Feasibility of Urban Agriculture in Brussels: A Qualitative Multi-Stakeholder Analysis

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FOREWORD

This dissertation is written during a period of 16 months, starting in January 2012 and finishing in May 2013. During this time I have learned a lot about scientific research, how it is done, how much time and preparation it takes and how it is constantly evolving. The end result turned out to be different than my intentional ideas about my research. While reading the literature I came to the conclusion that urban agriculture is gaining more and more importance, but that there is still little research in Belgium about the subject. Therefore I hope that this study will shed some light on the recent developments that urban agriculture is making in Brussels. I hope that the reader will enjoy reading my work and I also hope that it will make him think about the subject. My biggest hope however is that this research can be the beginning of a whole series of studies regarding urban agriculture in Belgium. If that happens, I would consider my study a success.

I would also express my gratitude to the people who helped me with my research and helped me make it what it has become. I would first like to thank my supervisors, Hossein Azadi, David Bassens and Maarten Roels for guiding me, reading my work and for their helpful insights regarding the subject. Special thanks are going to all the respondents of the interviews for their cooperation with this project. I also want to thank Sofie for her support and patience for listening to me while I discussed my study with her and to read my work over and over again. Finally I want to thank my family and friends for their support and help during the time of my project.

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ABSTRACT

The rising worldwide attention for urban agriculture (UA) as a strategy for sustainable cities started with the Rio declaration of 1992 and is a result of its multifunctional nature, its contributions to environmental friendly practices, the economic benefits and the sense of community. Political support is a very important element for the development of UA in Brussels and the multifunctional nature is the reason why the different governments in Brussels are promoting UA. In Brussels, UA is promoted in a wider strategy towards sustainable food consumption. Making the people more aware of where and how their food is grown is one of the main objectives of the government. This study determined that the educational, sensitizing, social and economic aspects are the most important aspects for UA in Brussels. The environmental and food security aspects are also important, but not as important as the other four. The fact that these different aspects are combined in UA-projects is its greatest strength. Urbanization is seen as the main limiting factor, followed by the pollution of soils, the lack of knowledge of the people and the problems that arise with temporary grounds.

This study used a classical content analysis combined with a constant comparison analysis to determine the feasibility of UA in Brussels. The outcome showed that UA is feasible in Brussels. However, the conditions surrounding UA need to be fulfilled. Innovations will be necessary and creative solutions need to be found to tackle the rising scarcity of available land. Rooftops, balconies and vertical gardening offer a huge potential for UA in Brussels.

DUTCH ABSTRACT

De laatste jaren is stadslandbouw wereldwijd sterker aan belang aan het winnen als een strategie binnen het ‘duurzame steden’-concept. De stijgende aandacht voor stadslandbouw begon met de Rio-verklaring in 1992 en is een gevolg van het multifunctionele karakter van stadslandbouw. Stadslandbouw is namelijk niet alleen een manier om milieuvriendelijk te produceren, maar het heeft ook een economisch waarde en het brengt de mensen dichter bij elkaar. Politieke steun is zeer belangrijk voor de ontwikkeling van stadslandbouw in Brussel en dit multifunctionele karakter is de reden dat stadslandbouw wordt aangemoedigd door de verschillende overheden. Stadslandbouw wordt binnen Brussel gepromoot in een bredere strategie waarbij men streeft naar een duurzamere voedselconsumptie. De bevolking bewust
maken van waar en hoe hun voedsel wordt gekweekt is één van de voornaamste doelen van de overheid. Deze studie bepaalde dat de educatieve, sensibiliserende, sociale en economische functies de belangrijkste functies van stadslandbouw in Brussel zijn. De milieufactie en de voedselzekerheid zijn eveneens belangrijke functies, maar minder belangrijk als de genoemde vier. Het feit dat stadslandbouw al deze functies combineert, is zijn grootste kracht. Urbanisatie wordt gezien als de meest beperkende factor voor stadslandbouw in Brussel, gevolgd door de vervuiling van gronden, het gebrek aan kennis bij de beoefenaars en de problemen die ontstaan bij het gebruik van tijdelijke gronden.

Deze studie maakte gebruik van een klassieke inhoudsanalyse en een constante vergelijkende analyse om de haalbaarheid van stadslandbouw in Brussel te bepalen. Dit onderzoek toont aan dat stadslandbouw haalbaar is in Brussel, maar er zijn echter randvoorwaarden. Innovaties en creatieve oplossingen zullen nodig zijn om het ruimteprobleem het hoofd te kunnen bieden. Daken, balkons en terrassen bieden een groot potentieel voor stadslandbouw in Brussel.

1. INTRODUCTION

UA is a form of land use in cities which has become very popular in recent years. More and more projects get media attention in several Belgian, European and other cities around the world. Brussels is one of those cities where UA is gaining importance. The literature review makes clear that there are several reasons for practicing UA: economic, social, environmental and educational are just some of them. Some contributions of UA to cities are the use of waste, the creation of urban green spaces and the improvement of the city’s self-reliance. With regard to sustainable development, UA offers a lot of opportunities. It is also one of the strategies that should be implemented in a sustainable city. A good implementation of UA in the city is only possible if different stakeholders work together to create a project that is sustainable and works for all the parties involved.

1.1. Problem statement

Studies around the world are done to determine the importance and implications of UA in their respective cities. One of the first questions that comes to mind while reading all this is what makes UA so attractive for these cities that it is gaining so much attention? Is an alternative land use like UA even possible in cities where there is a huge pressure on land? Is
the competition for land too big for UA to keep existing? For Brussels, this is a very pertinent question because very little research has been done regarding the subject.

1.2. Relevance

A feasibility study is an evaluation of a certain alternative. If one wants to evaluate an alternative and answer the questions above, the parameters need to be defined first and that is why a study like this needs to be done. This study will not answer the questions made in the problem statement, but it will determine the parameters that should be used to determine those questions. This study can be the beginning of a series of studies regarding UA in Brussels.

1.3. Objectives

The objective of this study is to determine if (sustainable) UA is feasible in Brussels. In order to examine this, the study will focus on (1) identifying the different stakeholders because it is important to know their views on the project; (2) evaluating the parameters needed to answer the research questions in a deductive and inductive way; (3) evaluate possible limitations and scenarios for UA in Brussels and (4) make a conclusion based on these observations about the feasibility of UA in Brussels.

1.4. Research questions and hypothesis

The main research question is whether UA is feasible in Brussels. Feasibility is a result of three elements: the economic, social and environmental aspect (Shen et al., 2010, van Veenhuizen, 2006). This means that the research question will be split up into three parts:

- To be socially feasible, UA needs to have a good implementation in the community: Does UA have an important social aspect now or in the future? What is the profile of the people participating? Is there a specific purpose group? Is UA socially feasible?
- To be economically feasible, UA needs economic benefits, a good implementation in the market and a good market strategy: How important is the economic aspect in Brussels and how will it evolve? What are the advantages and disadvantages from UA concerning the economic aspect? Is UA economically feasible?
- To be environmentally feasible, UA needs to improve the local environment, it needs to make a connection between the city and its environment: How important is the
environmental aspect and how will it evolve in the future? Are there better alternatives? Is UA environmentally feasible?

- Other aspects that could have an influence on UA in Brussels are the educational aspect, the sensitization aspect, the contribution to the food security of the city, the urbanization problem, the political aspect and the multifunctional aspect. How important are these aspects and is UA feasible in Brussels regarding those aspects?

1.5. Structure

This study will begin with a literature review of UA, where the different concepts will be defined. UA will also be put in perspective, its importance will be discussed and the specific context of Brussels will be described.

The methodology describes the methods that will be used during this study and a conceptual framework will be made. The study area will be presented and the conduction of the field work will be discussed. After that the results will be presented and these will be discussed using three cases in Brussels, the literature review and some foreign examples.

1.6. Results overview

After reading this study it will be clear that the three sustainability aspects are not sufficient to make an accurate study of UA in Brussels. Three aspects have to be included to make a more complete study: the educational, the sensitization and the food security aspect.

The literature review will make clear that pollution and urbanization are the most important limiting factors of UA. In Brussels, pollution is a problem, but not as important as one would expect based on the literature review. Urbanization is perceived both as a problem and as an opportunity for UA. Other important limiting factors in Brussels are the lack of knowledge from the practitioners and the problems that arise while using temporary grounds.

The scenarios indicate that a lot of innovations will be needed to ensure that UA will stay in Brussels. Rooftops, balconies and vertical gardens are the most popular solutions to tackle the space related problems. If one brings all these subsections together, it is clear that UA is a very multifunctional sector, with limitations and opportunities on which the stakeholders have hopeful views for the future where innovations play a crucial role. The answer to the
questions whether UA is socially feasible is yes. Economically it is also feasible, but with the remark that side activities like restaurants will be needed to make it profitable. The intention is to be environmental friendly, but it is not sure that this will actually happen because there are too many unknown factors to answer the environmental question. Finally, the other important factors which are feasible in Brussels are the educational and the sensitization aspect. Since UA will never make a great contribution to the food security in Brussels, this aspect is not feasible. Because Brussels has a lot of potential for UA, because of the political support and because the different functions interact with each other, it can be concluded that UA is a feasible alternative land use in Brussels.

2. LITERATURE REVIEW

2.1. Urban agriculture

Urban agriculture is a form of agriculture that will most likely become very important in the future, as most people will be living in cities. In 2008 it was the first time in history that the urban population was larger than the rural population (FAO, 2009). This trend of urbanization will give a shift in the meaning of agriculture. Today, agriculture is mainly perceived as a rural activity, but the urban forms of agriculture are becoming more and more important. UA not only offers food for the cities, it also addresses problems such as poverty, malnutrition and environmental degradation. There are two different forms of UA that can be distinguished: agroparks, and small-scale urban agriculture.

2.1.1. Agroparks

Agroparks are a cluster of agro functions and related activities in and around a certain location. It is defined as a concentration of large scale, innovative and sustainable but intensive animal and vegetable production and processing, where the focus lies on efficiency. This kind of urban agriculture is an application of industrial ecology in the agricultural sector and is usually a cooperation between knowledge-institutions, governments, social groups and companies. These parks already exist in the Netherlands, China and India. However, there are a lot of critiques on this type of urban agriculture. For example, the media speak about ‘pigs flats’, because the animals are being grown on a very small area (Van Mansfeld & Smeets, 2009; Pot & Termeer, 2010).
2.1.2. Small-scale Urban Agriculture

This type is about small-scale, controllable, locally produced and ecological agriculture. It is about bringing the people closer to the food, whereas the first type is about efficiently feeding the people living in the cities. Both forms of UA are about food security and making the distance between the farmer and the consumer smaller (Pot & Termeer, 2010). This research will focus on this last type of UA and in the next parts of this study, ‘UA’ will refer to the small-scale urban agriculture.

2.1.3. Definitions

UA is defined by van Veenhuizen (2006, p. 2) as

“The growing of plants and the raising of animals for food and other uses within and around cities and towns, and related activities such as the production and delivery of inputs, and the processing and marketing of products.”

UA is located within and around cities and comprises of a variety of production systems ranging from the household level to a fully commercialized type (van Veenhuizen, 2006).

This can also be seen in the definition of Mougeot (1999, p. 10):

“UA is an industry located within (intra-urban) or on the fringe (peri-urban) of a town, a city or a metropolis, which grows or raises, processes and distributes a diversity of food and non-food products, (re-)using largely human and material resources, products and services found in and around that urban area, and in turn supplying human and material resources, products and services largely to that urban area.”

This definition makes a distinction between intra-urban and peri-urban agriculture.

2.1.3.1. Intra-urban agriculture

According to van Veenhuizen and Danso (2007) intra-urban agriculture is a form of UA that takes place within the inner city. Several areas within the city are vacant and under-utilized and are therefore perfectly suited for UA. They talk about temporary use of lands, community lands and private lands. They argue that intra-urban agriculture is more small scale, more subsistence orientated than peri-urban agriculture. This type of UA can consist of rooftop gardens, community gardens, home gardens, etc (van Veenhuizen and Danso, 2007, p.5). The
outer boundary is difficult to describe, but Mougeot (1999) takes parameters such as population sizes, density thresholds, travel distance and official city limits into account.

2.1.3.2. Peri-urban agriculture

Van Veenhuizen and Danso (2007) define the spatial borders of peri-urban agriculture to the urban periphery. Peri-urban agriculture undergoes dramatic changes over time, because of the changing features in this area. People from both the urban and rural areas migrate to this area, there is a constant rise in population density, land prices go up and there is a rising multifunctional land use (van Veenhuizen and Danso, 2007, p.5). Defining the outer boundary of the peri-urban area is also difficult. The influence of the city is, next to the criteria described in the previous paragraph, another possible criterion for defining this boundary (Mougeot, 1999).

2.1.4. Concepts

According to Mougeot (1999) the different definitions use different concepts which are visualized in Figure 1.

![Figure 1: Concepts of UA (Mougeot, 1999)](image_url)
2.1.4.1. Locations and areas

As can be seen in previous paragraphs, the location of UA can be split up into two parts of the city. The inner city (intra-urban agriculture) on the one hand, and the outskirts of the city, or the city fringe (peri-urban agriculture) on the other hand. The areas that UA occupies vary greatly. They can occupy an area temporarily, when the construction plans for a certain area are frozen or put on the long run. Permanent plots include private areas and communal areas. These plots can both be home plots or commercial plots (Mougeot, 1999).

2.1.4.2. Scale, destination and economic activities

The different phases that are included in most definitions are the production, the distribution and the processing phase. Because of the great geographic proximity, all these phases tend to be interrelated, both in time and space. This means that the consumption of the different products can be divided into self-consumption and trade with the local market. Because of this small scale usage of the products, most research has focused on the individual, small- and medium-scaled enterprises (Mougeot, 1999).

2.1.4.3. Products

The products that can be produced with UA vary greatly, but the main focus lies on the production of food for humans or animals. Also non-food activities are included in many definitions (such as integration, food security and economic and environmental benefits), meaning that UA interacts with a lot of urban functions (Mougeot, 1999).

