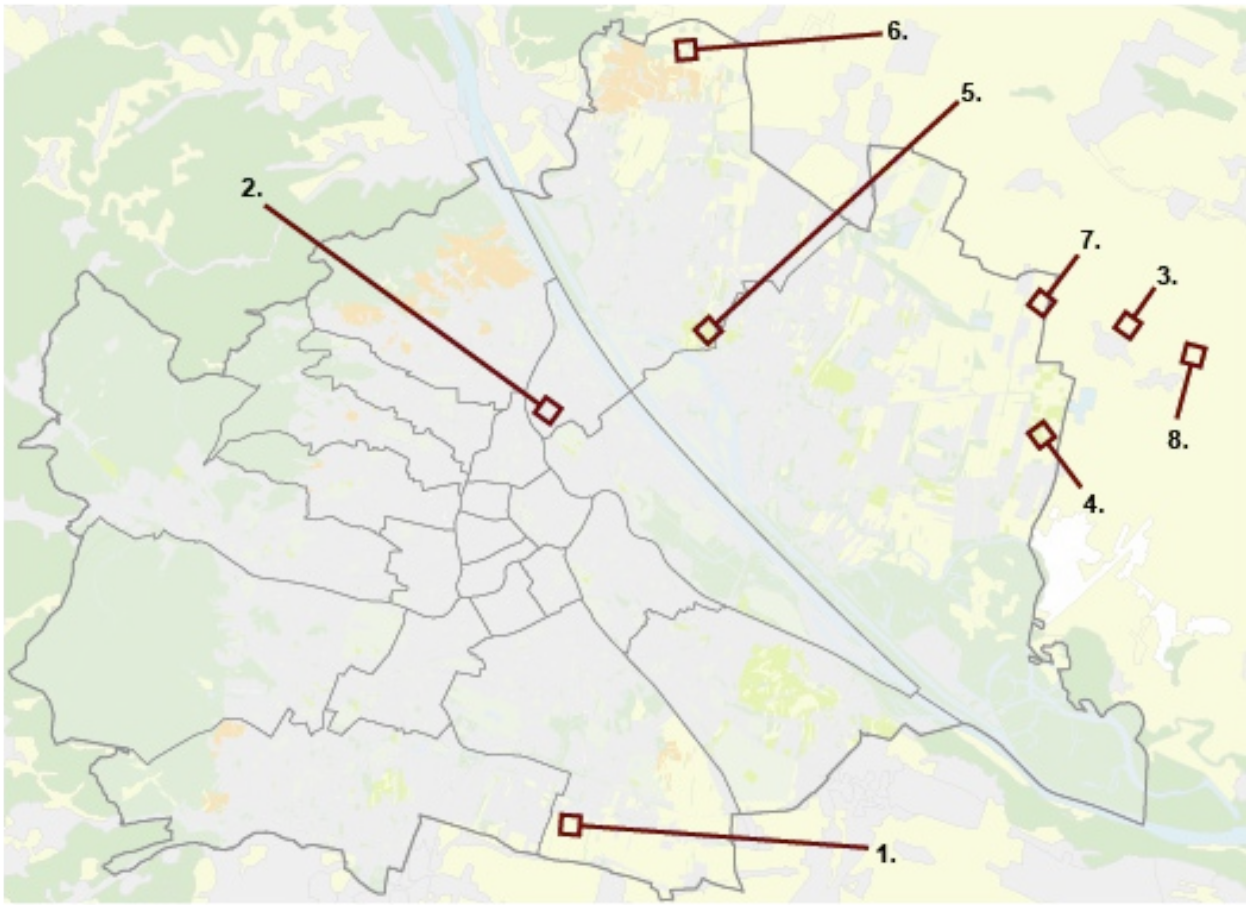
4.4. VIENNESE (URBAN) FARMS

The Province of Vienna is home to over 600 farms, although most of these farms are located on the outskirts of the city and use common agricultural methods, some are innovative and aim to change the way that people view food. This thesis deals with urban farming in a futuristic context, where space and resources are limited (due to urban expansion) and the climate is harsher (due to global warming), Viennese farms that are innovative, in the sense of using alternative farming methods, farm alternative produce or use unusual locations were prioritised and investigated further (Figure 6).

These farms are (Figure 6):

1. **Gugumuck Snail Farm**
2. **Hut und Stiel**
3. **Herbeus Greens GmbH**
4. **Blün**
5. **Wiener Stadtgärtner**
6. **Imkerei Alte Schanze**
7. **Gärtnerei Flicker**
8. **Adamah Biohof**

Figure 6: Map of the Locations of Viennese Farms, adopted from the AgSTEP



4.4.1. Gugumuck Snail Farm

The Gugumuck Snail Farm (Figure 6, Images 20 and 21) is a ground level, snail farm located on the outskirts of the City of Vienna. They envision farming on and in city structures and work towards creating a movement towards healthier, more sustainable food choices. With the rapid expansion of the city and global warming's effects, alternative food sources are vital and the Gugumuck family are embracing this by farming local, indigenous animals that require few resources but are nutritionally of great value, namely snails.

Image 20: Gugumuck Snails

Image 21: Gugumuck Snail Farm

The motivation behind starting to farm snails was to find something that combines tradition with future foods and is environmentally responsible. Snails were the ideal solution, as they are ancient protein carriers, require very few resources and can be mass-produced in very little space.

Although the farm prioritises snail production and making a profit, education and spreading awareness are also very important for the business. They work with the University of Agriculture in Vienna (BOKU) investigating future foods and the role that the snails play as super foods. Furthermore, they try to educate people about the environment, natural foods and future foods. They also offer tours of their business so that the people can see how snails are produced and processed.

Although the farm is situated in a more town-like part of the city of Vienna, the farm plays a larger role in a regional or national context than it does in a local context. This is due to the fact that snails are an uncommon and unpopular food choice and caters to a very specific group. However, the farm plays a significant role as a pioneer for

alternative, healthy, environmentally friendly food production, and is the only of its kind in the region.

4.4.2. Hut und Stiel

Hut und Stiel (Figure 6, Images 22 and 23) is a young mushroom farm Start Up, started by two students and located in the cellar of a building in the 20th District of Vienna. They collect coffee ground from numerous hotels, cafés, offices and restaurants in the city and grow the mushrooms using this medium. The mushrooms grow on bags of coffee ground in the cellar and do not require land or soil. They deliver the mushrooms directly to their clients (mainly high-end restaurants).

Before they started their Start Up, they wanted to determine what is permitted and what is not. There is no Viennese law that permits or prohibits the work that they are doing. The founders of the farm are therefore, not sure whether they are allowed to be doing what they are doing. They try to be as pro-active as possible and invite authorities and municipal departments to come and see what they are doing. They believe, that one must be brave and try out new things, and as long as it doesn't cause harm to anyone or the infrastructure, there shouldn't be any problems.

Image 22: Hut und Stiel's Mushrooms

Image 23: Hut und Stiel's Mushroom Farm

When they started the Start Up, family and friends supported them, without whom the project would not have been affordable. There was no direct support from the municipality, however, they entered competitions and won some money for their innovative ideas.

The farm's aims are to make a profit by producing environmentally friendly food and to spread awareness of the role that mushrooms could play in reducing the greenhouse emissions of the food industry. The rent is high due to their central location and the logistics of collecting the coffee grounds and distributing the mushrooms is challenging. The building's entrance is not optimal for vehicle access. Hut und Stiel aim to expand and then incorporate a pedagogic aspect to the farm, to teach children about the environment, nutrition and dietary trends. The location is optimal for short delivery routes and this also gives them the opportunity to spread awareness by offering workshops, tours, cater to school and university groups and even offer office tours.

4.4.3. Herbeus Greens GmbH

Herbeus Greens (Figure 6, Images 24 and 25) is a micro greens hydroponic farm located just outside of the Viennese administrative border. The founders of the farm work in unrelated fields and became aware of micro greens and indoor farming through the media. They were inspired to grow local, organic and healthy food and wanted to change the way people look at and think of food. In order to gain the knowledge required for this business they attended seminars and conferences all over Europe, visited other farms and educated themselves. Their team consists of experts, such as a biologist, a microbiologist, a landscape planner and a chef. Through this interdisciplinary team, the knowledge and expertise collectively providing the know-how to implement optimal growing conditions and micro-green combinations.

The business started in a room belonging to a nightclub along the Danube Channel in the 9th District of Vienna. However, due to increasing demand, the location became too

Image 24: Herbeus Greens' Microgreens

Image 25: Herbeus Greens

small, so they moved the farm to an old distribution location of the LGV Frischgemüse in a small town, called Raasdorf, just outside of Vienna, where the entire required infrastructure already existed. Their current consists of a large sterile cooling hall, water recycling areas and space for trunks to drive in. They sell their micro-greens to high-end restaurants and catering companies throughout Vienna. When the farm was in the city they worked within one hour from farm to table, now within one day. They deliver everything personally and aim to have a good relationship with their clients and partners.

Currently all transportation is done personally by the team as is all growing and caring of the plants. It is 100% 'home-made' at the moment, although automation processes are in the future as they plan to expand. Automosation is needed to increase their profit margins, as they cannot make a profit if everything is done with manual labour, especially if they keep the standard of earning of the employees to Austrian standards.

Herbeus Greens would like to encourage people to think about where their food comes from and how they nourish themselves by incorporating an educational aspect to the farm, however, this is not possible yet as they are still very young and the priority at the moment is to survive, expand and make a profit.

They received no support or funding from the city or other organisations and institutes. They plan to apply for funding from the city, however up until now they were unsuccessful.

Their aims for their business are to guarantee short transport routes, fresh, local, organic and natural produce, low resource use and efficient production, while making a profit and helping to spread awareness about food.

4.4.4. Blün

Blün (Figure 6, Images 26 and 27) is a young hydroponic fish farm located on the outskirts of the city in the 22nd District of Vienna. The farm is located inside the greenhouse of another farm (the owner of which is a cofounder of Blün). They produce two types of fish sustainably, requiring very little space, very few resources and do not harm other species in the production. Furthermore, due to their closed-curcuit

production and the careful selection of fish breeds that are comfortable in close promixity to each other, the fish have few threats. Preditors, pollution and illnesses are not an issue (Interview 5 2018). The resources that they use is water and fishfeed (Interview 5 2018). The fish water is recycled, filtered and pumped back into the fish tanks or used to grow vegetables (Interview 5 2018).

Image 26: Blün's Fish Tanks

Image 27: Blün's Vegetables

The motivation behind the farm was to grow fish locally, providing people with local, sustainable and environmentally responsible fish. They import the fingerlings from the Netherlands and Austria and grow them in their fish tanks, until they are large enough to be harvested, which takes approximately nine months (Interview 5 2018). They then process the fish and sell them on site or deliver the fish to their customers though the local post. They also sell to the gastronomy in Vienna. The Blün farm does not receive any support or funding from the City of Vienna, however they do receive funding from the EU and many people are very interested in what they do, especially the immediate neighbours. They offer tours of their farm once a week (as to not stress the fish more often) and put an emphasis on the transparency of their business and a relationship built on trust with their customers (Interview 5 2018).

As the farm is located on the premises of a greenhouse farm, there are no problems regarding land-use, however, they must abide to animal welfare and animal rights' laws, as they are farming fish (Interview 5 2018).

4.4.5. Wiener Stadtgärtner

The Stadtgärtner farm (Figure 6, Images 28 and 29) is located in the Donaufeld and

is one of the few remaining, functioning farms in the area (Interview 9 2018). The farm is a family farm and is currently growing blackberries. Customers are invited to come and pick the berries themselves or to buy them on site.

The farm aims to preserve agriculture in the area and especially values organic farming methods. Currently, the farm is not registered as an organic farm yet, as they are still waiting for the certificate (Freimüller). The motivation behind farming blackberries, is that there are currently no farms like this in the region and the farm wants people to have the opportunity to come from around and experience nature and spend some

Image 28: Stadtgärtner's Onsite Shop

Image 29: Stadtgärtner's Berries

time picking berries with their families (Interview 9 2018).

Due to city expansion the Donaufeld is optimal land for residential areas. The infrastructure is already available, as the surrounding areas have been built up significantly in the last two decades. Stadtgärtner and the surrounding farms (although few) are determined to keep their farms running for as long as they possibly can, so that future generations can also experience agriculture in the city. They believe that it is vitally important for people in cities to have access to nature and agriculture near to them so that they can develop a sense of community and pride (Interview 9 2018).

The farm is open to the public during opening hours and people are invited to spend time there and appropriate the space. They are open to school groups and encourage people to bring their own bags and pick the berries themselves. They want people to learn about farming first-hand and reconnect with nature (Interview 9 2018).

4.4.6. Gärtnerei Flicker Gemüse

Gärtnerei Flicker Gemüse (Figure 6, Images 30 and 31) is currently leasing land from the City of Vienna on the outskirts of the 22nd District and cultivates cucumbers in many different forms and sizes in a large greenhouse. 2018 was the farms first season at this location; previously the farm was located in the area of Hirschstetten, a few kilometres nearer to the city centre (Interview 8 2018).

Image 30: Farmer Flicker with Cucumbers

Image 31: Gärtnerei Flicker's Greenhouse

Previously, land was leased from another farmer, the farmer then decided to sell the land, forcing the farm to find a new location. The aim was to keep the business in Vienna, although farming a few 100 meters outside of the administrative border would be significantly cheaper (Interview 8 2018).

The farm negotiated with the MA 49, who then offered him to lease the current location from them. Due to the fact that the land belongs to the city and they offered it to him, building the greenhouse and receiving the permits for it was easy and uncomplicated. The residents in the area are curious. However, the building took place in the middle of a very hot and dry summer causing a lot of dust (Interview 8 2018).

An aim is to incorporate education in the business and take part in projects such as Schule am Bauernhof. Currently, they do not have the means to do this, as they have only just started business at their new location (Interview 8 2018).

The Gärtnerei Flicker works closely with LGV Frischgemüse (LGV). This is a good cooperation, as Flicker only has to worry about production, as LGV does the marketing and distribution of the produce. Currently, the produce is sold regionally and if there is

left over after the demand has been met, it is exported, which must legally happen so as to avoid wastage (Interview 8 2018).

4.4.7. Imkerei Alte Schanze

The Imkerei Alte Schanze (Figure 6, Images 32 and 33) is a small bee-keeping business that currently has beehives around the outskirts of the city. Initially, beehives were to go in the community gardens around town, but due to resistance from the people involved, another location had to be found. Contact with an organic farm in Stammersdorf was made and this became the first location of the beehives. Currently, the farm has various locations, all of which on the outskirts of the city or even just outside of the city's administrative border (Interview 6 2018). The Imkerei is a relatively new farm as it was founded in 2015 (Interview 6 2018).

Image 32: Imkerei Alte Schanze

Image 33: Bees

Currently, the farm sells honey directly, or through the on-site shop of its farming-partner's. The beekeeper is very motivated to reintroduce bees to the city and wants to see more nature in the city as well as help create a paradigm shift in society, creating a society that is aware of its actions and has a relationship with nature.

Ghadimi, the founder of the business, wants to help people realise that bees are not bad and that they are actually vital for our ecosystem. He wants to spread awareness and to educate people about the importance of bees in our food systems.

Apiculture is a type of agriculture that requires a lot of space, as the bees have a radius of up to 10km, while actually not needing much infrastructure or land, as the

beehives are quite small and can be placed almost anywhere (Interview 6 2018).

In Austria the laws regarding apiculture are well defined and promote the keeping of bees. There are no restrictions regarding where beehives can be placed, as long as the minimal distances are respected.

4.4.8. Adamah Biohof

The Adamah Biohof (Figure 6, Images 34 and 35) is an organic farm located just outside of the administrative boundaries of Vienna, in Glinzendorf. The farm is a family business, and has been an organic farm for 20 years already (Adamah). Gerhard and Sigrid Zoubek inherited the farm and decided that they wanted to produce food that was healthy and sustainable without using artificial methods (Interview 14 2017).
The farm is quite large and produces many different types of vegetables and fruit. These are sold at an on-site shop, at markets in Vienna, distributed in boxes sent directly to customers or delivered to schools (Interview 14 2017).

Image 34: Adamah Biohof's Market Stand

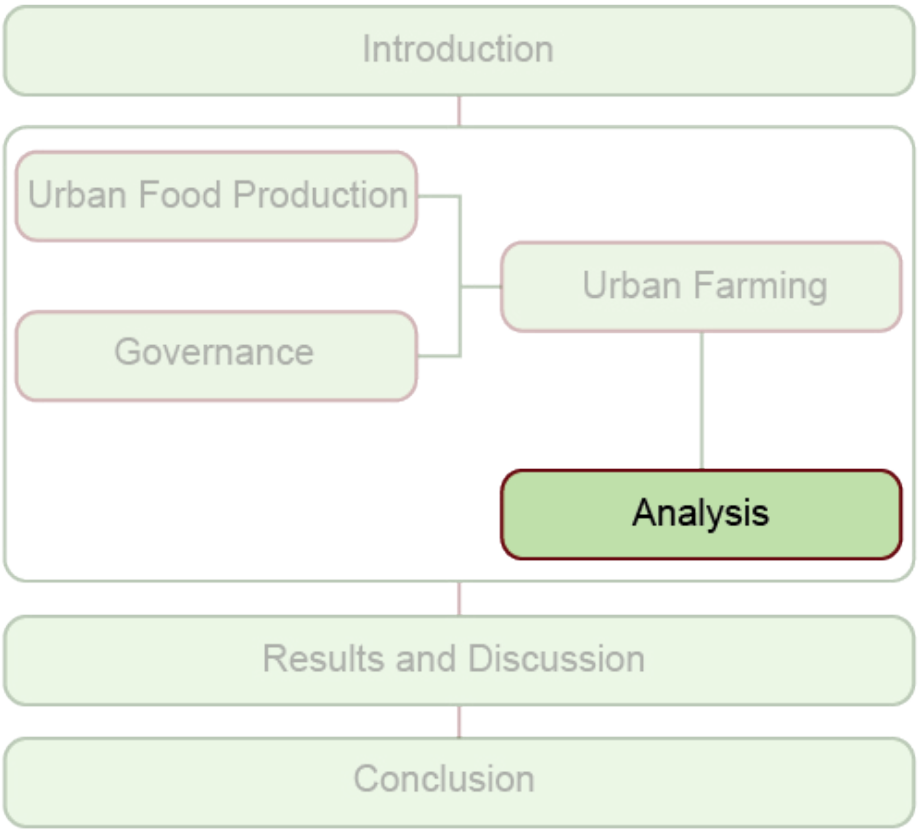
Image 35: Adamah's Food Box

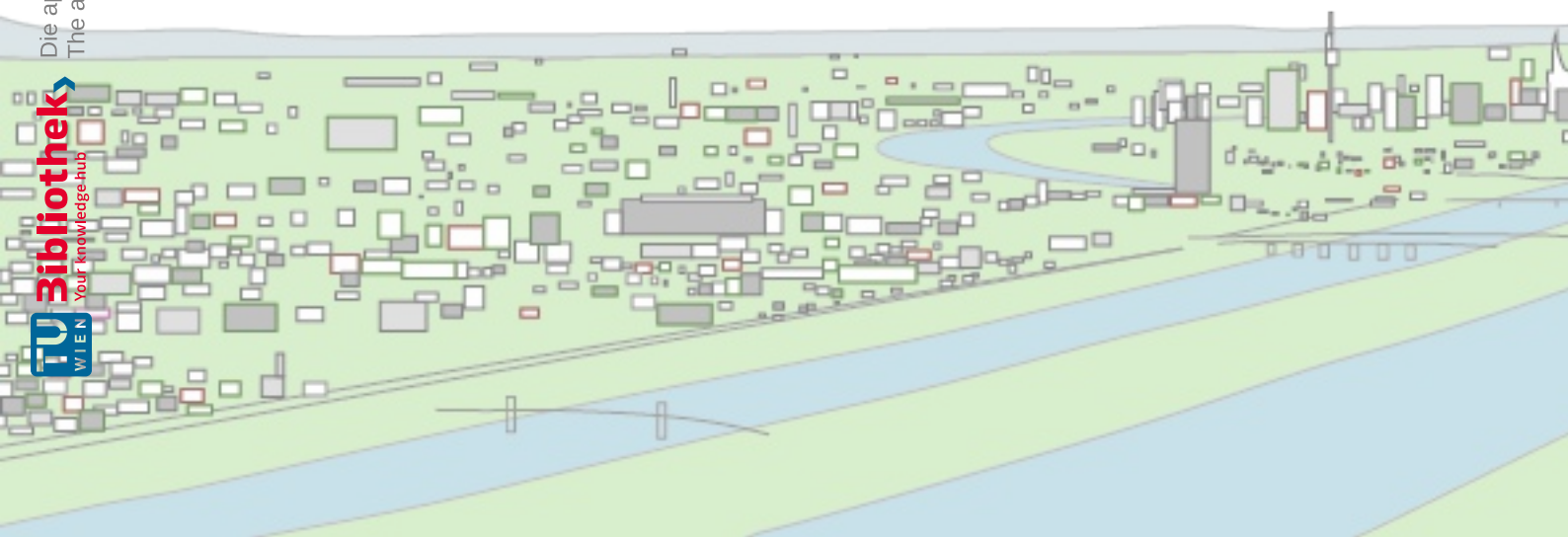
The farm is independent and lives off of word-of-mouth recommendations and the satisfaction from customers. The Zoubeks value their location, as they have space to produce much more than they would have been able to in more dense areas of the city, furthermore, they are near enough for the deliveries to happen on the same day as harvesting the produce and the customers are willing to drive to their shop to purchase their produce. As they also sell at farmers markets, they are able to provide people who do not have the luxury of driving to the farm with the opportunity to buy the

produce at different locations within the city.

The Adamah farm also gives their customers the option to purchase boxes of seasonal produce that is delivered to their doorstep.

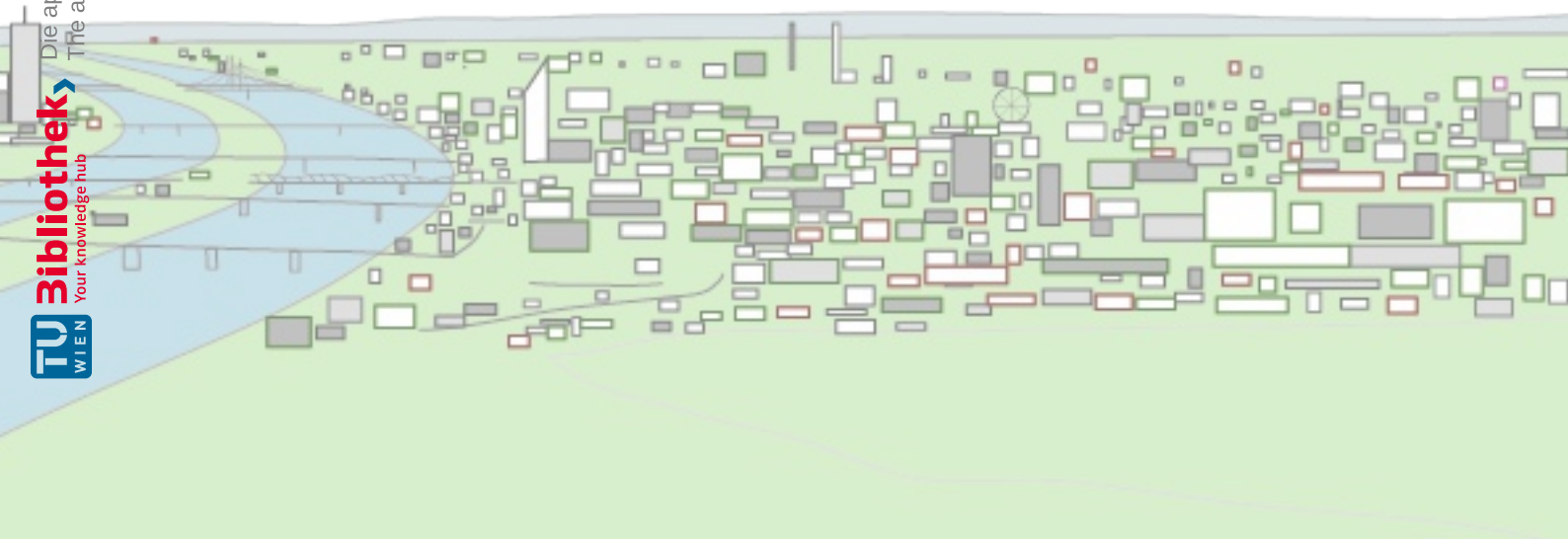
As education and awareness for organic food production and nature is a central part of the farm's philosophy, they invite groups to come visit the farm and also take part in the Schule am Bauernhof project.





5. Analysis

5.1. SWOT Analysis of Urban Farms
5.2. Instruments and Actors Studies



5. ANALYSIS

In order to determine whether urban farming strategies are feasible for Vienna, urban farming and the conditions in Vienna must be analysed. Firstly a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis was carried out based on the results and findings of the interviews (see Table 1). The SWOT analysis is focused on Vienna and the best practice farms from the USA.

Secondly the Viennese instruments were studied to determine whether urban farming is probable with current documents. Finally, an actors' study of the actors involved in food production activities in Vienna was carried out in order to determine which relationships exist and whether and the forms of interactions the actors have with one another. Both of these studies were summarised in respective maps, see Figures 7 and 8.

5.1 SWOT Analysis of Urban Farms

Table 1: SWOT Analysis Results Table (own representation)

Strengths	Weaknesses
1. Education 2. Spreading awareness and appreciation 3. Safe place 4. Healthy, local, fresh produce 5. Green spaces 6. Insulation 7. Cleaner air 8. Reduction of Heat-Island Effect 9. Storm water management 10. Less noise pollution 11. Food security 12. Social and recreational areas 13. Provide opportunity to reconnect to nature 14. Resource efficiency 15. Hi-tech farming methods 16. Low maintenance and running costs 17. Low space requirements 18. Transparency 19. Change in food consumption patterns 20. Food wastage reduced 21. High productivity 22. Increased biodiversity 23. Improved microclimate 24. Proximity 25. Short transport routes 26. Feel good bonus 27. Job creation 28. Resilience 29. Short supply chains 30. Revitalising unused spaces 31. Pride 32. Charity 33. Multifunctional spaces 34. Image	1. Marketing and communications 2. Scale 3. Machinery / lack-thereof 4. High construction and establishing costs 5. High running costs for personnel 6. Innovative methods 7. Individuality
Opportunities	**Threats**
1. Rules and regulations 2. Local economy 3. Incorporation in Education 4. Edible City Concepts 5. Activation of open spaces 6. Local mind-set / growing interest 7. Marketing opportunities / Image 8. Sustainability strategies	1. Lack of public interest, support or motivation 2. Lack of financial support 3. Rules and regulations 4. Land-use plan 5. Competition 6. Difficulty to prosper 7. Urban sprawl 8. Pressure on open spaces 9. Agriculture's importance in urban planning 10. Globalisation 11. Locations 12. Use conflicts 13. Vandalism

Strengths:

1. Education: Urban farms can teach people how to grow their own produce, educate people about nature and the environment and teach children and adults that nature is a good thing and that food doesn't just show up in supermarkets (Interview 1 2018, Interview 2 2018, Interview 7 2018). If the children today learn about nature and how to protect it as well as how to produce their own food and learn to value food production, then the future may look more promising (Interview 12 2017). By allowing people to experience farming processes first-hand, they learn to appreciate the work that goes into producing food and are more likely to value high quality food more (Interview 10 2018).
2. Spreading awareness and appreciation: urban farms have the unique position of being able to spread awareness of food, nature, food production, the environment and encourage others to continue spreading this awareness and to change their consumer habits (Interview 11 2018).
3. Safe place: Farms can create social gathering points and provide people with a space to appropriate (Interview 15 2018).
4. Healthy, local, fresh produce: Produce can be harvested at the last moment due to short transport routes, the produce is as ripe as it possibly can be. Produce that is harvested at the right time is also healthiest, and due to most locations in the city, chemical farming is not common, leading to often organic or of organic quality produce (Interview 4 2018, Interview 9 2018, Interview 14 2017). More and easier access to healthy food and improved awareness of health and nature can lead to better food consumer choices and better health (Interview 1 2018, Interview 12 2017).
5. Green spaces: create more permeable surfaces, which allow rainwater to be absorbed and slows the rate of water discharge, preventing and minimising the chances of sewage overflow and flooding in the city (Interview 1 2018). Furthermore, it creates a more comfortable environment and may provide psychological and aesthetical benefits, as everyone likes green spaces (Interview 8 2018).
6. Insulation: The soil on the roofs or vegetation on the sides of buildings provide an additional layer of insulation, extending the life of the roof membranes as they are protected from the elements, reducing heating and cooling needs and costs and saving energy (Interview 1 2018).
7. Cleaner air: plants clean the air, so more green spaces lead to cleaner air (Interview 1 2018).

8. Reduction of Heat-Island Effect: reduction of the urban heat island effect due to creating more green spaces in built-up city areas, which reflects and absorbs heat, creating a more comfortable and cooler environment in warm months (Interview 1 2018).
9. Storm water management: soil and vegetation reduces the runoff and slows down water discharge, preventing and reducing flooding and sewege overflow (Interview 1 2018). Furthermore, by slowing the runoff and even storing water on the roofs, the sewage systems of the city have more time to cope with large amounts of rainfall, reducing the chances of water contamination due to pollution being washed into water bodies (Interview 1 2018).
10. Less noise pollution: green spaces reduce noise pollution (Interview 1 2018).
11. Food security: local food production and produce that is available to the local people creates a level of independence from international food systems and guarantees a level of food security (Interview 1 2018).
12. Social and recreational areas: Urban farms with a social emphasis can provide the neighbours with a space to come together and spend their free time (Interview 15 2018).
13. Provide opportunity to reconnect to nature: Green spaces in dense urban areas give local people the chance to get their hands dirty and reconnect with nature by seeing plants and animals in their neighbourhoods and by having the opportunity to go to the farm, help out, learn and buy fresh produce directly (Interview 8 2018).
14. Resource efficiency: Closed-looped systems such as hydroponics use up to 90% less water (Interview 2 2018). Open-air farms also have the potential to reuse city resources that would otherwise be wasted (Interview 1 2018).
15. Hi-tech farming methods: reduces the amount of resources required for growing food as the processes are optimised and few resources are lost (Interview 2 2018).
16. Low maintenance and running costs: very few fresh resources are needed to run the farms as they reuse city resources, such as unused land, rooftops, empty buildings, organic and heat waste and rainwater (Interview 1 2018).
17. Low space requirements: many innovative, urban farming methods require much less space for a much higher yield (Interview 2 2018, Interview 4 2018).
18. Transparency: By inviting people to come visit the farms, the people can observe the processes first-hand and trust the businesses, as they know what the farm stands for and how the production takes place (Interview 8 2018).
19. Change in food consumption patterns: There is a change in the way that people

view food, as people are becoming more aware of where their food comes from. Urban farms bring food production to the doorsteps of urban residents, teaching them about food and making them more aware, in turn influences their food consumption patterns (Interview 1 2018, Interview 6 2018).

20. Food wastage reduced: With the change in consumption patterns, awareness and short transport routes due to local production, the amount of food wasted is reduced drastically, reducing the amount of resources used (and wasted) and the amount of space required to meet the demand (Interview 11 2018).
21. High productivity: innovative farming methods can produce much more on a smaller space and with fewer resources than traditional farming can (Interview 2 2018).
22. Increased biodiversity: Green spaces provide habitats for animals and insects, increasing pollinator and wildlife habitat in the city, in turn enriching the ecosystem of the city (Interview 1 2018). More wildlife increases natural pest control, pollination and fertilization in the city (Interview 1 2018).
23. Improved microclimate: More green spaces increase the reflection of heat in the area and further reduce the temperature through natural evapotranspiration processes (Interview 1 2018). Reduced heat-island effect due to more green surfaces (Interview 1 2018).
24. Proximity: to the consumers give the producers multiple opportunities. By being close to or in the city, more people are interested in coming to see the farms and learn from them, school outings are easier to organise and carry out, businesses can do trips to the farms (Interview 3 2018).
25. Short transport routes: Short transport routes save time allowing produce to be harvested nearest to its ripe point without going off before reaching the consumer. This allows for fresher and better quality produce as well as less complex supply chains and transportation methods such as delivery by bicycle. Often allowing for produce to go directly from the farm to the consumer within a few hours or a day (Interview 3 2018, Interview 4 2018).
26. Feel good bonus: People want to take part in sustainable, innovative projects because it makes them feel like they are taking part in something good (Interview 1 2018).
27. Job creation: Urban farms can create jobs and alternative income opportunities (Interview 2 2018).
28. Resilience: Due to the fact that urban farms function in dynamic urban settings,

they are adaptable and able to adjust to global warming, political change and other, unpredictable effects, providing the city with a degree of food security (Interview 2 2018).

29. Short supply chains: local production means that the food system is dependent on fewer actors, as the produce can go directly from farmer to consumer, or at least from farmer to distributer (supermarket and LGV) and then to the consumer (Interview 3 2018, Interview 4 2018, Interview 5 2018, Interview 8 2018, Interview 9 2018). This makes the supply chain less fragile and reduces its dependence on international distributers and producers. Excess food can be exported.
30. Revitalising unused spaces: urban farms are adaptable and can be implemented on roof tops or squares that are not productive, revitalising the space and creating more productive space in the city (Interview 1 2018, Interview 2 2018, Interview 3 2018).
31. Pride: Local farms can play an important role in the lives of the people living near that area and the consumers. When they see produce from their area in supermarkets or at markets, they feel pride (Interview 1 2018, Interview 2 2018).
32. Charity: Urban farming projects can implement social programmes to support the local people increase people's access to healthy food, help eliminate poverty by employing local people who otherwise have few options or by running programmes for youths, disabled or elderly people (Interview 1 2018).
33. Multifunctional spaces: Urban farms can provide society with more uses than only producing food. It can create more biodiversity and better living conditions due to increased air quality and microclimates, but can also be a space for integration and learning, increasing local acceptance (Interview 1 2018). Furthermore, farms can host events such as yoga sessions, weddings or dinners. By mixing the uses of an area, such as combining residential and farming areas, the citizens are provided with new hobbies, that may keep them in the city, reducing the flight from the city over weekends, ultimately improving the city's ecological footprint (Interview 10 2018).
34. Image: Urban farming can improve the image of an area and help to uplift the neighbourhood (Interview 2 2018).

Opportunities:

1. Rules and regulations: There are not many laws regarding farming in the city, so there is space to be creative and innovative (Interview 3 2018).
2. Local economy: by supporting local businesses, money stays in the local economy, improving and creating more opportunities for the local economy (Interview 2 2018).
3. Incorporation in Education: By incorporating educational tools such as the Schule am Bahnhof project, where children learn about farms and food production, people are more likely to support urban and local farms (Interview 14 2017).
4. Edible City Concepts: expose people to food and nature, making local food more important and providing people with basic skills (Interview 6 2018, Interview 11 2018).
5. Activation of open spaces: Many open spaces have no or only few uses, by incorporating food production, the space is activated and becomes a multifunctional space (Interview 1 2018, Interview 2 2018).
6. Local mindset / growing interest: The loss of touch from nature and food production has lead to a counter-movement, where people are trying to reconnect with nature and search for control over their food consumption (Interview 1 2018). *"That sense of hope and optimism should not be underestimated"* (Interview 1 2018).
7. Marketing opportunities / Image: distributers can use the fact that the produce was farmed locally as a marketing strategy and improve the overall image of cities and agriculture by changing the way the people view agriculture (Interview 2 2018).
8. Sustainability strategies: can provide expansion opportunities for urban farming projects (Interview 15 2018).