2.2. Urbanization

The urbanization process of the last century made large cities our main habitat. Cities nowadays use too many resources, produce too much waste and the impact of the cities stretches far beyond their boundaries. This means that resources are coming from even more distant hinterlands, wastes are polluting the oceans and the atmosphere and it threatens the biodiversity. The rapid urbanization has also led to an increased poverty and food insecurity in the cities. This means that cities need interventions to eradicate hunger and poverty and to improve the quality of life (Roseland, 2005; van Veenhuizen, 2006). In order to create a sustainable world, cities need to transform into self-regulating, sustainable systems both in
their functioning and their relationship to the outside world (Deelstra and Girardet, 2000). Deelstra and Girardet (2000, p. 43) believe that “there can be no sustainable world without sustainable cities”. Mougeot (2005) argues that UA links cities with their environment. This is in line with the thoughts of Deelstra and Girardet (2000) who believe that because of the rising urbanization, cities have to consider reviving UA to reduce the demand for land surfaces elsewhere. Land is a very important element, because it has some very specific characteristics: it is fixed in supply and it is a unique resource. Therefore, land cannot be created and the demand for land keeps increasing. This means that agricultural land conversion (ALC) is happening all over the world (Azadi et al., 2012). As a result, the available land in the cities is very limited and is therefore a crucial factor in the integration of UA in urban land policies. UA can also have a temporal use on vacant or public areas. It can be combined with others functions like recreation, firebreak zones, new housing development plans and it can offer jobs and food. Urban areas often have the problem of contaminated soil and therefore one has to be careful to implement UA in urban areas (Deelstra & Girardet, 2000; de Zeeuw et al., 2000; van Veenhuizen, 2006).

2.3. Why Urban Agriculture

UA is usually seen as a reaction against the globalized food market and environmental degradation. In this respect, globalization is associated with environmental degradation and some people ask themselves the question whether the progress of globalization is worth the price (Koc & Dahlberg, 1999). They see the local food system as an answer to the processes involved with globalization. An important remark in this respect is called ‘the local trap’ (Born & Purcell, 2006). This means that local food systems are no more sustainable than any system at another scale. Born and Purcell (2006) defend this by saying that scale is a social construct and therefore the qualities of a given scale are contingent. They are a result of political struggles among different actors in certain times and places, so they have an agenda. It is this agenda, not the scales themselves, that produces the outcomes. The local trap refers to the fact that activists assume that the local is always better. Born and Purcell (2006) believe that those activists assume that the global agriculture is somehow the same thing as the capitalist agriculture and therefore the resistance to capitalist agriculture must be necessarily local. They argue that the outcome of a food system depends on the actors and agendas which are a result of the social relations in a given food system and that the claim of local production
is more ecological sustainability. There are linkages between the local food production and ecological sustainability, but there is a danger of linking scale to ecological goals. This means that the local isn’t necessarily better than the global (Born & Purcell, 2006). The social and economic benefits of the local food production have some critics. For example, existing inequalities within a community can allocate the gains in a way which makes the inequality even bigger. The quality of the food isn’t necessarily better within local food production systems, because they are less efficient than the global production system. The fact that food miles should be reduced is also open for discussion because sometimes it is desirable to have the transport cost over the degradation of local land. Some crops need a specific environment and to create such an environment artificially is less sustainable than growing those crops in their natural environment and then transporting those (Born & Purcell, 2006). Therefore, one should be very careful when defining local food systems.

UA offers a lot of opportunities for cities. The most important aspect is that it provides food security and healthy nutrition (Roseland, 2005; van Veenhuizen, 2006). UA can also improve the microclimate and conserve urban soils. It promotes recycling of waste and nutrients, it is good for the water management, it increases the biodiversity, it deals partly with global warming and atmospheric pollution and it raises environmental awareness. It is also important to create green spaces in the city and to give people the opportunity to create livelihoods for themselves (Deelstra & Girardet, 2000). There are however some constraints connected with UA as well. One of them is the potential health risk. This can be a result of contaminated urban soils, unhygienic handling of the products and the spread of human diseases. This is often a result of the fact that poor urban producers often operate on illegally, marginal and hazardous sites. UA can also contaminate water sources if overly high inputs of chemical fertilizers and pesticides are used (Mougeot, 2005; van Veenhuizen, 2006). It is also difficult for farmers to get the proper licenses to practice agriculture around cities and finally farmers in cities have to deal with a lot more vandalism than normal farmers (Danckaert et al., 2010).

In this respect UA is not only a superior approach to create sustainable cities, but also considering climate change because it is a reaction against environmental degradation and it helps conserve the natural environment. This is in line with the views of New-Ruralism which seems a better answer to these problems than New-Urbanism. The New-Urbanists focus on high density centers with mass consumption and they promote large scale, industrialized
farming with ‘fast foods’ which are non-organic, large-scale and highly processed, meaning they have a good answer to a growing population. This is in contrast with New-Ruralism which produces ‘slow foods’ that are organic, fresh and low processed. They try to conserve agro-ecosystems and they promote small and medium-scale farming. They focus on low-density peripheral communities that consume less than the highly populated areas (Azadi et al., 2012). This means for example the elimination of the food transport (‘food miles’), and the chemical inputs which pollute the area of the agricultural land. These qualities can also be seen in UA and the comparison between UA and New-Ruralism is easily made.

This discussion also shows where UA can be best implemented. The Western, developed world is highly industrialized and already has a mass consumption pattern, so it is suggested by Azadi et al. (2012) that they may prefer to focus on improving the quality of productions, human health and environmental health. In this respect UA can be a good solution for the developed world. This is also true for the emerging economies, because they urgently need to mitigate their environmental pollutions. In the less developed world there is still much famine and low production quantities. Therefore it might be good that they implement New-Ruralism in their policies to prevent the famine. Because of the lack of job opportunities in the cities, New-Urbanism can increase the famine and the problems in the less developed world (Azadi et al., 2012).

2.4. Different forms of Urban Agriculture

There are many different forms of UA, but a distinction is made between 8 types of UA which can be split up into three groups. These groups are based on the integration in the urban system, which depends on the kind of economic activity (Danckaert et al., 2010):

- Non-commercial farms:
  - Micro farming: This type is practiced on balconies, rooftops, gardens, windowsills. It is mainly produced for own consumption, but leftovers are sold or given to family or friends. This type includes the production of vegetables, fruits, ornamental plants, herbs and sometimes small animals like chicken or rabbits.
  - Urban gardening: Plots on specially created areas are rented to inhabitants where they grow vegetables, fruits, ornamental plants and herbs and they use it for their own consumption, but leftovers are sold or given to family or friends.
o Institutional gardening: This type has an educational or therapeutic purpose. They are located within schools, hospitals, prisons, etc.

- Market-oriented UA:
  o Small-scale (half) commercial agricultural and horticultural companies: They grow vegetables, fruits, herbs and plants which are produced for the market and for their own use. They are usually located in peri-urban areas.
  o Small-scale (half) commercial livestock or aquaculture enterprises: They grow poultry, cows, pigs, fish or shellfish which are produced for the market and for their own use.
  o Specialized UA: They produce specialized products like mushrooms, flowers and pot plants. They produce for the market and they are small to large scaled. They can become intensive in technological companies.
  o Large-scale agro companies: They produce on a large scale and are therefore located in the peri-urban areas. They produce for the market and use advanced technologies and fertilizers.

- Multifunctional UA: This type offers not only agricultural products, but also services like tourism, education and recreation. They are mainly peri-urban, but sometimes intra-urban like a petting zoo. Market oriented agriculture is always multifunctional because it delivers side products like beautiful landscapes.

Table 1 gives an overview of the most important forms of UA which are discussed in literature and their specific advantages. They are discussed in detail under the table.

**Table 1: Different forms of UA and their advantages**

<table>
<thead>
<tr>
<th>What?</th>
<th>CSA</th>
<th>Community gardens</th>
<th>Farmers markets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Consumers buy shares.</td>
<td>- Growing together with friends and neighbors.</td>
<td>- Farmers sell their food directly to the consumers.</td>
</tr>
<tr>
<td></td>
<td>- Weekly delivery of food.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advantages</td>
<td>- Risk sharing</td>
<td>- Social interaction</td>
<td>- Direct contact between farmers and consumers</td>
</tr>
<tr>
<td></td>
<td>- Fresh, organically grown food</td>
<td>- Fresh, organically grown food</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Information about food</td>
<td>- Benefit community</td>
<td></td>
</tr>
</tbody>
</table>

19
The most common forms of UA are community supported agriculture (CSA), community gardens and farmers markets. These forms of UA help to break down the urban-rural divide because it connects people with food and people with people through a virtual community (King, 2008). The people involved in those projects have a certain profile. The majority of the members are white, affluent and educated. Worldwide it is estimated by van Veenhuizen (2006) that around 65 percent of the urban farmers are women. They tend to be middle-aged and there is a positive correlation between income and CSA membership (Lang, 2005). This means that there is a problem of exclusion, which exists in all forms of UA. This includes a contradiction because UA can have substantial economic benefits, especially for poor people. They can get an income of sales from the surplus and they can save on household expenditures by growing their own food (van Veenhuizen, 2006). There are many strategies to overcome this income barrier, for example the acceptance of government food assistance, payment plans, working shares and subsidized low-income shares (Forbes & Harmon, 2007).

2.4.1. Community supported agriculture

Community supported agriculture is a social movement in which the people try to make a connection between the producers of food and those who consume it (Abbott, 2000). Participants purchase a share in a farm in the beginning of the season. They pay the real cost of production and they support local, small scale farmers by paying them a guaranteed income. The shareholders thus share the risks with the farmer (Abbott, 2000; Roseland, 2005). In return, the shareholders get weekly shares of fresh, locally grown food during a certain amount of weeks, depending on the region (DeLind & Fergusson, 1999).

2.4.2. Community gardens

According to Guberman (1995) (as cited in Roseland, 2005, p. 52), “Community gardens provide a means of gardening and growing together with friends and neighbors. Gardens range in size, location and participation; they can be small, local neighborhood gardens in vacant lots or parks, communal rooftop gardens, or municipally maintained allotment gardens”.

2.4.3. Farmer’s markets
In a farmer’s market, farmers from the local area sell their food directly to the public. The advantages are numerous: the food is locally grown, the money goes directly to the farmers, it guarantees a decent income for the farmers, it encourages face to face interaction, it creates communities and it avoids destructive efforts of the global trading system. Farmer’s markets can strengthen local markets (Koc & Dahlberg, 1999) and they form an alternative to export markets.

2.5. Urban agriculture in Brussels

After this theoretical part about UA, this part will focus on Brussels. This part will describe the role of agriculture in the larger area of Flanders and Belgium using some previous studies and it will describe the social and economic structure of Brussels. Table 2 gives an overview of some basic facts and figures about Brussels.

<table>
<thead>
<tr>
<th></th>
<th>Belgium</th>
<th>Brussels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>30,528 km²</td>
<td>161,4 km²</td>
</tr>
<tr>
<td>Population</td>
<td>11,082,744 (1/1/2013)</td>
<td>1,147,043 (1/1/2013)</td>
</tr>
<tr>
<td>Population density</td>
<td>363 people/km²</td>
<td>7,107 people/km²</td>
</tr>
<tr>
<td>Population growth</td>
<td>+24% (2010-2060)</td>
<td>+35% (2010-2060)</td>
</tr>
<tr>
<td>Main economic sector</td>
<td>Services</td>
<td>Services (88%)</td>
</tr>
<tr>
<td>Employment rate</td>
<td>62,0%</td>
<td>54,8%</td>
</tr>
<tr>
<td>Agricultural workforce</td>
<td>1,3% (2011)</td>
<td>0,09% (2009)</td>
</tr>
<tr>
<td>Climate</td>
<td>Temperate</td>
<td>Temperate</td>
</tr>
</tbody>
</table>

2.5.1. The European context

At the European level, UA is not promoted a lot. This is probably due to the separation between the urban and the rural (Deelstra et al., 2001). In Europe, over 80 percent of the population lives in urban areas and cities have become largely disconnected from their surroundings. After the Second World War, agricultural policies in Europe turned agriculture in a food generator in which the people from the city had no affinity with. In this policy the social and environmental benefits were ignored (Danckaert et al., 2010). Nowadays the problems are being recognized and solutions are being offered, based on the multifunctional nature of (urban) agriculture (Deelstra et al., 2001). In order to create high quality, healthy
and attractive living environments, a mixture of land uses is preferable over the clear separation of land uses.

According to Cabus and Vanhaverbeke (2003), Flanders is located at the heart of the densely populated European central capital region. In this environment cities play an economically and demographically important role which creates spatial pressure and suburbanization. Keeping this in mind, it is important to state that urban and rural areas play complementary roles and are rather partners instead of competitors. They both have specific characteristics and qualities which complete each other.

2.5.2. Different interpretations of the concept

All over the world urbanization is taking place with implications for the functional use of the space. Urban and rural areas are getting more and more entwined and they meet each other in the peri-urban areas. The traditional spatial division between the countryside and the city, where the city was destined for the industry and the countryside for agriculture, is fading (Danckaert et al., 2010). This is especially the case in Flanders where the Christian-democratic governments promoted living in the rural areas where they could keep the people ‘under the church tower’. This policy created the densely urban area that Flanders is today (Kesteloot, 2000) and this also created the notion that Flanders can be seen as one big urban area. Despite this image, there is still a clear hierarchy between big cities (Brussels, Ghent and Antwerp), regional cities (for example Aalst and Brugge) and some fifty small cities (for example Diksmuide and Eeklo) (Danckaert et al., 2010).

Because of the trend towards urbanization, functions like living and industrial production are finding their way into the countryside. But it also works the other way around: agriculture is finding its way back into the city. This means that the interdependence between the urban and rural areas is rising. There are however different interpretations of the concept of UA around the world. In developing countries UA is seen as a way to survive, but in the developed world, UA offers an answer to the rising demand to sustainable, green and livable cities, locally produced food, education, recreation opportunities, open spaces and a beautiful landscape (Danckaert et al., 2010). It is this last interpretation of UA that applies to Brussels.

2.5.3. The context of Brussels
Figure 2 gives an overview of the urban regions in Flanders (Danckaert et al., 2010). It can be noted that Brussels is the largest of these areas and the suburban areas around the cities are expanding, which is a result of the fleeing from the city.

![Figure 2: City regions in Flanders (Danckaert et al., 2010)](image)

This fleeing from the city was accelerated during the after war period as a result of four phenomenon. First, the Belgian government has always promoted to live in the countryside, which is a result of the Christian-Democratic policy. Secondly, the early adaptation of the Fordist economy\(^1\) in Belgium resulted in rising wages and better social security, meaning that people would move out of the city to a more pleasant environment on the countryside. This left the door open for migrants to live in the city. The third phenomenon was the lack of spatial planning to limit urban sprawl which permitted cheap buildings in the rural areas. And finally, after the Second World War there has not been any significant demographic pressure on the housing market (Kesteloot, 2000).

This means that the peri-urban areas are very well developed in Belgium and they form the link between the rural and the urban regions. This is also the area in which most research has been done, not only in Flanders and Belgium, but also in Europe (e.g. Danckaert et al., 2010; Errington, 1995; Cabus & Vanhaverbeke, 2003; Van Huylenbroeck et al., 2005; Kesteloot, 2000).

---

\(^1\) A Fordist economy originated in the war industry where Henry Ford expanded Taylorism (Taylorism is a very strict separation between the organization and the production process) with mechanization. In a Fordist economy there is mass consumption and mass production because both supply and demand are high. By giving the workers a higher wage, they could consume more and as a result there was an upward social mobilization (Lipiets, 1997).
Vandermeulen et al., 2006). Because they are close to the urban region, they are under pressure from migration and urbanization, especially in Belgium (Cabus & Vanhaverbeke, 2003).

Other important aspects that should be mentioned regarding Brussels are (Brussels Instituut voor Leefmilieu, 2011):

- Brussels is the capital of Europe with an international dimension.
- Brussels is a gastronomical and touristic location.
- There are strong local and multicultural dynamics with a rising multicultural population.
- There are a lot of commuters and tourists.
- There was an urban fled which resulted in a lowering of the social mixture, because the middle class is choosing to leave the city (Verdonck et al., 2012).
- The average wages are significantly lower than in the rest of the country (Verdonck et al., 2012).
- The number of unemployed people is significantly higher than in the rest of the country. The percentage of unemployment in Brussels in 2011 was 16.5 percent, compared to 10.3 percent in Wallonia and 5 percent in Flanders (Verdonck et al., 2012).
- The above characteristics were rising as a result of the economic crisis. The result of these characteristics is a lowering of the social cohesion in the city (Verdonck et al., 2012).

2.5.4. Agriculture in Brussels

The large urbanization of the rural areas has its implications for the agricultural sector. About one quarter of the Flemish agricultural land and the agricultural companies are located in the urban areas (see Figure 3). Because of this, agriculture is important in keeping open spaces in the city and it can greatly contribute to a green and livable city region. It should be noted however, that most of the agricultural land and these companies are located in the peri-urban regions (Danckaert et al., 2010).
These areas are under great pressure from the rising urbanization and the accompanying gardening of the rural areas. Table 3 gives an overview of the decline in agricultural land of the urban areas in Flanders. This table shows that the decline is largest in the big cities, center cities and the city regions around Brussels. It is expected for 2030 that this decline will continue. Other influencing factors are the rising suburbanization, the increase in infrastructure and the accompanying fragmentation, a strict environmental policy and spatial planning. This pressure of the land results in higher prices and a rising specialization and intensification (Danckaert et al., 2010).

In the study from Van Huylebroeck et al. (2005), they show that the proximity of the city plays a very important role in the knowledge and perception of agricultural practices. The closer the people live to the city, the less agricultural knowledge they have and the less contact they have with farmers. The study showed that the closer the farmer was to the city, the more active diversification and less environmental policies they encountered. The city has more potential consumers and extra gains are created. The distance to the city was however not enough to explain the differences; the area-based and local support also plays an important role.

Figure 3: Agricultural company headquarters in the urban areas (Danckaert et al., 2010)
In recent years there is a drastic decline in the number of people active in the agricultural sector. In Belgium the numbers have dropped from 113,000 in 1980 to 43,000 people in 2010. This decline can also be visualized in Figure 4, which represent the decline in the amount of agricultural companies and the decline in utilized agricultural areas (UAA) in Brussels. Despite the drop in employment, the second trend that can be noted is the rise in biological agriculture (Verdonck et al., 2012).

There is however a huge potential for UA in Brussels. According to Verdonck et al. (2012), only 19 percent of the population cultivates vegetables. 27 percent claims that it wants to begin with a vegetable garden, 85 percent has access to a garden, balcony or terrace and only 25 percent of the population says that it has absolutely no interest in UA. UA takes many forms in Brussels, from normal vegetable gardens, to aquaculture, vegetable gardens in
schools and public gardens. Only 0.79 percent of the green spaces are used for vegetable production. Compared to some foreign examples like Leipzig or Berlin, where 14 percent of the green spaces are used, there is still a lot of potential. The study of Verdonck et al. (2012) concludes that UA in Brussels can generate over 6,000 jobs in the different sectors involved (for example production, distribution, restoration, consultancy and formations). This study also speaks of a trend towards more sustainable food and UA all over the world. They emphasize this by pointing out that different concepts like ‘slow food’, vegetable gardens and biological products are becoming more and more important.

2.5.5. Policy goals regarding UA

The national policy aims to develop the large city regions harmoniously with a good economic development and with special attention for the specific problems of large cities (poverty, unemployment, migration, etc.). The federal government also developed a service to investigate sustainable consumption and production patterns, including UA. Brussels has ‘sustainable city’-contracts which are made to improve the social cohesion of the problem areas, to improve the ecological footprint and to improve the appearance and interactions between cities (Danckaert et al., 2010).

The policy in Brussels is aiming to reach their educational and social goals by developing the vegetable gardens. It is also part of the plan to make Brussels an example of sustainable food consumption. They see the urban gardens as a way to create a shift in the thoughts of the people to make better food choices and new attitudes. Urban gardens are used to create sustainable food in the city, to teach people the rhythms of nature, to make the people aware of local vegetables and to create solidarity and cosines (BIM, 2011).

Some problems and questions arise when food is grown in the city. The main problems the Brussels Capital Region (BCR) is taking up in their policy are: the land scarcity, the relation between the soil quality and the quality of the vegetables, the lack of knowledge and skills, the lack of a structure that coordinates the actions and the lack of juridical and planning measures (BIM, 2011).

In order to reach their goals, the BCR has an action plan. The first action point is the development of vegetable gardens in the city. They are also making an inventory of the current and potential vegetable gardens, the quality of the soils and the development of
different kinds of projects. The second point is to stimulate and support the development of vegetable gardens. They make space available, give information and organize activities. The third action point is that all gardens be environmentally friendly. Fourthly, they promote and organize formations of urban farmers and finally they develop beehives in the city (BIM, 2011).

2.6. Foreign examples

It is also important to take a look at some foreign examples. It is for example interesting to note that cities like Dakar, Shanghai or Hanoi can produce between 60 to 80 percent of their food needs within the urban fabric (Verdonck et al., 2012). Singapore is even completely fully self-sufficient in meat production (Deelstra & Girardet, 2000).

The structure and the specific context of the cities make sure that there are a lot of differences between them. It is clear that UA in Brussels doesn’t take the same proportions as UA in Vancouver or New York. In Vancouver, for example, 27 percent of the total farm receipt of the province is produced in urban farms (Broadway & Broadway, 2011). Compared to those cities, Brussels is a very small city and if one looks at the specific Belgian context, the people in Belgium (and a smaller part in Brussels) still have a connection to the rural areas. This is a result of the lack of a spatial division of functions in Belgium, which resulted in a very fragmented country with a very rapid urbanizing rural area.

The Vancouver action plan states that Vancouver will be a global leader in urban food systems with the goal to reduce the city’s food carbon print with one third by 2020 (Broadway & Broadway, 2011). The authors of the article state that despite the efforts of the government to promote UA, these efforts have not significantly affected the availability of locally produced food in supermarkets. Supermarkets are not willing to change the way they currently operate, because the implementation of local suppliers would increase their operational costs which would result in higher food prices (Broadway & Broadway, 2011). Farmers markets on the other hand are very well developed in Vancouver (Verdonck et al., 2012).

An example more close by is London. This city is also embedded in a European context and it has a very unsustainable food consumption. In London 29 percent of vegetables and 89 percent of fruits are imported (Garnett, 2000). Garnett (2000) speaks of a potential of 18
percent from the total food supply that could be produced with UA. She found in her research that UA can have a positive contribution on health. London has for example 136 gardening projects with a health remit. On the environmental side the effects are limited because 75 percent of the gardeners use insecticides despite the trend towards organic farming. In the year 2000, London did not have any commercially viable projects. They see the main economic impact on the savings the people make. The greatest job opportunity is expected in the edges of the city, and in the center formations are seen as a great surplus value. In the year 2008 a conference on UA in London revealed that it is very hard for urban farmers to be economically viable. In a report from Dunmall (2008), it seems that all farmers have the same problems: vandalism, decreased availability of labor, rising housing costs and complaints from neighbors. Garnett (2000) sees UA as a way for environmental education and to create innovations. One of the greatest advantages according to the London government is however the community aspect. The limiting factors are the rising urbanization, the accompanying rising land prices and the contaminated grounds. A requirement for the future of UA in London is undoubtedly the political support at all the different levels. Garnett (2000) sees UA not only as a way to produce food in a holistic way which integrates economic, social, health and environmental aspects. According to Garnett (2000), the important underlying factor is that UA is a metaphor for social change, for catalyzing new ways of thinking about the society, the economy and the environment.

3. METHODOLOGY

3.1. Feasibility study

According to Urkiaga et al. (2006) the word ‘Feasibility’ means within the context of most guidelines the following:

“The degree to which a given alternative mode, management strategy, design or location is economically justified; the degree to which such an alternative is considered preferable from an environmental or social perspective; the degree to which eventual construction and operation of such an alternative can be financed and managed”.

Thus they define feasibility as “an evaluation or analysis of the potential impact of a proposed project or program”.

According to Arain et al. (2010, p. 4):
“Feasibility Studies are pieces of research done before a main study. They are used to estimate important parameters that are needed to design the main study”.

This means that feasibility studies don’t evaluate the outcome of a research. This is reserved for the main study. Shen et al. (2010) argue that a “feasibility study is the first and most important thing before undertaking project design and construction”. In order to conduct a proper feasibility study, one has to embrace the principles of sustainability, which is defined as:

“to meet the basic needs of the public and to extent opportunities to satisfy their aspiration for a better life without comprising abilities of future generations to meet their own needs” (Shen et al., 2010, p. 1).

These principles are expressed by the three pillars of sustainability. These three pillars are the economic, social and environmental pillars. In most research the focus of the feasibility study lies on the economical aspect which is partly due to the profit-driven culture. To measure the economic pillar, one selects attributes that reflect market availability, project financing and economic benefit from implementing a project. The social attributes mainly reflect the influence to the local social development. The environmental attributes usually reflect the four major environmental pollutions (air, noise, water and waste). This means that every feasibility study focuses on certain aspects, and that sometimes parts are neglected (Shen et al., 2010).

3.2. Multi-stakeholder analysis

In UA, a multi-stakeholder approach is desirable because UA takes place in a multi-sectoral environment, it touches a large number of urban areas and it involves various sectors and disciplines (van Veenhuizen, 2006). The most widely known definition of a stakeholder is the one from Freeman:

“Any group or individual who can affect or is affected by the achievement of the organization’s objectives” (As cited in Simmons & Lovergrove, 2005, p. 496; Roloff, 2007, p. 235).

Stakeholders can have a direct stake in the organization, like shareholders of a company, the workforce and labor union. They are called primary stakeholders. Secondary stakeholders have an indirect stake in the organization, like non-governmental organizations and social movements who need to formulate a stake in the company in order to qualify as a stakeholder.
However, this study holds a multi-stakeholder analysis and most multi-stakeholder approaches are tripartite with representatives from business, civil society and the state (Rollof, 2007).

3.3. Defining the stakeholders

As can be seen in the definitions given in the literature review, UA is about small-scale, controllable, locally produced and ecological agriculture. It is about bringing the people closer to the food, food security and making the distance between the farmer and the consumer smaller (Pot & Termeer, 2010). There are four different stages in UA. The first one is the acquisition and utilization of the necessary resources, inputs and services and will be called the ‘pre-production’ process. The second stage is the production of the goods, the third is the ‘post-production’-process, which includes processing, packaging, distribution, marketing and recycling. The final stage is the consumption itself (Baumgartner & Belevi, 2001).

If one looks at these different stages, it is clear that UA has a very wide range of possible stakeholders (Baumgartner & Belevi, 2001). This dissertation will not include all these stakeholders, because the time is too limited to include all these stakeholders. Secondly, not all these stakeholders are necessary to determine whether UA is feasible in Brussels. A selection of these stakeholders will be made and they will include representatives from the government, academics, legislative institutions, business leaders and public interest group representatives (Aerni, 2009). According to De la Vega-Leinert et al. (2008), Selection criteria should include sectoral expertise, knowledge on climate and environmental issues, general interest for scientific issues and an open, curious and critical mind. This study will also use three case studies of projects in Brussels to compare with the results.

3.3.1. Government

The Government has a very important stake in UA (De la Vega-Leinert et al., 2008). The government provides the legal framework for UA and it regulates the accessibility of land. According to Baumgartner and Belevi (2001), cities where UA is neglected by the government have a very low UA activity. In this sense one can say that governments’ actions are necessary for UA and that their functions are very multidimensional.
The stakeholders that are chosen to represent the government are the ministries that have a stake in UA and representatives from municipalities. The selection of the ministries is based on the description of their functions (Brussels capital region, 2012). The selection criteria for the municipalities are random.

3.3.2. Businesses

The businesses are a bit more difficult to define because they can be involved in many different aspects. Suppliers, credit providers, processors and vendors are just a small percentage of this group (Baumgartner & Belevi, 2001). These groups are however not included in the study because they have an indirect stake in UA.

To select the businesses, the internet was searched for relevant articles and documents released by the government about UA in Brussels. In this way, the most important businesses could be identified.

3.3.3. Civil society

For the civil society there are also subdivisions: consumers, academics and organizations are the three main groups (Baumgartner & Belevi, 2001; De la Vega-Leinert et al., 2008). Because there are a lot of consumers, they are not used in this study because they would require a quantitative analysis. The role of scientists is very important because they can improve the cooperation between the different stakeholders by implementing certain methodologies, they provide new technologies for food production (van Veenhuize, 2006) and they offer a reality check of the more abstract assumptions of the scientific literature (De la Vega-Leinert et al. 2008). The academics that are selected have either done research on UA or on Brussels. Organizations are selected based on their appearance in relevant articles and policy documents found in internet searches. Table 4 gives an overview of the different stages in which the stakeholders are involved.
Table 4: The stages in which the stakeholders are involved

<table>
<thead>
<tr>
<th>Food chain stages</th>
<th>Multi-Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Businesses</td>
</tr>
<tr>
<td></td>
<td>Farmer</td>
</tr>
<tr>
<td>Pre-production</td>
<td>X</td>
</tr>
<tr>
<td>Production</td>
<td>X</td>
</tr>
<tr>
<td>Post-production</td>
<td>X</td>
</tr>
<tr>
<td>Consumption</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 5 gives an overview of the different stakeholders, the group sample, sample size and the kind of analysis that will be used and why.