Weaknesses:

1. Marketing and communications: The marketing part of farms is a lot of work and very difficult as the competition is huge (Interview 8 2018).
2. Scale: most urban farms are small-scale producers, as they do not have a lot of space, however innovative technologies can increase yields dramatically (Interview 2 2018).
3. Machinery / lack-thereof: Often, machinery cannot be used and a lot of handwork is required, such as on rooftops (Interview 1 2018).
4. High construction and establishing costs: due to innovative technologies and

difficult implementation processes (such as building a farm on a roof) the initial costs are high (Interview 1 2018, Interview 2 2018, Interview 15 2018).

5. High running costs for personnel: Living costs continue to increase, making it increasingly difficult to pay salaries off of which people can live (Interview 1 2018). This is leading to an increased motivation to automate production, where possible (Interview 4 2018).
6. Innovative methods: many of the methods used for urban farming are very innovative and new. Due to this, there is a lack in experience, which makes the planning, implementation and running processes more complicated and challenging as the farmers and entrepreneurs first have to learn as they go (Interview 4 2018).
7. Individuality: Every urban farm is different due to different structural, geographical, climate, societal and economic conditions, different goals, values and aspirations (Interview 1 2018). Meaning that the planning, implementation and running processes are not and cannot be standardised.

Threats:

1. Lack of public interest, support or motivation: In the USA cities do not support the rural farmers very much (Interview 1 2018). Small businesses do not receive very much support from the municipality (Interview 11 2018). Many people do not think about where their food comes from and therefore do not put more weight on local produce. Also, the local people using farming areas for recreation sometimes do not realise that they are hindering or destroying potential food, for example, by allowing their dogs to run in the fields (Interview 7 2018, Interview 8 2018). The people are not aware that the farm road that they use for jogging, cycling, horse riding or walking their dog actually has the main function of allowing the farmer to get to his or her fields and tend to them (Interview 7 2018, Interview 8 2018).
2. Lack of financial support: there is not a lot of support for urban farms as there is a lack of financial support and compensation from the municipalities and governments (Interview 3 2018).
3. Rules and Regulations: Urban agriculture is rarely acknowledged by policy makers or taken into consideration when making land-use decisions (Interview 3 2018).
4. Land-use plan: can be very limiting, depending on the zone of the area in question (Interview 2 2018). Different zones allow different activities and structures, some allowing farming activities, others only allowing certain types of agriculture, for

example, certain zones have a building ban, which makes farming innovatively difficult (Interview 7 2018). Furthermore, farming is often viewed as a less-than-optimal use of space in developing areas (Interview 10 2018).

5. Competition: Currently, people are used to having a large diversity of produce all year long, and the origin of the produce is irrelevant. A lot of produce is imported, especially during winter months. It is difficult for local farmers to sell their produce to supermarkets if they already get produce from other countries for cheaper prices (Interview 8 2018).
6. Difficulty to Prosper: Often, local smaller farmers cannot compete with the prices that large farms or international mass production farms sell their produce at. Supermarkets are often not willing to pay more for local produce. This makes it incredibly difficult for small businesses to compete in the market (Interview 6 2018).
7. Urban sprawl: Land costs increase with population and urban development. Agricultural activities are not profitable if the rent is very expensive (Interview 3 2018). Furthermore, more and more farmland is being converted into building land for urban expansion (Interview 7 2018).
8. Pressure on open spaces: The pressure is immense on the open spaces, in this case agricultural land, of the rapidly growing cities like Vienna. Although the city aims to develop the fragmented areas within the more densely built up city areas before expanding outwards, farmland is still lost (Interview 10 2018).
9. Agriculture's importance in urban planning: Agriculture is rarely part of urban planning concepts or taken into consideration by urban planners as it is viewed as a rural responsibility. Furthermore, there is a lack of support and infrastructure for farming in the city, causing many farms to shut down (Interview 7 2018, Interview 8 2018).
10. Industrialisation and Globalisation: It has become increasingly easy and normal for food to be mass produced and imported from all corners of the world at any time of the year (Interview 1 2018). People are used to having a large variety of produce all year round, putting immense pressure on local production (Interview 8 2018). Urban citizens have lost touch with food production and nature (Interview 1 2018).
11. Locations: Finding the location for a new urban farm is often difficult, as landlords or owners are unwilling to cooperate, or regulations prohibit creativity (Interview 1 2018).

12. Use conflicts: When regarding multifunctional spaces, such as by putting a farm on top of a residential building, a school or hospital, the risk of use conflicts is higher as there are many actors with different priorities involved. However, by using farming technologies that use few resources, little space and have few emissions, there are few environmental conflicts. On an economic level, as the farms are generally expensive to construct, there may be a conflict of interest in the beginning phases of the farms, and breaking even may be a challenge at first, however, once the farms are established, they have few running costs (Interview 2 2018). Other conflicts include recreational activity conflicts and city expansion conflicts (Interview 8 2018, Interview 9 2018).
13. Vandalism: Sometimes people destroy, vandalise and steal equipment and farming buildings threatening production and making farmers unwilling and uncomfortable about farming populated areas, as it costs them (Interview 8 2018).

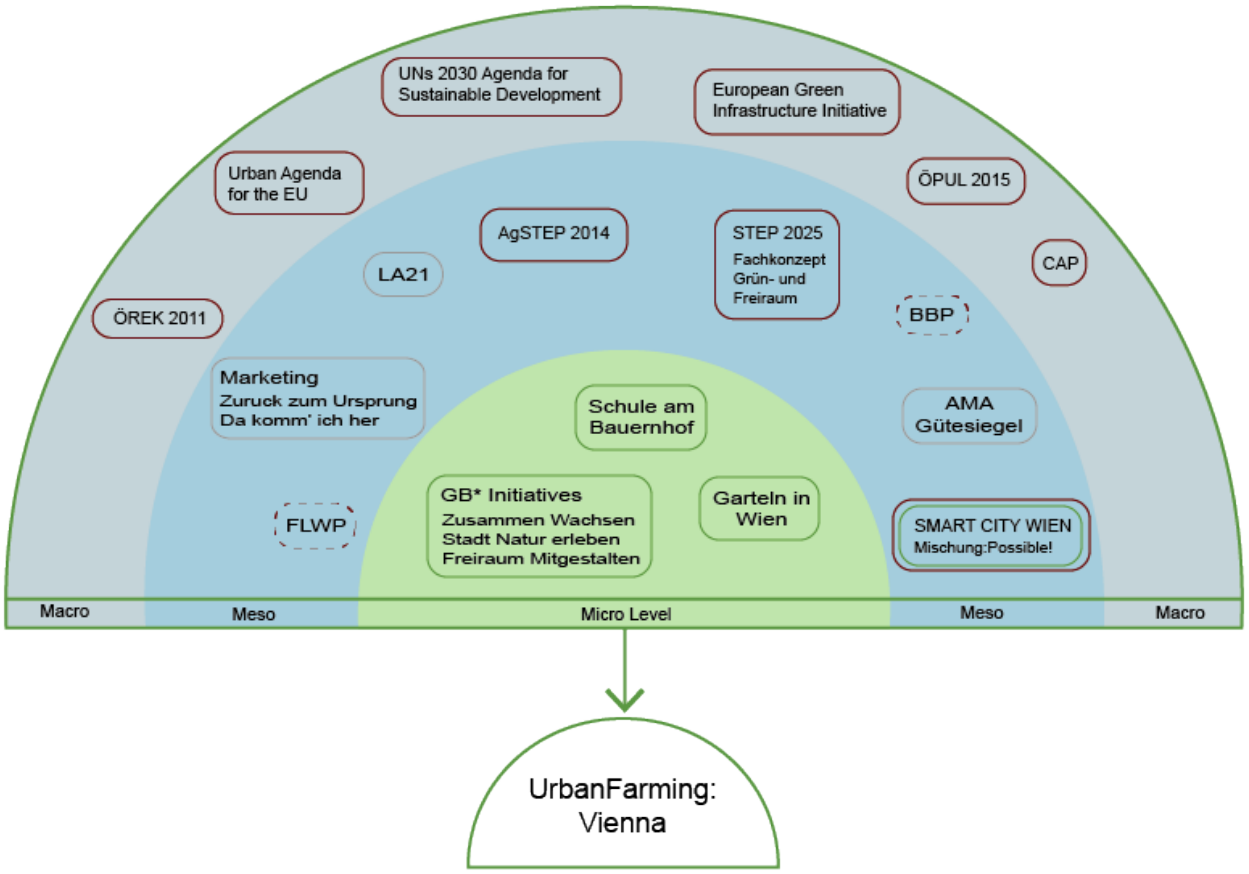
5.2. INSTRUMENT AND ACTORS STUDIES

Firstly, an instrument study was carried out. This served to determine the role of agriculture in Viennese Planning, as well as to identify the relevant actors, when considering urban farming in Vienna. This section is divided into two parts. In the first part, the instruments are described, the actors involved in each instrument are mentioned and the instruments are mapped according to level (micro, meso or macro) and classified according to the role that they play in agriculture in Vienna (Figure 7). In the second part of this chapter, the aforementioned actors are described and presented in the form of an actors map (Figure 8). On this map, the actors are classified according to role they play in agriculture in Vienna and the relationships these actors have with one another and with farmers in Vienna are shown.

5.2.1. Instrument Study

The planning instruments relevant for agriculture in the City of Vienna were analysed. The result of this study is presented in a map (Figure 7). The instruments were categorised into three levels, namely, micro, meso and macro. These levels, although most commonly used to describe social structures, were chosen, as they most accurately depict the groups that are involved in the designing and implementation of the instruments. The instruments on a micro level are more general and more goal-setting than anything else, while the instruments on a macro level are concrete projects that directly work with people and take place within neighbourhoods. Furthermore, the instruments on the micro level were international or national instruments. As agriculture in Austria is the responsibility of the local provincial municipality, these instruments are trans-boundary. The instruments on a meso level are more local, in the sense that they are on a Viennese level and aimed at Vienna. The instruments on a macro level are neighbourhood oriented. Although these categories are separated quite strictly, and the according level is usually quite obvious, certain instruments are on multiple levels, such as the AMA Gütesiegel and the Schule am Bauernhof project, both projects are run Austria-wide and have a set of goals that are relatively general, but they take place locally and work with and build up relationships with the local farmers and even civilians.

Figure 7: Instrument Map (own representation)



Key:

- Instruments that set goals, but are not legally binding and often provide funding for achieving the goals
- Instruments that set goals and are legally binding
- Instruments that spread awareness and encourage regional support
- Instruments and projects with cooperative potential and opportunities between citizens, farmers and officials

Macro Level

The **United Nation's 2030 Agenda for Sustainable Development** was agreed upon and adopted by the member states of the United Nations in 2015. 17 Goals and almost 170 targets were defined to build up on and complete the UN's Millennium Development Goals and to promote peace and prosperity, protect people and the environment and eradicate poverty (United Nations General Assemby 2015). These development goals are (United Nations General Assemby 2015, 14): "

1. *End poverty in all its forms everywhere*
2. *End hunger, achieve food security and improved nutrition and promote sustainable agriculture*
3. *Ensure healthy lives and promote well-being for all at all ages*
4. *Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*
5. *Achieve gender equality and empower all women and girls*
6. *Ensure availability and sustainable management of water and sanitation for all*
7. *Ensure access to affordable, reliable, sustainable and modern energy for all*
8. *Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all*
9. *Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*
10. *Reduce inequality within and among countries*
11. *Make cities and human settlements inclusive, safe, resilient and sustainable*
12. *Ensure sustainable consumption and production patterns*
13. *Take urgent action to combat climate change and its impacts*
14. *Conserve and sustainably use the oceans, seas and marine resources for sustainable development*
15. *Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss*
16. *Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels*
17. *Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development"*

Within the targets defined for each goal, innovative, green technology is seen as a solution and encouraged. The Agenda is very broad and covers almost every aspect and is aimed mostly at developing countries. The targets set are also relevant for cities such as Vienna and support the implementation of urban farms as a form of green infrastructure and due to the social and economic benefits of urban farms. Such as Target 11.7: *"By 2030, provide universal access to safe, inclusive and accessible green and public spaces, in particular for women and children, older persons and persons with disabilities"* (United Nations General Assemby 2015, 22).

Europe's Common Agriculture Policy (CAP) is an important instrument when it comes to urban farming as it provides opportunities for urban farming. Although the policy focuses on rural and traditional agriculture, it includes actions such as more support for small businesses, cooperative initiatives and local food (Lohrberg, et al. 2016). It is an agreement between EU member states and their farmers. The policy is managed and funded by the EU and has the following goals (European Commission):

- *To support farmers and improve agricultural productivity, so that consumers have a stable supply of affordable food*
- *To help tackling climate change and the sustainable management of natural resources*
- *To ensure that EU farmers can make a reasonable living*
- *To maintain rural areas and landscapes across the EU*
- *To keep the rural economy alive promoting jobs in farming, agri-foods industries and associated sectors"*

The CAP focuses on farming taking place in rural areas. Farming that takes place near to or within cities do not really play a role for the policy. However, it is a common policy and supports affordable and good quality food for all EU citizens while still providing farmers with *"a fair standard of living"* (European Commission). It also supports innovation and sustainable farming practices in order to protect and preserve natural habitats and environments for future generations to experience and appreciate.

The **European Green Infrastructure Initiative** is an initiative that aims to *"promote green infrastructure to enhance Europe's natural capital"* (European Commission (a) 2016). The initiative supports and promotes natural alternative green infrastructure that contributes to the biodiversity and ecosystems of natural and semi-natural areas, in rural as well as urban areas. The initiative believes that *"a network of healthy ecosystems*

often provides cost-effective alternatives to traditional 'grey' infrastructure and offers many other benefits for both EU citizens and biodiversity" (European Commission (a) 2016). Green infrastructure uses can range from water purification and improving air quality to recreational space and climate regulation (European Commission (a) 2016). They promote sustainable solutions that have positive environmental, social and economic benefits and promote biodiversity. The EU Strategy on Green Infrastructure aims to promote and preserve biodiversity and develop alternative (green) infrastructure that provides the citizens and the environment with services that were previously not sustainable or environmentally friendly, such as water purification and mitigating the climate. The EU Strategy on Green Infrastructure *"aims to ensure that the protection, restoration, creation and enhancement of green infrastructure become an integral part of spatial planning and territorial development whenever it offers a better alternative, or is commentary, to standard grey choices."* (European Commission (a) 2016). Furthermore, in order to preserve and promote ecosystems in urban areas, green infrastructure is vital as urban settlements tend towards concrete jungles with little green or natural space (European Commission 2016, 9). Through this initiative and strategy, the EU and member states invest in innovative and natural infrastructure that complies with their criteria and has promise in achieving their goals of sustainability, ecosystem and biodiversity promotion and improved quality of life for the citizens.

The **Urban Agenda for the EU** aims to achieve green, compact and energy-efficient cities to achieve sustainable growth (European Commission (b)). With the high rate of growth that European cities experience, efficient land-use is of utmost importance to prevent urban sprawl and unnecessary loss of farmland, natural landscapes and ecosystems. Within the Agenda there are numerous partnerships between the EU and its member states with different aims and strategies. The Partnership on Sustainable use of Land and Nature-based solutions met in July 2017 to establish its aims (European Commission (b)): "

- *To review and understand the processes of suburbanization and the role of nature-based solutions within the current development processes;*
- *To identify best practices in innovative urban development across Europe;*
- *To formulate specific concepts and modes of action regarding sustainable use of land and implementation of the nature-based solutions within urban areas as well as concrete proposals for territorial instruments and funding."*

Job creation, inclusion of migrants and refugees, transfer of knowledge, climate adaptation and housing also play important roles in the Agenda and should be considered during the planning and development of European cities. In June 2018 the Final Draft Action Plan was published. The action plan is non-binding and therefore not compulsory for the EU member states, however, it provides the countries with starting points, ideas and suggestions on how to implement strategies and improve their cities, making them more socially, economically and ecologically sustainable (European Commission 2018).

The **ÖREK 2011** (*Österreichisches Raumentwicklungskonzept*, Austrian Spatial Development Concept) is the superordinate development concept for the years 2011 to 2021 for Austria and its provinces and municipalities (ÖROK 2011). It is updated at the ÖROK (Austrian Spatial Planning Conference) every decade and defines the goals and visions of spatial planning for the country as a whole, the provinces, cities and smaller municipalities with regard to modern day trends, problems, conflicts and challenges. The concept is divided into three sections (ÖROK 2011). The first defines the goals and fundamentals to be achieved and regarded in planning in Austria for the time span of the concept. The second is the action plan, including proposals that are very important for the development of Austria and should be implemented. Finally, it describes how the action plan can be implemented, which actors need to work together to achieve which goals in order to achieve sustainable development. The development plan's Action Programme covers four main topics, namely: *"regional and national competitiveness", "social diversity and solidarity", "climate change, adaption and resource handling"* and *"cooperative and efficient handling structures"* (ÖROK 2011, 10 - 11) and defines numerous goals per topic, such as *"Sustainable development of settlements and free space"* (ÖROK 2011, 29).
The concept suggests solutions and ways to improve the way the country functions by taking into consideration current crises such as Climate Change and Resource Depletion. As Austria is a small country that has a relatively strong economy and tends to prosper, it is important to keep up this trend and strengthen the economy and the country's solidarity while also respecting the current global trends and ethical issues (ÖROK 2011). The aims include (ÖROK 2011, 18 - 20): *"*

- *Compact settlement structures*
- *Polycentric structures*
- *High capacity axes*

- *Functional interrelations*
- *To supply the network of small and medium-sized central places*
- *To promote the development of non-urban areas*
- *To strengthen the development of the region's specific potentials*
- *To cope with population growths*
- *To examine spatial development measure"*

Furthermore, the ÖROK partners declared their commitment to the following *"principles for action for cooperative spatial development"* (ÖROK 2011, 20), (ÖROK 2011, 20 - 21): "

- *Sustainable spatial development*
- *Orientation on the common good*
- *Coherent planning*
- *Participative planning*
- *Collaboration in Austria*
- *Collaboration with neighbours*
- *Collaboration in Europe and with EU institutions*
- *Effect and implementation"*

It is very important that the federal government, provinces and municipalities of Austria carry out and implement their development strategies based on the principles and goals of the ÖREK 2011.

The ***Agrarumweltprogramm bis 2020*** (ÖPUL 2015) is a central instrument for the regional development in Austria as well as for the agricultural politics of the country that focuses on creating and supporting environmentally friendly and socially and ecologically fair agriculture in Austria that does not harm the natural ecosystems (BMNT 2018). This programme consists of 23 measures that provide the country and every region with different options to achieve their goals. These goals include: improving and protecting biodiversity; improvement of the water system through reduced use of fertilizers, pesticides and other products that cause harm to the environment; prevention of soil erosion; reduction of green house gases emissions due to agriculture; promotion of innovation, cooperation and expanding the knowledge base in rural areas; improvement of livestock living conditions (BMNT 2018). This programme focuses on rural areas and promotes sustainable development in these areas, however the goals can be transferred to urban areas and should be taken into consideration regardless where the agriculture takes place.

Meso Level

The ***AMA-Gütesiegel*** (seal of approval) is a marketing and quality control instrument. If a product has a AMA-Gütesiegel label, it is guaranteed that it was produced in Austria, its origin is traceable and the quality corresponds to Austrian standards (AMA-Marketing 2018).

The City of Vienna has a city development plan called the STEP (*Stadtentwicklungsplan*) which is updated and adapted every 20 years and determines the nature of the city development for the time range (Magistrat der Stadt Wien (b)). The **STEP 2025** is the current development plan of Vienna. It handles several fields, namely mobility, public space, centres, skyscrapers, productive city and green and open spaces, sets goals for each field while also suggesting action plans to be initiated (in this case) by the year 2025. The green and open spaces concept is called the Fachkonzept Grün- und Freiraum. This concept was decided upon in 2014 and should be carried out by 2025 (Magistrat der Stadt Wien (b)). It focuses on the development and protection of green areas in Vienna, including certain types of agricultural areas. Buildings required for farming (such as greenhouses) are not included in this concept's development strategy, however all other forms of agriculture are (Magistratabteilung 18 2015). The concept aims to protect the quality and quantity-ratio of green spaces in the city while enabling compact city development and giving every inhabitant the opportunity to exercise their right to green space.

The ***Agrarsturktureller Entwicklungsplan für Wien 2014*** (agricultural development plan for Vienna, AgSTEP 2014)'s conclusion report was published in March 2014 after a working-group comprised of representatives and experts from various municipal offices, the Wirtschaftskammer (economic chamber) and the Landwirtschaftskammer (agricultural chamber), analysed the developments in the past years and worked on and set the goals for Vienna's agriculture (Landwirtschaftskammer Wien 2014). An AgSTEP is published every decade depicting the longterm goals for agriculture in the city (Landwirtschaftskammer Wien 2014, 4). This instrument protects agricultural land in the city and shows its importance, as this instrument plays an important role in the STEP that generally is published a year after the AgSTEP (Landwirtschaftskammer Wien 2014). This document defines the agriculture goals for the city's planning, the land that needs to be preserved for agricultural uses and the definition of agricultural

priority areas (to be used first and foremost for agriculture) (Landwirtschaftskammer Wien 2014). The two main goals of the report are: *"Conservation of agricultural land in Vienna in line with green space planning"* and *"expansion of environmental friendly (sustainable) agricultural production"* (Landwirtschaftskammer Wien 2014, 5). The report defines six areas where agriculture must continue to play an important role; all of these being on the outskirts of the city, where the city structures are spacious and agriculture is already present. Furthermore, three agricultural land priority categories are defined. The first being for large-scale agricultural production on land that have a priority for agriculture, the second being for large-scale agricultural production on land that does not have a fixed future use yet but where agricultural use is prioritized (Landwirtschaftskammer Wien 2014). The third category is for small parcels of land that are currently being used for agriculture (such as small vineyards) (Landwirtschaftskammer Wien 2014). In future development, areas that have a priority category for their current use (in this case agriculture) are to be taken into consideration (Landwirtschaftskammer Wien 2014). The report published in 2014 is a completion of maps and text showing exactly where agricultural land is to be preserved.

The Viennese ***Flächenwidmungsplan*** (Land-use Plan, FLWP) and the ***Bebauungsplan*** (Building Plan, BBP) are two instruments vital for city development in Vienna. These plans are created by the municipal department MA 21 - Stadtteilplanung und Flächennutzung and are legally binding for all future development as they are bylaws. The MA 21 works together with experts, such as the Landwirtschaftskammer, to make sure that all interests are covered and regarded when changing the Land-use Plan. After the MA 21 has decided upon the alterations of the plan, it is laid out for public viewing for six weeks (WKO 2017). During this period, if one does not agree with the changes, a letter of opinion can be sent to the MA 21, however the letter of opinion does not have to be considered (WKO 2017). Furthermore, if one wishes to alter the current Land-use or Building plans, one can also take up the matter with the MA 21 (WKO 2017). These bylaws depict the land-use of the area, the type of buildings and the type of activities allowed on the land, as well as the sizes of the buildings, emergency exits and much more. The plans are well thought out and a lot of research is done before changing the plans, therefore it is not easy to have them changed. There are two different land-use categories, namely Ländliche Gebiet (rural area) and Wald und Wiesengürtel landwirtschaftliche Nutzung (forest and grassland belt agricultural use) on which agricultural activities may take place, however, these

do not require agricultural activities to take place (MA 21 2014).

Smart City Wien is an initiative by the City of Vienna to *"improve the design, development and perception of the federal capital"* (Magistrat der Stadt Wien (g)). The strategy aims to protect resources, provide the citizens with a fair quality of life and use and encourage new technologies and innovation (Magistrat der Stadt Wien (g)). The strategy aims to cope with modern challenges while preserving the city's qualities. The Strategy is long-term and has goals for 2050, 2030 and 2025 (Magistrat der Stadt Wien (g)). Nearly 40 objectives were defined, some of which are (Magistrat der Stadt Wien (g)): *"*

- *Significantly reducing emissions (CO2, greenhouse gases,…) and, as a result, achieving EU climate protection targets. Long-term objective: a zero emission city, zero emission buildings as standard*
- *Significantly reducing energy consumption. Long-term objective: reaching close-to-zero energy standards in new and existing buildings by 2020*
- *Significnatly increasing the use of renewable sources of energy (e.g. in public buildings)*
- *Raising awareness in the wider public about responsible use of resources (energy, water)*
- *Giving citizens (from consumers to prosumers) an active role by providing opportunities for actively controlling additional areas of daily life*
- *Promoting multi-modal transport systems by improving the public transport network, enhancing networking between individual transport carriers, and significantly reducing individual motorised transport*
- *Positioning Vienna as a model European environmental city and as a leading European centre for research and technological development at an international level"*

Although urban agriculture is not mentioned in the strategy documents (yet), urban farming projects could contribute to fulfilling these objectives. The Smart City Vienna supports numerous initiatives throughout the city, such as community gardening projects and green facades. Most importantly for urban farming projects, they support a project called Mischung:Possible! (use-mix in densified urban space). This is what urban farming is all about. This project is to be implemented and tried out in the Nordwestbahnhof (north western train station) project, a developing city area between 2017 and 2019 (Magistrat der Stadt Wien (g)).

Schule am Bauernhof (School on the Farm) is a project supported by the EU as well as the Austrian government. It aims to give children the opportunity to go on outings to farms and to learn about nature, nutrition and food production on site instead of from a textbook (Ländliches Fortbildungsinstitut). Farms that take part are required to fulfil certain criteria and must then invite school classes to their farms to observe their practices and methods (Ländliches Fortbildungsinstitut). The project aims to educate children and youths, so that they have a better understanding of how the food system works and can be more responsible consumers (Ländliches Fortbildungsinstitut).

Micro Level

The **Local Agenda 21** for Vienna (LA21) aims to support and implement sustainable district development projects and involve the local people while also empowering them and giving them the opportunity to shape their neighbourhoods as they see fit. The Instrument had three programmes, the LA21 im Bezirk (in the district), Grätzloase (neighbourhood oasis) and ELLA (LA21). The LA21 im Bezirk focuses on specific districts and the process of development takes about four years. The district and the City of Vienna each fund 50% of the process and the agreement with the city is such that, per year leading up to 2018, a new district can start with the process (LA21). The actors include representatives and interested civilians, representatives from all relevant district political parties as well as representatives from relevant offices (such as traffic) and local organisations (LA21). These representatives work together to develop the city area to best suit their needs and guarantee sustainability, while working closely with the City. Grätzloase aims to redefine how small spaces that are usually disregarded can be used and made attractive (LA21). This programme is open to all Viennese who are interested in creatively shaping unused or ugly spaces in their neighbourhoods (LA21), these spaces include spaces such as small gardens on sidewalks. In 2013, engaged citizens were asked to submit their ideas for sustainable city development in the ELLA competition. Five projects were chosen by the LA 21 and were supported for an initiation time of three years (LA21).

The *Gebietsbetreuungen Stadterneuerung*'s (area support and city renovation, GB*) initiatives, such as the ***Zusammen Wachsen*** (grow together), ***Stadt Natur*** *erleben* (experience city nature) and ***Freiraum Mitgestalten*** (create free space) aim to

involve the local people more in the development of their city areas (Gebietsbetreuung Stadterneuerung). Zusammen Wachsen is a cooperative project that supports the locals, their ideas and tries to help them to implement their ideas (Gebietsbetreuung Stadterneuerung). Stadtnatur Erleben plants trees, shrubs and flowers, with the help and initiative of the local people, in small spaces of the city that are unused (Gebietsbetreuung Stadterneuerung). Freiraum Mitgestalten actively brings people together, through participation processes, to help them decide what is to happen to the open spaces in the city (Gebietsbetreuung Stadterneuerung). These projects are some of the only bottom-up methods in which people can actively change things in the city.

5.2.2. Actors' Study

In this section, the relevant actors derived from the instrument study, as well as from interviews are described. Each actor is described, and an actors map is presented showing the constellation of the actors, their relationships to one another and the role that they play for agriculture in Vienna (Figure 8). These relationships are then described. Actors include networks, organisations, authorities, municipal offices, societies and groups of people. The actors range from international organisations down to the farmers and civilians themselves. In order to create order, they were categorised according to role that they play in farming in Vienna. The secondary actors are the law and goal-setters, they do not have relationships with the farmers themselves, but they do influence them. The primary actors have personal relationships with the farmers and a form of exchange takes place between them and the key actors. Be this research, knowledge, monetary capital or otherwise. The key actors are the ones that are actively involved in farming. They do the work, sell the produce, buy the produce or make it happen. These actors have relationships with one another and with the primary actors. Finally, the veto-actors are the actors without whom agriculture in the city would not be possible. In Vienna's case, these are the farmers themselves, Start Ups and the administration. It is important to note, that, as agricultural Start Ups are agricultural businesses and are therefore, farms, however, not all farms are Start Ups.

Secondary Actors

The **United Nations** (UN) adopted the Sustainable Development Agenda in 2015. The member states of the UN are required to implement these goals in their countries and aim to achieve them.

The **European Union** (EU) developed the CAP, European Green Infrastructure Initiative and the Urban Agenda for the EU. These are strategies that the member states are expected to implement in their own strategies and development. The EU also often provides funding for the achievement of a goal.

The Austrian Government is divided up into many ministries, responsible for different aspects of the country. The **BMLFUW** (National ministry for Agriculture and forestry,

environment and water management) is responsible for agriculture on a national level in Austria. It also promotes and supports projects such as the Schule am Bauernhof project (Ländliches Fortbildungsinstitut). The **BMNT** (National ministry for sustainability and tourism) is responsible for sustainable development in Austria and created the ÖPUL 2015 to achieve this (BMNT 2018). Often, the Austrian government provides funding to help projects contributing to the achievement of their goals.

The **ÖROK** (Austrian conference on spatial planning) was founded in 1971 and is compromised of representatives from national, provincial and municipal authorities, including the Chancellor, federal ministers, governors, mayors and social and business partners (ÖROK 2018). They meet regularly to create basic planning materials for the spatial planning developments to take place in Austria. These materials include the ÖREK, a Spatial Planning Report every three years evaluating the spatial development and Planning Forecasts for future planning concepts (ÖROK 2018). The ÖROK prescribes the important topics and areas for future development in Austria. The ÖROK processed topics that presented in the ÖREK, that are relevant for agriculture in today's world, however they generally focused agriculture in the rural areas of the country and therefore also set up their goals and action plan in such a way that it focuses on agriculture in areas that otherwise possibly have no other uses or revenue, which is typical in the country side. The ÖROK presents other goals for the cities of Austria, however, agriculture in the cities can be incorporated in their goals and action plans for the cities, as it would contribute to achieving and promoting the ÖREK principles such as *"Sustainable spatial development"; "participative planning" and "collaboration with neighbours"* (ÖROK 2011, 20 - 21) as well as help achieving the ÖREK aims such as to create compact settlement structures, polycentric structures and to cope with the population's growth (ÖROK 2011).

The *Magistrat der Stadt Wien* (City of Vienna) is the municipal authority of the city of Vienna. It is divided into around 70 different Magistratsabteilungen (MAs) responsible for governing, planning and taking care of the city's needs (Magistrat der Stadt Wien (c)). The planning of the city is a multidisciplinary field that spreads over the competences of numerous MAs.

The **MA 18** – *Stadtentwicklung und Stadtplanung* (city development and city planning) is responsible for the landscaping and public space of the city; mobility strategies;

temporary uses and multifunctional spaces; the city development commission and planning, city research and spatial analysis, amongst other topics and projects (Magistrat der Stadt Wien (h)). Furthermore, the MA 18 is responsible for the management of the budget and is a helpline for the municipal offices but also for the local people who are not involved in the workings of the city (Magistrat der Stadt Wien (i)). The MA 18 is responsible for the STEP.

The **MA 19** – *Architektur und Stadtgestaltung* (architecture and city layout) tasks include the landscaping of public spaces; planning of public buildings; advising urban planning developments and fundamentals research (Magistrat der Stadt Wien (j)). The MA 19 aims to create awareness and appreciation for high quality architecture. Furthermore, the MA 19 is the municipal office that needs to approve fundamental changes to buildings such as loft conversions. They are, due to their authority in building alterations and their task as space landscaper, important actors for anyone wanting to start an urban farming business, especially when looking for a location.

The **MA 21** – *Stadtteilplanung und Flächennutzung* (district planning and land-use) is responsible for guaranteeing sustainable, innovative and high quality city area development, as well as for the land-use plan and master plan of the city. The MA 21 focuses on protecting areas that are currently used for agricultural activities (such as for Weinbau) (Interview 10 2018). However, generally their priority is to develop the city in a way relieves pressure from the housing infrastructure and provides citizens with local infrastructure for their daily needs, such as shopping, schooling and necessities infrastructure (Interview 10 2018). One of their goals is to create multifunctional spaces with high-intensity uses to be efficient and conserve space in order to avoid and relieve conflicts regarding the use of spaces.

The **MA 22** – *Umweltschutz* (environment protection) is responsible for precautionary and integrative environment protection (Magistrat der Stadt Wien (k)). Its responsibility covers, amongst others, the fields of waste management and waste law, sustainable and spatial development, environment education and environmental protection (Magistrat der Stadt Wien (k)). The MA 22 does a lot of research in these fields, provides the citizens with many maps informing them about the situation in Vienna and also initiates initiatives that aim to protect and support the environment and ecosystems of the city.

The **MA 49** – *Forst- und Landwirtschaftsbetrieb* (forestry and agricultural operations) is responsible for taking care and operations of forests, fields and water bodies in Vienna (Magistrat der Stadt Wien (l)). They work closely together with farmers and often lease land out land to non-city businesses (Interview 8 2018).

The **MA 58** – *Wasserrecht* (Water law) is not only responsible for water law in Vienna, but also for navigation and agriculture (Magistrat der Stadt Wien (m)). The MA 58 is the court of first instance of the Landwirtschaftskammer, for flora and fauna protection and breeding, agricultural professional education, agricultural activities and for the protection of workers in the farming branch (Magistrat der Stadt Wien (n)). The MA 58 is the publisher of the AgSTEP and prepares laws and bylaws in the field of agriculture and forestry.

Primary Actors

The ***Bio Forschung Austria*** (organic research Austria) is a research institute that focuses on organic agriculture. It works closely with farmers to optimize practices, as well as provides events and other learning opportunities for the general public to learn about biological agriculture and shares knowledge on growing ones own food (Bio Forschung Austria).

The **Vertical Farm Institute** is a research institute that focuses on vertical farms. They focus on researching the best methods of farming vertically, within all types of buildings and work together with many partners from various fields to develop efficient and environmentally friendly technology to achieve optimal vertical farming conditions and activities. They also take part in various projects and competitions, designing vertical farming projects together with other research institutes and municipal offices.

Universities and other **research institutes** conduct research on farming processes and contribute to the development of urban farming technologies and methods.

The ***Landwirtschaftskammer Wien*** (agricultural chamber of Vienna, LWK) supports the farmers of Vienna. They aim to help protect and support local agriculture and farmers and connect the farmers with the local people, by making local produce

more accessible to local people and improving the knowledge people have about local produce. They have, for example, created an online platform, where farmers can advertise their produce and consumers can inform themselves about the local supply (Landwirtschaftskammer Wien 2018). The LWK consults and gives their opinion on land-use-plan developments and city development in Vienna. They have the right to assess the city's plans (Interview 7 2018). Furthermore, the LWK produces a report every couple of years providing valuable information about the development and changes in the world of agriculture in Vienna. The Landwirtschaftsbericht (agricultural report) 2017, for example, analyses and evaluates the developments over the two-year-span of 2015 to 2016.

The ***Ernährungsrat Wien*** (Food Policy Council) is a relatively young civil society forum that aims to take part in local food and agricultural policy making processes. It aims to analyse the Viennese food system and pinpoint problem areas, help find solutions and act as a networking institution for relevant actors (Ernährungsrat Wien 2017). The Food Policy Council of Vienna holds meetings regularly and invites any interested persons to come and take part, share their ideas, knowledge and experiences (Ernährungsrat Wien 2017). It is a bottom-up initiative that aims to work with the City and other relevant actors and partners to create a sustainable urban food strategy.