Table 5: Analysis overview

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Group sample (N)</th>
<th>Sample size (n)</th>
<th>Qualitative Analysis</th>
<th>Quantitative Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>BCR 6</td>
<td>2</td>
<td>Explanation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Municipality 19</td>
<td>4</td>
<td>Explanation</td>
<td></td>
</tr>
<tr>
<td>Businesses</td>
<td>Urban Farmers</td>
<td>Unknown</td>
<td>Explanation</td>
<td>Validation</td>
</tr>
<tr>
<td></td>
<td>Specific 2</td>
<td>1</td>
<td>Explanation</td>
<td>Validation</td>
</tr>
<tr>
<td>Civil society</td>
<td>End-users</td>
<td>Unknown</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Academics</td>
<td>Unknown</td>
<td>3</td>
<td>Explanation</td>
</tr>
<tr>
<td></td>
<td>Organizations</td>
<td>Unknown</td>
<td>4</td>
<td>Explanation</td>
</tr>
</tbody>
</table>

Figure 5 gives the conceptual framework of this study, based on the literature review and the methodology.
3.4. Study area

The study area is the BCR. The Brussels capital region is situated in a larger urban conurbation (Figures 6 and 7). It consists of the core city and the edge city. It is that part of the landscape that is contiguously built with houses, public buildings, industrial and commercial buildings, including traffic routes, parks, sport areas, etc. The urban conurbation is bordered by a zone consisting of agricultural areas, forests, desolate grounds and scattered dwellings. Based on this figure, one could argue to expand the study area to the larger conurbation of Brussels, but because of practical reasons, the study area is limited to the Brussels capital region. The Brussels capital region consists of 19 communities: Anderlecht, Oudergem, Sint-Agatha-Berchem, Brussel, Etterbeek, Evere, Vorst, Ganshoren, Elsene, Jette, Koekelberg, Sint-Jans-Molenbeek, Sint-Gillis, Sint-Joost-ten-Node, Schaarbeek, Ukkel, Watermaal-Bosvoorde, Sint-Lambrechts-Woluwe and Sint-Pieters-Woluwe (Van Hecke et al., 2009).
Figure 6: The morphological and operational agglomeration

Figure 7: Rural and Urban regions in Flanders: Schematic map (Cabuš & Vanhaverbeke, 2003)
This study also includes three cases which will be compared with the results of this study. The first case is an area that already has an existing form of UA, located in Neder-Over-Heembeek. The second case is an area with a recently developed form of UA, located in Brussels city, and the last case is an area where there is a plan to develop UA, located in Anderlecht (Figure 8).

![Location of the study areas in Brussels](image)

**Figure 8: Location of the case studies in Brussels**

### 3.5. Research method

There are two possible methodologies for this study. The first one is a qualitative analysis and the second one is a mixed method approach. A quantitative analysis will not be used because there has not been much research for Brussels on which this study could be based to make a quantitative study. Since a qualitative research provides a better understanding of the phenomena (Leech & Onwuegbuzie, 2007), this type of analysis is preferred to better understand the case of Brussels. Other factors that argue in favor of a qualitative approach are that the data can be collected in close proximity to the specific situation, it can enrich the information, reveal complexities and find solutions for certain problems (Leech & Onwuegbuzie, 2007). The disadvantage is that quantitative analysis permits statistical conclusions whereas qualitative analysis only involves sampling to enhance the understanding
of the case (Sandelowski, 2000). Since there is little understanding of the processes in Brussels, the best analysis would be a mixed method analysis, combining both a qualitative and a quantitative analysis. This would allow the researcher to achieve some confirmation of the data, complete (clarify, explain or elaborate) the results of analysis and to guide the use of additional sampling, data collection and analysis techniques (Sandelowski, 2000). Because this is only a master’s dissertation, the time is too limited to conduct a research of this magnitude, and it will only cover the qualitative part to make a better understanding of the specific case of Brussels to allow further research in the future.

A qualitative research can be based on many different types of data, like interviews, journals surveys, observationals, etc (Leech & Onwuebuzie, 2007). Because the purpose of this study is to gain a better insight of UA in Brussels, this study will use interviews (see Annex 2 for the interview questions) and documents released by the Brussels institute for the environment. In this way the main actors that are involved in UA in Brussels can explain their vision and can help to enrich the information about UA in Brussels.

The qualitative analysis of this research is further defined as a qualitative content analysis. According to Elo and Kyngäs (2007) a qualitative content analysis is “a method of analyzing written, verbal or visual communications”. It can be used with a deductive or an inductive approach. A deductive approach is used when previous knowledge is used to operationalize the structure of analysis and an inductive approach is used when there is not enough former knowledge (Elo & Kyngäs, 2007). This study will combine both approaches because there is not enough knowledge about Brussels to use a completely deductive approach. It is clear from the literature study that the economic, social and environmental aspects are very important in UA. Other possible important aspects are the educational aspect, the sensitization aspect, the contribution to the food security of the city, the urbanization problem, the political aspect and the multifunctional aspect. The importance of these last aspects will be determined with an inductive approach.

For this study, the interviews were recorded and a transcript was made. The stakeholders are represented anonymously and each of them is given a number (see Annex 1). After the transcript is made, the interviews are analyzed. According to Elo and Kyngäs (2007) a qualitative content analysis consists of three phases: the preparation phase, the organizing phase and the reporting phase. Each phase is accompanied by extensive reading of the texts.
In the preparation phase the unit of analysis is chosen (Elo & Kyngäs, 2007). In this case the unit of analysis is not a word or a sentence, but a meaningful paragraph. In the organizing phase the data is coded in categories. In this phase there is a difference between the inductive and the deductive codes. Inductive codes “emerge from the data” (Leech & Onwuegbuzie, 2007) and are developed while reading the texts while notes and headings are created (Elo & Kyngäs, 2007; Hennink et al., 2011). Deductive codes are “identified prior to the analysis and then looked for in the data” (Leech & Onwuegbuzie, 2007; Hennink et al., 2011). The categories are named using content-characteristic words and subcategories are created to define similar meanings and events. It is important to note that the encoding-process is a data reduction process, so the codenames should be short and easy (Russel, 2000, p. 446). The categorization process is a way to provide the means of describing the phenomenon and issues raised throughout the data. It increases the reader’s understanding of the data and it generates knowledge (Elo & Kyngäs, 2007). After the coding process is done a codebook is made (see annex 4). This is simply a list with all the codes which are relevant to the empirical data (Russel, 2000, p. 446). This process is also called “constant comparison analysis” or “coding”. This type of analysis will be combined with a classical content analysis in order to better answer the research questions. The classical content analysis is very similar to the constant comparison analysis, but in this type of analysis the researcher counts the number of times each code is utilized. In this way the most important codes can be found and the most plausible explanation can be found (Leech & Onwuegbuzie, 2007).

The analysis of the data is not done manually, but with a computer-assisted qualitative data analysis software (CAQDAS) program called Nvivo. CAQDAS programs allow the researcher to record, store, index and sort voluminous data. This is not only easier to analyze the data, but it also allows the researcher to take the analysis of qualitative data significantly further than when the analysis is done manually. It should be noted however that CAQDAS programs only help with the analysis; they cannot analyze the data for the researcher. The researcher stays the main tool for the analysis regardless of whether a computer program is used (Leech & Onwuegbuzie, 2007).

This study will also try to optimize the reliability and the validity which are very important aspects of qualitative studies. To increase the rigor and trustworthiness of a qualitative research, Leech and Onwuegbuzie (2007) suggest three procedures: 1) use more than one type
of analysis, 2) assessing the interrater reliability and 3) member checking. Since this study pursues reliability and validity, more than one type of analysis will be used in this study. To assess the interrater reliability the overall agreement between several topics will be determined. Finally, member checking involves showing the findings and/or the interpretations to the participants for an assessment of the accuracy and is used to increase the validity of the research. It is furthermore important to note that the researcher plays a very important role in the validity of the research. It is very difficult to stay objective, because the opinions of the researcher will influence the interpretation of the data (Elo & Kyngäs, 2007). Therefore the researcher needs to critically reflect on his background and his own opinions related to the subject. In this way the researcher strives to an optimal level of objectivity (Hennink et al., 2011).

4. RESULTS

The data are obtained from 15 in depth interviews from the different stakeholders defined in the previous section. First the different aspects (or pillars) of UA are determined. Secondly, the different pillars are analyzed separately. Third, the limitations that exist for UA are examined and some possible solutions are given. Fourthly, some possible scenarios of evolution for UA in Brussels are given and finally, the research questions are answered. Each paragraph starts with a comparison between the different topics which is examined more in depth by comparing the responses of the different groups of stakeholders against each other. The quotations are in translated, but a list with the original quotation can be found in annex 3.

4.1. Pillars of UA

As stated in the literature study, a feasibility study is usually based on three pillars, an economic, social and environmental pillar (Shen et al., 2010). The literature study showed however that there were other aspects which were equally important in UA. This also became clear while interviewing the respondents meaning that other aspects have to be included.

The first possible aspect that can be added is food security (Roseland, 2005; van Veenhuizen, 2006). The second possible aspect is that UA can improve the awareness of the people concerning certain environmental issues (Deelstra & Girardet, 2000). Danckaert et al. (2010) argue that aspects like education, recreation and tourism are also important aspects related to UA.
None of the interviewees talked about tourism as an aspect that can influence UA. The recreational aspect was touched a couple of times, but only by 4 of the interviewees. Food security, education and the awareness of the people on the other hand, were aspect on which most respondents agreed that it was important for UA. The educational and sensitization function were among the most important aspects of UA. This will be discussed more in detail in the next paragraph.

4.2. Comparing the pillars

The overall importance of the different aspects can be seen in Figures 9 and 10. Figure 9 shows how the different aspects are perceived by the respondents today. It is clear that the social aspect is the most important one. The second most important aspect is the sensitization function and the third one is the educational function. The ecological function is less important today, but especially the food security and the economic function appear to be very unimportant.

Figure 10 shows the perception of the future importance of the different functions. It is clear that the views about the future differ a lot of from the current observations. The aspect that immediately stands out is the economic aspect. Whereas today it is the least important function, in the future it should become the most important one. After that, the social, sensitization and educational function are almost equally important in the future. The two least important aspects in the future will be the ecological and the food security function. This means that the trend that is perceived today should stay more or less the same in the future with the difference that the economic function changes from the least important to the most important function.
4.2.1. Food security

As can be seen in Figures 9 and 10 food security is not an important aspect of UA in Brussels. The importance of food security rises, but not significantly. If one takes a closer look at the food security aspect (Figure 11) it is clear that only the municipalities and the organizations think it is important now. This is in contrast with the future importance, which is carried out by all stakeholder-groups. However, the future importance of food security has to be nuanced. S1 said for example that UA can have an impact on food security, but on the long term:
“I think it can have an impact, but more on the long term, especially because the population is rising.”

It is clear that the food security aspect is more important in the future than it is now. The third variable which can be observed on Figure 11 is titled ‘limited importance’. This refines the importance of food security even more, because most respondents answered that the impact of UA was too limited to make an actual contribution to the food security of the city:

“Food security; that is more ideological than real.” (S9)

“Food security is something secondary.” (S11)

S13 argues that UA can contribute to the food security in specific cases, but speaks of a maximum percentage of food security that can be achieved when all possible plots in the city will be planted:

“When all possible sites would be cultivated, 8% of the population of Brussels could be fed. In specific cases it can contribute to the food security. There are already cases where families eat home grown vegetables all year round.”

![Figure 11: Opinions about Food security](image)

It is clear that the opinions about food security are very mixed, but the overall tendency was that the impact of UA on food security is very limited.

4.2.2. Ecology

If one looks at the ecological function, it is clear that it is more important than the food security aspect. The future importance is however not that much different. This means that, in
contrast to the food security aspect, the ecological aspect declines in importance (Figure 12). The policy documents released by BCR formulate in a clear way why the ecological function is so important today:

“Food production without chemical inputs, located in dense areas, is preferable for the development of biodiversity in the city, but also to reduce the global ecological footprint of urban lifestyles.”

The reasons why the ecological aspect is important in the future are very similar to the current reasons. The reasons for the decrease can be found in the final two parameters in Figure 12, namely ‘small impact’ and ‘not enough knowledge’. The parameter ‘small impact’ means that despite UA has an ecological function, its overall impact on the environment is very small. S5 states that auditing is necessary because it is not sure that UA is an improvement of the environment:

“Auditing is necessary in the ecological point of view. It is not sure that UA is an improvement of the environment when for example trees would be planted instead.”

S12 even questions whether UA has a future on the ecological side:

“Ecologically, I do not see a bright future, I doubt whether it will make a difference.”

These remarks are done by only a small percentage of the interviewees, but because of the decreasing trend of the ecological function, they make a lot of sense. The parameter ‘not enough knowledge’ refers to the fact that most urban farmers don’t know that much about the ecological impact of their actions:

“Groups of civilians, schools and families who want to start a vegetable garden often lack the knowledge and skills to do it environmental friendly. That is why it is necessary to guide them and to make relevant information available. In this way, beginner mistakes are prevented and methods with a minimal impact on the environment will be used.” (BCR)

They try to solve it by offering education and guidance to people who want to start a project related to UA. These concerns are carried out by almost all the stakeholder groups, especially by the academics.
Figure 12: Opinions about the ecological function

The decreasing ecological function can be explained by either the small ecological impact of UA and by the lack of knowledge about the ecological impacts of the actions of the urban farmers.

4.2.3. Sensitization

The sensitization function is one of the most important functions of UA, both today as in the future. In both cases it is rated as the second most important aspect. Figure 13 indicates that most stakeholders think it is more important now than it will be in the future. In the organizations-group the difference is quite big, while in the BCR-group it is equal. The academics are the only ones that don’t follow the trend and they think it is more important in the future than it is now. The difference is however very small.

If one takes a closer look at the current importance, most stakeholders speak of a rising awareness concerning food and ecology:

“I think the attention of consumers has grown a lot. People want to know what they eat and they are very aware of the economic principles behind the food and what they can do about it.” (S1)

S7 even states that people more and more take matters into their own hands:

“There is a movement towards rising awareness of the people and to take matters into their own hands.”

S12 on the other hand, speaks of greening the city, making the city more pleasant to live in:
“Economically it will provide little, but towards increasing awareness it will do a lot and it will make the city more pleasant. Terraces with green on it or hanging gardens will make the city much more livable.”

The educational aspect around the sensitization function cannot be neglected:

“Sensitization is important, especially for schools.” (S12)

The BCR even wants to create new behavior by implementing UA in schools:

“Vegetable gardens form a collective learning environment where new behaviors can be learned.”