Educational institutes, such as **schools**, work closely together with urban farms and agricultural Start Ups as they try to educate children about nature, nutrition and food production. They incorporate farming in their teaching by visiting farms.

Urban planners create urban development strategies.

Private developers and property owners develop land and decide how land is to be developed.

Societies (*Vereine*) provide their members with assistence, support, contacts and kooperation when required.

Key Actors

LGV Frischgemüse (Fresh vegetables) is a non-profit cooperative organisation that sets out to bring together the consumers in different regions and the agricultural businesses in those regions (LGV Frischgemüse 2018). Currently, 110 Farms actively involved Vienna and Lower Austria (this number sinks to 68 during winter months) delivering 52 000 Tonnes of Produce to various markets and supermarket chains yearly (LGV Frischgemüse 2018). They are the middleman between the producers and the distributers and consumers. It was founded in 1946 and has since been a proud supporter of local businesses and promoting local produce (LGV Frischgemüse 2018). The LGV allows farmers to focus on their production and takes care of the marketing and distributing factors of the business.

The **market** (such as supermarkets) directly buy produce from the farmers or the LGV, furthermore, the market influences what the farmers produce and consumer habits though price regulation and marketing strategies.

The ***Gebietsbetreuungen Stadterneuerung*** (area support for city development, GB*) offices are places in the city that provide the local people with the opportunity to bring in their ideas and to gain support in the realization-process of these ideas, regarding city development, and where they can become involved in city projects (Gebietsbetreuung Stadterneuerung). There are five such offices in Vienna, each responsible for multiple districts. Furthermore, they inform, advise and support the local people in topics such as rent-laws, city development projects, initiatives and infrastructure development (Gebietsbetreuung Stadterneuerung).

The farmers and agricultural Start Ups farm in the city.

The citizens and locals play an important role in the initiation and implementation of innovative projects in the city as they provide the ideas and motivation. If the citizens are motivated and want to implement something, they will find a way, especially with the support of the GB* and other institutions.

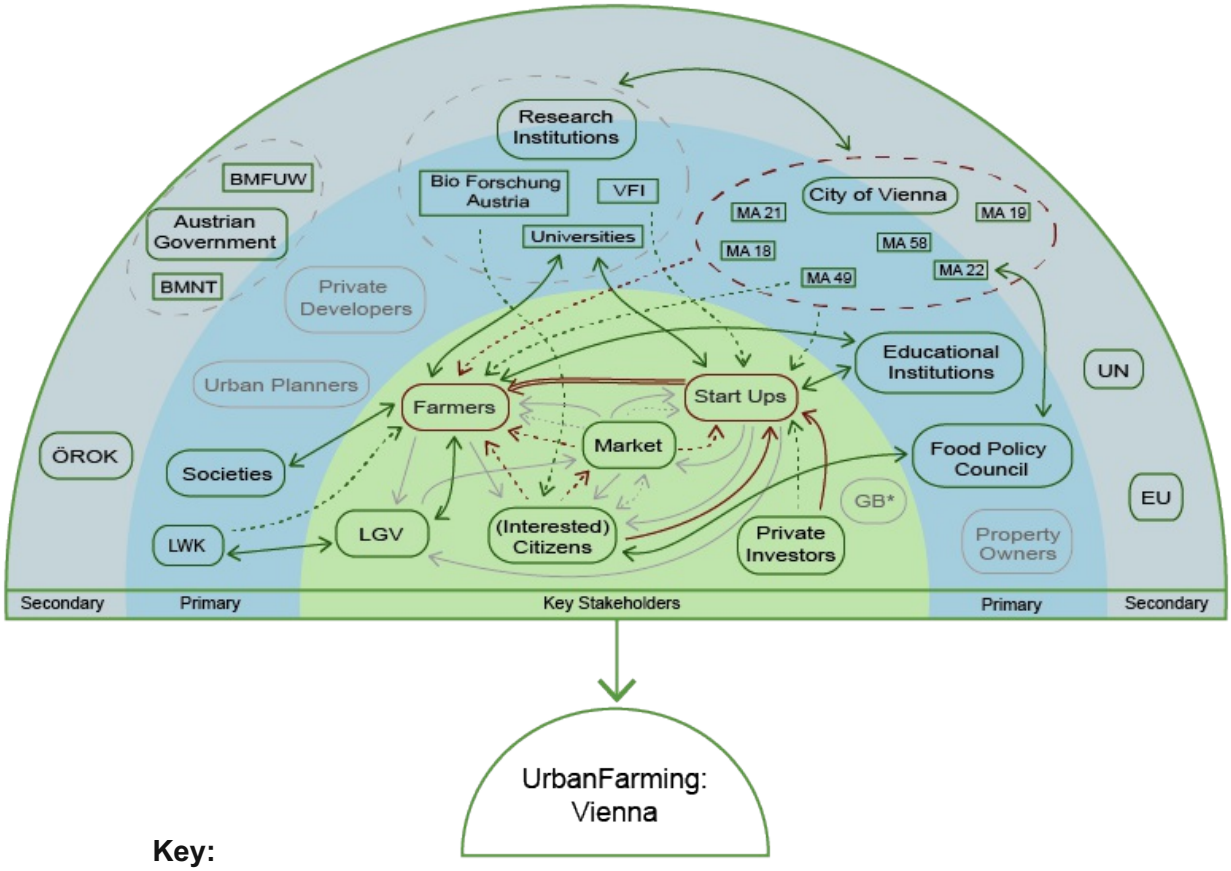
Veto-Actors

Start Ups are important for the founding and establishment of new urban farms. Agricultural Start Ups are new urban agricultural businesses. Urban farming Start Ups have innovative farming ideas and must find funding for these projects.

Farmers are vital for urban farming projects as they cultivate the land, take care of the crops and livestock and harvest the produce when it is ready. Without farmers, urban farms cannot happen or be successful. This does not however mean, that the farmers must be traditional farmers. They can come in any form and have any set of skills, as urban farms are incredibly diverse.

The administration (in this case, the City of Vienna), although mostly not actively involved in farming activities in Vienna, does play an important role in whether urban farms can be located in the city. If the administration is against a project, then it cannot take place.

Figure 8: Actors Map (own representation)



Key:

Actors currently involved in urban agriculture

Actors that have the potential to become involve in urban farming

Veto-Actors

Subgroup Actors currently involved

Actors belonging together

Relationships

A ⇢ B Actor A supports Actor B financially and/or with information and research

A → B Actor A and Actor B collaborate with one another

A → B Actor A directly supplies Actor B with produce

A ⇢ B Actor A indirectly influences Actor B

A ⇒ B Actor A is also Actor B, but Actor B is not necessarily Actor A. They can be interchangeable.

A ⇢ B Actor A puts pressure on Actor B

A → B Actor A is critical for Actor B's functionality

Relationships

As shown on Figure 8, the relationships of the actors involved in agriculture in Vienna are complicated and morefold. The following description of the relationships refers to Figure 8.

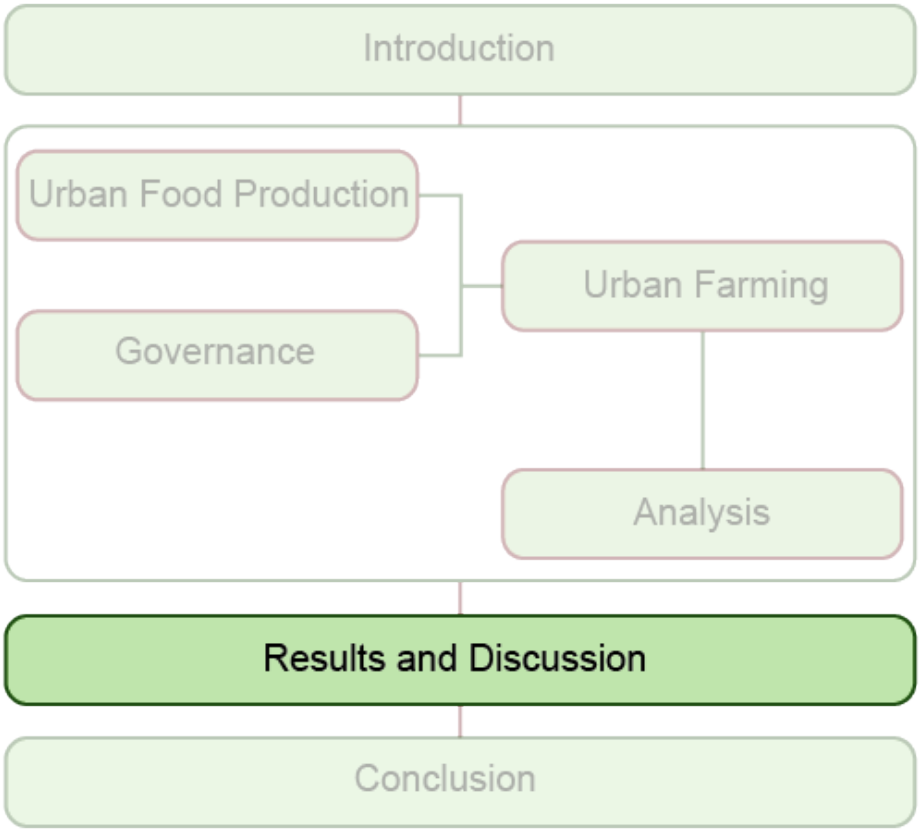
The secondary actors in agriculture in Vienna are the Austrian government, ÖROK, EU, WHO and FAO. They write concepts that provide agriculture with goals. These concepts are not legally binding, however, they are to be taken seriously and sought to be achieved. These bodies often fund projects and companies to help them achieve their goals. In order to help out farmers within the EU and Austria, they are often also supported financially.

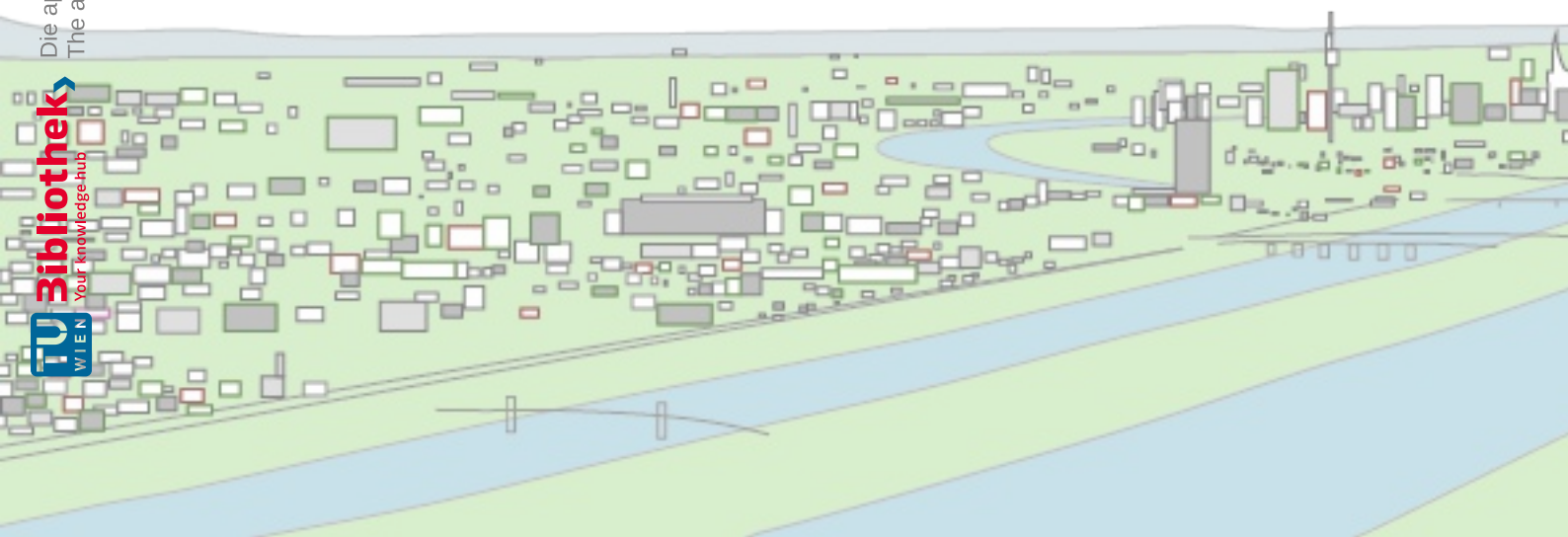
The LWK has a direct relationship with LGV, as they collaborate. Furthermore, the LWK support the farmers, for example, by representing and protecting their interests in city developmental plans. Research institutions work with the City of Vienna as well as with Start Ups and Farmers to optimise the agricultural methods implemented. The Bio Forschung Austria also provides citizens with land and the knowledge they need to grow their own food, if they are interested (Interview 16 2017). Universities work with Start Ups as well as farmers. For example, the Gugumuck farm collaborates with the University of Agriculture (BOKU) (Interview 11 2018). The Vertical Farm Institute (VFI) shares their research with Start Ups as well as with cities and municipalities (Interview 15 2018). The City of Vienna has many departments that are involved in Agriculture. For example, the MA 49 collaborates with farmers and negotiates with them when they need more land (Interview 8 2018). The MA 22 collaborates with the Food Policy Council to create a food policy for Vienna. The MA 21 for example, puts pressure on agriculture by rezoning its land to building land, putting pressure on the farms located within future development zones. Societies support farmers and form a community for them to rely on, such as the bee-keeping societies (Interview 6 2018). Social institutions such as schools and homes work with farmers and Start Ups. They, for example, collaborate, giving children the opportunity to learn about nature through projects such as Schule am Bauernhof. Not only does this teach children about nature, nutrition and where food comes from, the children often take their newly learnt knowledge home to their parents and this puts pressure on the citizens to nourish themselves and their families healthier and from local produce

(Interview 12 2017). Interested citizens as well as representatives from offices, farms or societies are welcomed by the Food Policy Council to take part in their discussions and decision-making processes (Interview 13 2017).

On the key actors level the relationships are complicated. All agricultural Start Ups are farms, however, not all farms are Start Ups, and therefore, they cannot be made one on the map. Farmers and Start Ups are veto-actors, as without them, there would be no farming within the city. The LGV Frischgemüse (LGV) supports farmers and agricultural Start Ups by taking care of the marketing and distributing aspects of the business. Therefore, the farms and Start Ups supply them with produce. They then supply the market with produce, however, sometimes, the farmers and Start Ups directly supply the market and interested citizens who come to their locations to buy the produce directly. The market puts pressure on the farmers and Start Ups to produce large amounts of food quickly and depict the type of produce they would like to sell, if they cannot conform, the markets go to other sources (Interview 8 2018, Interview 9 2018). Certain initiatives from Markets, such as the Zurück zum Ursprung or da komm' ich her! support and promote local and regional farmers. Start Ups depend on financial support from investors and are usually started by interested citizens who have an idea and wish to see where it goes. Start Ups are impossible to be founded and run without these two groups.

The Gebietsbetreuung (GB*), private developers, urban planners and property owners currently do not play a significant role in urban farming. They do, however, have great potential to become involved and contribute towards making urban farming a more important part of urban developmental plans. Private developers play an important role in the development of the city as they develop land as they see fit, provided it corresponds to the Land-use and Building Plans. Existing structures that do not belong to the city belong to private people. The owners are responsible for the upkeep and renovation of their buildings and, therefore, play an important role in the image of the city and the way people perceive the city area. Both of these groups have the potential to develop their land and implement urban farms in their projects or on their land. The GB* is already active in community gardening projects and could include urban farming projects (also as community projects) to their neighbourhood development strategies. The City of Vienna also has potential to improve its role, by supporting farmers more, especially of small farms, as currently, many farmers feel that they are not welcome in the city (Interview 9 2018).





6. Results and Discussion

6.1. Results

6.2. Discussion

6. RESULTS AND DISCUSSION

This chapter summarises the results of this thesis. The results from all of the chapters are summarised and brought together here to provide the reader with an overview. Furthermore, once the results are evident, a second section of this chapter discusses what these results mean for Vienna and Viennese urban planners. In other words, it discusses how urban planners could and should combat the dawning problems (such as climate change, malnutrition, food deserts, mass-production, unethical farming practices and more) of the 21st Century and provide cities with sustainable, urban agricultural planning strategies.

6.1. RESULTS

Food is one of the vitalities of life, without which, no city or settlement can survive (Steel 2012). However, the importance of food production has disappeared from cities of the Global North and the focus now lies on local access to food, rather than on local food production (Morgan 2009). Since the industrial revolution, the importation of food from afar is no longer an issue and mass food production to meet our needs has been taking place in countries far away, often supporting unethical practices and creating very long food supply chains and transport routes (Viljoen and Wiskerke 2012). Cities and agriculture are perceived as mutually exclusive, inspite of their mutual dependency. People no longer have appreciation for the seasonality of produce, the work it takes to produce food, the effect modern agriculture has on the environment or the distances that food must travel to accommodate current lifestyles (Steel 2008, Stierand 2012, Steel 2012, Viljoen and Wiskerke 2012). Due to these developments in the past, the local food systems have become redundant and food consumption has become the only part of the system that is still geographically predetermined (Stierand 2012). Local farmers sell their produce to national or international markets and national or international farmers and distributers supply local supermarkets (Stierand 2012).

Although this has been the trend since technological advances have allowed it, currently, there is a societal shift towards a fairer, healthier and more sustainable food system, where geography is starting to gain importance again (Stierand 2012). Planners and politicians alike are receiving significant pressure from society, academics and scientists to react to the problems that the current food system is creating with a strategy to bring agriculture back to where the food demand is highest, eliminating many ecological and social risks (Nasr and Komisar 2012, Watts, et al. 2005, Moreau, et al. 2012).

The new trend of incorporating food production in urban settlements is gaining popularity in academics and science. However, it is not yet visible in the urban planning of the City of Vienna. Urban agriculture and a new food geography are worth the discussion, as they have social and ecological benefits as well as economic opportunities (van der Schans and Wiskerke 2012, Caputo 2012, Viljoen and Wiskerke 2012). Food production that takes place with geographical proximity to the consumers has the potential to create a resilient food system and should, therefore, be pushed as a strategy to accommodate the increasing food demand in cities (Caputo 2012). Incorporating agriculture in urban planning is a new challenge to be managed by city planners and

politicians. Accepting and acknowledging that the current food system is responsible for many negative environmental, climatic and social effects and adapting a new food geography that links the negative impacts to current agricultural methods is the first step (Viljoen and Wiskerke 2012, Nasr and Komisar 2012). Planners, politicians and academics must accept this challenge and be willing to cross their disciplinary borders to work with one another as well as many other actors to find sustainable solutions that provide the city and region in question with individual strategies that are created especially for the conditions of that area (Viljoen and Wiskerke 2012). This new role is however, seemingly hindered by tradition and strict disciplinary boundaries that lead to disparities and rigid planning (Tornaghi 2012). Furthermore, politicians and planners seem to have a lack of awareness of the benefits of food production in proximity to consumers and possess a lack of will to set aside space for agricultural activities in cities (Pothukuchi and Kaufman 2000, Caputo 2012).

Urban agriculture involves many equally important actors and must, therefore, be governed through governance (Stierand 2012). Urban farming projects can only be successful if interactions take place between the authorities, civil society, farmers and others involved in the food system. In order for all interests to be advocated and for the food system to be fair, all interested actors must be invited to take part in the processes of creating an urban farming strategy and its implementation. Due to the scale of a strategy (neighbourhood-wide or even city-wide) interventions must take place, where the authorities are still in charge and make the decisions, however, the interested and involved actors have their say and can defend their interests (Viljoen and Wiskerke 2012). Furthermore, networks are vital for urban farming strategies and the implementation and workings of urban agriculture to function, as every city is different and they must share experiences and know-how in order to optimise the production (Plantinga and Derkzen 2012). Food Policy Councils are a governance tool that aims to engage with society, make use of their skills and knowledge, and to overcome obstacles (such as bureaucracy and tradition) to achieve their goals easier (Derkzen and Morgan 2012). Food Policy Councils can be purely civil societal or a combination of authorities and interested locals. Civil Food Policy Councils can be more critical, but have fewer resources and less power, while governmental Food Policy Councils have more resources at their disposal and therefore a greater chance to push through their agenda, however they cannot be as critical (Plantinga and Derkzen 2012). Food Policy Councils use methods such as consulting, networking, interacting and

communicating with different actors and actors to achieve their goals (Plantinga and Derkzen 2012, Cleveland Botanical Garden). They provide leadership, educate and spread awareness, support and do research (Plantinga and Derkzen 2012, Cleveland Botanical Garden). Food planning must be handled with utmost importance in politics and planning and cannot be seen as an add-on to other planning strategies (Derkzen and Morgan 2012). This form of governing allows food and agriculture to adapt to instabilities and changes in society and the environment (Barmeier and Morin 2012). Although Food Policy Councils do not require authoritative input, the chances of achieving change with political, planning and other authoritative support do increase significantly (Barmeier and Morin 2012).

The biggest advantage that urban agriculture has over rural agriculture is that it is visible and the people take note of it, as it takes place near the consumers (Morgan 2014). Urban agriculture takes advantage of the local resources and improves the resource cycle and microclimate of the city or town (Mougeot 2006). Urban agriculture's geographic location provides it with the chance to take advantage of other urban services and intertwine with the city's economy and ecology (Mougeot 2006).

Sixteen Interviews were carried out with the aim of determining whether urban farming strategies and practices are feasible in Vienna. Two of these interviews were carried out with experienced urban farms in the United States of America. Eight interviews were carried out with Viennese farms and Start Ups. The remaining six interviews were carried out with research institutes and the administration offices of Vienna. These interviews built the empirical body of this thesis and made it possible to determine whether urban farming could be suitable for Vienna.

In Austria, there is a strict separation between the 'urban' and the 'rural', and as such, the responsibilities and activities of each, mostly do not overlap (Lohrberg, et al. 2016). The duties and responsibilities of each authority level are clearly stated, with agriculture and planning falling upon the municipalities.

Vienna is slightly different to the rest of Austria. It is located in an area that, traditionally, always has produced food. Agriculture does not take place in the inner city, but more to the outskirts of the city. As Vienna is simultaneously a city and a province of Austria, agricultural activities do technically take place within the city, on land that

has traditionally always been farmland, on the outskirts of the urban settlement itself. Due to the rapid expansion of the city, it has engulfed large parts of land that was previously farmland and this line has become blurry. Therefore, there are still parcels of agriculture in areas that are now considered urban (such as the Donaufeld).

The fact that food and agriculture do not play a significant role in the urban planning strategies of Vienna was confirmed through the instrument study. The planning instruments rarely take agriculture in the city into consideration. It seems, that food security is taken for granted and that the authorities (apart from the Landwirtschaftskammer and the MA 49) do not see a need to keep agriculture in the city. Even on higher political levels (such as the national or EU levels), agriculture in urban settings is not relevant. This may be due to the traditional gap between rural and urban activities and the fact that urban areas are not notorious for agricultural activities (Wytrzens 1994). This may also be due to the City of Vienna having set a priority on residential areas' growth and the profitability of the land, as building land is worth more monetarily than green spaces or agricultural land. Agriculture in Vienna is only relevant in the AgSTEP, which is not legally binding. Generally, the City of Vienna does not see the need to increase agricultural land and activities in the city as urban gardening gives the people who are interested to grow their own vegetables the chance to do this, agricultural land is found towards the outskirts of the city and food is easily imported from other countries (Interview 10 2018). Unfortunately, urban gardening does not solve or hinder the problems, as it cannot cover the scale of agricultural activity required to impact society and the environment in the way that urban farming could.

There are many forms of agriculture that do not require much land or resources. Agricultural initiatives such as ZFarming or SkyFarming projects have the potential to bring agriculture back into Vienna, without requiring land. Rooftops, public squares, vacant buildings and more all provide spaces in which alternative and innovative agricultural forms can prosper (Thomaier, et al. 2014, Kost and Kölking 2017). These spaces als have the potential of providing the citizens with multifunctional spaces, enriching their urban experience and improving their quality of living.

The eight selected Viennese farms were interviewed with the aim of establishing the extent of the networks and instruments that help them do their work. Furthermore, two

best practices were taken from the United States of America. These farms are all very different as they are located in different settings, use different agricultural methods and require different resources, although all are very efficient. The farms from the USA were chosen as the best practice examples as their processes were well documented and the founders of the Start Ups were very happy to share their experiences. The eight Viennese Farms were chosen as they cover a large spectrum of different farming methods and techniques, ranging from traditional farming using organic techniques to hydroponic fish farming, indoor mushroom farming, beekeeping and snail farming, and they are located near to the urban settlement of Vienna, partially even within the city. Although the Viennese farms are not well documented, the founders and farmers were very helpful and excited to share their experiences. These farms are all farms that set out to adapt to the future demands and conditions as well as help combat effects such as global warming and contribute towards providing food security. Please see chapter 4.3. for the American farms and 4.4. for more information on the Viennese farms.

Urban farming has many strengths and opportunities and presents Vienna with an interesting opportunity. Due to the misunderstandings (assumption that urban gardening is the same as urban farming) and a low priority for food production in the city in planning strategies and Viennese politics, urban farming businesses are not a priority in Vienna. Currently, it seems unlikely that the municipality will support more agriculture in the city, as the goals lean towards building up land and allowing the city to continue growing, taking over more farmland. Urban farming strategies in Vienna could contribute greatly to the goals and aims of existing Viennese planning instruments, as these strategies cover ecological, social and economic aspects that are sought after and achievable through various urban farming projects and strategies. Urban farming strategies have great potential to increase the living quality of the city in Vienna and would be easily implementable due to the instruments and networks that already exist.

The SWOT Analysis identified many more strengths than weaknesses, however there are more threats than opportunities associated with urban farms in Vienna. Of course, the threats and weaknesses of urban farming pose a threat to any urban farming strategy; though, the positives of urban farming in Vienna outweigh the negatives by far. On a social level, an urban farming strategy would allow agriculture in the

city to take a hold and provide the citizens with local, healthy food; a safe place for them to appropriate; spread awareness about food production, nutrition and the environment; provide more food security; provide places that children could learn in outside of a classroom; empower individuals to support the local economy and feed themselves healthily; job opportunities and much more. Urban farming strategies could also create a more transparent and local food system, shorter transport routes and provide multiple ecological benefits such as an improved ecosystem, more comfortable microclimate, better insulation, less waste and more efficient resource management while finding solutions to the food-related problems of the 21st Century (growing food deserts, unhealthy diets, mass production of food using unsustainable and unhealthy farming methods). On the other hand, many actors must be involved in urban farming strategies, making the decision-making processes time consuming and the implementation costs are high. The relationships between the actors and the instrument constellation are complicated and delicate. Please refer to the SWOT Analysis, chapter 5.1 for more information on the strengths and weaknesses of urban farming in Vienna and chapter 5.2. for more information on the instruments and actors of agriculture in Vienna.

The City of Vienna unknowingly provides many opportunities for urban farming and the possibility of creating an urban farming strategy is not far-fetched, as many of the rules, regulations and planning instruments would not need much altering to enable such a strategy to be successful. Furthermore, urban farming would activate unused spaces, provide the city with marketing and image-altering opportunities as well as a sustainable strategy, contributing towards the Smart City Vienna goals. On the other hand, threats such as lack of public interest and financial support; strict rules and regulations within the city; pressure on open spaces and use conflicts do pose an adequate threat to the success of an urban farming strategy in Vienna.

Overall, in Vienna there is a lack of urban farming instruments and actors for the systems to exist sustainably, although current instruments and actors are not illequipped for such strategies. With enough support and motivation from civil society and the municipality, urban farming could be successful and cost effective in a city like Vienna, that has always been a city that was surrounded by, and identified with, agriculture.

6.2. DISCUSSION

In order for urban farming to become a part of Viennese development strategies, contributing to achieving the goal of being a *Smart City*, the municipality of Vienna should acknowledge the importance of agricultural planning in urban areas and prioritise adding urban agriculture to urban development strategies and plans, in a larger way than simply pointing out that it exists or should be supported. Concrete, legally binding action plans, are required.

Agriculture in an urban setting must be observed as such, and be part of city development strategies and concepts (Kost and Kölking 2017). In order for this to be achieved, awareness must be spread to the local people but also to the politicians, administration and planners of the urban settlement, in this case the City of Vienna (Kost and Kölking 2017). Multifunctional urban spaces must be created and encouraged that enable and promote alternative and multifunctional uses, such as urban farms. Furthermore, the benefits and positive effects of such spaces must be advertised appropriately, so that the population and other politicians and planners become more aware of it and acknowledge its importance (Kost and Kölking 2017). The Landwirtschaftskammer Wien works to spread awareness of local agriculture businesses and the Bio Forschung Austria provides people with the skills and knowledge they need to farm food, however, not many people use this to start a business and make a profit or change the food-culture and politics of the city, as they tend to focus on urban gardening. Awareness of the possibility of urban farming in Vienna in spaces such as on rooftops, in cellars or in empty buildings is lacking.

Generally, the necessity of a new land-use category is not given, as areas that are large enough for industrial farming to take place fall under the Land-use category ländliche Gebiet and rooftops, terraces and courtyards are not large enough to require an agriculture-friendly category (Interview 10 2018). The implementation of specific land-use categories is only required when land needs to be reserved or protected for a particular use. Since the land in question is already built upon, as the farms are taking place off of the ground, on rooftops, in empty floors of buildings and courtyards, no particular land-use category is needed (Interview 10 2018). However, for farming activities taking place in closed circuit environments, such as hydroponic farming, the categories Industriegebiet (industrial area) or Betriebsbaugebiet (business area) are sufficient. Vienna is a city with many regulations and therefore, the lack of possibility for urban agriculture activities in the land-use plan automatically hinders the initiation

and implementation of urban farming businesses. By creating a zoning overlay plan on residential areas, such as is the case in Downtown Mobile, or by giving suitable buildings and spaces a special land-use category, large unused rooftops or even emptry floors of buildings can be utilised for urban farming activities and provide many benefits for the citizens of the city.

Agriculture can only thrive where there is a useful land-use plan. This can only take place on land that is zoned as agricultural land with no building bans or other regulations restricting the productivity of the farms (Interview 7 2018, Interview 13 2017, Magistrat der Stadt Wien (b)). It is a goal of the Landwirtschaftskammer Wien, to achieve an unrestricted agricultural land-use category supporting and enabling the productivity of the farms. Ideally, this zone must also be implementable in combination with other zones, such as business or residential land-uses.

A network needs to be formed for the coordination of urban farms in Vienna. This group needs to work with research institutes such as the Bio Forschung Austria and the Vertical Farm Institute; with civil societal groups such as the Viennese Food Policy Council; with municipal and governmental offices such as the BMLFUW, BMNT, GB*s and MAs; with interested locals and most importantly with farmers and Start Ups. Institutes such as the Bio Forschung Austria and the Vertical Farm Institute need to work closely together with experts from countries such as the USA where urban farming is becoming more visible, as well as with local experts and actors such as universities and city departments to increase their scope and provide them with more opportunities to create prototypes of urban farms for the future and provide Start Ups with consulting. This cooperation and having a network that one can rely on makes the founding and starting of a farm, especially an alternative farm, much more attractive.

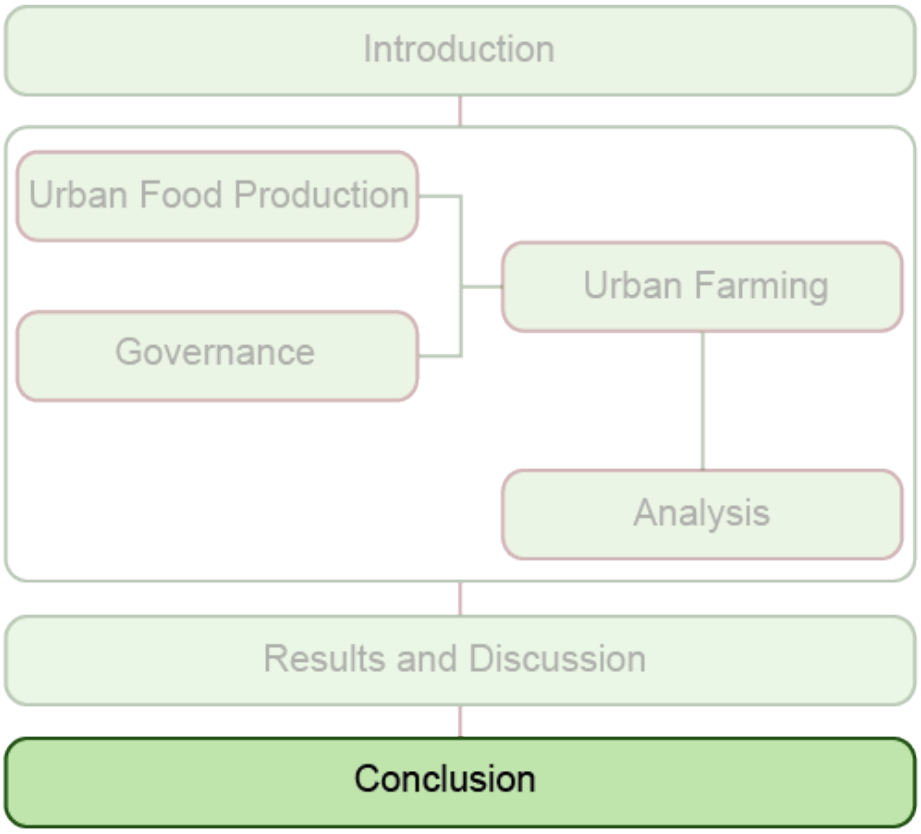
This network should educate, connect, distribute and empower people with viable farming locations and techniques. The official Magistrate of Vienna's website already has various GIS maps marking areas of potential (such as for solar energy or green roof potential), this could be done for urban farming too. Buildings or areas that would be ideal for different types of farming should be marked on this map, spreading awareness and even inspiration. This network could also help give people who want to start a farming business the tools to do so.

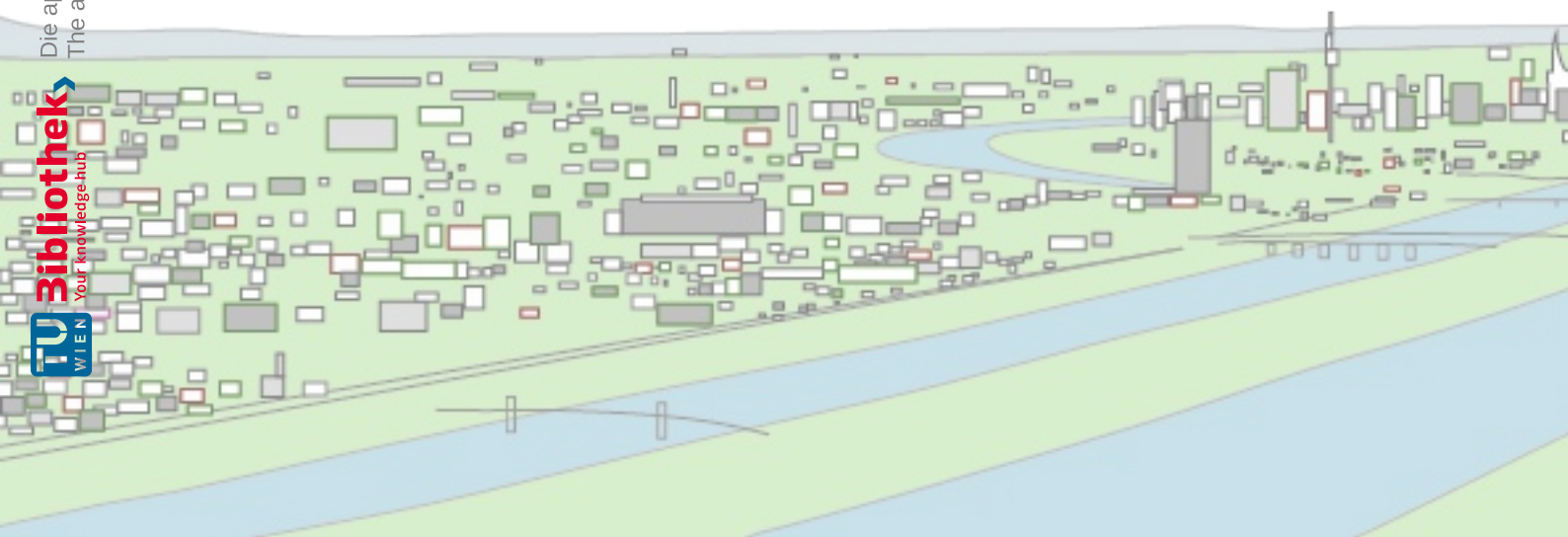
The urban planners in Vienna need to continue to create opportunities for the citizens to empower themselves by growing food themselves, by giving them more options and opportunities and by freeing them from their dependency on supermarkets and mass -produced commercial goods. It needs to give people the opportunity to learn about agriculture, food and nature by experiencing it first hand and give children the chance to learn about the world hands-on.

Urban farming needs to take place in schools (such as on their roofs or courtyards) and other social institutions, like hospitals, where pupils and patients can participate and take responsibility for growing food that is then used in their cafeterias. Giving them the opportunity to come into contact with nature, grow food themselves and learn how to be responsible consumers.

By incorporating and promoting urban farming projects in the ÖREK and discussing the potentials of urban farming on a national, or even European or international level, the potentials and benefits of urban farming will become more commonly known and projects such as these may find more upper level support. Not only must agriculture in city structures become part of national planning instruments, it must also be present in local, municipal plans, such as the STEPs. The STEP aims to preserve farmland, however it does not focus on creating more farmland or redistributing land to cover that that has been lost due to building projects on formerly farmland.

Open spaces for recreational activities are crucial and valuable. In areas that are developing quickly, open spaces are to be protected and prioritized. Although planning instruments are in place to protect and vitalize urban open spaces, practically these ideologies are not applicable (Kost and Kölking 2017). Open spaces must become multifunctional spaces, providing the city and the local people with more benefits than only one. Urban farms can be a solution to finding an use for a multifunctional space as it provides the neighbourhoods with an opportunity to vitalize space that is not used, while creating green space in densely built up city areas, that cleans the air, improves the microclimate, reduces the heat-island effect, provides the people with jobs or hobbies and fresh produce or an alternate source of income and social engagement. These uses can be temporary or permanent, depending on the conditions and the interests of the actors.





7. Conclusion

7.1. Summary

7.2. Conclusion

7. CONCLUSION

7.1. SUMMARY

This thesis explores food production in an urban setting and investigates whether putting urban farming on the political and planning agenda of the City of Vienna is feasible. A literature analysis was carried out investigating food production in cities and urban farming as a strategy for sustainable city development, contributing to finding solutions to the food-related problems, such as harsher climates, resource shortages, food deserts, malnutrition, unawareness and ignorance of healthy lifestyles, we are faced with in the 21st century. This research was done to build a basis for the analysis of the situation in Vienna and to answer the research questions:

1. **What role does food production play in urban development in Vienna?**
2. **To what extent is urban farming a feasible strategy to contribute to food planning solutions in Vienna?**
3. **To what extent are urban farms feasible for Vienna?**

A literature study regarding the fields of *governance, urban food production, agriculture in Austria* and *urban farming* was done to build a basis and the foundation of this study. Furthermore, a SWOT analysis, an instrument study and an actors' study based on expert-interviews were carried out to answer the research questions with regard to Vienna.

Food production does not currently play a role in urban development in most cities of the Global North and Vienna is no exception to this generalisation. Food accessibility (regardless of season, distance or ethical implications) is more significant and food production has lost most of its meaning in the city. In Vienna there are still many farms on the outskirts of the city, but agriculture is invisible in the city and many people (especially children) are unaware and do not care about where their food comes from.

Food planning is not a priority in urban planning or politics. Food is taken for granted and many people do not even know or are concerned about where their food comes from. Planning instruments and tools on multiple political and planning levels (municipal through to EU) have set goals and aims that can be achieved by a well thought out and connected urban agriculture strategy. By bringing food production back to the consumers geographically, many problems such as long and insecure food supply chains and transport routes are no longer an issue. Furthermore, the city is provided with many benefits that agriculture can provide, including more nature to the concrete

jungle of Vienna. Although there are many threats that could be the premature death of an urban farming strategy in Vienna, there are also opportunities, strengths and benefits that urban farming projects provide the city and its people with that are worth the effort and risk. Therefore, urban farming strategies could contribute positively to food planning strategies in Vienna, as they start to do in other countries and cities.

Finally, an urban farming strategy for Vienna is feasible and suitable despite the fact that the instruments and actors currently do not focus directly on it and many farmers and Start Up founders are sceptic due to their experiences in the past. To what extent an urban farming strategy is possible is unclear and requires further research regarding the legal system, governance system and financial situation of Vienna. It is however, clear that urban farming, when put on the political and planning agendas of the City of Vienna, will have the power to contribute positively to the social, ecological and even economic prosperity of the city. It is feasible, that an urban farming strategy could solve and contribute to solving many problems, such as air pollution, extreme warm temperatures, wastage, maintenance, social exclusion and accessibility to local, healthy food in Vienna and would be successful, provided the different actors work together, set themselves focused goals and adapt the instruments accordingly. In addition, urban farming strategies would fit well amongst the existing strategies towards creating a pioneer green, innovative and sustainable city.

7.2. CONCLUSION

Urban farming is an opportunity for Vienna to reintroduce food production to urban planning and achieve its goal of becoming a Smart City. Currently, there is a lot of pressure on the local and regional farmers to compete with the low prices of imported goods, putting their existence at risk. Furthermore, local farmland is put under pressure by the City of Vienna, as the city aims to expand in order to cope with population growth. Another problem Vienna (and most other cities) faces, that local urban inhabitants are increasingly losing touch to nature and food production, causing them to increasingly make unhealthy nutritional choices. Importing food from all over the world has benefits such as year-round availability, however it also creates an incredibly long and delicate food supply chain which is impressionable to climatic, political and economic changes and crises. Relocating and encouraging agriculture closer to the consumers solve many of these 21st Century problems and provides the city with many benefits and alternatives.

In order for Vienna to cope with the growing pressure regarding the production and accessibility of healthy food, urban agriculture must become more visible in urban planning documents as well as start playing a role in urban politics. Urban farming has the potential to contribute to many of the city's goals, including becoming a Smart City, however, it is not acknowledged by urban planners as having this potential. In fact, agriculture is rarely taken into consideration in urban planning in Vienna and some inspired individuals have taken it into their own hands to start the movement of introducing innovative and sustainable agricultural businesses into the city boundaries of Vienna.

The results of this study shows that urban agriculture has more advantages than it has disadvantages. It is a place of co-governance and democracy; it incorporates local conditions and innovative practices to make the best of the environment and optimise food production. It aims to successfully spread awareness about the environment, nature and healthy living, and is a place where children and youths (and even adults) can learn about how they can be sustainable and responsible consumers. It is a multifunctional place that people can appropriate. It creates a more comfortable urban climate by creating a more natural climatic cycle. Urban farming strategies have social, environmental and even economic potentials and pose a great opportunity for Vienna, especially in its current mission of becoming an innovative, sustainable pioneer.

The previously oxymoron concept of urban agriculture breaks the traditional mind-sets that urban and rural, nature and society are mutually exclusive and cannot go hand in hand. It shows that urban as well as rural settings can produce food (and should) in order to cope in a sustainable way with the growing demand, and that society flourishes when it has access to nature. An urban farming strategy is feasible for Vienna and will contribute to achieving a local food system that provides the local people with agricultural produce as well as visible agriculture that spreads awareness and educates about the environment, food production, nutrition and responsible food consumption; provides healthy, local food and creates a better and more sustainable social, ecological and economic environment.

This study set out to determine whether urban farming strategies are feasible and suitable for Vienna, Austria. This study shows that they are indeed suitable and could be implementable with some changes to the legal, planning and political systems and mindsets. However, in order to determine to what extent urban farming strategies are possible in Vienna requires further research and a wider discussion. Further research is required investigating the legal and financial platforms and mechanisms in Vienna, to determine where and to what extent changes must take place to enable urban farming. Further research must also be carried out in the field of urban agriculture and the social, economic and environmental effects that it has on the local population and structures as well as on its rural counterparts. Research must be done on how politicians and planners can be stimulated and motivated to put urban farming on the political and planning agendas of cities of the Global North (investigating how other countries have succeeded may be a starting point). As there are many different forms of urban farms, the City of Vienna could invest in studying different forms and evaluate how best to implement them. Multifunctional spaces should be researched and studied, in order to avoid and foresee possible conflicts and to optimise the usefulness of the space. Further research must be conducted in how urban farms can be incorporated best in teaching and learning processes in schools and other social institutions.

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8.1. Literature

8.2. Figures and Images

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9. Appendix

9.1. Interviews

9. APPENDIX

9.1 INTERVIEWS

All interviews were conducted and transcribed by the author of this thesis. The interviewees have been unnamed in order to protect their privacy. In order to differentiate between the interviewer and interviewee's parts of the interviews, the interviewee's sections are always *italic.* Some of the interviews remained on topic more than others, this determined whether the whole interview was transcribed or whether it was summarised or whether sections were transcribed. In other words, irrelevant sections of the interviews were ignored. When sections were transcribed, the running time the section started was mentioned. All interviews except two were audio recorded. Interview 4 took place while walking around and observing the farm, so it was difficult to record the interview. It was therefore, written up and summarised post-interview. Interview 10 did not take place in person as the interviewee did not have time for a face-to-face interview, so the questions were answered and returned via Email.

- Interview 1: 13 February 2018
- Interview 2: 11 January 2018
- Interview 3: 23 July 2018
- Interview 4: 1 August 2018
- Interview 5: 7 August 2018
- Interview 6: 1 October 2018
- Interview 7: 12 March 2018
- Interview 8: 1 October 2018
- Interview 9: 8 August 2018
- Interview 10: 21 January 2018
- Interview 11: 17 January 2018
- Interview 12: 21 June 2017
- Interview 13: 26 June 2017
- Interview 14: 22 June 2017
- Interview 15: 19 July 2018
- Interview 16: 09 June 2017

Interview 1:

Interview questions answered using: A. C. Plakias (2016): "The Farm on the Roof". New York, as preperation for the interview, as requested by the interviewee.

Why did you initiate the urban farm?
"We're operating two and a half acres on two buildings in Brooklyn and Queens, we manage more than thirty beehives across the city and we've built acres of urban green space for partner organisations and private clients. We've raised more than a million dollars between two rounds of fund-raising and have built a team of eleven full-time staff as well as a network of partner organisations who help make our rooftops a learning laboratory and refuge for students, immigrants, and other New Yorkers." P. 5
"We intended to create a small farm business¬–a self-sustaining enterprise that, like any other business, would have to turn a profit to survive." P. 3
"By operating it as a for-profit enterprise, we set out to show the wider world that urban farming can be both an agriculturally and fiscally sustainable operation–an industry that, if invested in, could help change the landscape of cities." P.3-4
"We set out to create not only a financial return from our rooftop farm but a social and ecological return as well." P. 4
"We always planned for the farm to double as an educational space in which to teach urbanites about food and farming" p. 66
"We look for schools that will send their students up to learn with us, families who will shop at our farm stand, and like-minded businesses with whom we can partner on green initiatives and fun events." P. 55
"So if we want a better city, dotted with rooftop farms, we'll have to monster our way through some messy installs." P.116
"Job creation has always been a goal of ours, but there are only so many jobs that a farming business can bear Until we scale up the farm, we can't really scale up the labour side of it." P. 214

Which actors were involved in the founding and establishing phases of the farm in Brooklyn?
"Look up team in more detail: basically a variety of individuals with different skills and backgrounds Cooperation with City Growers, an educational non-profit" P. 235
"Created by the team to provide the youths of new york the opportunity to learn about nature and the environment." P. 243.
"That's the beauty of our relationship with City Growers: they don't have to worry about engaging structural engineers, building greenhouses, or maintaining landlord relationships; that's what we do. And in turn, we leave them the incredibly valuable and crucial job of educating tomorrow's eaters." P. 248
"*Cooperation with the "Urban Farm Recovery Project led by the Refugee and Immigrant Fund (RIF)*" p. 249
"creates a sense of community and family for people who have lost so much" p.251
Media spread word and created awareness of the farm

Which local policies made it possible/difficult? How were these barriers overcome?
"Permit was needed, didn't have one… Work was stopped during the installation of the first farm because the plan hadn't been approved by the city (because for a green roof as it isn't a major adjustment, it doesn't need to be approved, while a farm apparently had to be)." P. 100-101
"No matter what construction is being done, you must file the appropriate self-certification documents to

obtain a permit to allow the construction from the city's side" p. 105

What were the contributing factors in deciding the location of the farms?
"Price of rent of the rooftop" p. 37
"Size of the roof" p. 38
"Strength of the building" p. 38
"Location was key. We wanted to be near major roadways for ease of distribution but central enough to public transportation and a residential neighbourhood to be integrated into the social fabric of the community." P. 40
"Now that we have five years of experience under our belts and a reputation as smart operators, we can be a bit choosier about our spaces. Beyond a willingness to work with us to solve existing infrastructural issues, we've learned to look for landlords who are excited not only by the idea of having an intensive green roof on their building, but who also want to encourage a sense of community." P. 53

Which city officials were for it/against it, and why?
"Work was stopped during the installation of the first farm because the plan hadn't been approved by the city (because for a green roof as it isn't a major adjustment, it doesn't need to be approved, while a farm apparently had to be)." P. 100-101

What are the benefits/disadvantages of farming in/on a city structure?
"While rooftop space is less valuable than ground-level real estate, the cost of building it out is higher." P.4
"the paradox of the green roof farm: we slow down the rate at which rainfall passes through our farm, allowing the sewer systems to process peak flow rainfall before our runoff enters those subterranean pipes, thus reducing the amount of combined sewage overflow here in New York City. Yet all that water steals our nutrients much faster than it would if more moisture stayed in the system. The very climate feature that makes green roofs valuable simultaneously makes us vulnerable." P. 146

Social impacts:
"In a sense, the roofs we cultivate provide a kind of refuge from the alienation of city life in the digital age. Brooklyn Grange is a space for face-to-face conversations: even the shyest farmers have to ask questions when they're new and still learning, and one simple query on a farm can come with a lengthy explanation." P. 237
"Beyond connecting those who are cultivating the roofs, the farm gets others talking, too: when we step into the elevator, our neighbours often chat us up about what's growing during the long ride to the top floor." P. 237
"The farm is all about interaction and fostering community." P. 237
"with more than half the world's population now living in urban centres, this is the reality faced by the majority of children growing up today. Many of these kids will spend their formative years waking up in the morning, descending from their apartment building down into the subway, which they'll take to their concrete-block schools, where they'll spend their days looking out a window at a whole mini-universe of other concrete blocks." P. 241-242

Was there a lot of support for the farm (financially and politically) from the city officials or local residents?
Supported by friends, family, the local neighbourhoods, local businesses, crowd funding, fundraisers… etc p.76-80

How does the farm influence the livelihoods of the people working at the farm, the people in the immediate neighbourhood and the people of the city?
Creates a community for the locals, provides the locals with an opportunity to buy fresh healthy vegetables daily.

Interview: 13 February 2018, transcribed 5. March 2018

(00:57) *Question 2 is a really interesting one and a kind of difficult one to answer, you know it's really going to relate to the department of building requirements and less to do with growing and selling food. So we really stuck to the sale of fresh produce… If we were farming in a controlled environment we would be facing more regulations, but the fact of the matter is that the agricultural laws in NYC are quite old and very few and far between. One of the only laws that we turned up was that you're not allowed to have bears on roofs… Really urban agriculture has been practiced mostly on a personal scale over the last century so there has not really been the need to regulate it, so the biggest challenge there was about being uncertain about whether there are obscure laws that we didn't know about. We did our duediligence and work closely with the department of agriculture who do come up regularily to certify our farm and make sure we are not doing anything agricious and other than that the sale of fresh produce is not a very regulated area because it is not a very dangerous area. I will say that there is currently a move to council members… posed an urban agriculture bill, they have since downgraded the bill to a website which would help would-be urban farmers regulate and start a business in new york city.*

that would be very convenient
Yeah I guess, but I also think that urban farms are going to be very different from one another and even farms that you think might be very similar, but depending on their goals and scale they might be completely different. I think a lot of well-meaning people have entered into this area with the intention of creating a streamlined process for the starting up of urban ag. Endeavours, and I do not think it is unusual that they come to the conclusion that there is no easy way to start an urban ag business, but it would help

Regarding the places you're allowed to farm on, is that on a personal level, so if the owner of the building says it's OK, then it's OK?
Residential areas have some limitations but we haven't looked that closely into it, because the buildings are usually too small for commercial farming. We've identified buildings rather than areas that would be a good cite for our farms.

Just to touch on 5, 6 and 7: The city was pretty supportive, we've received some help from the mayors office… I think the city realized that the city badly needed something good and hopeful and they wanted to see us that we would realize that vision. The Department of environmental protection (dep) has been extremely supportive of green roofs, so we work very closely with them. The DEP will grant-fund the installation of infrastructure that prevents sewage overflow. All over the world green roofs will become a solution in preventing and managing sewage overflow and heat-island effect.

What rules must the farm comply to? There are not many rules, we farm according to organic principles

but we are not certified. We will pursue certification soon because we want to be part of the conversation. So once we are certified, certain products will be scrutinized and limited. But it wont materially change our operation because we are farming according to organic principled. There are a lot of weird rules, we have events on our farms, but you are not allowed to BBQ on rooftops… In NYC you're not allowed to have an open flame. It will be location by location that these things come up.

Benefits: No ground level pests, being elevated above pollutants/pollutant drift, (pollutants are usually heavier than air, so they do not reach us where we are; trash blowing in; theft, security are big ones. Disadvantages: it's windy on a roof, we're limited in the depth of our soil; we have to use well draining roof soil which means it dries out and we need to use more water than we'd like to. Square Roots Urban Growers: Their mission is all about training urban farmers and entrepreneurs, so they have an obligation to talk to you. Auster Grow Farm

(17:40) *I have thoughts about that: the strongest argument you can make to a city is less about food production – yes the creation of some level of food security is nice to think about should something happen, but the fact of the matter is urban farms will never be able to feed entire cities. I truly believe that until we are honest about the real benefits that urban farms provide and honest about their limitations and challenges we wont make progress. I think that food security is a weak argument, I think the number of vehicles entering and leaving the city with food again, kind of a weak argument. People often argue for farmers markets that sell local produce, but when you go to these markets, at least in NYC then you see trucks that are half-full, meanwhile food that's grown in California is moved here super efficient. The big argument in my mind for urban agriculture is two-fold. One: I believe that soil based urban agriculture has the capacity to monetize the creation and maintenance of green spaces that cities sorely need, particularly growing cities. We have reached a point now where we have so much impermeable surface that there is no place for rainwater to absorb into and so many people using our sewage system that only 20-30 minutes of light rain is all that it takes to overwhelm our sewage system… It's a public health crisis and a very expensive problem to address. Soil based green roofs slow the rate of discharge of water, and slows the rate at which the water makes its way to the ground which gives the city time to cope with the amount of water. 2. Reduction of urban heat island effects. The problem with greenroofs is that they are expensive, the return on them is slow, especially because as buildings become more efficient, it takes the bigger argument for private developers is that if you put a greenroof down on a brand new roof membrane, you extend the life of the roof membrane because the number one cause for roof membrane damage is UV rays. No one has ever had to rip off a green roof. Some developers only care about how much money they can get from selling the properties. In the US a greenroof adds about 20 dollars to every square foot. We need city incentives for green space, green infrastructure. I'm not as interested in indoor farming because of the things I just mentioned…. I think for the city, greenroofs is very compelling, and rooftop farming as a method to pay for those green roofs is a very compelling argument or at least paying for the maintenance. Generally here we apply for funding from the DEP for building the roof, and then we maintain it through sale of produce, events… etc. If developers get something back, they are more likely to do it. What if adding green infrastructure you get retail or residential space in that building – in what other ways could you get developers to do it. What is it that private developers have and want? If they want more retail space then this is an easy way to do it. City will be pleased because they have found a way to reduce the tax payers burden. Citizens will be pleased because they get cleaner and cooler air, better water system, better ecosystem and a place to come together. This is the other benefit that I see of urban farming: To learn about food and farming and connect to nature. Many city livers have no access to where food comes from. If you are going to bring farming into the city, then you need to make it accessible to*

the residents of the city. I just do not see that as a possibility for a lot of hydro-ponic/air-ponic. Most serious commercial scale hydro-ponic growers are kept behind closed doors because it's controlled environment agriculture. That control is the only thing that keeps a very fragile artificial ecosystem working.
Whereas with soil there is so much microbial active and it's very resilient (comes into contact with birds, people…etc). We are going to need to become more control-environment dependent and –ponic, cca…etc will be needed, however in a city with social aspects soil farming is the better option.

I absolutely believe in the necessarity and viability of cca farming in an increasingly resource strapped world, but for city officials weighing the pros and cons of urban agriculture, I think soil based agriculture offers more pros and compelling arguments.

I think we receive an email: I'm one of your neighbours across the street, I absolutely loved bringing my daughter to come say hello to the chicken and have fresh produce… the CSA was a great and convenient way for us to get fresh and high quality goods. All new hires: say they want to work for an organization that is doing something good in the world. In 2018 we are increasingly alienated from our food production chains, food production happens behind closed doors and it's by design, if you saw how the food was produced you'd lose your appetite. I think that there is a sense of being really alienated from our food and from nature. It takes longer and longer to get to nature. These two points of alienation have created a desire to reconnect with nature and to feel a sense of urgency that they have actually have some level of control over where they get their food and how it is produced. I think supporting a local business that keeps dollars in the local community and supporting a local farm whose practices they can come up and verify with their own eyes, whose soil they can feel in their hands, I think for a lot of people who live nearby and join our local CSA (Community supported agriculture) programme… CSA members love being a part of it because they feel like they are supporting something good and I think that that sense of hope and optimism should not be underestimated. In terms of people working at the farm, we have a very nice farm community and we try to keep it a nice place to work, we offer a health insurance subsidy which is not required by law, we offer a very progressive paid-parental leave policy. I want to be honest that the real challenge of urban farming is that it is increasingly difficult to pay a living wage where living costs are so high and working with a business with thing margins relying on the production and sale of fresh produce is very challenging… People are becoming sicker and that is a result of devaluing food and feeding people food that actually makes them sick, and that's a challenge. We do our best to provide and sustain a healthy livelihood for our staff but it is not easy to do all the time.

Noise: Green space reduces noise pollution. Green spaces really reduce noise quite a bit and increase pollinator habitat and wildlife habitat; we have a lot of bat activity. Bats are essential to keeping in check mosquitos… It's not to be underestimated either.

I do not believe that agriculture in this form is more sustainable than traditional agriculture. You do not reach the economy of scale as you do on large pieces of land, you're not able to let any land rest because you cannot afford to do so, cost of living is higher so higher wages, it is not the most efficient way to grow food, but you are able to do things that traditional farms cannot do – weddings, yoga, landscaping …etc, which wouldn't be possible in less-densely populated areas. 2.5 acres farm. By landscaping and building green roofs we create more green spaces that we cannot possibly farm… We don't have mechanization… What I would say is that: urban agriculture will be critical in helping to bridge the urban-rural divide. We absolutely

need our rural counterparts. They feel like they are not supported by cities.

(49:40) It is a very big challenge to get people to focus on these types of difficult conversations. We try to create a more aware consumer market, we try and make a positive change in that way. I think that can have a net-positive effect on the food system. Farming in a man-made environment is going to be helpful as the environment becomes less hospitable. Marketing and communications around it are also important.
Aqua-ponics definitely make sense for cities because it's a closed link. If you want to have closed circuit farms in the city then have them work with schools.

Interview 2:

Interview: 11 January 2018, transcribed: 20. January 2018

(00:14:10) *The city has gone through a bit of a renaissance, we've seen a significant growth in businesses… significant gaining of grants… basically my wife and I developed this idea of an urban farm and kind of had it to the back of our heads as a really cool idea… this was before we initially came up with the idea… and this was before anyone had come up with the idea to use shipping containers for farming…*

(00:16:15) We originally thought we were going to build and prototype the system while I was teaching…

(00:17:40) really, at the basis of it, we like the idea of improving the local food system, rebuilding it… we are working with about 6 non-profits in town on about 5 different project types… one of them being the Yes initiative: we teach them (communities that are how to grow things outside and they take vacant lots, they are able to grow healthy food from it and sell it back to us, they sell it to us at retail prices and we can mark it up by a few percent and distribute it.

(00:26:10) Local policy question: that's a difficult question, so we've got a zoning regulation from 1962… it was designed for big box stores, subdivisions and the hollowing out of downtown. An overlay was adopted in 2009…

(00:27:29) (Zoning plan) It's horrible for someone like us, so we've gone and they needed this… right now we're running through a variants process so that they will allow us to construct using shipping containers, because currently shipping containers are not allowed in the city for construction of buildings because they never thought of it… so by use we are allowed by material we are not allowed… so that's kind of the problem of where we're at right now… There's a lot of public and high up governmental support for what we're doing, it's just the middlemen don't know how to accomplish a legal route to what we're doing, so they are requiring a variants so that they are covered, I think they are fearful because no one has ever done in this city what we want to do in this city, so it creates a problem. The legal process of acquiring a location, finding the location was somewhat different; there were 2 classes of people in down town. The majority of people who have property in downtown are generational, there are a handful of people who have started out… the city is revitalizing downtown, but that was in the know, the general public thought it was one of those places you wanted to go if you wanted to get shot… so when we moved downtown we had friends who were like are you sure, you wont get shot, I told them just wait, it will change…

Two types of people in downtown, ones who are not interested in selling because they think they will make much more money if they wait, and others who think it's not worth anything. we got to the end point of selling on 3 properties, and then we would get almost to the end, and then someone would basically screw stuff up for us because they saw gold coming… and then finally this lot came up for sale because the guy who owned it was moving and didn't think it was worth much… We were there at the right time… We got a steal fo a deal and we hope that worked out well for us. So that's our primary location, but because of the zoning issues and other problems that we've had, we decided to make a quick change and we started building the test location out in the country because we wanted our test location to not have any regulations on because really what we're building is an Agro-Tech company, the shipping container is the first one of them, we have a 100 ideas of how to change the food system. We have a test site, a couple of green houses… we are going to bring in our containers as we get them rolling, test them, make sure they're working, then bring them to the other location… That doesn't change anything on the fact that we're still pushing on the downtown location, we're projecting that we'll break ground there in March 2018, and the facility will be built out by May… The policy regulations have made it more difficult for us to get it up and running have caused us to make changes. 1 container produces 1300 heads of lettuce every single week… Location is mostly due to marketing; our farm is the equivalent of a 30 acre farm. We've sold the equivalent of about 5/8th of our production to downtown restaurants already. It's a marketing thing. Urban farm is becoming a popular attraction for people visiting towns. It's also a very good sales piece for downtown restaurants… it makes people more interested in going to see that place where the salad is from – which drives up the subscribers to our site and improve the general publicity of the farms. There is a small incline of 20-40 year olds who are starting to buy old farms who are going back to the farming life. We are trying to create a replicable system that can be implemented in cities all along the gulf coast.

(00:42:30) Why this particular agriculture method? The main reason why we chose this type of agriculture, because of the ideal, low cost, low space required products, meaning we don't need a lot of space to make a profit. We're going into high-end exotic herbs. We have to build a foundation for other work we want to do and these have one of the wide spread usage dollar value…

Rules and regulations: there are several standards that we have to meet that are state and federal regulations. As far as local city standards, the city originally didn't allow agriculture to happen anywhere. With the zoning overlay, they allow agriculture to happen in the downtown core, so technically use, we're 100% fine with, it's just the material that's a problem.

I really believe that you can use organic hydrogen solutions in hydroponics and major pesticides are useful in monocultures, in hydroponic closed systems you don't need pesticides because it's a controlled environment. Outside it'll be a poly-culture and we'll use natural pesticides (ladybugs…etc)…

We have a lot of partners that we started working with, mobile urban herbs, victory teaching farms, and there are a handful of other things that are in the works but aren't quite figured out yet, but there is definitely a movement towards…

(00:52:55) The very first article dropped on July 2nd or 3rd, and that was the southern Rambler, local arts and culture magazine in Mobile. She dropped a story at noon on a Sunday and by 8pm she let us know that we broke their record: 20 000 downloads of the story in 8 hours. Since then there has been a whole load of

support on Facebook and so on, we don't market it at all, we only did a few times, but organic growth, we've got like 20000 likes on social media and a lot of people who know us but don't follow us on social media, basically everyone I talk to is very excited about what we're doing and just the idea, and I think it's because the psyche of Mobile is that it is always on the verge of greatness but never there… It's going through an ugly duckling phase, but in the last 3 years things have changed, now all at once, the city as a whole is getting better, and people are still surprised when they hear that people want to do something new. I didn't come to Mobile for anything, except to go to the bars. The mentality of the city is changing, and I think that mentality is also why we are getting so much support, because a lot of people are very excited about the prospects. There are a whole of start-ups in Mobile that have been announced in the last year and they are getting a lot of attention and support publicly state wide. I was on the Mayor's staff for 2 years and one of the things I did there was, I was a project manager on the IT team… They have redesigned a lot of the water front with my help, the mayor I think is very happy with me, and he is giving me a lot of support…

(01:04:30) We are trying to do long term roof top projects…
(01:09:50) So you're trying to make the case to the city, that food can be profitable; I'm there with you, that is what we are doing too…

(01:10:55) We don't have folks working yet, but all of our employees, the way we've set them up, they all bring something else to the table… They are not just a farm hand, they are a farm hand and x… one of the guys we're thinking of hiring is a farm hand and a chef, and he will spend a day a week an hour with different chefs all over town. 20-30 hours a week growing and working out the system, the other 10-20 hours he spends with our clients, making sure our clients love us…

(01:13:40) We are also trying to establish an outreach programme. So the company is for profit but for social good, as you have to be in this day and age to be… so, he's (one of the employees) job will be to work with this non-profit we're working with… we do some free design consulting work with them to help them get going… We're making money on the long run on some of the moves in food, but we are also trying to get the conversation going on what is local food, where it comes from… at the moment people don't really care, so we're making them care. Which has been quite successful so far, we've made allies with other people who already care, we are trying to connect with people and make them care and eventually if enough people care about it the restaurants will have to care about it to please them.

(01:16:10) Social and economic effects: through working with the yes initiative kids and through working with agri-tours, there will be a positive economic effect and stimulate things where people think oh I can grow stuff in my back yard and sell it to these guys, I think by seeing our success others will see that they can also and they'll make profit too. We see ourselves as a tool for development and revitalisation, we can go into a questionable neighbourhood and put in the containers, some security and set the trend. We're a good first move. Our first move may not have directly caused the other movers to move, but us combined with the 2nd and 3rd movers it's caused a boom. Since our move there has been an announcement of over 30 new apartments in the area. Revitalization boom in the immediate area. We weren't far from the next piece of activity (like 5 blocks away). We're an anchor for these kinds of communities (seen as an anchor)… The systems do make money, the economic effect seems like it's going to go well. Social effect: there definitely seems to be a large portion of the population that care, since we've announced we have a list of volunteers over the 100. Environmental: Down here we can't grow lettuces, even greenhouses are problematic because

it's so hot and humid, rainiest city in America, one of the hottest. Average about 100% humidity and 1/3 of the days are over 100 Fahrenheit…

(01:25:45) Environmental, so we're a closed loop system, so we recycle the water through, we aerate it, we do all the stuff that you need to do to improve nutrient quality and the PH and pull water out of the air with dehumidifiers and we don't dump nitrogen into the water system. We use 90% less water than traditional agriculture, use less space. The only negative is that we draw power from coal driven power systems, eventually we will be connected to renewable sources. We're much more sustainable long-term than traditional farming. This agriculture is definitely more sustainable. Honestly I really think hydroponics, aquaponics, mushroom cultivation are the way in which human society and culture will move to in the future, and I can definitely see human future agriculture moving entirely to closed loop systems. When you look at it, it's just a question of timeline before these kinds of things are automated, and working with plants and so on as pleasurable as it is for people who garden, but these types of agriculture are a way to solve food desserts, food security and world hunger. You eliminate food waste, you eliminate people who are starving. I really believe that this is a more sustainable form. I think that as long as it's an option to have a garden, I think the mass production of food will move in this direction (closed loop food production system – yields are higher, the threats are lower, everything is a win-win, however you have a higher initial investment which is where startups come in, to fill that gap.

(01:33:40) So, I think there is room, and I think that we will see other cities doing similar projects, we want to bring this project and this set up to several cities over the coming years, fairly quickly. We are planning on moving into these other communities and neighbourhoods and bringing our systems in. There is definitely a shift of younger people going back to farming... Within our generation I think there's a belief that maybe being close to the land wasn't such a bad thing… when you grow your own food 90% of your base needs are covered when living and working on a farm. I think there is that realization. A high percent of Millenials (21-37 year olds) are leaving their jobs and going back to being farmers. I think there is a likelihood that projects similar to ours will come up in the coming years. We basically looking at food shed bubbles, and can we supply this, and what does it take to supply that, and looking into where we can go to expand, and which places we can develop into first. I think other cities will pick up what we're doing. I think what we're trying to do is very meaningful and I hope that it will become more financially rewarding, all indicators point towards yes, but I think we will expand pretty quickly.

(01:44:30) Overlay district is what you're talking about, oddly enough that was going to be the suggestion that I'd have for you. Overlay districts sound like the best option.

(01:56:15) In America land laws are very pro individual, which is problematic environmentally.

Interview 3:

Interview: 23. July 2018, transcribed: 13. August 2018

(00:03:00) *Das Umfeld ist nicht das aller einfachsten, find I, also Wien. Raumsuche, Standortsuche ist mühsam und es ist irgendwie, viel rückenwind kriegt ma ned*

Von der Stadt?
Genau, weder Stadt Seite weder was anderes.

Also, meine erste Frage: Was macht ihr da, genau?
also wir sind Hut und Stiel und machen seit Mai 2015 Pilze, wir züchten Speisepilze mitten in der Stadt, also wir sitzen da jetzt im Innenhof von einem sehr alten Gebäude und haben seit Dezember 2014 den Keller in beschlag genommen. Keller deswegen weil Pilze in feuchten kühlen milieun sehr gut gedeihen. Das besondere, und auch der Grund dafür wieso wir mitten in der Stadt sind ist dass die Pilze auf Kaffeesatz wachsen. Sprich, wir züchten, wir recyclen auf der eine Seite den Kaffeesatz was in Wien, also da gibt's hunderte Tonnen von Kaffeesatz was täglich in Wien weggeschmissen werden und auf der anderen Seite, produzieren wir lokale Lebensmittel, können sie innerhalb von wenigen Stunden gleich zu unseren Kunden bringen.

Und, wie habt ihr diese Keller in Betrieb genommen?

Das war, wir haben gesucht, gewusst dass es sehr viele Altbau Keller gibt die leerstehen. Es war bissl schwer dies zu finden, ein paar haben wir dann im Internet doch gefunden, wir haben dann viele absagen gekriegt. Die Hausverwaltung vor allem, wollte nicht, dass wir Pilzen bei ihnen im Keller züchten. Zwei Studenten die Pilze züchten im Keller... Seid's mal ehrlich, was züchtet ihr da wirklich? Wir haben dann irgendwann einen gefunden der eigentlich total ungeeignet war, und dann haben wir es adaptiert und angepasst und fast ein halbes Jahr, also zwischen Mietvertrag unterzeichnen in Dezember und in Betriebnahme in Mai waren fast 6 Monate Renovierung, weil es ziemlich viel Arbeit war.