S14 argues that behavioral changes cannot only be accomplished in schools, but that the media and the society itself have to bring changes to the behavior of people:

“When people could grow vegetables themselves, they would not need to go to parks to steal it. It will not happen automatically, but this is educating the people, it is something that has to grow, through media and movies. [...] UA has to bring societal change and one of the main goals of UA is to teach the people how to improve their lives. People from the city do not think about it because they are not used to go to the nature.”

The line between future importance and the current importance is very thin in this aspect, because events that influence the current awareness will also influence the future awareness. It is however not because a trend towards more sensitization can be observed that we are on the right track. Brussels still has a lot of potential to become a very green city and the first thing that needs to happen is to raise the awareness of the people:

“Brussels has the potential to become a very green city, not only with trees and parks, but with green everywhere. In Tokyo for example, all balconies are green, so why not in Brussels. The people only have to become aware of the possibilities.” (S14)

This means that Brussels still has a long way to go and S3 even argues that biological agriculture in Brussels definitely has a future:

“Biological UA is difficult and it still needs to find its own rules. It is a new technique with a future because we will need the production. It still needs to develop and the conventional agriculture also has its limits towards depletion of the soils. It goes hand in hand with a rising awareness of the sustainability of the system.”

Another important remark is the fact that Brussels is very multicultural and a lot of migrants still need to be convinced:
“It is an extra step to convince migrants because they are often not concerned with this subject. Mint is for example a very good idea. It can raise the awareness and maybe they will start on their own and come up with their own plans.” (S1)

Figure 13: Opinions about sensitization

This analysis made clear that the awareness of the people in Brussels, concerning food and the environment, is rising, but there is still a lot of potential, especially compared to foreign cities. The migrant population for example still needs to be convinced, but the fact that a rising awareness can be observed in Brussels (and over the remainder of Belgium), may be an explanation for the fact that its importance decreases in the future.

4.2.4. Education

Just like the sensitization and ecological function, a decline between the current and future importance can be observed for the educational function. Only the case-group, where the trend is reversed (Figure 14) and the academics-group, where the difference between the current and future importance is non-existing, break the trend but not significantly.
Figure 14: Opinions about education

Today there are already a lot of UA-projects in schools and it is even a priority in some of the municipalities:

“The there are different schools (and a youth center) with vegetable gardens. We also have projects where vegetable gardens are planned, also on top of roofs. Vegetable gardens [...] are often initiated by teachers, parents or children. We are working on this topic.” (S7)

Not only the municipalities, but also the BCR has made it one of his goals to pursue educational goals with vegetable gardens:

“With the development of vegetable gardens, educational and social goals are pursued: the creation of new starting points for the population (local species with different varieties, rhythm of the seasons,...) which are essential to make sustainable food choices.”

Projects in schools are not the only ways to complete the educational goals, also petting zoos are popular in some municipalities:

“Jette has the advantage of the petting zoo where all the children of Jette come to [...]. There is also a vegetable garden for the children. Children do not know the difference anymore between the different vegetables.” (S15).
Figure 15: Opinions about formation

Not only schools are important for the educational aspect, also formation projects, where they teach people how to be an urban farmer, play an important role. Figure 15 shows that the general trend indicates that formation of people is a good thing. UA can be a solution for people who live in poverty or who do not have a job:

“It can be solution for poverty and unemployment. […] Here you get a formation where a lot of different functions are attached. Formations are given for example for gardening, to open a shop, to hold a restaurant,…” (S12)

The problem for this kind of formation are however the employment opportunities. S10 even argues that forming people is not a goal, because there are no job opportunities, but also because half of the people who start the formations quit:

“Forming people is not a main target. What after the education? Little agricultural land is left. Maybe they can work in other areas. […] Half of the people quit the formation after a couple of weeks. They have to make efforts, but they don’t, and afterwards they still have to find a job.”

S4 offers a solution in the form of guidance that should be given to people who start their own project after they have completed the formation:

“I think guidance should stay and commercialization should be present.”

It seems that on the education aspect, Brussels is making a lot of progress, but for the future it stays among the most important aspects. S14 speaks about the potential that cities have when it comes to school:
“A city has a lot of schools, why no vertical gardening against the walls. They will learn a lot. [...] I am convinced that even the teachers do not know it.”

It already became clear that schools play a crucial role in this aspect, which is why the third parameter checks how important it is to include schools in UA. The BCR state in one of their policy documents that creating vegetable gardens in schools increases the knowledge of the children regarding taste, vegetables and the different seasons:

“The implementation of gardens in schools is an additional educational dimension. The garden becomes the medium of learning and acquiring new knowledge and behaviors. From the garden to the cafeteria, children rediscover the tastes, plant species in all their diversity and on the rhythm of the seasons and they become actors in a more healthy and sustainable food system.”

This is important because today a lot of children don’t know where their food comes from, or how it is made:

“A lot of children do not know it anymore; they do not know how and where their food is grown.” (S7)

The educational function is very important, not only to the BCR, but also to the different stakeholders. Because children don’t really know where and how their food is grown, it is important to bring those agricultural concepts back to them. Today there are already a lot of projects working on this matter, but it stays an important aspect for the future.

4.2.5. Social

According to Figure 9, the social aspect is the most important aspect of UA today. Figure 10 shows that its importance will probably decline in the future, but it still stays one of the most important aspects. Figure 16 indicates that there is a great consensus among all the stakeholder groups regarding the current importance of the social aspect, which is probably due to the fact that today, UA is on a very small scale:

“Today it is on such a small scale that it has mainly a social function.” (S5)
Figure 16: Opinions about the social aspect

It is clear among all stakeholders that UA has the potential to bring people closer together:

“Thanks to vegetable gardens people in municipalities communicate more, where previously the social contact was almost none. This is very important for Brussels.” (S10)

This is especially true for people living close to each other, because those people grow apart because of television and other asocial media:

“The social function predominates: creation of opportunities to bring people closer together, where people now grow apart with TV and other stuff.” (S14)

The social aspect is also the reason why UA is booming right now:

“There are new projects on roofs for example. Here, UA is gaining importance, not in the economic sense, but more on the social side, which is very important.” (S10)

The importance of the social aspect is also visible in the profile of the people participating in the projects (Figure 17). According to most stakeholders there is not a specific profile for the people practicing UA:

“In Brussels, different groups of the population participate. It is a way to reduce the inequality as long as projects are implemented in areas with a broad audience. There is not a specific group available.” (S3)

However, not all stakeholders agree with this, S15 observes a trend towards more young families:
The observed trend is towards more young families who practice UA for economic reasons."

If one looks at the purpose group of the different projects, it is clear that some projects have a very specific purpose group. S10 argues that UA is really starting to boom in areas where there is a lot of poverty:

"UA is starting in areas with a lot of poverty. Eco-innovation is for example present at the lemmenssquare in Anderlecht. Socially, UA has a bigger value for Brussels than economically."

Keeping in mind the rising urbanization of Brussels, this makes a lot of sense, especially because the rise will mostly be in the lower social and economic groups:

"An important expected rise in the population of Brussels, more than 200,000 people in only 15 years. The most important rise is especially for people with little means: socially it will be very important." (S10)

There are however also a lot of stakeholders who state that there should not be a purpose group, because UA is for everybody:

"You should not select a specific group of the population for the policy; a policy should be for everybody." (S7)

<table>
<thead>
<tr>
<th>Purpose group depending on project</th>
<th>No purpose group</th>
<th>No profile</th>
<th>New generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy maker</td>
<td>Organisation</td>
<td>Academic</td>
<td>Case</td>
</tr>
</tbody>
</table>

Figure 17: Comparison between the purpose groups and the profile

On the other hand, there are a couple of stakeholders who think that the social aspect is limited (Figure 16). S15 for example works in his community with individual plots where there is only a limited social aspect and they observe a rising demand for individual plots:
“When we would receive a large area, we would try to organize it individually, but with some sort of cooperation to ensure the social aspect. This is already happening, but very little […], it is not dynamic enough.”

S12 argues that UA in Brussels can go in two possible directions, it will either be very individual, or very commercial. Either way, the social aspect will decline:

“I think it will evolve to very small individual gardens or to a very large, commercial agriculture. In this way the classical community gardens will disappear.”

This argument is however in contrast with the other views regarding the future social aspect. Despite the decline, the social aspect will stay important in the future. S14 argues that the social aspect is the tissue that binds everything together:

“The meat around the spine (scientific research) is the social fabric in which it has to happen. You cannot go to the people with serious studies because that goes over their head.”

The social aspect is an aspect with a lot of contrasting opinions, which make sure that the importance is nuanced. The overall trend is however that it is and it will stay very important.

4.2.6. Economy

The economic aspect catches the eye immediately. Figure 9 indicates that today it is the most unimportant aspect; while Figure 10 shows that it should increase the most because it is expected to be the most important aspect.

Figure 18 indicates that today there is no economic aspect. This is shown both by the low rates of the ‘current importance’ and the high rates of the ‘limited importance’. This is due to the fact that there are no real existing economic projects today, which is probably due to the small scale of most projects:

“There are not many economically well thought projects and in Brussels we first have to pass the experimental phase before we can start with projects like the ones in London and New York.” (S1)

“I think it is too small to have an economic impact.” (S2)
Figure 18: Opinions about the economic aspect

Figure 10 indicates however that Brussels has a lot of economic potential. This can be explained by the absence of an economic function today. To ensure the existence of UA in Brussels, the economic part should be integrated:

“The economic aspect is so small that it will probably increase the most.” (S3)

“I think it is possible to start economic projects because UA has to be economically viable or it will not exist on the long term.” (S1)

The potential is not in making a lot of profits, but in being rentable:

“Economically it is difficult to have a future, it can be rentable, but real profits will probably not be made.” (S5)

This can be seen in Figure 19, where the independence of subsidies is rated quite important:

“Products need to be independent from funding.” (S4)

Economic independence is however not something one can create only with an urban farm. Other activities should be included to make it rentable:

“Restaurants and other activities are the most economical. Here they can use their own waste, make a closed cycle and promote their home grown vegetables.” (S5)

The high amounts of empty roofs offer a huge opportunity for companies to gain extra revenues. S12 argues that companies will be very willing to rent their roofs to urban farmers because they do not only get money, but also the advantages of a green roof:
“[…] This makes sure that renting a roof for an urban farm is very interesting for a company. You have the advantage of a green roof (which is already present), of watering and isolation. If you can rent it, companies will see the benefit of it.”

The fact the consumers are very close by is another important economic factor:

“The opportunity in the city is that the people are present, they do not have to drive a lot of kilometres. They can just come and buy the vegetables themselves.” (S11)

UA will also have to develop to a more local, small scale:

“Expansion to larger companies will be very difficult, so in the future companies will be rather small.” (S10)

Figure 19: Important aspects of the economic function

Another economic aspect is employment. Figure 20 indicates that the opinions are very diverse on this topic. The overall trend is however that the creation of employment is an advantage of UA. The BCR argues that employment creation is one of the greatest economic possibilities of Brussels:

“One of the important advantages of food production in the city is the economic aspect. The potential employment cannot be neglected, especially not in Brussels.”

As previous sections showed, the lack of agricultural land is a limiting factor for the employment creation. S2 even argues that creating employment with UA is not possible:
“There are a lot of unemployed people in Sint-Gillis. I think it is utopian to solve this through UA.”

Figure 20: Employment possibilities

As these results show, the economic aspect will probably grow the most in future years. UA will however need other sectors like restaurants and bio-shops to be rentable. The fact that UA can only take place on a small scale is limiting the economic possibilities and the employment creation.

4.2.7. Combination of the different aspects

While looking at the different aspects separately, it becomes clear that they all have their advocates and opponents. This means that, while most of the aspects are important, they should all be nuanced. Figures 9 and 10 also show that all the aspects have a certain importance, meaning that it is most likely the combination of the different aspects which is important. This also became clear while questioning the stakeholders (Figure 21), who argued that a balance between the different functions is very important:

“Multifunctionality is very important, which is also the reason we wrote it down into the administrative agreement.” (S7)

“You cannot be only economic because the surface is too small. You cannot be only social because the politics won’t accept it”. (S9)

“It is always a challenge to find a balance between the natural buffers, so the ecological and other functions.” (S3)
However, this function also has limitations:

“It can be of value for the city because of its multifunctionality, but very limited because of the lack of space.” (S2)

“I am realistic, but the possibilities of multifunctionality are rather limited. It sounds well politically and has opportunities for the people, but for how many people?” (S4)

Because it is the combination of the different functions which is important, the different functions are considered exchangeable:

“Especially the ecological and social aspects are exchangeable. The economic aspect is necessary to ensure continuity of the projects.” (S13).

This makes it even more interesting because by exchanging functions for each other, and by finding a good balance between them, clear goals can be set.

4.3. Limitations

It already became clear that there are also limitations for UA in Brussels and the most important limitations are represented in Figure 22. The competition for spaces is perceived as the largest limiting factor for UA. Contaminated soils are also perceived as a problem, but not as big as one would expect in the city. The lack of knowledge of the people and the problems of temporary grounds are the two final limiting factors that were mentioned during the interviews, but they are not considered very important.
4.3.1. Urbanization

The rising urbanization will give a lot of problems for UA, because it is an activity that does not generate a lot of profits, unlike other activities. The rising competition for grounds results in rising land prices:

“The value of land in cities is even larger, which is a problem. It is not only the availability of land, but also the value of it.” (S5)

As Figure 23 shows, the rising urbanization is sometimes considered as an opportunity for UA:

“Maybe it is an opportunity in the sense that the city will have to find ways to deal with empty spaces in the city.” (S1)

An example is the fact that the rising urbanization will also generate a rising demand for food:

“There will be rising demand for food and UA can be answer to that.” (S8)

Finally S9 points out that a link between urbanization and agriculture has to be made:

“I would like to ask to have a flat roof with a strong structure so we can grow on it. This could be an opportunity, the link between the new urbanization and UA has to be made”.

**Figure 22: Limitations for UA**
Figure 23: Urbanisation

Figure 24 shows that most opportunities lay on vertical and rooftop gardening. The other possibilities are free spaces in the city, like parks and green, open spaces. It is clear that the preference goes to gardening on rooftops and vertical gardening rather than on public places. The BCR has ordered that roofs which are bigger than 100 square meters should be a green roof:

“The regional planning administration has a decree for green roofs. If a roof is 100 square meters or more, it should be green. For smaller roofs it is not necessary, but it is stimulated.” (S2)

However, roofs are sometimes preferred to put beehives on:

“We have green roofs, but not for production. On roofs we opt for bees.” (S15)

The most important reason why roofs are put forward as a solution is not because of the decree of the BCR or because of the bees, but because there is a lot of potential on roofs:

“I think roofs are very important in cities because there is still a lot of space.” (S1).
The possibility to use public spaces is according to S15 even a necessity to increase the sustainability:

“If one wants to grow towards sustainability, UA should be implemented in the city in open spaces where they educate the people.”