Ok, und gabs da schwierigekeitn mit nutzungskonflikten? dass anderen Leuten vielleicht den Keller für was anderes benutzen wollten.
Also, bis her noch nicht. Nein, wir haben am Anfang in den ersten Monaten, also die erste ein und halb monaten haben wir nur ausgeräumt. Das waren tonnenweise Zeug was wir weg geschleppt haben was offensichtlich schon seit 20 Jahre da drinnen gelegen war, von gewand, autoreifen, alles mögliche, klumpert. Bis her, also, wir sind jetzt über 3 Jahre da und haben noch nie ein Konflikt mit den Nachbarn gehabt, eher im Gegenteil. Dass sie halt unsere Nummern haben und wenn, keine ahnung. Wir habe auch einen Garten bei uns dabei, und wenn es irgendwann mal, wenn sie mal eine Ratte im Garten bei uns sehen dann sagen sie, hey könnt ihr köder legen, wir wollen da keine Ratten in der Gegend haben, oder, weiß ich nicht, sie borgen sich den Staubsauger von uns aus oder hochdruckreiniger wenn sie teppiche reinigen wollen. Eher würd ich sagen, positiv.

Aso, also sie engagieren sich doch irgendwie und wird da eine nachbarschaftliche Gefühl aufgebaut?
Nein, das würd ich sagen geht zu weit, es ist ein ziemliches Multikulti Haus, wir haben da sicher 20 verschiedene Nationen drinnen, ganz viele mini-communities, mit manchen redet man öfter und mit manchen kenn man nur vom sehen. Wir haben auch feste, einmal im Winter und einmal im Frühling haben wir so ein fest und da laden wir immer alle ein und da kommen manche, manche trinken ein bier und quatschen bissl. Ja, Community ist übertrieben, aber zumindest auch nichts negatives würd ich sagen. Co-exist

Ja genau. Und, als die Bewohner mitbekommen haben dass Pilze gezüchtet werden, haben sie es sofort akzeptiert oder war da schon ein bisschen...

Sie haben es cool gefunden. Es gibt einigen die dann irgendwann nachgefragt haben, was macht ihr da? Die haben wir mit reingenommen, und dann haben sie halt überall die Pilze wachsen gesehen, war cool.

Gab es lokale Instrumente, die das Prozess der Gründung irgendwie unterstützt haben? Zum Beispiel, FLWP, BBP?
Wir wissen bis heute ned ob wir das machen dürfen was wir machen. Wir habens nirgends schwarz auf weiß, wir haben kein Gesetz gefunden, es hat uns kein Behörde weiter helfen können. Am Anfang haben wir gesagt wir klären das ab und waren beim Baupolizei, FLW, überall irgendwie Rechtsberatung gehabt und es hat uns keiner wirklich sagen können wie das bei einem Keller von einem Mehrfamiliengebäude ist. Der letzten Stand war dann irgendwie, wir haben's dann einfach gemacht und dann, das was ich für mi mitgenommen hab, war, solang die Nachbarn, solang es ned irgendwem gibt die uns bekämpfen will, solang die Nachbarn, für die Nachbarn alles passt und sie niemand beschwert, dann passt's auch. Also das Gefahr, also irgendwo im Hinterkopf schwebt schon mit, dass ich glaub, wenn es Gegenwind gibt, wo man dann irgendwas in der Gesetz finden wird wo dann steht, hey, das ist Wohngebiet oder hey, das ist a Lagerkeller, da könnt ihr nicht Pilze züchten und so. Aber es geht jetzt schon seit über 3 Jahren gut.

Habt ihr schon Leute gehabt die Inspektionen gemacht haben?
Wir haben versucht so pro-aktiv wie möglich zu sein und haben jetzt immer wieder, also vom Arbeitsinspektorrat, LWK, die ganze Wienerkammer waren schon da, Betriebsausflug machen, Marktamt, also Lebensmittelbezogene Sachen waren auch schon oft da. Baupolizei war glaub i noch ned da, Flächen Sachen gabs, weiß i ned, da hat sich noch nie wer gemeldet. Umweltamt.

(00:12:30) *Man muss sich wahrscheinlich einfach mehr trauen. Also ich bin mittlerweile sehr optimistisch und nimmer skeptisch den ganzen gegenüber weil ich mittlerweile seh es macht wirklich keine Probleme mim Haus und wir machen da nichts böses. Es geht da weder auf die Gebäude substanz weder irgendwas was probleme macht. Wir haben ziemlich viel Presse die hinter uns steht also wenn, keine ahnung was passieren könnt aber wenn da wirklich jemand sagt es stinkt oder es ist laut oder irgendwas, was dann wär, weiß i ned. Ob dann Konflikte gibt, aber glaub i ned. Man muss halt nett sein zu allen.*

Als ihr das gegründet habts, gab es andere Akteure die beteiligt waren, um zu helfen, unterstützen?
Viele Familie und Freunde. Wir haben wenig, wirklich nur die wichtigste Sachen von einer Firma machen lassen und sonst wirklich aus der Familie, Zimmerleute, Elektiker, Installateure, die wir aus die Familie gekannt haben, sie waren so nett und haben uns geholfen. Es wäre fast ned leistbar gewesen es alles zu renovieren.

Sicher, es ist alles nicht so günstig. Also, weil du vorher schon gesagt hast, von der Stadt gab es keine Unterstützung...
Naja, Indirekt! Wir haben uns zum Beispiel beworben bei der Wirtschaftsargentur für eine Crafted in Vienna Award, eigentlich eine Kreative Preis, da haben sich ganz viele beworden, wir haben uns nur beworben weil die Einreichung kurz war und es irgendwie, krafted in Vienna irgendwie gepasst hat. Da haben wir dann zum Beispeil 2. Platz gemacht, ich glaub das waren 5000 Euro. Die Förderstelle ist mehr oder weniger von der Stadt Wien. Ansonsten war es recht Maul. Es gibt nicht viel. Wir haben dann einfach gemacht.

Ja, ist auch einen guten Weg, und wenn niemand was dagegen sagt... Ihr seid jetzt schon 3 Jahre, circa

da, habt ihr schon Vor- und Nachtteilen gefunden von einem Betrieb im Keller in einem eher dichtbebauten Stadtteil?
Ja klar, ein Nachtteil ist auf jedenfall die Kosten! Wir zahlen relativ viel miete. Ein Nachtteil ist sicher auch die Logistik, aber das liegt eher an der Gebäude. In manche Wochen sinds 1.5 Tonnen Kaffee, und das muss dann irgendwie so rein und die Stufen runter und verarbeitet und weiter, also viel Handarbeit, was sicher in einer Halle oder so viel einfacher wäre. Vorteil ist auf jedenfall dass der Keller kühl ist und feucht ist und dass ma da ned irgendwie viel künstliches Licht oder künstliche Feuchtigkeit hineinbringen muss. Vorteil ist auch natürlich die Lage. Die passt sehr gut und wir können natürlich alles mim Transportwagerl ausliefern. Nachteil ist diese Flächenwidmungsthema, da besteht ein Risiko, weil wir da nicht schwarz auf weiß haben was gemacht werden darf. Vorteil ist dass wir ein riesiges Einzugsbereich haben. Es kommen ganz viele Exkursionsgruppen, die Workshops sind immer ausgebucht. Es sind irsinnig viele Menschen interessiert in was wir machen, wollen es selber machen Zuhause. Das ist natürlich leichter wenn man in der Stadt ist und nicht irgendwo 100km von Wien an der tschechischen Grenze ist.

Habt ihr auch Schulgruppen und so?
Ja, genau! Jetzt zum Schulschuss, noch vor dem Sommerferien, da haben wir so 5, 6 Gruppen gehabt, also 150, 200 Schlüler in 2 Wochen gehabt, immer wieder Studentengruppen, Schülergruppen, es lässt sich aber sicher noch ausbauen. Es ist ein großes Chance find ich von Urban Farming, dieses Bewusstseinsebene, es gibt so viele Schüler, und so viele Schulen eigentlich die auf die Suche nach Sinnvolle Exkursionsziele sind, da können sie ein Betrieb wie unseres in Biologie oder Geographie Unterricht oder in Nachhaltigkeit oder Start Ups in Wirtschaftsunterricht, da kann man das ganz gut einbauen, da kann noch viel mehr passieren, find ich.

Wie viele Menschen arbeiten hier?
Gerade sind wir 7, inklusive die Praktkaten. Flo und ich sind Vollzeit, Fabian ist mit 30 Stunden ungefähr da, der Valentin mit 10 Stunden da, Es kommt einer von Karenz dann zurück, im Sommer haben wir viele Praktikanten. Jetzt grad bauen wir aus, wir kriegen in der Lobau eine zweite Standort dazu. Da werden wir ab Herbst produzieren anfangen, da brauchen wir dann auch irgendwie viele Leute. Da brauchen wir dann wieder ein paar dazu.

habt ihr irgendwie den Eindruck oder gesehen ob eure Betrieb positive Einflüsse auf die Bevölkerung hat? Habt ihr das mitbekommen? Wenn Leute vorbei kommen, essen sie dann nachher gesünder? Oder denken sie mehr nach drüber?
Ja, ich glaub schon, wie schon vorher kurz gesagt, ich glaub das ist eine von den ganz großen Chancen von solche Innovativen Projekte allgemein, aber vor allem auf von Urban farming, weil's schon was löst. Wir haben so oft, nach einer führung, dann kommen die Leute mit glänzen in den Augen und gehen nachhause, und sagen wow, ihr traut euch was und ich frag mich immer was ich so mim Kaffeesulz machen soll, aus ganz viele verschiedene Gründe, Weil es taugt schon die Leute wenn man was neues macht oder was cooles aufzieht und es spricht sich auch herum, wir haben viele partner – also wir haben nachwievor null marketing und es spricht sich einfach super herum. Da kommen dann immer neue Partner dazu für Kaffeesulz, wir haben jetzt doch ganz große Bürogebäuden wo zum Beispiel ein Mitarbeiter von uns gehört hat, der hats dann irgendwie weiter erzählt und jetzt sammelt der ganzen Firma für uns jetzt, und sachen ergeben sich dann dadurch. Das ist schon ein Benefit und der Impact aus ökologischer Sicht der Pilze ist dass die Pilze in der Produktion eine ganz geringe CO2 ausdruck haben, in Vergleich zu alle anderen Lebensmittel, gegenüber Gemüse aber vor

allem gegenüber Fleisch. Wenn man das Lebensmittel Pilze bekannter macht bei den Leuten dann keine ahnung, in eine Utopie, vielleicht einmal in der Woche, jeder vielleicht ein Pilzgericht isst, und Pilz irgendwie, statt irgendwie Fleisch, dann gibt macht es schon ein Unterschied.

Auf jedenfall. Es gibt auch, also von meinen Bekannten seh ich, es gibt sehr viele Leute die gerne Pilze essen und anderen die es gar nicht essen, ich glaub es gibt vielleicht schon so eine...
Ja, also es ist schon so, man kennt halt bei uns oft nur die Champignons und die Pilze die wir machen sind ganz anders und es könnten noch viele auf den Geschmack gebracht werden können.

Meistens kriegt man in den Supermärkten eh nur die Champignons, ab und zu mal Eierschwammerl.
Es sind durchschnittlich 2.2KG die die durchschnittliche Österreicher pro Jahr isst und sind irgendwie bei 60KG Fleisch, also fast das 30 fache Menge. Wenn man sich so fragt, wie die Gesellschaft so tickt ist eigentlich perverse, dass wir in eine Gesellschaft leben wo es wahrscheinlich auf die Titelseite von jeder Zeitung kommt wenn man seiner Katze misshandelt und auf der anderen Seite, ein kg weiter gibt's eine Stelle wo tausende Schweine abgemezelt werden und die Leute trotzdem lieber ein Kadaver oder todes Tier essen bevor sie ein Pilze oder was anderes essen. Ich glaub da muss einfach nur noch viel aufklärung passieren und das Denken und die Gewohnheiten des Menschens wandeln.

Ich glaub das kann man sehr gut mit Schulgruppen machen, ich glaub mit Kinder kann man die Eltern auch motivieren und geben ihnen dann ein schlechtes Gewissen.
Ja auf jedenfall, und es macht auch spaß mit den Kindern. Es ist echt lustig. Wenn wir irgendwann mal größer sind, wäre es sehr cool irgendwie auf diese pädagogische Aspekt viel mehr zu schauen und was speziell in der Richtung eine eigene Programm für die Schulklassen zu machen. Circular-Economy generell und so.

Ja, das wäre auf jedenfall auch sehr interessant zu sehen was passiert. Ich find dass es schon in den letzten Jahre eine Bewegung gibt dass man sich eher gesünder ernährt und dass man ein bisschen zumindest darauf achtet.
Ich glaub schon, vor allem... Ich find ich bin auf jedenfall in eine Bubble drinnen und ich find in österreich ist auf jedenfall es anders als in viele anderen Länder und Weltweit gesehen ist der Trend schon zu mehr Fleisch noch da, in Europa nimmts ab, aber Asien und Afrika ziehen voll an. Je mehr der Wohlstand steigt... bei uns ist jetzt der Wohlstand irgendwie zu einem höhen Punkt wo die Leute sagen, ja sie könnten sich schon Fleisch leisten, aber sie wollen es nicht weil ungesund, Tierleid.. und so weiter.

Was wäre die utopische Vision von wie es in 10 Jahre in Wien ausschauen könnte. Also für euch aber auch für die Stadt.
Ja, ich glaub es ist sehr viel Luft nach Oben in Wien. Die Utopie würde wahrscheinlich so ausschauen, dass es nix außergewöhnliches mehr ist und Urban Farms genauso gefördert werden wie andere landwirtschaftliche Betriebe gefördert werden. Dass mehr Unterstützung und Wille gibt. Dass die Stadt erkennt dass es großes pädagogisches Potential in dem ganzen Thema liegt. Auf der einer Seite so, rein von der Produktionsseite betrachtet, machts wahrscheinlich, lässts wahrscheinlich drüber streiten ob jetzt Urban Farming notwenig ist oder nicht. Ganz in Österreich, in Wien ist man innerhalb von einer halben Stunde ist man irgendwo am Land wo man Produzieren kann, das ist jetzt von Platzdedarf.. meiner Meinung nach, lassts sich drüber Streiten. Pädagogische Potential was man hat, nachdem man so zentral ist, durch Schulgruppen und Menschen Gruppen was machen kann, auch was soziale Arbeitsplätze Betrifft, da ist Landwirtschaft super.

Also niedrig qualifizierte Jobs in der Stadt sind voll am aussterben und in Landwirtschaft, ob es Ernten oder Produktion ist, es ist glaub ich schon wichtig auch für eine Stadt. Wäre fein wenn man so 1000 Arbeitsplätze vielleicht schaffen könnt, oder ein paar Hundert zumindest. Und, ja sonst das Interesse ist da, das merkt man ganz stark, also das es so bleibt wäre auf jedenfall cool. Die leute sollen sich noch mehr Gedanken drüber machen und über Lebensmittel machen, die Restaurants sollen sich viel mehr Gedanken über lebensmittel machen. Die öffentliche Versorgung, also Krankenhäuser, Altenheime, etc sollten auch irgendwie regional einkaufen. Ich find auch ein Radiussystem immer ganz cool, wenn man so irgendwie sagt, das Restaurant, gibt's den Flo in Langenleben das Restaurant, er hat gesagt er hat diesen Radius von 66, also alle Produkte die er in seinem Restaurant verkauft sind nicht weiter als 66, also innerhalb ein Radius von 66km von Wien produziert, was irgendwie sinn macht weil es wird, von Regionales, da muss man auch immer genauer hinschauen. Wenn man Gemüse aus Vorarlberg kauft, ja das ist noch Österreich, aber trotzdem 400km mehr hat als wenn man es aus der Slowakei vielleicht kauft, was teilweise vielleicht nur 25 Minuten weg ist. Echt Regional und bisschen weniger auf National schauen. Ja, sonst fällt mir grad nichts ein.

Das klingt mal nach einem guten Ziel. Eine Forschungsteil von meiner Arbeit, ist wie soziale Einrichtungen, also wie Schulen und Krankenhäuser Urban Farms selbst auch haben könnten, und das sie dann das Essen was sie Produzieren in ihre Cafeterien verwenden. Meinung?

Wahrscheinlich nicht Wirtschaftlich machbar. Wieder mit der pädagogischen Mehrwert aufzuwiegen, aber es braucht doch einiges an Investition und viel Betreuung, es kommt darauf an. Pilz Zucht und MicroGreens... es kommt darauf an was man anbauen will. Wenn es zu Ackerkulturen kommt, wie Kartoffeln, Getreide, Kohlehydrate, Proteinreiche Sachen, die haben es in der Stadt irrsinnig schwierig. Wir sind weit davon dass Urban Farming Städte ernähren können, aber sie können dazu beitragen. Pilze, oder Micro Greens anbauen können dazu beitragen, aber diese Lebensmittel die Lebenserhaltend sind, mais, reis, soja, kartoffel, getreide, die kann man in der Stadt, da braucht man Fläche dazu, da ist die Kilo Preis so günstig dass es sich nie ausgehen würde da irgendwie am Dach oder irgendwie so installieren da ist der Platz in der Stadt zu wichtig. Außer man argumentiert es eben über diese pädogogische Seite, da macht es total Sinn, find ich. Schüler lernen, die hände in Dreck haben, ihre eigene Sachen anbauen, aber da ist es dann auch wieder mehr Urban Gardening, vielleicht oder?

Ja, dann wäre meine letzte Frage, was ich glaub du eigentlich eh schon geantwortet hast, wie man weitere Projekte, Betriebe, Start Ups motivieren könnte und Tipps einfach für was sie machen könnten oder nicht machen sollen, oder für die Stadt ihre Meinung ändern könnte?

Ja, ich glaub die Stadt die braucht gar nicht die Meinung ändern, sie braucht in wahrheit vorallem eine Meinung machen, die auch offiziell transportiert wird, die auch irgendwie zum Nachlesen ist, also Leitfaden, was mach ich wenn ich eine Urban Farm gründen will? Das gibt es nachher gar nicht. Das wäre sehr Nett seitens der Stadt wenn es ein offizielles Papier geben würde dazu. Für Leute die es machen wollen, gut überlegen und damit rechnen das ma, also wir haben gesagt wir investieren 3 Jahre unseres Lebens mindestens in dem Aufbau, und machen mal nebenbei nicht viel anderes, und das hats auch gebraucht. Ich glaub nicht das es so nebenbei geht, außer man hat halt viel Zeit. Was noch? Nichts überstützen, gut rechnen, sich Entscheidungen gut überlegen. Gut überlegen mit wem man es macht, alleine würd ich's auch ned empfehlen. Die Leute mit denen man es macht, möglichst gut kennen. Mutig sein. Irgendwie

nicht Hartnäckig sein, also ich glaub Psychisch muss man relativ stabil sein, das man ned vom Rückschlägen unterkriegen lässt.

OK, und, also eigentlich schon das es ein bisschen ein System aufbaut, also dass man einander helfen kann und so?

Ja, ich glaub mit jedem Projekt was dazu kommt sind ma einer Mehr und es ist ein Projekt mehr und dann wird es auch Politisch leichter.

Interview 4:

Interview: 1 August 2018, summarised: 13 August 2018.

Due to walking around the farm in a sterile environment, the interview was not recorded. The interview was more of a conversation than a structured interview: Jahn told me about what they do and their experiences and I asked some questions. After the interview/conversation, I wrote down everything and sent my notes to Jahn for confirmation, clarification and more depth.

- Jahn and his business partner both work in unrelated fields (night-scene and entertainment), they came across the idea of micro-greens and indoor farming through the media and became interested in growing healthy, local, organic food. In order to gain the knowledge required for this business they attended seminars and conferences all over Europe, visited other farms and learnt a lot. Their team consists of experts, such as a biologist, microbiologist, landscape planner and chef. Through this interdisciplinary team the knowledge and expertise is covered in order to provide optimal growing conditions and micro-green combinations. They do this next to their day (or in their case night) jobs.
- They started off farming traditionally (although organic) near Schwechat, due to the seasonality of traditional farming; they decided to move into town and to start an indoor farm. Due to private connections their farm was located along the Donau Kanal, next to the night club “Grelle Forelle” (building belongs to the owner of the club) and started farming micro-greens aquaponically. Eventually due to increasing demand, the location became too small, so they moved the farm to a small town just outside of Vienna, where all the required infrastructure was provided. The new location belongs to the LVG? And consists of a large sterile cooling hall, water recycling areas, space for trunks to drive in…etc, that all contribute to the expansion and efficiency of the farm. Their new location is just outside of the administrative boarder of the city.
- They sell their micro-greens to high-end restaurants and catering companies through out Vienna. When the farm was in the city they worked within one hour from farm to table, now within one day. They deliver everything personally and aim to have a good relationship with their clients and partners.
- They are currently catering to this group, while negotiations are underway to bring their product to supermarkets and transport all over Austria. The transport centre “Müller” is located right next door to their new location, which is a huge potential for them as they plan to expand and export their microgreens nationally. They will also try to keep within the one-day time duration from farm to table, however due to large distances this may not always be possible. Expanding to selling on a European scale would only be possible if they open farms all over Europe, as they want to provide people with fresh food and therefore

importing and transporting for days is not an option. The microgreens are transported living and only harvested in the kitchen.

- Currently all transportation is done personally by the team and all growing and caring of the plants also. It is 100% 'home-made' at the moment, although automation processes are in planning as they plan to expand (and due to being for profit, they cannot make a profit if everything is done with manual labour, especially if they keep the standard of earning of the employees to Austrian standards).
- They received no support or funding from the city or other organisations and institutes. They plan on applying for funding from the city, however up until now there has been no support. Jahn says, that according to the MA21, since Viennese urban farms virtually do not exist, as they are so very rare in Vienna, there has been no reason for them to create laws for these activities. All they can do is look at general laws and see whether these activities are allowed, but there are no laws really allowing or forbidding it.
- They run their business and aim to please their costumers and want to expand, eventually make a profit.
- They would like to encourage people to think about where their food comes from and how they nourish themselves by incorporating an educational aspect to the farm, however this is not possible yet as they are still very young and the priority at the moment is to survive, expand and make a profit. In order to do social work, they need the resources for that, which they do not have yet. Incorporating education is a goal that Jahn has, although it is currently not realistic.
- Their aims for their business are: short transport routes, fresh produce (living transport – only harvesting in the kitchen), local produce, organic, natural produce (no chemicals, no GMO, no pesticides/herbicides/insecticides), high nutritional produce, low resource use and efficient production, while making a profit.
- A change in the way people view food and resources is starting to take place and vertical farming is a way to tackle real problems (such as food shortages, climate change and resource scarcity) innovatively. It uses 80% fewer resources than traditional farming and the micro-greens are filled with nutrients and vitamins and flavour.

Interview 5:

Interview: 7 August 2018, transcribed: 17 October 2018

Wien ist ja, schon seit die historische Zeit sehr Landwirtschaftlich, es gibt sehr viele landwirtschaftliche Flächen in Wien, und dadurch gibt es sehr viele Gärtnereien, in Simmering, eh auch hier am Rand, bei Uns, und dann auch bei Kagran. Es ist doch sehr verbunden. Und dann ist vieles schon ausgewachsen, so wie dieses Betrieb, nicht Blün, sondern Stephan Bauer, er ist schon 15 Jahre da, dieses Gärtnerei, er ist auch ausgesiedelt von Kagran. Wurde Umgesiedelt. Wir selber haben dann letztes Jahr oder vorletztes Jahr die Firma Blün gegründet, besteht aus vier Landwirten, und wir haben unsere Firma hier auf diesen Betrieb ihn eingemietet. Das ist auch der Unterschied zwischen uns und andere Betriebe wie in Berlin weil die wollen die reine Technik verkaufen und wir sind eher von der anderen Seite gekommen, bei uns liegt das Produkt im Mittelpunkt. Wir wollen gute Lebensmittel produzieren, und aus bestehenden Strukturen ausentwickeln. In Wien gibt es viele Betriebe, die sehr nah sind an der Stadt und wo die Transport wege sehr kurz sind und was für uns sehr wichtig ist, wir haben drei Doken, Lokal Transparent, Ökoeffektiv, also wir wollen wirklich in der Stadt für die Stadt produzieren, wir wollen nicht mal wirklich wo ander hin verkaufen. Wir wollen in der Wiener Markt beginnen und haben da das eigentlich vor. Großer markt.

Verkauft ihr nur Abhof?
Nein, nicht nur, wir verkaufen auch in der Gastronomie sehr viel. Im wiener Gastronomie, und wir verkaufen ab Hof, da geht auch sehr viel und Online Shop haben wir auch seit zwei Monate, das rennt aber noch sehr langsam an, da müssen wir noch mehr marketing machen damit das die Leute auch vertrauen dass es auch wirklich Frisch ankommt. Das ist aber überzeugungsarbeit und es entwickelt sich. Es kommen immer wieder bestellungen.

(04:55) *was mich so faziniert ist die Resourceneffizienz von den ganzen. Eigentlich produzieren wir Lebensmittel und brauchen Futter, und wenn wir 10Kg Futter füttern dann haben wir auch 10kg fisch, was sogar bei Insekten, da ist das Verhältnis 10-8. Beim Schwein 10-6 und beim Rind ists 10-2. Wasser brauchen wir, also wenn man alles, den ganzen Prozess rechnet, brauchen wir 240L pro Kilo Fisch Fleisch, Rindfleisch in vergleich braucht 20 000L Wasser Pro KG und bei Schwein 6 000L pro KG. Fische brauchen so wenig wasser, Futter, Wasser und die Sätzlinge kommen bei uns, mehr gibts nicht. Sätzlinge bekommen wir aus Holland und Österreich.*

Die Instrumente, also ich nehm an weil das hier eine Landwirtschaftliche Betrieb war, war es relative einfach das hier zu machen.

Ja das war einfach, das einzige was wir gebraucht haben war die Technik, das haben wir von einen deutschen Anlage Firme, das kann man fix-fertig kaufen. Technisch haben wir nicht viel innovation eingesteckt, das gab es alles schon, was wir machen müssten war Marketing und Verkauf. Das ist sehr schwierig und intensiv, der Fisch ist hochwertig, qualitative sehr hochwertig, aber bis man die Wiener überzeugt dass man mehr dafür zahlen sollte, da muss ich schon sehr viel überzeugungsarbeit leisten.

Gibt es unterstützung von der Stadt? Förderungen?
Ja, das gibt es von der Europäische Union, von der Europäische Meeres- und Fischerie Fond. Ist leer weil es insgesamt nur 7 Mio Euro ist für alle Projekte in Österreich. Wir werden mit 40% gefördert. Ziel des Fonds ist das Eigenversorgungs durch Fisch, in Ö. ist es bei 5%, d.h. 95% von den Fischen in Ö werden importiert. Wir haben unendlich viel Platz um noch viel mehr österreichisches Fisch zu verkaufen und konsumieren. Wildfang im Meer wird sowieso immer weniger. Ö heimische Wirtschaft ist auch gedroht. Wir haben solche Probleme nicht. Keine Prädatoren von Außen. Es hat 1.5 Jahre gedauert. Wir sind sehr Dankbar. Es gibt nur von der EU Unterstützung.

Interessiert sich die Stadt?
Die Stadt interessiert sich insofern dass sie uns sehr streng kontrolliert, aber das ist auch gut so. Wir haben mit mehreren MAs zu tun, Tierschutz, Markt... vielen Sachen die Regelmäßig kommen, es gab vor kurzem eine Blindkontrolle... Damit haben wir mit der Stadt zu tun, aber sonst, eher weniger.

Gibt es potential für so eine Anlage in der Stadt zb. auf einem Dach?
In Wien glaube ich nicht, weil Wien extrem gute Landwirtschaft rundherum hat, wir haben Marchfeld, Tullnerfeld, Weingebiete, es wird sehr nah geholt. Deswegen glaube ich dass es nicht so viel Sinn machen würde, Wirtschaftlich. Diese Dächer zu nutzen, es wird in Wien natürlich schon sinn machen, aber ich glaub für die Große Masse wird es weniger Sinn machen. Und eher so in Synergien, also jede Große Gärtnerei sollte es betreiben oder so weiter. In 50 Jahre wird das aber wsl notwendig sein. Was schade ist, weil

die ganzen Flächen rund herum werden wsl bebaut werden. Mehr Grünflächen müssen geschafft werden wegen der Hitze in der Stadt, das glaub ich wird eher das Thema sein, als nahversorgung. Da passt aber wsl auch Farms ein, wie Vertical Farms. Die kühlen und gleichzeitig produzieren. Das macht schon sinn, find ich.

Die Landwirtschaft hat große Probleme mit Pachtfelder zb. Die Stadt entwickelt sich, diese Infrastruktur projekte sind auch sehr gut, aber dadurch bekommen viele Leute ablösen und dadurch kommt viel Geld im Umkreis und dadurch werden auch immer die Pachtungen teurer, dh. Man kann nicht wirklich in der Stadt rechtfertigen, weil die Mieten zu teuer sind. Das Immobilienmarkt kauft alles auf. Mir würde es so viel besser gefallen wenn die Projekte mehr integriert sind, die meiste Projekte haben irgendwie kein Konzept und sind einfach nicht schön, und kein Grünland! Die Projekte müssen mehr Begrünung haben.

(15:45) Gibt es Regeln oder Richtlinien die ihr folgen müsst?
Es gibt viele. Mit der AMA, Baubehörden, Landwirtschaftliche Regelungen, was aber bei uns keine Rolle spielen....

Was sind die Vorteile und Nachteile von eurer Art von Landwirtschaft?
Vorteile und Nachteile? Vorteile habe ich schon aufgezählt, aber es ist seeehr resourcen effizient, es ist platzsparend, es ist vor allem ein sehr hochwertiges Lebensmittel, alle sagen, so ein Fisch haben sie noch nie gegessen. Ist extrem Hochwertig... Riesen Vorteil ist die Vermarktung. Das wir Direkt bei den Kunden sind, also dass die Kommunikationswege so kurz sind, durch Social Media Plattformen und direkten Kundenkontakt. Gastronomie ausbauen. Nachteile: es ist teuer. Wir sind am weg dass es günstiger wird, teurste ist natürlich die Personal. Wir bauen aus. Wir machen es nebenberuflich. Personal in dem wir diese Anlage ausbauen, die Person kann viel mehr Tonnen betreuen. Im moment ist er nicht ideal ausgelastet. Wenns ausgebaut wird dann sinken die Preise pro Fisch und dann können wir auch mehr umsetzen. Ziel für nächstes Jahr ist dass wir mit den Preisen runter kommen... Das system ist sehr sensitiv, also wenn da eine technische Störung ist, dann ists eine Katastrophe, es geht dann sehr schnell und dann leiden die Fische, deswegen muss man sehr schnell reagieren. Es ist zwar alles doppel abgesichert, mit zwei Pumpen und Sicherungen, Handywarn Systeme... Also wir brauchen jemand am Ort bzw. jemand der Nah wohnt... Krankheiten oder Stromausfall sind die einzige Probleme.

Vorteil ist auch dass es geschützt ist, weil das System ist geschlossen. Bietet ihr Führungen an?
Ja wir haben schon Firmenausflüge, Landwirtschaftskammer, Schulen, die BOKU. Dänische Landwirten, es gab schon große Interesse. Das machen wir einmal in der Woche dass es für die Fische nicht zu stressig wird. Es ist für uns wichtig dass Leute sehen wie wir produzieren. Dass die Menschen es verstehen. Das man auch sieht was da abläuft, und dass man eine Ahnung hat, davon wie Produziert wird. Und es schafft eine Beziehung zwischen uns und die Kunden. Es baut sich ein schönes Netzwerk auf. Wir müssen ausbauen weil der Nachfrage steigt. Wir räuchern die Filets die über bleiben.

Habt ihr mitbekommen, ob die Bewohner sich interessieren?
Im umkreis der Nachbarschaft war es eine riesige Thema, da waren alle mal und schauen, was gibt's da zum Kaufen, es gab sehr gute resonante. Die Leute sind sehr interessiert. Wir hatten ein Openday und eine Pressekonferenz. Presse ist sehr wichtig und läuft sehr gut, diese Werbung können wir nicht bezahlen. Sonst machen wir keine Werbung. Wir haben unsere Instragram und Facebook. Wir wollen lokale Lebensmittel Versorger sein. Nicht nur Fisch. Zuerst mal guten Fisch, dann auch Gemüse.

*(*34:00) *Wenn man die Landwirtschaft mit bringt und in Wohn/Stadterweiterungsprojekten, selbstversorgung...*

Interview 6:

Interview: 1. October 2018, Summarised: 9. November 2018

Die Stadt Wien und die Gebietsbetreuung der 21 hat es möglich gemacht, dass es im 21. Bezirk eine Naschgarten angebaut wird, dort wollte ich eine Bienenstock hingeben, es gab aber widerstand von der Bevölkerung. In der Theorie funktioniert es Bienenstöcke in der Stadt zu geben, in der Realität geht das viel schwerer. Bin am Stadtrand gerückt und habe mit einem Pärchen einer Kooperation gemacht. Jetzt befinden sich meinen Bienenstöcken am Stadtrand auf ihrem Farm und außerhalb der Stadt habe ich auch welche.

(07:45) *Ich habe sehr schnell gemerkt dass ich mehr Platz brauche und habe alle mögliche Vereine geschrieben, auch die Stadt, und habe kaum etwas zurück gehört. Es hat aber mit einer Person Kontakt und dann hat's geklappt. Ich habe mit dem Pärchen*

(09:50) *Regelungen: Die Bienenhaltung ist Frei. Das heißt dass jeder, unabhängig von Bildung und Beruf, darf Bienenhalten. Da gibt's im Prinzip gewisse Abstände die man einhalten muss und so weiter. Ansprechpartner sind im Verein, Imker Verein in Floridsdorf hat mir viel geholfen.*

(11:20) *Kooperationen: Man glaubt immer das die Kammer ein Ansprechpartner wäre, aber ich habe mit Bauern gesprochen und habe mein Verein gehabt die mir geholfen haben. Wenn man sagt, dass man Imker ist, dann öffnen sich viele Türe.*

(12:15) *Widerstand oder Interesse: Seit der Mensch gelernt hat mit Bienen ko-existiert, hat's potential. Widerstand habe ich in Donaufeld befürchtet, die Imkerin die dorthin einen Bienenstock gegeben hat, hat Problemen bekommen, weil die Bienen bei der Arbeit stören. Widerstand gibt es stark im städtischen Bereich.*

(15:05) *Grundsätzlich wollen Bienen niemand stechen, weil sie sterben wenn sie einen Mensch stechen. Im normalen Fall sind die Bienen gut mutig. Firmen (inklusive die Stadt Wien) haben entdeckt dass die Bienen ‚gut' ausschauen. Förderungen gibt es keines. Es gibt über die Landwirtschaftskammer Förderungen, Fonds, was sehr hilft. Bienenstöcke in der Stadt sind bis jetzt noch nicht besonders erfolgreich.*

(23:20) Ich verkaufe momentan meinen Honig bei den am Hof Geschäft von dem Bauernhof wo meinen Stöcken sind und an Bekannten und Familie. Ich suche Partner um meinen Honig mehr auf den Markt zu bringen.

In der Stadt gibt es kein Problem den Honig abzusetzen. Es gibt das Problem dass es einen Landflucht gibt und einen Zuzug in der Stadt. Und auch dort wo die Gemeinden funktionieren, gibt es am Stadtrand eine Billa. Und obwohl die Supermärkte viele Regionale Produkte vermarkten, ist das ein Problem für die Imker, weil wir nicht mit dem Preis mithalten können. Große Imker müssen mit den Supermärkten handeln, weil sie zu viel Angebot haben um nur mit Biohöfe zu handeln. Das führt zu sehr niedrige Preise. Die Supermärkte können mir nicht mehr geben und ich kann nicht von dem was sie mir geben können überleben.

Führungen habe ich schon gemacht, würd ich gerne mehr machen. Es ist eine der wichtigsten Aufgaben, den Menschen beizubringen und zeigen wie man mit der Natur umgehen kann. Es gab damals sehr viele Bienenstöcke, und es war sogar gesetzlich vorgeschrieben, Bienen zu haben, weil damals den Bewusstsein dabei war, dass Bienen wichtig sind für die Landwirtschaft. Gleichzeitig ist das Problem dass die Bauern seit der Einführung von technischen und chemischen Mitteln, ist's zu mühsam geworden um die Bienen zu betreuen. Ich beurteile dass die Bienenhäuse verschwunden sind. In den letzten Jahren gab es aber einen Zuwachs bei den Imkern.

Vision für die Stadt Wien: Ein Traum für mich wäre wenn den Donaufeld nicht bebaut wird, es wäre einen riesigen Mehrwert in der Stadt, wenn öffentlichen Flächen verwendet werden können, für die Bevölkerung, also zB. Essbare Plätze, also aufzuhören mit der Entwicklung von Grundstücke und lieber einen Sinnvollen Leerstand Management machen. Die Essbare Stadt ist ein gutes Konzept, finde ich. Gesetzliche Regelungen wären auch Sinnvoll, dass die Supermärkte nicht unmöglich hohe Preise haben dürfen, damit die Kleinbauern auch überleben können. Wir sollen uns da Gedanken machen, das wäre sinnvoll. Wie soll die Stadt ausschauen und wie wir das schaffen können sind wichtige Fragen die wir uns fragen sollen, und womit wir uns auseinander setzen sollen.

Die Bedrohungen sind schon vorhanden, Klimawandel, ausländische Arten, chemische Mitteln die in der Landwirtschaft eingesetzt werden. Die Bienen haben es schwer.

Als Kleinbauern und Biobauern sind die Märkte nicht so toll weil sie immer mehr auf Gastronomie

Was die Bienen betrifft, sieht man die Widersprüchlichkeit in der Gesellschaft, einerseits wird das Bienenthema total gehyped, und auf der anderen Seite, gibt es keine Reale Verbesserung, es ist alles nur Marketing.

Interview 7:

Interview: 12 March 2018, transcribed: 14 March 2018

(01:00) also es ist mir auch schon aufgefallen in den letzten 10 Jahren, dass es immer mehr landwirtschaftliche Flächen zu Wohnflächen werden.
Ja die Stadt entwickelt sich, das ist klar, die Zuzug ist groß die Stadtentwicklung braucht Wohnflächen, Gebäudeflächen

und da habe ich mir überlegt: die Landwirtschaftliche Flächen die dann weg sind, werden nicht unbedingt wo anders angesetzt.
In der Stadt sicher nicht. Boden der schon mal versiedelt ist der Landwirtschaftliche Produktion, der Ernährung entzogen und da müssen wir einfach sehr vorsichtig umgehen weil wir wissen ja dass im Schnitt so 20 ha pro Tag verbaut werden... das heißt ein Bauernhof pro Tag sperrt zu... 20 ha sind für immer Weg. Pro Woche 7. Bezirk der von der Landwirtschaftliche Produktion wegfällt. Das ist uns schon bewusst, dass wir als Landwirtschaft in einer Stadt produzieren, wir haben eine speziell rolle als Landwirtschaftskammer Wien weil wir in ein urbanen Bereich sind aber wir müssen schauen dass die Lebensmittelversorgung, Lebensmittelsicherheit

gewehrleistet ist. Die Menschen wird's nichts helfen wenn sie in die schönsten Wohnugnen wohnen wenn sie nichts zum Essen haben. Sie brauchen auch nahe-produktion und nahe-versorgungswege. Und dazu bemühen wir uns wirklich, durch die Innovation und neue Wege im Zusammenhang mit Landwirtschaft. Und Wien ist noch in eine relativ gute Rolle, es gibt noch relativ viele Flächen die Landwirtschaftliche Produktion haben und die muss man sehr effizient benutzen um diese Wege zu schaffen. Es geht auch darum dass diese Produktion ein Stellenwert in der Gesellschaft haben muss. Das ist wichtig. Wir unterstützen alle neue Formen der Landwirtschaft, sei es auf Dächern, in Kellern... Aber ich glaub man muss auch die Bestehende Landwirtschaft wertschätzen und schützen weil von der Mengen her was sie Produzieren ist mit abstand der meiste und die Gewächshäuser in Wien machen fast 40% der gesamte Gewächshäuser in Österreich aus. Diese Produktion soll man wirklich mehr schützen und wertschätzen. Es gibt viele Instrumente die das ganze wirtschaftlich betreiben...

(05:05) *Natürlich hat es immer eine Stadtentwicklung gegeben, die Stadt braucht Platz und viele Gärtner in der Geschichte, z.B. Donaufeld, da gibt es keine mehr. Die Gärtner sind dann ausgesiedelt, und haben sich in der Stadtgrenze wieder angesiedelt und die Frage ist, wie geht es weiter? Das ist die entscheidende Frage*.
Wie wird die Landwirtschaftskammer in der Stadtplanung eingezogen?
Die Landwirtschaftskammer ist immer in ein gewisses Ausmaß in der Stadtplanung einbezogen, weil wir das Stellungnahme recht begutachten recht haben von allen rechte und Gesetze in dieser Stadt und natürlich sind wir anderseits eingebunden bei der Stellungnahme bei der Flächenwidmungsplan und Bebauungsplan die ausgearbeitet werden. Die kriegen wir auch zur Stellungnahme und können unsere Interessen somit auch, ob die immer gehört werden ist eine andere Sache, es gibt ja viele Interessen und Nutzungskonflikte in der Stadt, auch innerhalb der Stadtverwaltung gibt es unterschiedliche Interessen. Die MA 22 die für Umweltschutz auch Zuständig ist hat andere Interessen als die MA19 oder MA21. Seit 2004 gibt es den sog. Agrarstrukturelle Entwicklungsplan...wurde 2014 wieder aufgelegt. Es war wirklich glaub ich schon eine Meilenstein für die Landwirtschaft, wo wir gemeinsam mit der Stadt die Flächen festgestellt haben wo die Landwirtschaft Vorrang hat, sog. Vorrangflächen, dass die Landwirtschaftliche Produktion dort einen Wert hat und eine Sicherstellung hat. Durch diese Festlegung diese Vorrangflächen (3 Kategorien), das die Landwirtschaft in diese Gebiete Sicherheit haben, dass es sicherheit für Landwirtschaftliche Betriebe gibt. Das ist gut zum Investieren weil sie wissen dass in den nächsten Jahren die Widmung nicht geändert werden wird. Damit hat sich die Landwirtschaft, speziell der Gartenbau sehr gut entwickelt, speziell in dieser Phase, weil jeder Landwirtschaftliche betrieb braucht Langfristigkeit für seine Investment, man kann ein Glasshaus nicht nach 5 Jahre abbauen, man braucht 10-20 Jahre perspektive, und das ist mit dieser Agrar-STEP gelungen..... In der evaluierung der Agrar-STEP in 2014 hat sich herausgestellt, dass jetzt in 2014 es im fast den selben ausmaß gibt, das gibt eine gewisse Sicherheit und Stabilität. Und der Agrar-STEP ist teil der Stadtentwicklungsplan und wird auch aufgenommen, und ist sozusagen im gesamt Konzept verankert. Das ist schon ein wichtiges Planungsinstrument. Planung ist das eine, Realität das andere. Natürlich unterliegt es der Gemeinderat Flächenwidmungen und Bebauungen festzulegen, und da ist eine gewisse Dynamik drin. Es hilft schon wenn es so übergeordnete Steuerungsinstrumente gibt... Hier sind wir als Landwirtschaftskammer gut eingebunden.

Sind sie zufrieden damit, also mit ihrer ‚Macht'?
Macht haben wir keine, aber sind mit unserer Rolle durchauszufrieden. Natürlich ist jedes Ergebnis ein Kompromiss, von allen... Da muss man natürlich schauen welche Auswirkungen hat das Projekt und die Stadt kann man nicht verbieten zu entwickeln. Es gibt natürlich Projekte die wichtig sind für die Entwicklung der Stadt, und da muss man dann komprimieren. Aber: welche Rolle soll die Landwirtschaft in der Planung

spielen. Unsere Rolle muss schon darin sein dass es geht um die Ernährungsgrundlage. Landwirtschaft ist eigentlich, und geht im Endeffekt schon um die Ernährung der Stadt und das sollte man wirklich genauer anschauen. Man sollte sich anschauen wie die Regionalenlebensmittelpfade sind, damit eine Stadt die auch wächst sich ernähren kann. Weil jeder muss essen. Es sind schon wichtige Instrumente, man darf sich nicht täuschen und denken ja im Supermarkt ist alles da, es ist wichtig zu bedenken, was ist wenn da lieferpfade ausfallen? Das kann schon sehr schnell gehen.

Unser Ziel ist schon zu schauen dass mehr regionale Produkte auch hier in Wien sich abfinden, nicht nur über den Supermarkt, sondern über verschiedenste Absatzmöglichkeiten. Regionale Produktion macht nur Sinn wenn man es Regional benutzt.

Wie viel Schätzen Sie ein, von der Regionale Produktion in Wien tatsächlich benutzt wird?
Das ist sehr unterschiedlich und Saisonbedingt. Wir können die Stadt eigentlich im Schnitt 30% versorgen. Es gibt auch Sachen die bei uns nicht wachsen, aber Grundsätzlich ist das ein sehr guten Wert.

(14:20) *Wie hat sich die Rolle und Wichtigkeit von Landwirtschaft in Wien in den letzten Jahren geändert? Ich glaub das muss man sehr differenziert betrachten. Landwirtschaft in Wien besteht aus 3 Hauptsektoren: Weinbau, Gartenbau (Gemüsebau) und Ackerbau. Wienbau: Rolle und Wichtigkeit ist sehr unumstritten, die Fläche sind sehr konstant, es geht kaum fläche verloren. Es werden neue Flächen ausgepflanzt, es hat einfach eine sehr hohe Stellenwert in dieser Stadt. Niemand wurde auf die Idee kommen Flächen vom Weinbau wegzunehmen. Hier ist auch wirklcih ein hohes Bewusstein der Bevölkerung vorhanden, und die Konsumenten schätzen auch die Weinberge sehr. Es werden auch für die Freizeit genutzt. Der Gartenbau ist eigentlich der wichtigere Spalt, mit abstand der höchste Wertschöpfung hier in der Stadt, der wird aber immer gern vernachlässigt, diese Gewächshäuser, Glashäuser haben nicht diese Stellenwert, was schade ist, weil welcher Stadt kann wirklich so viele frische Gemüse produzieren. Es macht nicht so viel Sinn wenn wir sagen wir stellen auf jeder Flachdach ein Gewächshaus, es macht mehr sinn zu sagen wir schützen dass was wir schon haben. Wir brauchen beides, wir brauchen das was wir schon haben, das soll wirklich anerkannt und geschätzt werden und wir brauchen zusätzliche neue Flächen die durchaus auch auf Flachdächer, Garagen und so weiter stattfinden könnten. Der Ackerbau tut sich natürlich am Schwersten, weil es hat eine sehr intensive Nutzung und wird gerne als Natur raum, Erholungsraum gesehen und macht aber auch eine wichtige Produktion in Richtung Brotgetreide, aber davon hat der Konsument direkt nichts. Diese Flächen kommen als erstes unter druck. Das sind Flächen wo man denkt ja da kann man eine neue Gebäude errichten. Der Ackerbau wird Flächenmäßig am meisten verloren. Der Gartenbau ist Konstant, der Weinbau ist Konstant. Ackerbau und Gemüse bau ist eher Rückläufig. Was sind die Trends? Ja, also von den jetzigen gebieten wo die Landwirtschaft grundsätzlich Vorrang haben soll, 22% L Widmung: Grünland Ländliches Gebiet, Wünschwidmung für die Landwirtschaftliche Produktion. 35% haben eine SVW Schützgebiet, Wald und Wiesen Widmung, dort ist die Landwirtschaftliche Produktion durchaus eingeschränkt möglich, da darf man keine wirtschaftliche Gebäuden, da darf man keine Gebäude die man braucht für die Landwirtschaft bauen. Es fällt unter strengere Schutzregeln. Haben aber den Vorteil, dass der Flächenschutz stark ist, das auch nicht leicht eine neue Widmung Richtung Bauen kommen kann. Der Weinbau ist da stark in diesen Flächen involviert. 30% haben derzeit eine andere Widmung schon oder eine Bausperre. Im 22 Bezirk gibt es noch viele Unklarheiten was die Widmung betrifft.*

Unser Ziel ist natürlich: Landwirtschaft kann man nur dort sinnvoll machen wenn man eine vernünftige

Widmung hat, und dass ist die L widmung, Grünland, Ländliches Gebiet. Teilweise gibt es einschränkende Bauvorschriften, das ist ungut. Da ist unsere Ziel eine Uneingeschränkte L Widmung.

Wie funktioniert das wenn man Bau Flächen auf Landwirtschaftsflächen umwidmen möchte?
Es kommt kaum vor das etwas in der andere Richtung gewidmet wird, es ist natürlich unser Problem, angenommen dieses Haus hat ein Flachdach, dann ists natürlich hier eine gemischte Bauklasse, hier gibt es Geschäftsräume, Wohnungen, und oben will ich eine Landwirtschaft machen, was brauch ich da für eine Landwirtschaft? Grundsätzlich in solche Bereiche könnte ich das schon machen, also man braucht keine spezielle Widmung um Landwirtschaftliche Produktion hier im städtischen Bereich zu machen. Ich kann auf Bauflächen, bei Gemischten Wohnbauflächen kann ich dementsprechend auch Landbau treiben.

Was sind die Konflikte? Landwirtschaft in städtischen Strukturen. Nutzungskonflikte gibt es immer, Es gibt immer jemanden der sagt wieso mach ich da Landwirtschaft und bau da kein Haus? Schaffen Wohnraum oder öffentliche räume. Es ist immer eine Struktur Frage, die glaube ich mit der Strukturelle Entwicklungsplan, mit der Definition dass es Flächen gibt wo wir die Landwirtschaft Vorrang geben und eigentlich versuchen uns daran zu halten. Aber es gibt sicher auch Soziale konflikte, es hängt vielleicht damit zusammen dass es vielleicht die Bewusstseinsbildung für eine lokale Produktion fehlt, jeder will ein regionales Produkt, aber keiner will eine regionale Produktion. Regionale Produktion heißt auch dass ein Traktor in der Früh fährt, oder pflegemaßnahmen, Lärm und Staubbelastung, das sind soziale konflikte im umgang mit einander. Der Feldweg hat die Haupt nutzung dass der Bauer über den Feldweg zu seinem Acker kommt, aber der Fußgänger sagt es ist sein Fußweg, Radfahrer sagt Radweg... Da muss ein Bewusstsein machen. Das sind solche Nutzungskonflikte die man im 22. 10. Oder Weinbau haben. Oder dass Leute quer durch den Feld gehen oder ihr Hund durch den Feld laufen lassen. Das ist eine Hygiene problem. Das braucht ein Verständnis für Landwirtschaftliche Produktion. Ich muss wissen dass es sich um Lebensmittel handelt und das ist wichtig, das brauch ich um zu leben. Diese soziale Konflikte muss man gut überlegen. Aber so mehr man Produktion zeigt desto mehr bewusstsein gibt es. Die leute lernen wieder dass es 4 Jahreszeiten gibt und saisonen gibt bei Produkte. Regionale Produkte haben eine Saison. Da kann lokale Produktion schon sehr viel beitragen.

Glauben sie dass wenn jetzt mehr Landwirtschaft in den inneren Beizrken stattfindet, dass das Bewusstsein gebildet wird?
Ja schon, ich glaube schon, das das hilft. Wir probieren das generell, mit unser App, wo wir die regionale Vermarktungswege zeigen, wo gibt es Märkte, welche Produkte kann ich da kaufen, das bildet eine Beziehung, Aufklärung, Bewusstsein. Wir unterstützen Initativen sehr sehr stark. Es kommen viele Startups die eine Produktion aufbauen will, von Schwammerl bis Kräuter auf Garagen, bis hin zu legale Hanfproduktion... das ist durchaus OK, auf unsere Webseite kann man sehr viele von diesen Angeboten sehen. Die konflikte sind hier auch wirklich verbaut.

Machen sie auch viel mit Kindern?
genau, dass die Kühe nicht Lila sind und die Schweine nicht sprechen können. Da ist viel aufklärung notwendig. Aber, wir bieten zum Beispiel „Schule in der Gärtnerei“ „schule am Bauernhof“ an, letztes Jahr haben wir 20 000 Schulkinder auf unseren höfen gehabt. Es gibt zertifizierte Betriebe von uns die eine Ausbildung haben, um diese Schule am Bauernhof anbieten zu können. Es braucht eine gewisse qualität. Es wird kontrolliert. Da kommen Schulklassen und sie verbringen 4 Stunden da und lernen den Bauernhof

kennen und die Produktionskreislauf kennen. Es wird sehr gut angenommen und wird in Verbindung mit der Schulfrucht Programm gemacht. Schulfrucht Programm hilft wirklich regionale biologische Produktion stärker vor den Vorrang zu bringen. Es geht um Bewusstseinsbildung und dann brauch ich eine änderung des Verhaltungs. Beide schritte sind notwendig. Das ist auch eine Aufgabe der Landwirtschaft in Städten, das noch zu zeigen, eigentlich, und die Notwendigkeit dafür zu zeigen.

Inwiefern kann die Stadt Wien... Ich glaub der Trend zur Regionalität sehr groß ist und auch das Bedürfnis der Jungenmenschen das zu hinterfragen, wie das produziert wurde, wollen das Produktionsprozesses kennen damit sie auch vertrauen in das Produkt haben und ich glaube da muss man einfach nachkommen und zeigen wie wichtig es ist. Wie wurde produziert, wie wurde es Transportiert, wie ist die Verfügbarkeit, damit entsteht eine Wertschätzung gegenüber den Produkt. Und ein Produkt den ich wertschätze, da bin ich auch bereit ein bisschen mehr auszugeben. Wir gehen in unser Haushalts einkommen nur mehr ca. 10% auf Ernährung aus. Vor 30 Jahren wars 30 od. 40 %. Wir geben viel geld für Technik aus. Aber das heißt die Landwirtschaft hat kein Wertschätzung und die Produkte. Aber junge Menschen wollen wissen wie Produziert wurde und wollen die Produkte wertschätzen und das ist eine Chance für die Stadt Wien und auch die Menschen um zu sagen, das sie Stolz sind dass es eine Landwirtschaft in der Stadt gibt und ich kann hinschauen wo mein Essen produziert wurde. Brauchen wir bio gemüse aus Kombodcha? Da muss man schon die Frage stellen. Dann muss man die soziale und umwelt standards in den anderen ländern anschauen und nur weil es Bio ist... das kann ich mir nicht vorstellen und ich glaub da muss man wirklich nur aufklären aufklären, und initiativen zulassen, die Stadt Wien muss einfach solche Initiativen wie Urbane Farming zulassen und sie unterstützt sie auch. Da gibt es eigentlich keine Nachteile. Ich sehe kein Nachteil in der Landwirtschaftliche Produktion. Ökonomisch ich muss wissen was mein tägliches Ernährung wert ist, da muss ich halt prioritäten setzen. Ökologisch kann es keine Nachteile geben weil Lebensmittel in der Stadt bringt Sauerstoff, Sicherheit, frisches Essen. Und Sozial, da seh ich keine Nachteile und keine Konflikte... Natürlich kann man sagen es ist besser hier Wohnraum zu schaffen und nicht ein Glasshaus zu haben aber es ist eher eine kurzfristige denkweise, denke ich. Es ziehen immer mehr Menschen in den Städten und man muss überlegen wie kann ich diese Städte mit Essen versorgen? Es muss logistisch hinbringen, betriebswege, wenn ich es sehr weit hinbringen dann habe ich eine sehr hohe CO2 ausstoss. Ich glaub es muss gemischt sein. Wer will denn nur in ein Wohngebiet wohnen. Wohnen, arbeiten und leben gehören irgendwie schon zusammen und ich glaub das kann man sehr gut gestalten meines achtens. Eine Fläche die einmal versiedelt ist, ist für Lebensmittelproduktion verloren...

Sind regionale Produkte nur für die Menschen die mehr Geld haben?

Ich glaube das ist eine Frage der Einstellung ist. Wenn ich mir die Haushaltsausgaben anschaue, dann gebe ich viel Geld für dinge aus die ich nicht unbedingt brauche. Es haben arme Familien auch 5 Smartphones zuhause... Wir sehen aber in den Studien zu Lebensmittelverschwendung, dass eigentlich dort wo große Aktionen gefahren sind, gibt es am meisten Lebensmittelverschwendung weil die Leute glauben sie sparen und kaufen mehr als was sie aufbrauchen können. Ich finde junge Leute schätzen schon die Lebensmittel und die Gesundheit der Lebensmittel, sie Hinterfragens und finden dann eigentlich es nicht so schlimm wenn es dann ein bisschen mehr kostet. Und Lebensmittel sind eigentlich ganz billig. Und wenn ich schaue dass ich wirklich nur das kaufe was ich brauche, und Lebensmittelverschwendung sollte man auch bremsen. Dann glaub ich dass es nicht teurer sein muss wenn ich bewusster einkaufe. Ich glaub ist eine Frage der Einstellung...

(35:55) Hydro-Ponisch ist sehr ökologisch, weil der Wasserkreislauf einfach so gut läuft. Es gibt viele gute Urbane Konzepte und wir müssen die Chance nutzten. Wir haben 2 Millionen Menschen vor der Haustür und wir dürfen es nicht nur die Supermärkte überlassen! Da geht es nur ums preis, und mit der Preis kann man sich nicht unsere Produktion leisten, und so müssen wir andere Wege finden um direkt an den Konsumenten zu kommen. Das ist eine Chance die genutzt werden sollte. Muss ich zu Weihnachten Erdbeeren haben..... Wir leben in eine art Wohlstandsgesellschaft, wo wir uns das gut aussuchen können. Aber es war nicht immer so, es gab zeiten wo wir nur froh waren dass es was zum Essen gab (menge), dann haben wir auf die qualität geachtet und jetzt geht um den Herstellungsprozess und das is OK weil durch die Hinterfragung besteht ein Bezug zu dem Produkt und dann muss ein Preis entstehen weil der Produzent braucht ein Einkommen. Ich versteh schon den Konsumenten wenn sie sagen die Preise zu hoch sind, aber für den Produzent bleibt nichts über. Und das ist tragisch, meines achtens.

Interview 8:

Interview: 1 October 2018, transcribed: 21 October 2018

Ich habe auf der Seite von der Landwirtschaftskammer gelesen, dass es eigentlich auch andere Flächen gab, vorher die durch die Stadtentwicklung-erweiterung, nicht mehr so sind wie sie damals waren und wo waren diese Flächen?
In Prinzip waren sie in ganz Wien verstreut. Die stärkste Gartenbau Gebiete waren natür die 21. 22. Bezirke und natürlich in Simmering, Oberlaa, sehr viele Leeren Flächen vorhanden für die landwirtschaftliche Produktion, und wie gesagt, durch die Stadterweiterung, gingen diese Flächen verloren für die Produktion.

Was war ihre Erfahrung damit? Also wie ist dieses Prozess abgelaufen?
Ich habe eine Betriebstandort gehabt, auch im Bereich Hirschstetten/Breitenlee, wir haben das dann verkauft und sind halt weiter an der Stadtrand gerückt. Das passiert jetzt halt noch ein mal, Betrieb von Kollegen, der in Bereich Flugfeld ist, der hat es auch verkauft und jetzt sind wir hier, ganz am Stadtrand gelandet, und da hoffen wir doch dass wir noch einigen Jahren produzieren können.

Müssten Sie es verkaufen, oder wie war diese Verhandlung mit der Stadt?
Müssen, tut man prinzipiell nicht, nur wenn die Entwicklung rund herum so ist dass man vielleicht das einzige ist der überbleibt, dann produziert man sich selber Problemen mit den Anrainer dann, das ist erwiesen. Das ist eine alt-bekannte weißheit. Erstens, entwicklungspotential, und zweitens wenn man zwischen Glashäuser und Folienhäuser, leider gibt es immer wieder Leute die es ruinieren, und das macht es halt nicht lustig, die Produktion.

Die jetztigen Standorten, weil es gibt ja noch zwei Standorten oder?
Noch, ab nächsten Jahr nur mehr hier. Der Betrieb in Breitenlee wurde schon verkauft, und ich bin überall nur mehr Pächter. Und das hier ist eine Pachtfläche von der Stadt Wien, von der MA49. Und wir haben das jetzt auf 20 Jahre gepachtet und dann mit der Option auf jährliche weitere Verpachtung.

Wie war das mit der Genehmigung? Also nachdem es die Stadt gehört, haben sie dann beschlossen sie wollen hier Landwirtschaft haben und sie haben sich dann beworben?

Es waren viele Gespräche. Da haben wir auch über andere Grundstücke verhandelt für eine andere Firma, für eine Bio Firma, im Züge dessen habe ich auch gesprochen über diese Fläche für uns, also für unseren Betrieb. Und die MA49 hat mir diese Fläche angeboten. Das war relativ unkompliziert.

Gab es widerstand von der Bevölkerung?
Widerstand nicht, Bedenken schon, in der Bauphase vorigen Sommer war es sehr lange sehr trocken und heiß, bei der Planierarbeiten natürlich extreme Staubbelastung, da waren sie natürlich nicht glücklich. Wir sind immer noch in Wien, in Wien werden wir immer irgendwen finden der herumrutscht, also. Jetzt rennt teilweise eine Maschine untertags der vibriert, und da stört sie natürlich, ja, aber sie rennt von 10 bis 16Uhr.

Gibt es Interesse von der Bevölkerung und bieten sie Tours und Besichtigungen an?
Es gibt Interesse von der Bevölkerung. So weit sind wir noch nicht. Ein Ziel für uns wäre Schule am Bauernhof, da haben wir schon eine Seminarraum vorbereitet und meine Gattin und Schwester haben die Ausbildung schon dafür gemacht, wir sind aber noch nicht so weit dass wir das tun können. Wir müssen von der Produktion noch ein bisschen mehr in tritt kommen, da fehlt uns bisschen die Zeit, aber das wäre auch eine Potential für die Tochter, sie ist gerade auf Berufstage von der Schule aus und wird 3 Tage dann bei uns, und das ist vielleicht auch was für sie was sie dann auch machen kann. Ende Oktober haben wir einen Afterwork am Bauernhof Veranstaltung, am 25. am Nachmittag können interessierten kommen und sich das anschauen. Also für so was interessieren wir uns schon, so was würden wir gerne machen.

Nachdem die Fläche die Stadt gehört, gibt es auch anderen Unterstützung von der Stadt, also Förderungen oder Kooperationen?
Kooperationen nicht, Förderungen... es gibt die ganz normale Investitionsförderungen getätigt mit 800 000Euro Invest, und davon kann noch bis zu 40% Förderung lukriert werden, und das spaltet sich in 15% EU, 15% Bund und 10% als Top-Up von der Stadt Wien, das ist bei uns ca 1.5%... das macht es dann aus, also nicht viel. Sonst gibt es keine Förderungen.

Wohin werden die Gurken geliefert?
Wir verkaufen über die LGV Frischgemüse, wir sind Mitglieder von dieser Vermarktungsorganisation, die verkauft es hauptsächlich an Lebensmitteleinzelhandel, wobei der Rewe, Hofer und Lidl die stärksten Kundschaften sind, für uns persönlich.

Das heißt nicht dass es in Wien bleibt?
Nein, gar nicht, hauptsächlich Ostösterreich, aber doch auch ganz österreich. Wenn da übermengen sind, muss es exportiert werden, da diese Mengen nicht zu vernichten sind. Wir haben schon eine saisonale Produktion. Und da muss man auch exportieren... Die Samen kommen zu 80% aus Holland und 20% aus der Steiermark.

Was für einer landwirtschaftlichen Methode benutzen sie?
Erlose Kultur, integrierte Produktion. Alles mit Nützlingen natürlich. Wir betreiben sehr viel biologischen Pflanzenschütz, weil wenn man eine chemische Pflanzenschütz einsetzt dann habe ich meine Warte Zeiten die einzuhalten sind und dann kann ich nicht ernten, was bei die Minigurken schwierig ist, weil da haben wir einen irrsinnigen verlust. Biologische Mittel wo ich am nächsten Tag auch ernten kann und darf.

Was sind die Vorteil und Nachteile von Landwirtschaft in der Stadt, ihre Meinung nach?
Vorteil ist natürlich dass du die Konsumenten vor die Nase hast, kurze Transportwege. Landwirtschaft in Wien ist für die Nahversorgung selbst, Naherholung, weil alles was Grün ist, gefällt einem ja. Aber wann der Traktor herum fährt, das ist dann gleich ein Nachteil. Interessenskonflikten der Nutzung des Grünraumes. Radlfahrer vs Traktor/Bauer. Sonst, seh ich keine große Nachteile was wir irgendwen produzieren könnten. Ich wollte in Wien bleiben mit meinem Betrieb.

Gibt es zwischen den Landwirten Kooperationen?
Ja, sicherlich, im Ackerbau gibt's die Kasinos die sich regelmäßig treffen, maschinen/ernte Gemeinschaften, also da gibt es viel an Zusammenarbeit. Im Gartenbau ist es ein bisschen differenzierten, weil ich mit Gurken eine andere Produktionsmethode habe als mit Paradaiser, ist nicht unbedingt so für alles, aber doch, und da ist doch das wichtigste das gemeinsame Vermarktung, über die LGV, dass wir da gemeinsam auftreten können und das Lebensmittelhandel beliefern kann. Kooperationen, ja sicher Maschinen ausgetauscht oder ausgeborgt, sonst kann man nicht so viel gemeinsam machen, weil es meistens Handarbeit ist, und da die Arbeiter auszutauschen wird kompliziert.

Was wäre ihre Vision für Landwirtschaft in Wien in den nächsten 10 Jahre? Wie könnte es sich entwickeln?
Ansich glaub ich dass wir in eine gute Entwicklung sind, weil wir mit Sachen wie Schule am Bauernhof oder Afterwork am Bauernhof ein bisschen bewusstsein für die WienerInnen erbringen können. Wäre vielleicht nicht so schlecht. Die Wiener haben den Vorteil, wenn wir hier Gemüse/Getreide produzieren, das hat oft mehr Sauerstoff produktion als eine Wald. Was nicht so schlecht ist. Wenn wir das in Wien aufrechterhalten können ist es für die Vision genug, alles andere sind Herausforderungen des Alltags, die aus den Landwirtschaft kommen die nichts mit der Bevölkerung kommen.

Stadt Entwicklung ist natürlich ein Thema, das andere Thema ist natürlich das der Nachwuchs weniger wird, die betriebe werden immer weniger, dafür werden's größer, also Produktion ist mindestens gleichbleibend wenn nicht steigend. Das sind Herausforderungen mit denen wir kämpfen müssen. Wenn man nach Simmering schaut, die eigentlich die größte geschlossene Gartenbau gebiet ist, da wird auch schon die Stadtentwicklung fortgesetzt. Grund und Boden ist eine wertvolle Anlage und das ist auch klar und wenn die Landwirtschaftliche Produktion von den Preisen nicht so super ist, dann versteh ich die Kollegen auch wenn sie etwas verkaufen.

Glauben Sie dass diese alternative landwirtschaftliche Formen wie hydroponische Landwirtschaft...
Dieses Bodenlose Landwirtschaft was wir bei den Gurken machen, was auch bei Paradaiser und Paprikas gemacht wird, das ist glaub ich schon hauptsächlich wie es produziert wird. Das liegt an der Betriebstuktur und auch an die Individualität des Betriebführers auch.

... (16:50) *Grundsätzlich ist die Bevölkerung ein bisschen verwöhnt, dass sie das ganze Jahr, egal woher, es im Supermarkt Regal finden können. Das ist das Denken was uns dann auch praktizieren mit der ganzjährlichen Produktion. Dazu wird man ein bisschen gezwungen irgendwie, wann's dann in Winter nicht lieferst, dann hast im Frühjahr Problemen bis die Spanier dann aus den Regalen verdrängt hast. Ein bisschen ist das schon eine Kampf. Wir wollen ein bisschen mehr die Wiedererkennbarkeit des Wiener Gemüses voranbringen. Auf die Märkte hat man nicht so viele Wienergemüse. Produktion und Vermarktung ist ein hartes Brot und da bin ich sehr glücklich dass ich mich auf die Produktion konzentrieren kann.*

Interview 9:

Interview: 8. August 2018, transcribed: 30. October 2018

(01:20) Unser Betrieb heißt Stadtgärtnerei weil ich ja in der Stadt bin und mein Betrieb doch in der Stadt ist.

Meine erste Frage ist, was machen sie da genau?
Brombeeren. Brombeeren zum selbsternten und Brombeeren zum verkaufen. Da dürfen die Leute rein und sie dürfen selbst ernten. Das ist aber nur im Sommer. Restlicher Zeit wird das gemacht was zu tun ist, Vorbereitung auf den Sommer, Vorbereitung auf den Winter… Ich liege ein großer Wert darauf, dass es gepflegt ist, die Menschen mögen das. Ich selbst mache das nur in dem Nebenerwerb. Ich bin Gartengestalter. Die Pflanzen sind Mehrjahres Pflanzen. Einmal investiert und dann tragt es immer wieder.

Was war Ihre Motivation für Brombeeren?
Mir schmecken Brombeeren. Ich habe den Grund von meiner Großmutter überlassen bekommen und ich habe eine Kultur gebraucht was nicht immer meine Aufmerksamkeit braucht. Weiters bin ich ein Brombeerfan und es gibt so gut wie niemanden in Wien Umgebung der Brombeeren anpflanzt. Das heißt wer in Wien frische Brombeeren haben will, kommt bei mir nicht vorbei.

(06:00) *Das Grundstück war immer schon Landwirtschaft, es wurde aber in den letzten 20 Jahre nicht viel angebaut und deswegen brauch ich nicht düngen. Der Boden ist sehr gut.*

Also das ist hier wirklich ein Familienbetrieb?
Ja, also im 5. Oder 6. Generation, je nachdem von welchem Familienzweig man ausgeht. Seit 1860 oder so.

Gibt es druck von der Stadt um den Land umzuwidmen?
Ja, auf Jedenfall. Es wird so gemacht als ob es keine Frage ist, dass es mal umgewidmet wird auf Bauland. Es gibt schon ein Flächenwidmungsplan und die Stadt weiß genau was sie mit dem Grund machen würde. Daweil ist aber noch nichts konkret. Wir wollen es nicht hergeben. Es ist uns wichtig dass wir ein Grundstück mit der Größe in dieser Gegend haben. Es ist mir wichtig, es ist meiner Familie wichtig… Gegen den Willen des letzten Gärtner und die Bewohner ist nicht in Ordnung… Was wir hier für Unterstützung von den BewohnerInnen bekommen ist unglaublich. Sie freuen sich sehr dass wir da sind.

(10:40) Nachdem der Grund immer schon Landwirtschaft war, haben Sie vermutlich keine Schwierigkeiten gehabt bei der Umsetzung ihrer Idee?
Nein, wir haben Eigengrund und deswegen können wir anbauen was wir wollen. Ich habe eine Bewilligung für den Brunnen bekommen und Strom habe ich einleiten müssen.

(11:00) von wo kommen ihre Kunden?
Die meisten kommen aus der Gegend, aber es gibt auch Leute die von Mödling und Ybbs kommen, weil es der einzige Selbsternte Betrieb dieser Sorte ist.
Haben Sie auch manchmal Feste, wo die Leute zusammenkommen können?
Hätte ich gerne mehr. Es gibt aber selten etwas, und ich selber habe zu wenig Zeit.
Die Nachbarschaft ist quasi jederzeit herzlich willkommen?

Ja genau, und es gibt z.B. Feste wo alle Nachbarn und so kommen. Hätte ich aber viel öfter.