However, public spaces have some fundamental problems. The first problem is that Brussels has other priorities besides UA. Within the municipalities there is a need to accommodate and facilitate the rising (poor) urban population and to create recreational spaces and play gardens for the children:

“Maybe there are opportunities to link it with UA, but here we need recreational spaces for the people. There is a huge demand for play gardens for the kids and this will be the priority. After that UA can be implemented on the space which is left. […] All the policies are focusing on more houses, schools and crèches. This is the real priority of the municipalities and Brussels in general.” (S2)

Another possible problem is vandalism:

“I wonder if there is no theft in the small gardens.” (S4)

These problems do not mean that rooftops are by definition the preferred choice, they also have problems. Here the problems relate to safety and the expensiveness of roofs:

“We are checking the possibilities of investments on roofs. These will be harder than normal because people have to be able to stand on it safely. It is
different than solar panels because people have to be able to go safely to the roof and pots and substrate have to be brought up. Accessibility and safety are important.” (S7)

In this aspect, the difference between the city center and the edges of the city is also worth mentioning (Figure 25). It is clear that most respondents think that the city center and the city edges complement each other:

“I think there will be different forms of UA in the center and in the edges. The edges have more free space, where the center will be more with hanging gardens. Other solutions will be necessary.” (S12)

In the center projects can originate easier as a result of the fact that people in the center live closer to each other:

“In the densely populated center people live closer to each other, they know each other better and there are more organizations. [...] In high Molenbeek it is more difficult to bring the people together because there are fewer organizations and fewer infrastructures.” (S7)

The problem of land scarcity is however also applicable here:

“The structure of Brussels is so compact that there is no space within the urban fabric to practice agriculture.” (S4)

![Figure 25: City center versus the edges](image)

The rising urbanization is a huge challenge, not only for Brussels, but also for UA as a booming sector in the city. The optimistic views where UA is seen as a possibility for UA are put in perspective by the priorities of the governments. As a result the solutions will lay rather
on rooftops than on green spaces, but the safety and expensiveness are limiting factors. A nice addition to UA in the center can be found in the edges of the city where more open spaces are available.

### 4.3.2. Pollution

Another possible problem are the polluted soils that are present in the cities. This is however not really perceived as a big problem (Figure 26). The BCR has clear rules regarding polluted soils:

“In the BCR, there are a lot of polluted soils due to their industrial history. Therefore cultivation on any soil should be preceded by a verification of the suitability of this soil for food production. If polluted, the polluter is held responsible.”

As a result, in Molenbeek they do not grow anything in the ground, but they cultivate in containers:

“In Molenbeek we do not cultivate anything in the ground, but in containers because Molenbeek is an industry zone which means the soils are very polluted.” (S7)

According to some stakeholders the pollution is not so severe, but is mainly a perception of the people. Fine dust for example, is also present on the countryside, so it is not only a problem in the cities:

“Fine particles fly up and they land not only in the city, but also on the fields. In this way there is not much difference, [...] but in the perception of the people this will make a big difference.” (S12)

S11 argues that plants can be cleaned easily and most of the time the pollution is not really a problem for the agricultural grounds:

"We can be checked for dangerous substances, but the trick is to check the soil in advance. If necessary soils can be cleaned with plants, so there is no problem. [...] Most of the time, there is no real danger for the agricultural lands."

In general it can be said that pollution is taken seriously by all stakeholders. The perception of the people is an additional limiting factor, but easy solutions, like ‘cleaning plants’ are applicable in some cases.
4.3.3. Other limitations

The two other limitations are the lack of knowledge from the practitioners and the problems that arise when using temporary grounds. The lack of knowledge is especially a limitation for the ecological aspect and is a result of the fact that it is not a professional activity:

“The intention to produce biologically is present [...] than a lot of work is necessary [...] But it is not a professional activity and when there is no auditing, mistakes will be made, usually because of ignorance.” (S5)

This means that pesticides can be used more easily and damage to the natural environment can occur, even when people do not intent to. Temporary grounds posses a huge potential for UA. S12 states that a lot of possibilities exist on temporary grounds, but because those grounds are only available for a limited time, it is not very popular despite the great potential:

“I think UA is practiced enough on temporary grounds, there is a lot of potential, but you have to be very idealistic to do it.”

4.4. Scenario’s

The last aspect that was questioned to determine the feasibility is how the different stakeholders see UA evolve in Brussels. The political influence seems important, just like innovations and new techniques and most stakeholders see UA as an opportunity for Brussels rather than a necessity.
4.4.1. Necessity

The rising urbanization makes, according to S13, UA attractive for people who live in the city:

“There are more and more people in the city, meaning that UA is necessary. The urbanization rises and the step is smaller for people who have no relation with agriculture to actually visit and develop it in the city.”

Most stakeholders however do not think Brussels needs UA. Instead they speak of an opportunity for the city:

“I think Brussels will exist without UA, but it would be a wasted opportunity because a city has a lot of unused spaces, especially on roofs.” (S1)

S2 on the other hand thinks the impact is to small make a real contribution to the urban fabric:

“Projects like this always have a small impact.”

4.4.2. Evolution

Most stakeholders expect a rising demand for urban agricultural functions (Figure 27):

“People are interested and people visit it easier thanks to the events. There is a rising interest and people really want to try it. There is a rising demand for UA in Brussels.” (S10)

This rising demand will probably result in an expansion of UA (Figure 27). The current boom is most likely going to continue, especially because it is creating a lot of creativity among the people:

“If the current trend continues, there will definitely be a rise in UA. This rise in UA is accompanies by a rise of creativity. The varieties of initiatives are huge and there is still an enormous amount of space available for improvement if one look at cities like Rotterdam, Berlin and Stockholm.” (S13)

This means that Brussels has a lot of potential (Figure 27). The boom in creativity also indicates that new methods will be necessary to ensure the future of UA in Brussels:

“I see possibilities for innovative applications regarding vertical gardening and small city gardens towards more private and less collective gardening.” (S12)
These new methods include practicing UA on rooftops or on vertical structures (Figure 28):

“In Brussels, you have to leave the classical idea that you need land to cultivate. Creative solutions with green roofs will be more likely.” (S12)

Gardening on rooftops show however some major practical problems. According to S7 for example, the investments are bigger on rooftops, because the structure of the roofs will have to be adjusted and security measures will have to be implemented:

“The investments on roofs will be harder because have to be able to walk on it safely.”

All this indicates that further research on UA is a crucial factor:

“The meat around the spine (scientific research) is the social fabric in which it needs to happen.” (S14)
The BCR is also investigating some theoretical frameworks, for example sustainable cities and metropolitan agriculture inside buildings:

“We started a study to test the feasibility of UA within buildings, but there are no real plans for it.” (S3)

Some stakeholders agree that this is an option for Brussels, but in the far future. However, a sustainable city is a concept on which the BCR is really focusing on:

“Supporting the development of UA in Brussels is integrated within the politics to make Brussels a sustainable city, including urban renewal policies, management of green spaces, biodiversity and sustainable supply.”

This means that one of the crucial aspects for success of UA is present in Brussels, namely the political support. The main actor is the Brussels Institute for the Environment which focuses on sustainable foods and on UA:

“We get funding from different governmental institutions that issue projects. An important actor in this is the BIM. They issue regularly projects regarding green communities, sustainable food,... Other actors are the different departments of the BCR, including the department of the environment, education and professional formation, different municipalities and the federal government.” (S13)

The BCR is however not the only political stakeholder, but also the different municipalities have a very important stake in UA. S7 for example states that UA is in the political agreements of Molenbeek, while S2 says that Sint-Gillis does not have a policy regarding UA.
This means that not everywhere in Brussels UA has the same popularity. A lot depends on the structure of the municipalities.

In conclusion this means that Brussels has a lot of potential for UA. The politics support is present and most of the stakeholders expect a rising demand and expansion of UA in Brussels. The importance of research and innovations should not be neglected, especially because free space will become very scarce and creative solutions will have to be found.

4.5. Feasibility

Figure 9 indicates that UA has a very important social aspect. The fact that the BCR supports the projects for their social functions makes sure that UA is very feasible in the social aspect. Some projects aim for a specific group of people, for example formation projects, but most of the projects are aimed at everybody. The rising demand for UA may indicate a continuing rise in the amount of projects, probably on free places like rooftops.

The economic aspect is according to Figure 10 the most important aspect in the future. However, the future importance of UA might be related to the current state of the economic aspect. The economic aspect is feasible in Brussels, but only in combination with something else, like a restaurant for example. This is also the most difficult aspect to realize because of the huge competition with low priced industrial vegetables, the possible contamination in cities (or the perception of the people of this problem) and the scarcity of possible lands to produce on. This last factor is the most limiting one and much will depend on the possible innovations that will occur.

For the environmental side the answer is not so clear. The intention is to produce biologically and this is also promoted by the BCR. The organizations are also producing biological, but the problem is that this is very labor demanding which makes it very expensive and the small surface provides only a small production. An unknown factor is the problems that might arise, like rats, pigeons and wind. These problems might ensure that urban farmers use more pesticides than anticipated. This will most likely be the problem for the economic projects. The other projects may also have these problems, but they have the advantage that they do not need any profits so labor costs are not so important. For non-professional farmers concerns arise whether they have sufficient knowledge to produce biologically. They might do harm without intending to. This makes sure that UA can be environmentally feasible, but the
concerns made by the different stakeholders make sure that it can also be the other way around.

The other aspects that could have an influence on UA in Brussels are the educational, sensitization and food security aspect. The analyses of the pillars of UA make clear that UA is not feasible on the food security aspect. Inside the city there can never be enough produced to make a significant contribution to the food security of Brussels. The educational aspect on the other hand turned out to be very important for UA in Brussels. Integration in Schools and learning children about food is seen as one of the main aspects of UA in Brussels. That is why UA is also feasible in the educational aspect.

Changing the way people think about food, society, the economy and many other things is also seen as something UA can contribute to. According to most stakeholders UA can not only contribute to this, it is one of the most important elements of UA. UA is also feasible if it comes to awareness rising.

The only question remaining now is the main question, whether UA is feasible in Brussels. 4 of the 6 sub questions were positive and one was neither positive nor negative. The results also show that because UA interact with a lot of different functions, UA forms a holistic unity of multiple functions which makes UA very feasible in Brussels. The BCR has set goals for UA, but keeping the comments of the different stakeholders in mind, the BCR might be a bit too optimistic in their expectations, but their views, actions and policy measures are pointing UA into a direction in which it is feasible.

5. DISCUSSION

In this part the results will be compared with the cases in Brussels, the literature review and some foreign examples.

5.1. Comparing the results with the case studies

5.1.1. Case 1: Formation center at Neder-Over-Heembeek

The first case is a project located in Neder-Over-Heembeek organized by ‘le début des haricots’. The goal is to form people into urban farmers who are capable of starting up their own project in Brussels. They aim at people who are unemployed and who have an interest in
UA. There is a screening to make sure that people who just take the formation because they get paid do not get in. Since they receive at least once a week an application from a potential new student, one can say that the project is quite successful. The fact that this projects aims at a specific group, is in line with the findings of this study that the purpose group depends on the type of project. A formation project thus aims at the unemployed people. Since the unemployment levels in Brussels are higher than the rest of Belgium (Verdonck et al., 2012), this is a very good example of how UA can improve the employment rate. It should be noted however, that the job opportunities in this sector are very scarce due to the land scarcity in the cities. This means that the effects of projects like these will be limited.

This project meets some of the requirements that are set by the BCR, which were also found in the results of this study. The first problem this project offers an answer to is the lack of knowledge with the people who want to start a vegetable garden. This problem was identified not only by this study, but also by the BCR (BIM, 2011) as one of the greatest environmental problems related with UA. By offering those people a formation where they learn how they should grow vegetable in an environmental friendly way, it makes sure they have the proper background to start a sustainable urban farm.

The project also shows that it is possible to answer the rising demand for sustainable, locally produced food. By offering the surrounding inhabitants the opportunity to purchase the locally produced food with a seasonal contract, they meet that need. This does not mean however that this project is economically viable, which is in line with the findings of this study. But since the goal of the project is not to be economically viable, but to form people, they count on the fundings and not on the sales of their products to finance the project.

The ultimate goal is that the people who complete the formation, eventually start their own urban farm. They don’t only focus on the economical aspect, but also on the social. This means that the multifunctional aspect, where the combination of the functions forms a holistic unity, is very important in this formation center.

5.1.2. Case 2: Rooftop gardening at the royal library

The second project is located on top of the Royal Library in Brussels. This is a very recent project; it only exists for two years. It is an experimental project to promote ecological
growing and local production and consumption, not only with the people but also with the politicians. The ecological rooftop garden has an agreement with the cafeteria from the library to which it sells its vegetables. It is important to note that the project itself is not expensive, there were only the high costs to start the project (purchase the material). The project also uses the waste of the cafeteria; it uses solar energy and rain water, meaning that the project tries to be as environmentally friendly as possible. On the social side, the project is open for everybody. Visitors of the library can visit the urban farm, which happens regularly according to S6. This shows that, just like the first case, the multifunctional aspect is very important. The project also has an economic part, but it is not sufficient to make the project economically viable, and according to S6 that is also not possible for this project. Its purpose is to show how much can be grown on a small surface.

If one takes a look at the results of this study, rooftops offer an enormous opportunity for UA in Brussels. The problem is however that a lot of people do not realize it yet and that is why projects like this, where they show the people what is possible on public places, are important. The fact that the public place is a rooftop shows that organizations are already looking for new ideas to grow food, besides on the ground where land is becoming extremely scarce. They start to anticipate on the limitations of the city. The cooperation with the cafeteria for waste and compost is also an indication that organizations react on the limitations. The great interest in this project also shows that the expected increasing attention and increasing demand for UA appears to be correct. A second opinion that appears to be applicable to this case is the argument that UA will probably be economically viable in combination with other activities like restaurants and bio-shops. The proximity and cooperation with the cafeteria endorses this argument.

5.1.3. Case 3: Commercial project on meat market

The final project is located in Anderlecht on the location of the meat market from Abattoir. They are planning to build a new meat market and on top of it they want to start an urban farm. It will be the first commercial urban rooftop farm. The project is initiated by the Brussels Institute for the environment. In the vision of the company, the urban farm is complementary to their meat activities. They can, for example, recuperate the heath from the cooling areas in the conservatory meaning that they want to create a closed system. They also have to take into the account the fact that, if they use their wastewater there is a possibility of
pollution if there are polluted animals. That is something they cannot risk because their main activity is in the food industry.

They see the economic aspect in combination with a restaurant. Just like the previous two cases this is an indication that the perception of the stakeholders that side activities are necessary is correct. This is in line with the arguments of S12 who stated that companies would be very willing to have an urban farm on their roof, because then they get money for it and it helps to improve the image of the company. This is exactly what Abattoir is doing. The tenant of the restaurant and the urban farm will be in charge of everything concerning the urban farm. Of course Abattoir will check if it stays a sustainable concept, but this shows that it will really be a commercial project, the first in Brussels.

The restaurant not only has a commercial function, but is also seen as a magnet to attract people. The fact that it is a unique concept in Brussels means that it will probably also work as a magnet. There is however not only an economic part to it. This organization also works from a multifunctional perspective where they want to combine the different functions. For the social aspect they want the project to be integrated in the community life. They are also thinking about employing people from the sheltered workplace. As mentioned earlier, they are thinking of using their waste as much as possible without harming the food and the health of the people. This includes the environmental part. There is however a chance they will use pesticides, but this is not sure. Because there are no real good examples of projects like this in Belgium or nearby cities, the potential problems are also not known. Wind for example can play an important role in blowing away the substrate and apparently in Rotterdam rats and pigeons are a huge plague on the rooftop farms. These are all possible problems that will have to be countered. The educational aspect is also important to them, especially for the children, but also to change the views of the people.

This project embodies the expectations of most stakeholders about the future of UA. The fact that it is on a roof is the first indication that innovations are starting to find its way into Brussels. The important economic aspect is following the trend towards more autonomy and less dependence of funding in UA. The fact that the social, environmental, sensitization and educational part play a role in this project indicates the importance of the multifunctionality of UA. It seems that the assumption that UA is not commercially viable if it only lives on revenues from the sale of its products is correct. The combination with the restaurant, the
magnet function and the possible surplus value with the meat market offer a package which cannot be achieved with an urban farm alone.

5.2. Discussion of the pillars of UA

Today, none of the existing projects are economically viable; they all need subsidies to survive. This is probably the main reason why the stakeholders emphasize the economic part so much in the future (Figure 10). They think it should grow the most, because today it is unexisting (Figure 9). This makes sense, because if UA wants to exist on the long term it needs an economic aspect. As a consequence, the importance of the economic aspect in the future is a result of the unimportance today and should therefore be nuanced. The other aspects do not differ that much in importance, meaning that the multifunctional aspect, the combination of the different aspects, is crucial for UA to exist. A project that focuses only on one of the aspects will probably not get any subsidies. The only projects that could survive without subsidies are economic projects, but since the foreign examples show that it is extremely difficult to create a working economic project in an urban context, the likelihood of this happening is very small. A lot of the stakeholders also stated that there is not a factor which is more important than the other one. If one takes the above remarks regarding the economic aspects in consideration, it is clear that the combination of the different aspects is more important than the economic aspect. This combination makes a holistic way of practicing UA. This is according to Garnett (2000) also the underlying line of thought in UA.

An example of a project that combines different aspects is “Le ferme nos pilifs”. This is a farm, located in the center of the city with environmental, social and economic functions. The farm functions as a sheltered workshop with activities like a bakery, shop, cafeteria, a garden company and a children’s farm (FEBRAP, s.d.). This project shows that it is possible to combine the different functions in a successful, working company. Not all the activities of the company are profitable, but they reinvest everything they gain. They also have cooperations with surrounding municipalities and other organizations to make sure that the farm is completely open for everybody (De Mol, s.d.).

This indicates that policy support is crucial for UA. It is a sector that is booming, but only because there is enough political attention for it. Without political attention, UA could probably not exist in Brussels, because land is becoming too expensive and people need to be
motivated to practice it. The prerequisite of political attention is also emphasized by Garnett (2000) in her description of the context in London.

One of the great advantages of UA according to Van Veenhuizen (2006) and Roseland (2005) is that UA can contribute to reduce the waste of cities by using it as compost. This is an argument that not many stakeholders used, but it is probably also in Brussels an important factor, because two of the tree case studies use waste from nearby activities, indicating the importance of this phenomenon.

An aspect that was, based on the literature review, expected to be very important, was the food security aspect (Roseland, 2005; van Veenhuizen, 2006). This is however in Brussels not considered important. This is because the amount of crops that can be produced in Brussels can only provide approximately 8% of the nutritional needs of the Brussels population (S13). This is not enough to speak of a real contribution especially if one considers the costs it brings to produce in the city. The BCR sees UA as a strategy to create more sustainable food systems in the city, to enhance the social cohesion, to improve the environment and to sensitize the people (BIM, 2011). It is clear that the motives to promote UA are more multifunctional than just the food security aspect. This division between the arguments form Roseland (2005) and van Veenhuizen (2006) and the results of this study confirm the arguments from Danckaert et al. (2010), who stated that UA in developing countries is survival strategy, whereas UA in developed countries is a means to change the way we think and live together in the cities. This can also be adapted to the argument from Koc and Dahlberg (1999) who state that UA is a way of reacting against the globalized food market and environmental degradation. The process of UA in Brussels does not go so far as to be completely being against globalization, but it is seen as a way towards more sustainability, not necessarily without globalization, as argued by Born and Purcell (2006). UA in Brussels is part of a larger rising awareness towards more sustainability and healthy livelihoods, which is in the line of thoughts of Garnett (2000).

If one takes a closer look at the socio-economic situation of Brussels, there are a lot of young unemployed people. Molenbeek, for example, has one of the lowest socio-economic profiles of Belgium (S7). The expected population rise will most probably also be within the lower socio-economic groups (S10). It is stated by van Veenhuizen (2006) that rising urbanization goes hand in hand with rising poverty and rising food insecurity. This will very likely also be
the case in Brussels. If one looks at the job possibilities proposed by Verdonck et al. (2012), UA seems very attractive for Molenbeek and Brussels in general. On the other hand, it is not only attractive towards job opportunities, people can also grow food for themselves, they can enhance their social bond and they can improve the environment of their neighborhoods. The formations regarding UA are also intended to help the unemployed people find a job or start a project of their own in Brussels. These arguments are in the line with van Veenhuizen (2006). Nevertheless, this study also showed that the effects will probably be limited, especially because there are still no existing commercial projects in Brussels. However, because it is such a multifunctional asset, the holistic unity of UA means that UA is much more than just the job opportunities and UA can improve the livelihoods of those people in many different ways. The fact that one of the most important aspects is the sensitization and educational function means that by changing the way the people perceive the city and think about the environment, the economy and their social life can really improve the living conditions in the cities.

The percentage of people working in the agricultural sector is extremely low and continues to decline. This is a result of the decline in agricultural companies and the decline in UAA (see Figure 4). This is a result of the rising urbanization in Belgium, and more specifically in Brussels. Keeping in mind the expected populations increase (see Table 2), it is very probable that this declining trend will continue. This means that if Brussels wants an agricultural production it will need to include other aspects besides production (Van Huylebroeck et al., 2006). The multifunctional aspect will become very important, but it will also depend largely on the local factors in the different municipalities. The political support is present in Brussels, which is a necessity for UA (Van Huylebroeck et al., 2006). In fact, the BCR is not only supporting UA, it is also actively stimulating it through campaigns, activities, support for organizations and they even start up their own vegetable gardens (BIM, 2011). This political support is very important for UA in Brussels, because none of the existing projects is economically feasible. They all need funding, mainly from the government. The government only funds the projects which fit in their vision, meaning that their vision defines what kind of UA is practiced in Brussels. In fact, not only the BCR is supporting it, but also within different municipalities, like Molenbeek, Jette and Etterbeek, there is great support for UA. Not all the municipalities support UA however. Sint-Gillis is a community where there are not many UA projects and where there is no real policy towards it (S2). This is because Sint-
Gillis has almost no open, green spaces and because of the rising urbanization and the related problems, their priority goes to building schools and playgrounds for the children (S2). This means that, while the rising urbanization will probably be in the lower groups of the social classes, the different communities will need to set priorities regarding the usage of space and the implementation of recreational parks and vegetable gardens on public spaces. This might work as a brake for the development of UA in Brussels, despite the advantages it might bring.

5.3. Comparisons with foreign examples

The importance of UA is increasing all over the world. This is emphasized by the fact that different concepts like ‘slow food’, vegetable gardens and biological products are becoming more and more important. This also means that there are numerous foreign examples with which Brussels can be compared. As discussed in section 2.6, cities like Dakar and Shanghai produce between 60 and 80 percent of their vegetables within the urban fabric (Verdonck et al., 2012). This indicates that it is possible to produce enough within the urban fabric to make a real contribution to the food security of a city. However, these figures should be nuanced. Shanghai for example, covers a total area of 6340.5 km², which is almost 40 times the size of Brussels (see Table 2). Of this total area, only 13 percent is urban, the other 87 percent is rural (Cai & Zhangen, 2000). This means that Shanghai is, just like a lot of other cities in China, self-sufficient in vegetable production (Deelstra & Girardet, 2000). Despite the fact that all the agricultural production within the Shanghai region is defined as urban agriculture, it is clear that this differs a lot from the urban agriculture in Brussels and therefore it is difficult to compare with each other. The regions around Brussels may have a more rural character, but they are not part of the agglomeration of Brussels. The peri-urban regions of Brussels are located in Flanders and Wallonia (Vandermeulen et al., 2006). As can be seen in Figure 29, Brussels is an island inside Flanders. It is important to note that Belgium consists of 3 regions (the Flemish, Walloon and Brussels capital region) and the implementation of the agricultural, rural and urban development policies is under the authority of the regions (Vandermeulen et al., 2006). This means that every region has its own policy regarding those subjects, which makes comparisons with foreign examples, like Shanghai, where the peri-urban region is also part of the Shanghai area (Cai & Zhangen, 2000), very difficult and subject to many different interpretations. Here, peri-urban agriculture can greatly contribute to the city’s self-resilience and sustainability (Danckaert et al., 2010). The fact that the peri-urban regions of Brussels are
not under the authority of Brussels, makes the possible agricultural areas for Brussels very limited. Because of this Brussels can never be completely self-sufficient in vegetables, or any other agricultural production, because there is simply not enough space inside the BCR. This is also the reason why UA in Brussels is practiced because of its underlying educational, environmental, economical, educational end sensitization function. The food security aspect is not important, because it is simply not possible in Brussels.

Figure 29: Brussels as an island in Flanders (source: Vandermeulen et al., 2006)

A tendency that can be noted in many cities around the world that promote UA, is that the overall policy includes environmental awareness rising and wide public participation in urban development (Deelstra & Girardet, 2000). This was also the case in Vancouver. Before starting the comparison, it should be noted that the point made in the previous paragraph about Shanghai, also applies here. Vancouver is an interesting example because there are a lot of comparisons between Brussels and Vancouver, especially on the policy level. Both regions have clear action plans to promote UA and they both see it possible for UA to become a functional economic sector. Vancouver, and the rest of Canada and the United States, is very well known for two aspects. The first one is the development of a compost system, where
Urban waste (water) is used for urban agriculture. The second aspect mainly applies to Vancouver, where the farmer’s markets are very well developed (Deelstra & Girardet, 2000; Verdonck et al., 2012). Despite the high efforts of the government to promote UA, it remains on a very small scale and supermarkets don’t offer locally grown food (Broadway & Broadway, 2011). The food is mainly offered in farmer’s markets. This is also starting in Brussels, where some municipalities have farmer’s markets every now and then. Jette also has an exchange market where people can trade the food they have grown themselves.

If one looks at the case of London, Garnett (2000) argues that the UA practiced in the city is not very environmental friendly. 75 percent of the gardeners use insecticides, despite the trends towards organic farming. The results of this study show that there are concerns among the stakeholders that this will happen in Brussels as well. The BCR and the different organizations have the idea of producing organically, however the lack of knowledge with the urban farmers themselves can be limiting. This lack of knowledge can lead to a higher usage of insecticides which is bad for the local environment. This has happened in London and it is possible that it will happen in Brussels as well. The other main limiting factor in London is the same as the one in Brussels, namely the rising urbanization and the related rising land prices. The overall important functions of UA are also roughly the same for both cities. Education, innovation and the community aspect are mentioned as very important in both cities. In London there are also expectations to create jobs with UA. These jobs are however located on the outskirts of the city, where in Brussels they see the job opportunities all over the city. Both cities offer formations for people who want to learn about urban farming and both cities struggle to get a viable economic project. In London attempts were made and a lot of difficulties came to the surface. Because of the similarities between the two cities, it is possible that Brussels will encounter these problems as well. The problems most of the urban farmers in London faced were vandalism, complaints from neighbors, availability of labor and rising housing costs. The policies created by both governments are not of an agricultural nature, but they rise from an environmental and healthy food concern (BIM, 2011; Greater London Authority, s.d.).

5.4. Feasibility discussion

The answer to the feasibility question was positive, but the above discussion makes clear that this answer has to be nuanced. First, Brussels does not need UA, it can exist without it.
Instead, most stakeholders spoke of an opportunity for the city, especially considering the rising urbanization. Secondly, UA is only feasible in Brussels if all the conditions are fulfilled. This begins with the political support, which is present in the city, but which originated mainly from a healthy food and sustainability concern. UA is thus not a goal on itself, but merely a tool to create more sustainable food in the city. An important element for UA is the social cohesion it brings. This is important in a multicultural city like Brussels. UA is also used to educate children about food related aspects and to raise the environmental awareness. The fact that people are growing apart from their rural roots and the fact that environmental aspects will become very important in the future, are functions of UA which are crucial if one wants to create a sustainable society. This means that the economic aspect was put aside, also because of the different complications it brings along. The results of this study indicate however that an economic aspect is necessary to ensure a continuation of UA in Brussels. All stakeholders agreed that projects should be able to survive without funding to make them more attractive and more serious to the outside world. Because it is unexisting today, the main emphasis is on this function for the future. The project on top of the meat market in Anderlecht also shows that economic projects are developing, indicating the feasibility of economic urban agricultural projects in Brussels. Problems of urbanization are to be tackled with innovations which will transform UA and give it a completely different view than it has today. These innovations should also give an answer to possible problems in the future and ensure that the environmental aspect is not neglected while pursuing the economic aspect. The project on the meat market will give a first good indication of the possibilities of an economic project in Brussels. Commercial projects can however not exist on their own in Brussels, they need something else, like a restaurant, to be viable.