Wann haben Sie mit den Brombeeren angefangen?
2013 habe ich die Bewilligung gemacht für den Brunnen und Vorbereitung. 2014 haben wir angefangen.

Haben sie Mitbekommen ob die Leute in der Gegend eine Stolz Gefühl haben?
Ja schon, Stolz vielleicht nicht, aber die Leute sind froh. Es kommen sehr viele Frauen. Stolz aus der Gegend, eher nicht. Eher glücklich dass es so ist und sie freuen sich glaub ich, dass das kommt.

Gibt es Interesse Schulgruppen einzuladen?
Anfragen von Schul- und Kindergartengruppen haben wir. Wir hatten vorher eine Kindergarten Gruppe da. Die Wissensbildung ist sehr wichtig. Es ist wirklich was anderes wenn die Kinder selbst ernten können und auch lernen wie die Natur funktioniert.

Vorteile und Nachteile?
Die Infrastruktur von der Stadt, dass man das ausnutzen kann und städtisch doch leben kann. Nachteil ist nur der Verbauungsdruck.

(18:00) Netzwerk und Unterstützung?
Freunde, andere Landwirten in der Gegend (obwohl wir eh nur 2 sind), ja sonst nicht wirklich was.

(19:27) Vision für die Zukunft?
Naja, Vision habe ich keinen. Ich wünsche mir aber, dass die Landwirtschaft trotz der Stadtentwicklung in der Gegend bleibt und dass sich mehr Landwirten ansiedeln.

Es gibt verschiedenen Arten von alternativer Landwirtschaft, wie Aqua-Ponik und Anbauen am Dach und so weiter, könnten Sie sich vorstellen, Brombeeren so, z.B. am Dach, anzubauen?
Ja, aber dann muss der Boden schon sehr tief sein, sie brauchen einfach viele Nährstoffe. Naja, man könnte das z.B. als Sichtschutz auf seinem Dach… machen. Sie können nicht so intensiv Flächen benutzen wie andere Arten weil sie nur einmal im Jahr Ernten können. Aber so als Sichtschutz, oder auf der Fassade, das kann ich mir gut vorstellen. Es würde sicher funktionieren. Am Dach oder auf der Terrasse, das wäre echt was...

(23:30) *Es kommen Kunden einmal, und dann Zwei oder Drei mal in der Woche weil sie sich so freuen und es ihnen Spaß macht. Es gibt auf jeden fall mehr bedarf als was gerade gezeigt wird. Viele wissen nicht davon und dann wenn sie darüber erfahren, dann sind sie begeistert. Die Beziehung mit meinen Kunden ist sehr wichtig. Sie kommen weil es schön da ist und stressfrei... die Politik sollte die Landwirtschaft in der Stadt als positiv sehen. Es gibt so viel potential.*

Interview 10:

Questions answered via Email: 21 January 2018

1. Welche Rolle spielt die Landwirtschaft in der Stadtplanung und Flächennutzung von Wien?

Dort wo aktiv Landwirtschaft noch betrieben wird, wie zum Beispiel Weinbau, wird streng darauf geachtet, dass diese Flächen auch zukünftig der Landwirtschaft zur Verfügung stehen werden. In dichtbebauten Bereichen bzw. in Stadtentwicklungsgebieten, bei denen eine höhere Dichte zu erwarten sein wird, ist es bis dato eher ein konzeptioneller Zugang und eine Frage der Bewusstseinsbildung, zum einen, da es keine Widmungskategorie ‚Urban Farming' gibt bzw. keine Bestimmung dies vorschreiben könnte und zum anderen das Vorschreiben landwirtschaftlicher Tätigkeit auf Dächern, Terrassen, Balkonen, Innenhöfen etc. kaum den gewünschten Erfolg brächte, wenn kein Wille dazu vorhanden wäre.

2. Worauf legen Sie bzw. die MA 21, Wert wenn Sie ihre Arbeit machen?

a. Was sind die wichtigste Elemente die betrachtet werden und wieso gerade diese Elemente?

Grundsätzlich – auch wenn dies einen Topos darstellt – geht es um die geordnete Entwicklung der Stadt, wobei ein wesentliches Element die ortsbezogenen Maßstäblichkeit, sowie die multifunktionale und intensive Nutzung des Stadtraums im Vordergrund steht. Landwirtschaftliche Nutzung kann z.B. als Teil der Identität des Ortes in die Planungsüberlegungen einfließen, wie dies beim Projekt In der Wiesen Ost im 23. Bezirk der Fall war und somit ein Neubauprojekt entsteht, das die Geschichte des Ortes berücksichtigt und damit versucht eine zukunftsorientierte Nutzungskombination, Wohnen und Gartenbau, zu verknüpfen.

3. Wie hat sich die Fläche welche für landwirtschaftliche Nutzungen in Wien zur Verfügung steht, in den letzten Jahrzehnten geändert?

a. Wieso hat es sich so entwickelt? Was sind absehbare Trends (heute und in Zukunft)?

Generell ist zu sagen, dass es einerseits durch das rasante Wachstum der Stadt einen Druck auf die landwirtschaftlichen Areale gibt und so es zum Teil notwendig ist Umwidmungen durchzuführen, speziell in Bereichen, in denen abzusehen ist, dass – auf Grund von fragmentierten Flächen – ökonomisch sinnvolle agrikulturelle Tätigkeiten dauerhaft nicht mehr möglich sind und andererseits, die teilweise grundsätzliche Änderung in den landwirtschaftlichen Produktionsprozessen, die tendenziell eher großmaßstäblich orientiert sind und ergo dessen auf kleinen Flächen nicht gewinnbringend durchgeführt werden können. Selbstredend gäbe es auch Möglichkeiten auf kleinen Flächen, intensiven, gewinnbringenden Landbau zu betreiben wie dies viele private Initiativen weltweit beweisen , aber dies hängt allerdings ausschließlich vom Engagement Einzelner ab und kann weder verordnet oder in konstruktive Bahnen gelenkt werden. Die einzige Möglichkeit besteht hier in einer konsequenten, dauerhaften Beibehaltung der Widmungskategorie ‚Ländliche Gebiete', um somit Spekulationen entgegenzuwirken. Dies ist allerdings mit der Hoffnung verbunden, dass sich Menschen finden, die landwirtschaftliche Flächen intensiv bewirtschaften, aber Hoffnung ist nicht unbedingt eine zielgerichtete Strategie gewisse Anliegen und Vorhaben umzusetzen.

4. Wie müsste der Flächenwidmungsplan geändert werden (z.B. neue Kategorien, Bsp. Wohnen + Landwirtschaft) damit ein landwirtschaftlicher Betrieb in der Stadt und nicht nur auf den Bodenflächen (Bsp.: In Gebäuden, auf Dächern…) funktioniert, bzw. erlaubt ist?

Im Großen und Ganzen reichen die vorhandenen Widmungskategorien aus, um Landwirtschaft in der Stadt betreiben zu können. Sind es große Flächen, die mit größeren Maschinen zu bearbeiten sind oder

die zur Errichtung großer Gewächshäuser dienen, so ist das bereits erwähnte ‚Ländliche Gebiet' bereits gegeben. Kleine Flächen, die als gärtnerisch auszugestaltende Baulandflächen im Flächenwidmungs- und Bebauungsplan berücksichtigt sind, stehen einer landwirtschaftlichen Nutzung nicht entgegen. Ebenso gibt es auf Flachdächer, Terrassen, Loggien möglich Gartenbau (für landwirtschaftliche Nutzung sind derartige Flächen zumeist zu klein, würde aber in der Ausweisung im Flächenwidmungs- und Bebauungsplan nichts ändern) zu betreiben ohne eine neue Widmungskategorie einführen zu müssen.
Derzeit wird weltweit auch an Vertical Farming Systemen gearbeitet, bei denen landwirtschaftliche Produktion, quasi losgelöst vom Boden, durch Automatisierung in scheiben- oder turmartigen Gewächshäusern geschieht. Die Universität für Bodenkultur in Wien hat 17 verschiedene Nutzpflanzen ermittelt, die sich in diesen Baulichkeiten in größerem Maßstab züchten ließen. Auch dafür bedürfte es keiner neuen Widmungskategorie, da dafür die Ausweisung als Betriebsbaugebiet oder Industriegebiet reichen würde.

5. Was sind Konflikte die Ihnen sofort einfallen wenn es über Landwirtschaft in, bzw. auf städtischen Strukturen geht? (Gibt es soziale Konflikte oder Nutzungskonflikte?)
a. Gibt es bereits Lösungsansätze für diese Konflikte?
Das Konfliktpotential ist per se als nicht extrem hoch einzustufen. Im kleineren Rahmen ist es eher auf den sozialen Bereich beschränkt, Stichwort: Territoriale Konflikte im Hochbeet. Bei größeren Flächen, Staub und bei Viehzucht Geruch und Tierlaute. Beim o.a. Vertical Farming sind eher keine schwerwiegenden Konflikte zu erwarten, da die bis dato bekannten Systeme emissionsarm sind.

6. Was sind mögliche Potentiale und Effekte die Ihnen sofort einfallen wenn es über Landwirtschaft in, bzw. auf städtischen Strukturen geht? (sozialen, ökonomischen, ökologischen...)
Es sind drei wesentliche Parameter, die einen positiven Aspekt der Landwirtschaft und des Gartenbaus in der Stadt bestimmen.
a) Der ökologische Aspekt: Verstärkter Gartenbau und Landwirtschaft (soferne sie nicht in Glashäusern stattfinden) haben einen positiven Einfluss auf das Stadtklima, im Speziellen auf das Mikroklima. Wird Gartenbau und Wohnen kombiniert, durch z.B. Anbau auf Terrassen etc. wird eine Situation geschaffen, die Menschen dazu anregt, in ihrer Freizeit in der Stadt zu bleiben, da sie eine interessante Tätigkeit für sich entdeckt haben. Der direkte Um- und Freiraum wird gestaltet und betreut und somit auch ein lebenswertes Umfeld geschaffen, dass die Stadtflucht am Wochenende verringert bzw. dazu führt, dass Menschen nicht unbedingt den Wunsch verspüren aus der Stadt zu ziehen. Dies führt zu einer Reduktion des CO2 Ausstoßes bzw. auch zu einer Verringerung des Urban Sprawls.
b) Der pädagogische Aspekt: Sichtbare Landwirtschaft und Gartenbau und auch eine ev. persönliche Beschäftigung damit, stärkt das Bewusstsein über Nahrung, da im Speziellen viele Kinder heutzutage nicht mehr wissen, wie Karotten, Tomaten oder Erdäpfel wachsen und dass ein Hamburger aus früher einmal lebendigen Tieren hergestellt wird. Bei einem Umstand von 760.000 Tonnen in Österreich jährlich weggeworfenen, noch genießbaren Lebensmitteln ist dies einer der wichtigsten Aspekte.
c) Der soziale Aspekt: Landwirtschaft und Gartenbau – vor allem im kleinen Bereich der Wohnsiedlung, des Quartiers kann Menschen zusammenbringen und gibt die Möglichkeit, ältere Menschen, Menschen ohne Arbeit, Flüchtlinge etc. in das soziale Leben zu integrieren bzw. generell Mensch zusammenzuführen.

7. Inwiefern glauben Sie, dass landwirtschaftlichen Betrieb in ungenutzten städtischen Strukturen (Dächern, leere Stockwerke...) eine Zukunft in Wien hat? Wieso?

In bestehenden Gebäudestrukturen wird es eher nur in Ausnahmefällen zu Nachnutzungen im gärtnerischen bzw. landwirtschaftlichen Sinn geben. Diese Größenordnungen sind eher vernachlässigbar, da sie sich auf Einzelobjekte beschränken werden, die auch in Summe kaum einen größeren Effekt auf die Nahrungsmittelproduktion zeitigen werden. In Neubau- und Transformationsgebieten, auf Brachflächen etc. kann eine gut durchdachte Planung, die landwirtschaftliche Nutzung fördert bzw. unterstützt signifikante, positive, Auswirkungen auf die Nutzungsstruktur der Stadt haben. Speziell das o.a. erwähnte technologiebasierte Vertical Farming kann bei entsprechender Weiterentwicklung ein erfolgreiches Modell der Landwirtschaft in der Stadt für die Zukunft darstellen.

Interview 11:

Interview: 17 January 2018, transcribed: 19 January 2018

(00:02:17) Was war die Motivation dahinter (die Gründung der Schneckenfarm)?
ja also, weniger eine Stadtlandschaft zu betreiben sondern eher eine Wiederbelebung einer alten Tradition und auch da… vielleicht da schon für mich selber, ich komme aus der IT Branche, ich habe Informatik studiert. Also dass wir da wieder zurück zu was Erdig, so was was Sinn macht und die Verbindung zwischen Tradition und Future Foods. Jetzt immer mehr entdecke ich das Potential von der Schnecke als Future Food weil man wenig Platz braucht, deswegen auch für die Stadt sicher geeignet, genügsam ist und eigentlich Menschliche Ur-Nahrung darstellt, Weichtiere, Insekte, Kaltblüter generell sind die erste Proteinträger unsere Vorfahren, ich geh nicht nur zur Homo Sapien zurück, sondern zum Homorektus, da war noch keine Antilope beim Überlegen, hat noch keine Säugetiere gegessen, sondern das was man mit der Hand fangen konnte und das war ?Turbo? für die Evolution weil die natürlich alle sehr reichen Schilddrüse um die 5 sind und jetzt eigentlich seit den Ackerbau, seit 10 000 Jahren leben wir in eine Epoche wo wir in eine Schilddrüsearme Epoche eigentlich leben weil wir hauptsächlich von ein Jährigen Pflanzen, Getreide, Reis, Mais uns zu ernähren... es gibt Studien, dass wir uns eigentlich seit den Zeitpunkt, seit der Ackerbau eigentlich nicht mehr so wirklich weiter entwickeln und wir tun die Welt auch nichts gutes mit unseren kulturen und so weiter.

Gibt es außer diesen Zielen, andere Ziele die ihr mit dieser Landwirtschaft erreichen wollt?
Ja schon, also um Ernährungsweisen, also wir stellen uns die Fragen: Also was ist Artgerechte Ernahrung, den Begriff kennen wir eigentlich nur aus den Tierfuttermittelgeschichte, nicht eigentlich für die Homo Sapiens. Was ist eigentlich eine Artgerechte Ernahrung, das ist eine Grundthema und dann was ist eine Nachhaltige Landwirtschaft die Urban betrieben werden kann, so wie wir hier eine Future Garden entwickelt haben, wir setzen auf mehrjährige Pflanzen[...] von denen man mehr jahrige Fruchtgenuss hat, die in Symbiose mit den anderen Pflanzen stehen die einfach zu pflegen sind, eigentlich wenig Aufwand bedeuten sondern nach den Crop und Chop Prinzip, also man schneidet oben ab, das Grünzeug ist gleich unten und ist gleichzeitig den Grunddünger und auch das Boden dazu zu aktivieren.

Sie arbeiten auch viel mit Unis zusammen, also da steckt auch eine Ausbildungsziel und Weitergebung von dieses Wissen?
Ja mit der BOKU sehr viel, da ist die Schnecke Kandidat für Future Food [...] es ist auf Jedenfall viel viel besser als alles andere.

Gab es eine Gegenbewegung?
Nein, es gab keine Großdemos dagegen, ich habe eine Nische besetzt wo es war niemand für mich verantwortlich. Ich habe gesagt ich will das als Landwirt betreiben und davor war es 2 Jahrig als kleinst Betrieb aktiv und dann haben wir gesagt wir machen jetzt Schneckenbau als Landwirt. Da hat's geheißen ja schön und gut aber das gibt's nicht, da müssen's was anders finden. Dann haben wir uns für Ackerbau entschieden, also bin ich ?Brancheeliten? Ackerbauer Spezialkulturen. In Frankreich gibt es eine eigene Kolleg der Landwirte als Schneckenzüchter, das gibt's in Österreich nicht, aber jetzt Ackerbau Spezialkutur[...] [die Landwirtschaftskammer] als ich begonnen habe, war es irgendwer da gabs halt nur die Stars wie die Winzer und die Gärtner und so weiter und LGV und jetzt sehen sie schon das genau das das Potential ist der Zukunft, als die Stadtlandwirtschaft, also riesen Kampagne Stadtlandwirtschaft [...]

Gibt es Unterstützung von der Stadt oder dem Staat?
Für die Stadtlandwirtschaft? Von der Stadt, der Landwirtschaftskammer Wien, die versuchen schon die Bauern da unter die Arme zu greifen - hat noch nicht funktioniert eine Einkaufsplattform, so eine große Marktplattform wo die Gastronomen mit Regionalen die dann Zentral beliefert werden hat noch nicht funktioniert, aber es gibt immer schon Projekte wo man versucht die Leute zum Regionalenkaufen zu ziehen, aber das sind schon so Unterstützungsmaßnahmen von der Stadt. Von der Stadt Wien, mit dieser Rot-Grünen Stadtregionen, ist man eigentlich als Bauer im Weg, sie unterstützen eigentlich nicht die Bauern, da ist man eigentlich Kontroproduktiv. Ich habe da jetzt keine Berührungspunkte aber es gibt so im Norden wo man Grüngürtel bauen will, auf Kosten der Landwirtschaft und so weiter... Unterstützung wäre schon gut, also wenn man schon ein Konzept hat, das man Stadtlandwirtschaft haben möchte, und da muss ich natürlich das auch in den Planungsprozessen so widmen, weil man darf heutzutage nicht mal einem Baum im öffentlichen Raum pflanzen weil da könnte was runterfallen und wen verletzen, was eigentlich sehr kontraproduktiv ist... also da wäre es schon wünschenswert eine Essbare Stadt zu haben! Wer braucht so viele Parkanlagen, ja mach ma steuerungswiese, Essbare Bäume... Hat auch der Sinn dass die Kinder auch lernen das der Apfel nicht nur vom Supermarkt kommt und hat ein paar Delle dann schmeist mans weg.

Von der MA21 hat's auch geheißen dass es eigentlich keine Interesse gibt Landwirtschaft in der Stadt zu betreiben.
Ja genau, wir haben eine Rot-Grüne Regierung, wo man von Grün denkt, die wollen so was haben, aber wo ist die Unterstützung [...]

Gibt es von der Bevölkerung Unterstützung?
Die Führungen sind sehr gut besucht bei uns, ist aber wie es überall ist, alles was gleich in der Nachbarschaft ist, blendet man aus, und anderen sehen's im Fernsehen und kommen von weitem her. Wir sind aber in Oberlaa sehr dörflich organisiert, Oberlaa und Neusiedlerunterlaa... Es gibt die Feste und so weiter, aber natürlich wächst das Gebiet, ich denk auch dass Favoriten ein Riesen Zukunft hat...

(00:16:13) *Kontrolliert wird man hauptsächlich da im Betrieb, das ist Gewerblich und da kommt natürlich unangemeldet der Arbeitsinspektor... das man in eine Straffkultur ist und wo man eigentlich wahnsinnig sein muss um sich eine Unternehmen zu Gründen, warum soll man sich das antun? Da wird man immer nur als Verbrecher dargestellt. Das ist in Österreich zur Zeit wirklich Unternehmer Feindlich... Mal schauen was die neue Regierung da plant und umsetzt, aber diese Kontrolle Staat... Die Rolle des Staates ist die Unterstützung und nicht das Straffes. Beraten, Helfen und Unterstützen, einfach mehr Raum geben damit*

man sich verwirklichen kann, und nicht nur einschränken und einschränken.

Könnten Sie sich vorstellen in eine Innenhof...?
das nicht, aber es gibt bei jeden Stadtprojekt diese Thinktanks... Hausfeldcity – da nimmt man die Landwirtschaft weg und muss dann kompensieren – open Kitchen/open Source... Sollte schon ein Zukunftsmodel sein. Gar nicht mal die Innenhöfe, sondern viel größer, es soll vom Haus aus ein Konzept sein, und es gehört in die Widmung rein, Stadtlandwirtschaft ist in jedem Stadtentwicklungsgebiet vorzusehen, das es gleich in die Widmung gleich hineinkommt, wie kann es passieren. Das bringt die Community was...
Das man über soziale Sachen – wir sind im Digitalen Revolution, das Mittelstand gibt's dann nicht mehr, es wird ein bedingungslose mindest/grund einkommen notwendig sein... Der Mensch muss was tun, braucht eine Befriedigung, das hätte man so was, in der Stadtlandwirtschaft, da könnte man was tun. Ressourcen wären da, die Leute wären da, es ist was zu tun und befriedigend, die Arbeitsplätze gibt's eh nicht mehr.[...] Genau so auf Jugendzentren, Gefängnisse...und und und....

(00:20:30) Wie beeinflusst ihr Farm die Lebensqualität von den Leuten die hier arbeiten?
Die hier arbeiten? Ja, also wir haben wirklich leute die zuerst in Hotels waren und so... bei uns ist es so, jeder macht alles [...] zum Teil helfen auch Küchenchef draußen bei den Schnecken, jeder sieht die Prozesse [...]. Ich glaub eher Prozesse zu verstehen und mit zu machen, wir haben gestern 2500 Schnecken verarbeitet, da steh ich dann auch in die Küche und nimm raus.

und in der unmittelbaren Umgebung?
Wir sind da am Stadtrand und da gibt's nicht wirklich so eine unmittelbaren Gegend, aber ich glaub für die Paar die hier noch Landwirtschaft haben, dass wir ein Vorbild sein können, wir sind in die Stadt. Wir machen zum Beispiel auch „Schule am Bauernhof", wo wir auch schüler vermitteln was ist Landwirtschat, was ist Nachhaltigkeit, worum geht es in Ernährung. Die Kinder kommen aus ganz Österreich!

Ökonomische Potentiale der Farm: *wir sind eine Nische Produkt, es ist schwer das zu vergleichen mit anderen Produkten. Schnecken sind von den schwierigsten Produkten die man verkaufen kann, allerdings gibt es keine Konkurrenz... es beginnt sich langsam zu rechnen, da ist's natürlich die Frage, kann die Stadt da helfen um es am Anfang zu verwirklichen? ... Hohen Nebenkosten sollte die Stadt ansetzen – die teuerste für ein unternehmen ist die Personal, da braucht man sich nicht wundern warum man alles digitalisieren will, wenn es nicht gefördert wird, das man Leute anstellt und sie einen Job gibt...*

Soziale Effekte und Potentiale: *Schule am Bauernhof, natürlich gibt's da eine Verbindung wenn ich schon mal da war , wir machen Betriebsführung, gehen das ganzes Service durch, also das ganze Service lernt ein bisschen Landwirtschaft kennen, wissen wo das Essen herkommen und könnens dann auch ganz anders verkaufen. Es ist sehr wichtig zu wissen wo das Essen herkommt und wie es funktioniert. Landwirtschaft wird romantisiert durch die Werbungen. Die Leute wissen nicht wie das Essen produziert wird...Es gibt so viele Regeln und da kann man auch nicht so viel machen. Die EU ist eine Wirtschaftsgemeinschaft, die große Konzerne Lobbieren in Brussel und die kleinen Lobbieren halt nicht – gesetze helfen eher den großen als den kleinen.*

Ökologische Effekte: *wir sind da ein Massentierzüchterei, 250 000 Schnecken, stoßen weder Methan als auch andere Schadgase aus...also keine Schadgase, wenig Futtermittel, wenig Wasser, wenig Landverbrauch.*

Wie könnte man 1 Portion Schnecken mit 1 Portion Rindfleisch vergleichen: *Um es vergleichen zu können, Eiweiß in Schnecken ist doppel so hoch wie in Rindfleisch. Also ist's gesund, Nachhaltig, zählt zu den Urwesen dazu, ohne großartige Heizanlagen (wie bei Insektenzücht)... Da ist dann auch die Frage, braucht man Tomaten in der Stadt im Winter? Ist es gescheiter als um es zu importieren. Wie Nachhaltig ist's wirklich? Muss eine Tomate in Wien nachhaltiger sein als eine in Spanien. Da muss man die richtige Hebeln finden[...]. Was ist die sinnvollste Lösung? Wo setzt man an? Wo kann man mit wenigen Schritten viel erreichen? Wo sind die Maßnahmen die Wichtig sind?*

Welche politische und rechtliche Rahmenbedingungen musste die Stadt setzen?
Es muss mal die Wille da sein, und wenn die Wille da ist dann muss man auch den Freiraum schaffen um das zu tun, auch wenn man bei manche Sachen keine Erfahrung hat, einfach es zu tun, bei gewisse Sachen die Regulierungen ein bisschen runter tun und die Leute lassen, ich mein Regulierungen sind wichtig aber vorallem zum Thema Nachhaltigkeit, da sollte man schon ein bisschen schauen dass man die Leute aufmuntert dass man wirklich Flächen nutzt... das es irgendwie im politischen Willen reinkommt ‚das will ich'. Die Stadt und die Politik spielt die größte Rolle. Wie war schon eine Weltstadt (1900), es kam von Architektur, Kunst, Mode, Musik usw, wenn ich als Stadt Wien die Wille habe, daran zu knüpfen, dann muss auch anders gedenkt werden, nur leider passiert das nicht, jeder hat seine Lobby und Kammern und Bünde, wenn ich was ändern will, dann tu ich wer weh, aber wenn ich nichts mache dann tu ich allen weh. Wie Klimawandel... wenn man da nichts macht dann 90% Ausfall...

Interview 12:

Interview: 21 June 2017, summarised: 29 June 2017

Inwiefern beeinflusst das Thema 'nachhaltiges und gesundes Ernährungssystem' Ihre Arbeit?
- *Täglich - "Eat, Learn, Live"*
- *Wird wöchentlich neue Menüs erstellt, so ausgewogen und abwechslungsreich wie möglich*
- *Kinder alter von 3-19 Jahre*
- *Es ist sehr schwer alle Kinder dazu zu bringen aufzuessen - sehr schwer weil es so viele verschiedene Nationalitäten sind und es ist nicht möglich jeder Glücklich zu machen.*
- *Kern Thema hier in der Schule. Jeden Tag gibt es auch ein Gericht der wirklich noch ein spür Gesünder ist (ohne Fleisch)*
- *Nie Pommes, höchstens Kartoffelspalten mit der Haut.*

Wird darauf geachtet ob Bio Lebensmittel?
- *Teils, wir haben konditionen mit unsere Lieferanten ausgemacht - bestimmte Produkte mit bestimmte Preise. Die Firma "Gourmet" hat 40000 Produkte zur verfügung gestellt.*
- *Ja, immer mehr Bio - ist eine Preis/Budget Frage*

Inwiefern werden die Kinder über Ihr Essen informiert? (Wo es herkommt, wie es gemacht wurde...etc)
- *Garnicht. Bei den Kleinen Kinder werden die Eltern informiert, die Schule selber weiß wer die Einkaufspartner sind, die Eltern/Schüler eher nicht.*
- *Sehr SChwer die Kinder zu informieren - kleinen können es nicht lesen, 6-8 Klasse lesen ihre Emails*

nicht, 9-10 Klasse haben andere Prioritäten, 11-12 Klasse gehen in der Donau Zentrum essen (größte Herausforderung ist um sie da zu halten - wollen aber lieber raus gehen um zu rauchen/frische Luft zu schnappen)

- *Grundsätzlich werden die üBer die Schule Homepage*

Wenn die Eltern was mitmachen, gibt es Forderungen von den Eltern?
Ja, Teilweise

- *Fleischfreien Tag = nicht möglich wegen Vertrag mit Eurest/Schule*
- *Mehrere Vegetarische/Vegane möglichkeiten*
- *Wünsche sind seit 5 Jahre geäußert - haben auch Laktosefrei gehabt, ist aber nicht angekommen bei den Schüler und wurde wieder eingestellt.*
- *Eltern verlangen nicht so viel, teilweise lassen die Eltern ihre Kinder ungesunde Sachen Essen*
- *Zuhause keine Zeit zum Frühstücken, kaufen in die Schule dann ein Muffin und eine Schokomilch aber dann zu mittag sollten sie was gesundes Essen*
- *Die ganze 4. Klasse gehen auf eine Ausflüg, Die kinder sind sehr bewusst! Lunchpakete wird nicht mehr in Plastik eingewickelt sondern in Kisten und sind Puten Schinken in eine Caroten Ciabatta mit ein Müsli Riegel, und 2 Stück Obst (Apfel und Banane)*
- *Ersatz für Plastikflaschen fehlt noch.*
- *Die Kinder sind sehr ökobewusst und es ist von den Schülern gekommen, wir haben sie schon so weit gebracht dass sie bewusst sind und dass sie die ungesunde Sachen nicht brauchen.*
- *Bei den kleinen sind sie viel bewusster, sie verfolgen die Lehrer und bringen zum beispiel keine Wasserflaschen mit*
- *Ernährung: Von zuhause bekommt man nicht unbedingt gesunde Sachen*

Zeigen die Schule bzw. die Kinder Interesse an biologischen und regionalen / saisonalen Lebensmitteln, bzw. an einem nachhaltigen, fairen und gesundem Ernährungssystem generell?

- *Jetzt schon in den letzten 2 Jahre*
- *Es ist Offiziell die erste Eco-School in Österreich. Es war sehr entreichend für die Kinder weil sie sehen alle Details. Sie merken die änderungen und wollen auch das nachmachen.*
- *Der Team war sehr fleißig und hat viel geschafft in den verschiedenen Bereichen (Health, Recycling…)*
- *Früher gab es Asienboxen zum Mitnehmen, jetzt gibt es Schalen aus Zuckerrohr und Gabeln aus gepresste Stärkemehl, sind kompostible, ist bio. Der Lieferant nimmt das mit und tut es in seine Anlage wo es kompostiert wird, in Methangas geändert wird und dann erzeugt es Strom. (Eco-Strom)*

Es gibt schon ein sehr große vernetztes System dahinter, mit wem Sonst habt ihr Kooperationen?

- *Netz ist wahnsinn, von hier kommt das ganze Food System*
- *MA 48, die machen mit uns diese recycling system, es gibt ein kleines Vertrag mit denen und dann wird es in der Community weiter gemacht (nicht nur in die Schule), im Bezirk, nicht nur Zuhause.*
- *Anderen Schulen im 22. Bezirk. (Austausch von Wissen und Erfahrung). Biodiversity in der Umgebung.*
- *Uni Wien: Studierenden sind gekommen um mit den Schüler zu reden (3 Jahre fixe zusammenarbeit)*
- *Boku: nächstes Jahr werden sie mit diesem Projekt mitwirken (Building Bridges)*
- *Es wird am Anfang von nächstes Jahr durch eine Survey nachgefragt wie diese Konzept die Kinders verhalten beeinflusst hat.*
- *Die Kinder die jetzt ausgebildet werden, sind in 20 Jahre die Leute die was machen müssen*

Haben Sie schon mal etwas von einer Urban Food Strategy gehört?

- *Fänden Sie so einen Ansatz sinnvoll für Wien und hätten Sie Interesse daran, ein Projekt / eine Initiative im Rahmen einer UFS zu initiieren, bzw. hätten Sie Interesse sich an der Umsetzung einer UFS zu beteiligen?*
- *Building Eco-Bridges: Projekt für nächstes Schuljahr "Building Eco Bridges" - kontakt mit anderen Schulen im 22. Bezirk, wo die VIS die anderen Schulen das zeigen was sie in dem Prozess gelernt haben (von Gesundheit, von Recycling, von "outdoor learning areas") damit sie das nicht alles vom Anfang an lernen müssen*
- *Es gibt schon "Grün-Schulen", da fehlt aber das Thema von "Global Citizenship". Man kann sich nicht isolieren, man muss denken, es gibt dinge von uns. z.B wenn ich eine Banane kaufe, dann arbeitet irgendwo in ein anderen Land Kinder… man muss nicht nur die Banane sehen. Man muss über Österreich hinaus denken. Das ist die größte Unterschied. Wenn die Stadt bzw. Der Staat involviert ist, wäre es die große Chance für die Eco-Schools.*
- *Wenn man alle Informationen zusammen gibt, dann kann man auch sagen etwas ist falsch - diese Wissen müssen wir die Kinder weiter geben weil sie sind unsere Zukunft.*

Inwiefern werden die Kinder über Ihr Essen informiert? (Wo es herkommt, wie es gemacht wurde...etc) Welche Maßnahmen haben sie eingesetzt um die Kinder über gesundes Essen und nachhaltigkeit zu informieren? Wie Erfolgreich sind sie?

- *Wenn die Kinder Kleiner sind, passen sie sehr auf was die Lehrer sagen und machen. In der Early Learning Centre (Kindergarten) tun die Kinder um 10 Uhr Früchte Schälen und schneiden und essen nur Früchte als Snack.*
- *Es gibt ein Kompost, wo die 3-5 Jährigen sehen was mit den Resteln dann passiert*
- *Ab 5 Jahre Ernten sie Gemüse in dem Gemüsegarten und Kochen es, damit sie lernen wo das Essen her kommt (nicht nur vom Kühlschrank).*
- *Habe die Kinder gezeigt wo Milch herkommt, in dem ich ein Kuh gebaut habe mit latex Handschuhe als Udder mit Udder und Wasser drinnen und sie mussten die Kuh melken. Da haben sie gelernt dass Milch vom Kuh kommt.*
- *Gesundes Essen ist wichtig. Die Kinder lernen dass essen nicht einfach da ist.*
- *Die Kinder lernen in jede Stufe im Primary wie Essen in ihr Leben eine Rolle spielt*
- *In der Pubertät verliert man sie ein bisschen - da spielt das soziale Netzwerk eine große Rolle*
- *Nach der Pubertät kommen sie wieder darauf.*
- *Zu kommunizieren mit den Pubertäts kinder ist sehr schwer.*
- *Jedes Jahr gibt es ein "Food Day" Wo präsentationen gemacht werden über gesundes Essen. Wir präsentieren und dann nachher wird fragen gestellt.*
- *Es kommt jetzt nur noch Eco-School schüler nach, die sind reif und bewusst.*
- *Gehen sie auch um die Kinder bewusst zu machen zu Bauernhofe*
- *Sehr viele Ausflüge*
- *In der 4. Klasse fahren sie für eine Woche auf eine BioBauernhof.*
- *Durch verschiedene Spiele und Puzzles werden die Kinder gezeigt und lernen selbst wie Essen angebaut wird, geschützt wird (bio...etc)*
- *Arbeiten sie mit der Stadt zusammen?*
- *Wir werden jetzt mit der Stadt zusammenarbeiten (21. Und 22. Bezirk). Und so eine Art Bienengärten pflanzen.*

- *Österreich war immer sehr lokal - Österreich und Luxemburg wollten ihre eigene Systeme haben. Politisierung sollte Weg! Es ist ein globales Problem wir sollten alle gemeinsam arbeiten.*
- *Sollte Lokal sein weil du lokal bist, aber global weil du musst bewusst sein welche auswirkungen du und deine Verhaltung auf die Welt hat.*

Wie seid ihr auf diese Schiene gekommen um eine Eco-School zu werden?

- *Die Idee ist von einer kleinen Gruppe von Individuen (Marti plus ein paar) gekommen und ist immer größer geworden. Es war eine Bottom-Up Initiative um diese Eco-School Status zu erreichen.*
- *Unglaublich dass die Kinder schon so bewusst sind wenn sie so klein sind.*
- *So ein diverses Menü sollte in jeder Schule sein! Viel Info aber schaut nicht so aus und ist wichtig für die Kinder und die Eltern.*
- *Die Kinder WOLLEN gesund leben, es ist von denen gekommen.*

Interview 13:

Interview: 26 June 2017, transcribed: 28 June 2017

Wie ist die Ernährungsrat entstanden?

Der Anfang war recht einfach. Wir haben über die Ernährungsrat in Deutschland gehört und fanden das Konzept super und haben uns gedacht, gibt es schon so was von Wien? Nein nicht mal für Österreich. Haben dann gesehen dass Wien die Mailand Pact unterschrieben hat und dann haben wir es gegründet und es wurde recht schnell ernst. Das war Oktober 2016. Es hat mittlerweile unglaubliche Dimensionen angenommen. Voll viele Leute sind dazugekommen, ich krieg sicher 10 Emails am Tag die das betrifft. Wir treffen uns jede Monat. Das Konzept erstellungsprozess hat sehr lange gedauert. Wir haben jetzt aber eine sehr gute Idee von wie wir uns das vorstellen - auch durch Interviews und Präsentationen. Was will man, was kann man, welche Ziele hat man? Im großen Teilen ist es noch sehr im Anfang. Unsere Ziel ist es bis frühjahr nächstes Jahres die Ernährungsrat als Zivilgesellschaftliche Instrument zu gründen. Mit einer Veranstaltungen es richtig offiziell zu gründen. Mit der Stadt Wien an Themen die die Ernährungssystems beeinflussen zusammenzuarbeiten und mit dem Blick der NGOs und die Zivilgesellschaft in die Arbeit der Stadt herein zu gehen (soll ein plattform der Austausch werden). Die Menschen zusammenzubringen, Bewusstsein und mehr sensibilität zu schaffen und das an die Stadt zubringen.

Ernährungswende schaffen. 3 fache Funktion:

- *Plattform schaffen - wo man die AkteurInnen zusammenbringt. Strukturen die diesen Austausch ermöglicht*
- *Thinktank Funktion*
- *Impulsgeber*

Wie sehen Sie das Potential der laufenden Projekte im Bereich nachhaltiges Ernährungssystem in Wien, auch im Vergleich zu anderen Städten?

Wir sehen schon dass es von der Stadt potential gibt (ökoKauf, Lebensmittelpunkt.wien) und es gibt ziemlich viele Zivilgesellschaftliche initiativen (Foodcoops) aber wir finden dass es kein System gibt was ein ganzes Ernährungssystem schafft und diese zusammenbringt. Konsum, Abfall, Produktion...etc das alles Zusammen anschaut.

Potential von bestehenden Projekte in den Bereichen ausbauen und synergien zw. Zivilges. Projekte und die Stadt schaffen. Sind sehr viel mit den Ernährungsräte in Deutschland in Kontakt. Wir haben das Feedback bekommen dass wir es in Wien (von den Rahmen) sehr gut haben. Aber es gibt auch sehr viel wo es teil von unsere Arbeit sein wird - es gibt potential, und da ist es unsere Arbeit es umzusetzen. Werden projekte nur wegen den "grünen" Image Wiens gemacht oder wirklich ernst?
Vergleich zu anderen Städten fällt uns nach November hoffentlich leichter - in Essen gibt es dann ein Konferenz der Ernährungsräte. Dann können wir diesen Vergleich sicher leichter ziehen.
Zivilgesellschaftliche Initiativen sind eigentlich total interessiert in unsere Arbeit. Wir füllen eine Lücke.
Es gibt unterschiedliche Formen von Ernährungsräte - top-down und bottom-up. In Berlin gibts Zivilgesellschaftlich und von der Stadt aus gegründet Ernährungsräte.

Es hängt eigentlich an einzelne Personen ab wie es aufgebaut ist. Hoffentlich sind wir ein positives ergänzen und nicht ein parallel. Mehrwert = ihre und unsere Kontakte zusammenzubringen.

Für eine Strategie sind schon Aufgabenbereiche die unter die Stadtverwaltung fällt, aber für die Initiierung ist es besser wenn es bei der Zivilgesellschaft bleibt weil die bürokratie dauert zu lange. Die Stadt soll eine schützende Auge drauf halten aber sich nicht zu viel einmischen.

Wollt ihr die Wirtschaft miteinbeziehen?
Was ist mit den großen Lebensmittelketten? Sie sind auch AkteurInnen, und vielleicht kann man schon was mit denen schaffen, aber wahrscheinlich interessiert es denen nicht so sehr und sie kommen wahrscheinlich nicht von selbst zu uns. Aber Wirtschaft ist auch Sachen wie Bauern, und die brauchen wir schon. Diese schritt auf Produzenten/Schnittstelle Produzenten/Verarbeiter fehlt uns noch. Es ist nicht so leicht mit denen in kontakt zu kommen (LandwirtInnen) weil sie außerhalb der Stadt sind und die Plenarsitzungen mitten in der Stadt sind. Es ist so schwer alle AkteurInnen einzubeziehen.

Wie sieht ihr das eigentlich? Geht es über die administrativen Grenzen von Wien heraus?
Wien Produziert nicht nur für Wien, es wird sehr viel exportiert. Wir verstehen unter die Ernährungssystem Wien auch die Globale Kontext. Man muss nicht immer im globalen Rahmen denken, wir fokussieren schon auf Wien, aber wir sind bewusst dass es globale Komponenten hat. Zu wissen wie sich das System auseinandersetzt. Wie konsumieren wir in Wien, Wie schauen die Beziehungen in der Region aus. Muss man aber durch kritische Perspektiven ergänzen (Leute von der Unis).
Sehr viele potentiale landwirtschaftliche Fläche wird für andere Nutzungen benutzt.

Schwachstellen/Stärken in Wien
Es gibt find ich sehr viele Projekte aber von den ich, obwohl ich sehr sensibilisiert bin, nichts mitbekomme. Das kann viel mehr Menschen erreichen und da wäre es gut wenn eine Zivilgesellschaftliche Organisation besser wissen wurde wie man mehr Menschen erreicht und das Potential des Projekts. Hauptbeachtung finden und es hat noch keine Chance zu erstellen und Ernährung hat eine große Schwachstelle weil Ernährung nicht eine politische Thema ist und deswegen werden Ernährungsräte geschafft, weil es zu wenig beachtet wird. Wien braucht Ernährung in die politik.

Nächste Schritt:
Bestandsanalyse von der Ernährungssystem von Wien zu schaffen: Ganz großes Bild zu haben wo die

NGOs stehen, wo die Stadt Wien steht, Zahlen/Fakten von Produktion, Vermachtung, Verarbeitung, Verkauf, Konsum, Abfall -> Ganze Kette zusammenbringen auf einem Bild wo man sehen kann wo was fehlt und wo die Probleme sind und wo die Lücken sind. Durch Arbeitsgruppen kann das geschafft werden.

Interview 14:

Interview: 22 June 2017, transcribed: 28 June 2018

Inwiefern beeinflusst das Thema nachhaltiges und gesundes Ernährungssystem Ernährung Ihre Arbeit?
Lebensinhalt im Endeffekt, weil eigentlich darauf unser ganzen Betrieb aufgebaut ist

Inwiefern beeinflussen Regelungen (wie die Kriterien von ÖkoKauf) Ihre Arbeit? Sie bieten Beispielsweise auch die "Schlaun Kisteln" mit Obst und Gemüse für Schulen und Kindergärten an, wie ist da die Resonanz? Zeigt die Stadt Wien Interesse an diesem Angebot und versucht es zu fördern oder geht dies auf Initiativen in den Schulen und Kindergärten zurück?
Es läuft direkt über die Schulen. Die Wiener machen da sehr wenig. Es ist eine EU Projekt. Die EU will dass die Schüler wieder mehr Obst essen, dafür gibt es gute Förderungen - bis zu ¾ des Betrages wird finanziert. Die Wiener kochen da immer ihre eigene Suppe und machen es mit TransGourmet oder Gourmet damit sie es überhaupt herschenken können. Also eigentlich Wettbewerb. Es wird da sehr wenig transparent gearbeitet und wer da hinter arbeitet weiß ich nicht.

Wenn sie mit den Schulen oder Kindergärten da zusammenarbeiten, also sie treten an sie heran?
Das ist harte arbeit, wir treten an die Schulen/Kindergärten an oder manche die Eltern sind Kunden bei uns.

Wie wird diese Schlaun Kisteln angenommen?
Solange es fördergelder gibt gut, aber jetzt seit ungefähr 3 Wochen gibt es keine Fördergelder mehr, jetzt hat sich das halbiert. a) was nichts kostet ist nichts wert und b) Es muss menschen geben die diese Wertschöpfung verstehen

Gibt es Kooperation mit der Stadt Wien?
Immer wieder, aber so Richtige Kooperationen viel zu wenig

Aber sie hätten schon Interesse daran?
Es kommt immer auf die Bedingungen und Ziele an, aber eigentlich schon. Es gibt sehr viele Evaluierungen und ich blick nicht dahinter...

Gibt es Kooperation mit anderen NGOs wie Greenpeace?
Ja, wir kennen alle Player dort, und sie haben sich auch weiter entwickelt, sie müssen halt schauen wo sie ein Sponsor bekommen und hängen da oft mit große Player zusammen. Es ist halt die wirtschaftliche Überlebensdruck sehr oft.

Wer sind Ihre Stammkunden? Privatpersonen oder Betriebe? Wie kommen die Kunden zu Ihnen?
Schwerpunkt: Privatkunden. Direkte Vermarktungsstrategie. Durch weiterempfehlung kommen neue Kunden

zu uns. Natürlich haben wir auch unsere Promotions aber unsere beste Werbung sind zufriedene Kunden.

*Wir sind grundsätzlich Bauern, wir produzieren Bio Produkte und es war uns seit anfang an wichtig dass wir die Bio Produkte an den Kunden bringen. Wir sind in der Nähe von der Großstadt und das versuchen wir zu nut*zen.

Gibt es viel Interesse an biologischen und regionalen / saisonalen Lebensmitteln, bzw. an einem nachhaltigen, fairen und gesundem Ernährungssystem generell?
Ich glaub immer mehr Menschen sehen uns als beispiel für was möglich ist. Es gibt aber viel Gruppenzwang bzw. Die Menschen folgen immer und das macht es schwer. Wir sind in einer Zeit wo die Menschen wirklich sehr wenig authentische Information bekommt. In die Schule wird man nicht informiert. Durch Werbungen nicht. Ein Billiges Lebensmittel kann es nicht geben weil irgendjemand/etwas leidet - ein Mensch im 2./3. Welt, ein Tier, die Umwelt… Externe Kosten werden nicht beachtet… Und jetzt wird in die Bundesverfassung die Wirtschaftswachstum verankert… Kann nicht sein! Um Wirtschaftswachstum zu haben brauchen wir eine 2. Welt….

Sie engagieren sich Beispielsweise im Projekt WUK bio.pflanzen – Soziale Landwirtschaft Gänserndorf oder bieten Führungen und Exkursionen an. Wie wird aus Ihrer Sicht das Thema ökologische Landwirtschaft wahrgenommen? Verändert sich die Wahrnehmung?
Das sind versuche um die Menschen zurück zum Ursprung zu bringen. Bei Bio.Pflanze war die Idee dahinter dass die Bio Landwirtschaft sehr viele sehr sinnvolle Arbeit schaffen könnte und dass wenn man Menschen betreut und es hilft physische probleme wenn man sich mit Wachsen beschäftigt. Es hat sich dann in so eine soziale Projekt entwickelt. Wir haben jetzt noch ein Projekt angefangt.

Fänden Sie so einen Ansatz sinnvoll für Wien und Umgebung und hätten Sie Interesse daran, ein Projekt / eine Initiative im Rahmen einer UFS zu initiieren, bzw. hätten Sie Interesse sich an der Umsetzung einer UFS zu beteiligen?
Sehr sinnvoll. Es gibt schon viele Versuche und ich glaub es muss sehr stark von der Basis kommen. Alles andere ist aufgesetzt. Natürlich sollt sich das irgendwie treffen. Es mussen Imputs kommen, also von beide Seiten. Habe Absolute interesse bei sowas mitzuwirken, wir sind gerne bei alles was zu "Ernährung" beiträgt dabei.

Spüren Sie das Bevölkerungswachstum der Stadt Wien und die Verknappung der Böden? Gibt es eine Konkurrenzsituation zwischen Landwirtschaft und Stadtwachstum?
In Marchfeld gibt es sehr viel Schotter, und das spürt man schon! Und leider gibt es dann grenzen, und man kann mit Landwirtschaft das dann nicht mehr verdienen. Wir setzen viel zu wenig Wert auf Grund und Boden. Ich glaub darauf müssen wir aufpassen und das ist sicher eine wichtige Teil von einer UFS. Es gibt eine Weiterentwicklung und ist nicht hoffnungslos. Ist sehr viel arbeit aber es polarisiert sich sehr (menschen die sich sehr dafür interessieren und daran

Wie sehen sie dass mit städtische Landwirtschaft? Also dass man am Balkon was anbaut?
Sehr gut! Jede initiative ist insofern gut weil die Menschen dann sehen welche Probleme es doch gibt wenn man mit lebendige Pflanzen arbeite. Es ist wichtig dass Menschen das erlebt, sich damit auseinandersetzt und so sensibilisiert werden. Selbstversorgungsgedanke ist wichtig, aber irgendwer muss trotzdem für

andere Produzieren. Ich bin klassische Kapitalist, ich könnte mein Grund verpachten und viel verdienen, da muss man aufpassen. Wir brauchen auch jemand der für andere Arbeitet. Grundsätzlich ist es aber sehr wichtig. Bewusstsein ist sehr wichtig. Und dass erleben die Menschen bei uns in den Exkursionen. Man sieht im TV das Lila Kuh… Wo setzt man an? Immer bei sich selbst?!
ÖkoKauf macht es eh gut, ich tausch mich sehr oft und gerne mit denen aus. Es ist wichtig eine Begeisterung zu haben. Die Preis spielt aber eine riesige Rolle. Die Politik muss da rein. Bio Böden (Humus) erhalten mehr feuchtigkeit und somit überleben
Es ist sehr wichtig dass wir über die Probleme (Wie Gifte und Kunstdünger) sprechen und die Bewusstsein. Das große Problem sind die Lobbies. Es gibt da so viel Macht und Geld, aber sie machen auch in ihre Lobbies "gute" arbeit, Menschen/Tier/Umwelt sind denen nichts wert…

Interview 15:

Interview: 19 July 2018, transcribed: 31 July 2018

(00:01:17) *We are a private research institute doing basic research, feasibility studies for municipalities or companies, organisations that want to builda vertical farm or think about building a vertical farm. Up until this point we did a lot of research into what is possible, so people give us an idea of a location or building and then we come up with a proposal and give them insights into their energy usage and the potential for a vertical farm there and now it's interesting because we are now in a transitional period where we will actually be building or reactivating vertical farms or urban farms in that sense. So we don't have one operational at the moment, but close to getting one. At this point we're mostly gathering information…*

(00:02:53) So, being in charge of the public relations and so on, have you any insights on how vertical farm projects would be governed, so from a governance perspective?

I can say a couple of things about this, but I cannot really specifically answer your question. What we see at the moment is, that there is a certain interest from politics into urban food production because it makes a lot of sense to think about urbanization increasing cities to also make those cities more self-sustainent or as we like to say, more resilient, and therefore it makes a lot of sense to start increasing urban food production. What you see and hear a lot about is smart cities and the smart city concept and you have a lot of conferences and political spear points in this direction. We strongly believe that urban food production should be part of this and this idea is increasing and gets more traction. People start to think, yeah, what is a smart city? Well it also means to take care of our food production. So there is from a political side, there is interest in it. However, it is such a new building typology, so it is a structure that has a completely differnet function than what we've had before and that is sort of uncharted territory, there is not really legislation about a vertical farm. There is legislation about buildings and food production in buildings, but as this will be a new building typology, that legislation will have to be updated or changed for a vertical farm in specific and, I will admit, that my knowledge in the politics in Vienna and Austria goes not that far, that I know what that legislation is at the moment, but yeah, there are certain legislations that say ok this is a residential building and this is how much food can be produced and so much energy it can use and this is an office building and here are a mixture of buildings, but there is not such a thing for vertical farms in specific, but that that will come in the future I am sure. Wrapping things up, there is political interest and support, but it is also a bit new and people can be a

bit conventional sometimes, so yeah, there is still a lot of work to be done.

And from a civilian-side?
We have noticed a couple of things, some people are very interested in this topic. What we're seen at the conferences and the meet ups that we have organised is, that it brings a lot of engaged citizens who really think this is an interesting idea, or think it's maybe not the best idea, but mostly people are very interested as it is something novel and it makes sense, so why not try to grow your lettuce or basil or tomatoes or strawberries or berries in your own neighbourhood. So people are very interested in this, and also in how does the food grow and that connection with the food is very important, but maybe we will touch up on that later. At the same time there is also a little bit of, how do you say, resentment, no not really resentment, but a little bit of holding back a little bit of, ok let's see what this is, this is a plant that is growing inside with no sunlight or maybe barely sunlight and there is this artificial connotation to produce coming from vertical farm. We all have this romantic image where the farmer is on the field with the plough and the sun and the dirt and the soil and this is sometimes without sunlight, and mostly without soil and things like this make it a bit of an artificial concept and therefore, there is a lack of public acceptance in that sense, as you wouldn't really buy a project that easily. But I see this changing and there is also a role of how to set up the building and how to facilitate that interaction with the people, educate them, make them understand how this is grown, why is it important that we grow it this way, how does it taste? And often it tastes much much better than anything that you can get in the supermarket.

That's interesting! The people that come to these conferences: what groups do you contact to spread awareness about the conferences? Through social media? (00:08:16)
So, we use social media. We organised our skyberries conference which was our first big international conference and was at the end of February, beginning of march and we promoted this conference through social media and our website, but also through the local radio, national radio in Austria, we had articles in magazines and newspapers. With regards to speaking to a specific audience. It is not only the generation that uses social media plattforms that we know, but also generations that are less aquainted to such media. I think we tried to reach everybody, and it was also a very big moment, the conference, and throughout the year we try to organize there meet-ups where we create an event and have a room and discuss with people what we're doing and want their opinion and input and that is something that is mostly regulated via social media, but if I look at the people who come there, they range from studnets, young professions to almost seniors, quite old but still interested. I would say maybe, if you compare the two, for the most part it's young professionals, but there is a significant amount of people who are somewhat older, who still find it an interesting topic.

Oh that's very interesting, that there is social diversity as well. And the institute, it is an international institute, so why Vienna?
Well, good question, the founder would be more able to answer that question, but what I know from him, his life unfolded in such a way that he ended up in Vienna, he did his PHD in Graz while living in Vienna and after his doctorate he founded the vertical farm institute, so that's two and a half, more than two and a half years ago. I think it makes sense, maybe regarding this, but if I would explain it maybet he other way around, I think it would also make sense. Vienna has an interesting geographic position, in the heart of Europe, just in between east and west but also north and south Europe and I think such a novel idea, as vertical farming, which is quite new, fits the city of Vienna, maybe I think, I perceive Vienna a little bit differently to the rest of

Austria. When it comes to politics.. being a little bit more open for new ideas, and I see that Vienna is a bit more ahead than the rest of Austria and a city of two million people, they all need some food at one point, so why not try to organize that. So yeah, an urban farm, or a vertical farm would make sense in a big city. Depending on how big you want to make the farm and how many farms you want to make in comparison to the amount of citizens.

The people who work in the institute, what backgrounds do they have? I read on the website that there are architects and designers.

So, we are now lucky to have an art-historian in the office, because we have… One of the very first vertical farms in the world was set up here in Vienna, the Ruthner Tower, as far as we all know it is the first vertical farms. One of the farms is still standing in the Kurpark Oberlaa, and the son of the founder of this idea gave us the archive to all of this and now we are setting up that archive to learn from those lessons from the past and also use it in our future research and to showcase to the rest of the world that Vienna is a pioneer and the first in the world… he build vertical farms in the rest of the world, more than 40 vertical farms in the middle east, iran, you name it. It was a very big endeavor, and stopped for multiple reasons but, so that's one of the backgrounds we have. Social sciences slash economics represented here. I am also from social science but more from a sustainability background and … from an architectural background. But apart from the core team we have a group of experts that we can use when we need information of LED lighting or information on climate control indoors. Urban farming is very complex puzzle and it will never be able to solve it from only one discipline so I think it makes sense. So Lara and I focus on more the social aspects of the vertical farms, for example, which we think are very important to, and then we're in Vienna and we need to have a building that functions and looks nice. So just to be clear, around the core team there is a larger group of experts, around 20 – 15 people who are closely connected to what we're doing who we can always use for our research.

In the end I think an urban farm differs in so many ways, it's always… you can have a roof top farm or a black box factory that is closed off from the public. So a rooftop farm will be interactrive with educational programmes, but maybe it produces less and then you have the black box plant factory that is massive scale but no one can go in there because you don't want it to be contaminated. So it ranges a bit between that and I can say, that from the perspective of the vertical farm institute, we are very keen on having that interaction and open space, but we want to produce more than a roof top farm. So what we strongly believe in is that if we build a black box farm outside of the city, in 10 years it will be part of the city and the neighbourhood and people will be looking at the black box and no one really understands what's going on inside. So what I can elaborate on is, that we find it very important to design and build the building in such a way that it is a structural part of the city, meaning that there is an interactive aspect so that people can come and it is sort of a social hot spot, and at the same time of course we want to produce a large amount of crops so lets maybe use glass so that it looks more open and people can see what is going on on the inside. We find this is very important one for societal acceptance of what is being produced there, two for people to meet and three to raise awareness, look guys, this comes from a need of what we see as not super great in traditional agriculture, such as use of land, pesticides… you name it, while producing the food that people consume, we also want to produce food for thought so people can say yes that makes sense, why should we import food when we can produce it next to our houses and reduce the intake of resources. Yeah that was maybe a little bit off topic, But, yeah, I am not sure what exactly you mean with social aspects, but this is what I see with regards to the interaction with urban farms.

Well mostly, those three words that you mentioned, education, community and awareness. Many times, especially in districts where kids don't have access to green areas, that they don't know that soil isn't disgusting, or that tomatoes grow on plants and things like that, so to spread this awareness and the effect that this has on the children and on their later lives and on their families because if the children go home and say hey, I grew a tomato, then their parents might also be motivated to buy more healthy food.
Yeah, that's the idea, I think what we've seen over the last decades is that people have lost the connection to where their food comes from and they don't really understand how it grows and what is in it, like what is the nutrition values and if you can get people back to that moment where they plant the seed, see it grow and then eat it then they will value that more and understand where their food comes from and at the same time, I don't think it will be a huge behavioral change, but maybe, in that sense, they might think hey, what am I eating, what is it that I am consuming and that this might nudge people towards a maybe having a little bit more healthy diet at the same time.

And going back to the people that you work with – the municipalities that you work with play quite a big role, I assume, can you elaborate on what groups of people you work with, so like the city, gebietsbetreuung

So, we work with politicians, or try to work with politicians that are in the municipal government of Vienna, for we need a yes or a no, a for or no go from them to start doing this, at the same time we also work with the civil servants of the municipality ranging from all different levels within the municipality where we also need to know what is possible and come up with plans and business models, percentile partners, percentile research, and if they say yes, then we can start building something. If they say no, then we have to continue doing our work. So in that sense, the municipality is very important, so I would say, that it is in a manor, a little bit more difficult for us, for if somebody wants to build an office building then it goes through contractors and the contractors are in touch with the municipality, they say yes they say no, but now we have to convince the politicians which is even a level higher and we say guys, we want to do something completely new, and we need the city of Vienna on board for this, so politicians want to see energy usage, financial plan, but mostly they want to know, what does this mean for the people who are voting for me, does this make sense, politically speaking. I think vertical farming does, and we see some politicians being aware of this that this may be a novel solution for what is needed in the city and also what will in the end bring in the votes that thye needed or that they need. So I think that is mostly the interaction that we have with the municipality. We're doing a project now for example in St Pölten, I think it's a similar story there, when it comes to research, we need the municipality to know, the municipality tell us these are three buildings we can look at they sent us the locations, and what's in it and tell us we need to come up with the plans, And then we come back to the municipality and tell them, we want to do a stakeholder analysis, can you give us the names of the people there, or we want to engage the citizens a bit more, can you tell us which channels we can use, so in that sense, that's a more detailed collaboration between us and the municipality, but in the end if we want to build one of those buildings then we need the go from the mayor and the rest of the politicians.

This project in St. Pölten, was it initialized by the institute or by the municipality?
I think it was initiated by, well we're a part of a bigger project there called "smart Pölten", so you have two smart pöltens, smart pölten 1.0 and smart pölten 2.0, we are a part of smart pölten 2.0. It's a bit complicated, they're sort of running at the same time. St. Pölten really wants be the culture capital of Europe, be the fittest city of Austria, wants to be… they are quite ambitious in that sense. So I think we met in the middle

somewhere. We saw this call and went for it and they saw us and, yeah… It was a good match. The project we are doing now is with serveral other companies and organisations. The Markt of St. Pölten, Grün Statt Grau, maybe you heard of them, so in that sense we're sort of part of the bigger project.

I think at the moment there is interest from politicians, what I said about the reactivation of this old vertical farm and that is something we need the politicians to say yes or no, it seems likely that she will say yes. And if we also talk about the concept of smart cities… that's present. At the same we also see interest from private organisations, so companies are also interested in what we are doing. We are working closely with BOKU, WU, TU, Siemens. Siemens is a private organisation, the rest are research institutes, from all angles it is interesting. It's quite a new field, new research field and what you see is also high end forms of technology which is also interesting for companies, so sort of a new end market. Some people think it's a hype, some think it's not a hype, yeah, we should go all, others want to wait and see what happens. There's definitely a lot of interest from all angles.

OK! That's very interesting. On your website, it says that there is the Tabakfabrik in Linz and the FLAKTurm in Augarten, what's the statusquo of those projects?
Still ongoing, so the Tabakfabrik was on hold for a little while, I'm not sure what the reason was, but we just recently had a meeting and it seems that we will continue working with them and activate that project, so that is good news. The other one, the FLAKTurm, right, that's how you call it, is also a project that is that is on the way, I think there was a call from the municipality with guys, what can we do with this building, how can we make this work? I think there is something, that every FLAKTurm needs to have a public function and they change sometimes, and this one also needs to have it. So we made a proposal and we're still working with them, but there are other people who also made proposals, so we still have to see who will win it or get the project, it's still in process. And tyhere are several others that are on the way. But at the moment the most important is the reactivation of the Ruthner Tower. That will be a very big step and the smart pölten that we are doing.

And the tower, who are you working with there? Also the municipality and Siemens or also others?
Siemens was more involved in a research project we did here for the City of Vienna. If we get the go from the politician, then we will work closely with the municipality and we have a couple of companies, ranging from all kinds of expertise, and how they work. We have some, like for example, that does really good LED lighting for plant growth, and we have an organisation that takes care of the climate control in doors and another that Is good at energy efficiency of the building and because it's so difficult we have quite a lot of expertise, but we still have a lot missing, so we try to get that from the group of partners, so if we get the go then we will have an investor and then we can start reactivating it which will be a big project, hopefully on the way in 2019.

Once it's reactivated, what will happen to the produce? Will it also be a prototype, for scientific research purposes?
As we see it right now it will mostly be a research facility and hopefully a stepping stone for future projects where we get the knowledge from and use in other projects in Vienna and probably in other countries too. So, what we will do with the produce is probably sell it to nearby restaurants or highend restaurants in the city of Vienna, because the crops that are being grown there have been tailored to a very specific taste and which is very interesting for highend restaurants that focus on the taste experience so that will be apart of it. At the same time, what you have with a vertical farm is the reintroduction of crops that have not been

in circulation in the market for whatever reason, maybe it was not feasible economically to grow them in traditional agriculture. You can grow super rare forms of rucula or basil or other leafy greens which will be very interesting for the market in Vienna that will be interested in it. At least what I see from my friends and maybe you notice this too, that some of my friends are quite aware of what's happening in the world and would like to eat more local and something without pesticides and I personally when I go to the supermarket, sometimes the tomato doesn't taste as rich as I'd like it to and you see with produce being imported, that they lose the flavor. Our generation is looking forward to that experience a bit more.

Yes, I've also noticed that, and it's also one of the motivations for why I decided to write my thesis on this type of a topic. I did a seminar on Food Politics with the Ernährungsrat, I don't know if you know them, They are a civil society that started about a year ago, two years ago. They've kind of taken it onto themselves to coordinate farmers with consumers and at least try to figure out what the food system of Vienna actually is, which is actually quite interesting. But they're still in their beginning phases and trying to figure out, what they want to do actually…

(00:35:35) *I don't think that urban farming will ever phase out traditional agriculture, because it is simply impossible to do that much in a city but it is very important to increase what is produced in the city.*

Yes, especially because there can always be a problem. Something can happen and then you're cut off from the world, for what ever reason. Natural disasters happen all over the place. We're lucky in Europe, it's relatively peaceful, stormwise, naturewise, politicalwise.

If you think about desification, that will continue to increase due to climate change, extreme weather circumstances will all increase. This only means that there will only be less and less land available for agriculture, which is already almost non-existent unless you burn down forests, which is happening and contributes to all the weather problems.

What would your ideal be for Vienna in 10 years be?

I would like to see multiple urban farms or vertical farms set up in Vienna. Enough, maybe one in ever big neighbourhood or district that produces food that makes sense for what the people want there, and I would really like to see a synergy between the traditional agriculture, greenhouses and the vertical farms, so that everybody uses whatever space is available to them most optimally. So if you say, maybe, it's better to produce lettuce in the vertical farm, so the farmer can say then I wont produce lettuce anymore, but I will produce potatoes which is quite difficult to produce in a vertical farm for example. I would like to see a very good balance in this, so that's regarding the food. At the same time, I would really hope that vertical farms are social hotspots where people come together, around food. Food has brought people together for centuries already. But I think this inspirational environment should also be an incubator to new and better ideas, but also to, yeah, to reactivate a little bit of the neighbourhood or to give that sense of pride to that neighbourhood where the people maybe then in the wake of the vertical farm think yeah, maybe I should clean up my street a little bit or yeah, there is somebody sitting alone one the bench let me talk to them. This is very romantic of course, but this could be great if people could come together a bit more and talk to each other a bit more face to face, instead of through digital means and I think a vertical farm is interesting enough to draw people out of their houses to go see, what is this idea, this also requires certain social projects which you have to run. So yeah, that would be my ideal for Vienna. Yeah, multiple vertical farms, social interaction and that it makes sense what is being grown.

I wrote a load of questions, but some of them you answered already and others of them we answered, or I asked and then you answered. The thing we didn't talk about is funding, financial issues… where does the funding come from for projects?

So, most of our funding so far has been public funding, so you have in Austria, the FFG, this stimulates innovation and research. We as a research institute partner with a company and get funding from this, however, I think that funding a vertical farmer, investing in a vertical farmer is still a little bit tricky as there are examples of vertical farms that didn't make it, financially, because of multiple reasons, because of high cost of energy, not finding the right market to sell their produce, but in the same time you also over the years, especially last year, you see the number of investments increasing and the financial commitment of those investments increasing. There are farms operational, right now, that have a positive return of investment and that make profit and that can grow on themselves without subsidies and continue. For us it's not a matter of if, it's a matter of when. So, technology will increase, it will become more efficient, it will become cheaper, and in that sense we are confident that, yeah the market will also see that benefit and will start investing some more from private companies and organisations and the thing is, a bank will only invest in you after you've proven to be a success in a term of lets say, 10 years. They're super conventional, so the investment will come from companies or, yeah, more entrepreneurial investors, but we see that that is increasing over time and we feel confident that that will continue as there is also quite a lot of empty space in cities that is unused at the moment, so it would make sense to build vertical farms there and make use of that space that is otherwise unoccupied.

The farms that you work with in your prototyping ideas, are they always built up from scratch or are they also, do you also have the idea of using existing buildings that are empty?

Both, yeah, both we have made designs now for farms that are built from scratch and we have made designs for farms where we completely retrofitted a building, so both ways I would say.

I guess building them from scratch would be more efficient.

Yeah, could be, it sort of depends I guess, because we tend to, we want to make a lot of use of the sunlight. So it depends where you build the building, which materials you use and what the angle of the sun is in comparison to where your building is situated. So you could also build a very efficient vertical farm retroffitting structure because we then just build additional modules on top or next to it. Of course it will be a closed off environment in that sense yeah the plants should grow, obviously, so we need to take care of them, so I think it could go either way, with regards to efficiency.

That's great though, that it could also be done in buildings that exist especially in places in Vienna where there are all these Denkmalschutzes.

Yes definitely, that is something we aim to, we really want to make use of the space that already exists in buildings. So there will be new buildings that will be built that want a vertical farm in it or just vertical farms from scratch, of course, we see that as a potential too but this is part of what we do, if you look at the Tabakfabrik, we completely retrofitted that building as a vertical farm, in that sense.

How the farms would influence the livelihoods of the people working at the farms.

so, the people working at the farms? So that's sort of a little bit depends on what you mean by working. You can hire somebody, and they are then an employee, or you can open it up, so that it becomes a part of the neighbourhood and community to almost voluntarily or semi-voluntarily go there, work there. If you look at

people who are employed, often times this requires quite a lot of knowledge. It is still not really easy to grow plants and if you look at vertical farms that are operational today they have highly trained specialists from universities that see and monitor how the plant grows and make adjustments in the light spectrum of the LED lights or in the nutrient solution that helps those plants grow and maybe this can be taught, but it is definitely not common knowledge. The other way around, if you open it up, then that could work, in that sense you could really activate the community of the neighbourhood because there is also quite a lot of manual labour involved in the vertical farm and that could be taken care of, but still one would need an expert if you don't want the crops to die or get contaminated. So there is always the need of an expert, what I think that is really interesting for you, I don't know if you've come across it, but there is a vertical farm in Jackson, Wyoming called Vertical Harvest, and most of their employees, are people with special talents, I think that's how they say it themselves, but yeah, people who are mentally and physically disabled or less abled than we are in a conventional sense but are much more abled in a lot of other things of course and they work in this vertical farm and what you see is, this really gives them a sense of pride and community feeling and yeah, sense of meaning making and I think that is super important. Now vertical farms ideas and concepts being thought up of setting up a vertical farm in a prison, so a little bit of reintegrating into society, what does it mean to grow food, yeah, to keep the people busy a little bit too and also yeah, the mundane, the normal work. There is definitely this aspect of a vertical farm too.

Interview 16:

Interview: 9 June 2017, summarised 14 November 2018

(2:00) *Gemüse Pacht Parzellen: Die Stadt Wien bietet Parzellen an und bestimmte Landwirten bieten welche an. Da wird teilweise mit uns abgesprochen, teilweise nicht. Weil die Bauernhöfen machen das Autonom. Wir geben Interessierten Informationen dazu wo sie sich Flächen zur Urban und Gemeinschaft Gardening finden können und mit wem sie reden sollen. Es gibt Gebiete wo die Gebietsbetreuung beteiligt ist, anderen wo die LA21 agiert, es wird immer mit den Bezirken und die MAs abgestimmt.*

(9:26) *Es gibt in Wien zwei Formen der solidaridarischen Landwirtschaften, CSA: Community Supported Agriculture wo leute ein Betrieb finanzieren und bekommen je nach Beitrag einen Anteil vom Betrag. CMA: Community Made Agriculture wo leute selbst aktiv sind und Land von Bauern pachten. Da geht es den Leute darum geht dass sie sich ganzjährlich ‚selbst' Versorgung können oder vom Markt unabhängig sein. In den Inneren Bezirken gibt es keine Flächen, deswegen muss es eher an den Rand passieren. Es gibt viel mehr Leute die Interesse haben als Flächen. Es gibt halt eine gewisse Beschränkung.*

(24:29) *Abgesehen davon dass die Menschen lernen wie man mit Gartenbau umgeht, ist es gut dass sie lernen professionellen Gartenbau zu schätzen. Weil das ist nicht Ohne und das hängt sehr genau mit dem Zeitpunkt und dem Wetter ab. Das ist genau so eine wichtige Aufgabe für die Bildung von den Menschen. Bildung von der Natur, die Zusammenhänge und für Wie funktioniert Gartenbau bieten wir Kurse.*

(29:30) *Wir bieten Leute die Rat brauchen es an, aber wir drängen uns ihnen nicht an. Es bringt niemanden was wenn wir jemanden helfen wollen wenn sie keine Hilfe haben möchten.*