6. CONCLUSION

This study started off with the question whether UA is feasible in Brussels. The answer is positive, but the conditions which were set by the different stakeholders add some constraints to the feasibility. First, the different aspects of UA which are feasible are the educational, sensitization, economic and social aspect. The environmental aspect can be feasible, but this will depend on many unpredictable factors, meaning that it can also be the other way around. The food security aspect is the only aspect which is not feasible in Brussels. One of the most important constraints is the fact that UA can only be profitable in combination with another
activity, like a restaurant or a bio-shop. The urbanization process is determined as the main limiting factor. The pollution of soils is not as important as expected, but it still is a limiting factor. Innovations to produce more on a small surface and growing vegetables on places where they were never grown before are also a necessity for the success of UA. This is a result of the rising urbanization in Brussels, which includes a rising demand for sustainable food. This means that less space will be available to grow more food within the urban fabric. Roofs, balconies and walls will probably be very important elements in the development of UA in Brussels.

The education of the people and the awareness rising through UA is considered very important if sustainable cities are to exist. These prerequisites are feasible in Brussels, but this does not mean it will happen automatically. The political support is a crucial factor for the success of UA in Brussels. This support is however present in the city, meaning that the statement that UA is feasible in Brussels, can be stated with more certainty. This support also defines UA in Brussels and puts a great emphasis on the social factor, which this study determined as a very important element. Another factor in favor of this argument is the huge potential for UA in Brussels. This potential is not only present in the interest of the population, but also on vacant locations in the city. These vacant spaces include temporary grounds, which have a huge disadvantage, especially for the moral of the urban farmer. Temporary free spaces can only be used for a couple of years before the owner reclaims the ground and uses it for his own purposes. This is very de-motivating which means that despite the huge potential in this field, the motivation to use this space is very little. Compared to some foreign cities, Brussels does not have a large food production. This has to be put in perspective, because most of these have hinterlands to count on, which Brussels does not possess. The comparison with foreign examples also showed that the development of economic activities in the UA-sector is extremely difficult.

This feasibility study is however not a conclusive study, which means that nothing can be said with absolute certainty. This means that further studies are necessary to investigate the conclusions made in this research. Quantitative research and mixed-method analysis are excellent tools for further investigation. Questions like whether UA is possible considering the rising land prices or whether a city like Brussels needs UA are very interesting topics. This last question should be one of the first questions that should be solved before further
studies can be conducted. Not only Brussels should be investigated, but also the impact of the problems within the Belgian context regarding UA and the food supply, where Brussels is an island in Flanders, with its hinterlands in both Flanders and Wallonia, are interesting topics to investigate. It is clear that a lot of research can be done in this field to better understand the processes involved with UA in Brussels and Belgium. This study is not only a feasibility study, but it is also a call for more research on this subject in Belgium. This is important, because urbanization is changing the way this planet is living and solutions to make this world (more specifically the cities in this world) more livable should be investigated thoroughly to determine their impact.

7. REFERENCES

7.1. Articles and Books


7.2. Internet sources


8. ANNEX

8.1. Annex 1: Stakeholder overview

Since this thesis is based on anonymous interviews, each stakeholder is given a number. Stakeholder 1=S1, stakeholder 2=S2, etc. Table 1 gives an overview of all the stakeholders including their number, age class ([20-30], [30-40], [40-50], [50-60], [60-70], [70-80]), level of education, profession and their relationship with UA.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Age class</th>
<th>Education</th>
<th>Profession</th>
<th>Relationship with UA</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>30-40</td>
<td>-Master in German languages</td>
<td>-Journalist</td>
<td>-Member of an organization and urban farmer.</td>
</tr>
<tr>
<td>S2</td>
<td>40-50</td>
<td>-University</td>
<td>-Responsible for urban planning in a municipality</td>
<td>-Is familiar with the policy goals of the municipality and knows the projects in her municipality.</td>
</tr>
<tr>
<td>S3</td>
<td>40-50</td>
<td>-Civil engineer architect</td>
<td>-Advisor green spaces, office of E. Huytebroeck</td>
<td>-In collaboration with BIM working on green spaces and vegetable gardens.</td>
</tr>
<tr>
<td>S4</td>
<td>60-70</td>
<td>-Phd in Geography</td>
<td>-Professor in Geography</td>
<td>-Research on Brussels and of UA in Dakar.</td>
</tr>
<tr>
<td>S5</td>
<td>30-40 30-40</td>
<td>-Phd in applied biological sciences, agricultural sciences</td>
<td>-Assistant at Ghent University -Scientific employee, Ghent University</td>
<td>-Research on UA in Ghent. -Research on multifunctional agriculture around Brussels.</td>
</tr>
<tr>
<td>S6</td>
<td>30-40</td>
<td>-Computer sciences</td>
<td>-Gardener</td>
<td>-Responsible for the project on of the royal library.</td>
</tr>
<tr>
<td>S7</td>
<td>40-50</td>
<td>-Master in philosophy</td>
<td>-Alderman in a municipality</td>
<td>-Responsible for the policy regarding UA in the municipality.</td>
</tr>
<tr>
<td>S8</td>
<td>40-50</td>
<td>-Veterinarian</td>
<td>-Quality checker</td>
<td>-Member of the team that develops the new urban farm on top on top of the new meat market.</td>
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</tr>
<tr>
<td>S9</td>
<td>30-40</td>
<td>-Sociology and eco-consultancy</td>
<td>-Eco-consultant</td>
<td>-Works on collective gardens in the municipality.</td>
</tr>
<tr>
<td>S10</td>
<td>20-30 30-40</td>
<td>-Bachelor in accountancy -Political and social sciences</td>
<td>-Employee, Office of B. Cerexhe</td>
<td>-UA is a new work relation, the objective is to contribute to the ----- -Innovations and on the long term create a policy.</td>
</tr>
<tr>
<td>S12</td>
<td>30-40</td>
<td>-Bio-engineer</td>
<td>-Consultant</td>
<td>-UA is one of the projects this stakeholder is working on.</td>
</tr>
<tr>
<td>S13</td>
<td>20-30</td>
<td>-Bio-engineer</td>
<td>-Project leader Eco-Innovation</td>
<td>-Responsible for UA projects in Brussels.</td>
</tr>
<tr>
<td>S14</td>
<td>70-80</td>
<td>-Phd in Biology</td>
<td>-Honorary professor of Botany, Ghent University</td>
<td>-Expert on growing plants in dry areas and developing new methods to grow plants on small areas.</td>
</tr>
<tr>
<td>S15</td>
<td>50-60 50-60</td>
<td>-Bio-engineer -Hotel school and teachers degree</td>
<td>-Technical director for the environment -Employee (directors assistant)</td>
<td>-Involved in a project about UA in their municipality.</td>
</tr>
</tbody>
</table>
8.2. Annex 2: Interview questions

In this annex, the questions which were used during the interviews are listed.

*Own experiences?*

What is your relationship with UA? On which topics regarding UA have you worked on or done research?

Where does the biggest impact of UA on the society lay?

How do you see UA today in Brussels?

*How do you perceive the current state of UA in Brussels?*

More specifically regarding the economical perspectives, employment and the commercial activities?

What are the social perspectives, the profile of the urban farmer, the purpose group of the projects?

What are the environmental perspectives? Are there better alternatives? Is the elimination of transport an important factor?

How important are other aspects (educational, sensitization, food security, recreational activities, and tourism)? Can UA contribute to the food security of the city? Are temporary grounds often used?

How important is multifunctionality?

*How do you perceive the limitations regarding UA?*

These include urbanization, pollution, lack of knowledge, temporary grounds?

How will these limitations affect the evolution of UA?

Is there a difference between the city center and the edges around the center?
How do you perceive the political support? Is there a need for a more local policy regarding UA in Brussels?

Does UA need auditing to ensure the quality of the food?

Is UA necessary for Brussels?

Is it necessary regarding the Belgian context of commuting, living in the countryside and the relatively small size of Brussels compared to other world cities?

Can UA help with the inequality problem?

Does it need integration with city parks or open spaces?

How do you see UA evolve?

How do you see the different aspects evolve (economical, social and environmental or other aspects)? How do you see the multifunctional aspect evolve?

Will UA ever contribute to the food security of the city?

How important is the agricultural sector in UA?

How important is the academic sector in UA? How important are innovations for UA in Brussels?

How does UA fit within the concept of sustainable cities?

Do you think metropolitan agriculture (inside buildings) is possible in Brussels?
8.3. Annex 3: Quotations list

This annex shows all the quotations of the text in their original language (Dutch, French or English). They are organized by stakeholder and section. Because of the extent of the transcripts of the interviews, they are not displayed in this annex, but they are available digitally and on request with the author:

Jonas De Temmerman

Contact: jonas.detemmerman@ugent.be

Quotations from governmental documents

Section 4.2.2.

“La production alimentaire sans intrants chimiques, localisée dans les tissus denses, est également un facteur favorable au développement de la biodiversité en ville, mais aussi à la réduction de l’empreinte écologique globale du mode de vie des citadins.” (Cabinet de la ministre Huytebroeck, 2013)

“Groepen burgers, scholen en gezinnen die een moestuin willen opstarten hebben meestal een gebrek aan kennis en vaardigheden op het gebied van milieuvriendelijk tuinieren. Daarom is het noodzakelijk om hen hierbij te begeleiden en hen relevante informatie ter beschikking te stellen. Zo worden beginnersfouten voorkomen en methoden gebruikt met een minimale impact op het leefmilieu.” (Brussels Instituut voor Leefmilieu, 2011)

Section 4.2.3.

“Ook vormen moestuinen een collectieve leeromgeving waar nieuwe gedragingen aangeleerd kunnen worden.” (Brussels Instituut voor Leefmilieu, 2011)

Section 4.2.4.

“Met de ontwikkeling van moestuinen worden hoofdzakelijk educatieve en sociale doelstellingen nagestreefd: het creëren van nieuwe aanknopingspunten voor de bevolking (lokale soorten met allerlei variëteiten, ritmen van de natuur en de seizoenen, ...) die essentieel zijn om duurzame voedingskeuzen te maken. Ook vormen
moestuinen een collectieve leeromgeving waar nieuwe gedragingen aangeleerd kunnen worden.” (Brussels Instituut voor Leefmilieu, 2011)

“L’installation de potagers dans les écoles revêt une dimension pédagogique supplémentaire. Le potager devient le support d’apprentissages et d’acquisition de nouvelles connaissances et comportements. Passant du potager à la cantine, les enfants redécouvrent les goûts, les espèces végétales dans toute leur diversité, au rythme des saisons et deviennent les acteurs d’une alimentation plus saine et durable.” (Cabinet de la ministre Huytebroeck, 2013)

Section 4.2.4.

“Enfin, un des avantages non négligeables d’une production alimentaire que les urbains se réapproprieront, est économique. Un aspect du volet économique est sans conteste le potentiel en termes d’emplois, qui n’est pas à négliger même dans un contexte dense comme notre Région.” (Cabinet de la ministre Huytebroeck, 2013)

Section 4.3.2.

“En Région bruxelloise, de nombreux sols sont pollués du fait de leur histoire industrielle. Dès lors toute mise en culture d’un sol devrait être précédée d’une vérification de l’adéquation de ce sol à la production alimentaire. Si une pollution est découverte, obligation s’en suit pour le responsable de la pollution de la traiter.” (Cabinet de la ministre Huytebroeck, 2013)

Section 4.4.3.

“Le soutien au développement de potagers urbains s’intègre dans les politiques menées pour faire de Bruxelles une Ville Durable, notamment les politiques de rénovation urbaine, de gestion des espaces verts, de biodiversité et d’alimentation durable.” (Cabinet de la ministre Huytebroeck, 2013)

**Quotations from S1, member of an UA-organization in Brussels**

Date: 16/03/2013

Location: Brussels
Section 4.2.1.

“Ik denk dat het wel een impact kan hebben, maar eerder op de lange termijn, zeker omdat de bevolking toeneemt.”

Section 4.2.3.

“Ik denk dat bij heel wat consumenten de aandacht is toegenomen. De mensen willen meer weten wat ze eten en ze zijn zich meer bewust van de economische principes die achter het eten zitten en wat ze eraan kunnen doen.”

“Het is effectief een extra stap om migranten te overtuigen want zij zijn vaak nog niet zo sterk met dat onderwerp bezig. De munt is bijvoorbeeld een heel goed idee. Het kan zorgen voor een bewustwording en misschien gaan ze het dan zelf ook doen en komen ze zelf met plannen af.”

Section 4.2.6.

“Er zijn daar nog niet veel economisch goed doordachte projecten en in Brussel moeten we eerst de fase van het experimenteren door voor we naar dergelijke projecten kunnen gaan zoals in London en New York.”

“Ik denk dat het mogelijk is om economische projecten op te richten want stadslandbouw moet economisch haalbaar zijn of het zal geen bestaansreden hebben op lange termijn.”

Section 4.3.1.

“Misschien is het een opportuniteit in de zin dat de stad ertoe zal aangezet worden om beter om te springen met de leegstaande ruimte in de stad.”

“Ik denk dat de daken zeer belangrijk zijn in steden want daar is nog veel ruimte te vinden.”

Section 4.4.1.
“Ik denk dat Brussel op zich wel zal blijven bestaan zonder stadslandbouw, maar het zou een gemiste kans zijn want in de stad zijn er overal onbenutte ruimtes, zeker op daken.”

**Quotations from S2, works for the municipality Sint-Gillis**

Date: 19/03/2013

Location: Sint-Gillis

Section 4.2.6.

“Ik denk dat het een beetje te klein is om er een economische impact van te zien.”

“Er zijn veel werkloze mensen in Sint-Gillis. Ik vind het een beetje utopisch om dergelijke zaken op te lossen door middel van stadslandbouw.”

Section 4.2.7.

“Op vlak van multifunctionaliteit kan het misschien wel een meerwaarde bieden, maar een zeer beperkte, door het gebrek aan ruimte.”

Section 4.3.1.

“Voor de groene daken is er nu ook een decreet van de gewestelijke stedenbouw. Vanaf nu moet je een plat dak vanaf 100 m² moet er een groen dak zijn, voor kleinere daken hoeft het niet, maar het kan wel gestimuleerd worden.”

“Misschien zijn er mogelijkheden om daar stadslandbouw aan te linken, maar wij hebben hier ook nood aan recreatieve ruimte voor de mensen. Er is ook een enorme vraag voor speeltuinen voor de kinderen en daar zal de prioriteit naartoe gaan, en daarna zal er misschien nagedacht worden over een klein stukje dat overblijft. […] Al de beleiden zijn geacceerd op meer woningen en scholen en kribben. Dat is de echte prioriteit van de gemeente en van Brussel in het algemeen.”

Section 4.4.1.

“Dergelijke projecten hebben namelijk altijd maar een kleine impact.”
Quotations from S3, works for the environmental department, BCR

Date: 11/02/2013

Location: Brussels

Section 4.2.3.

“Biologische stadslandbouw moet nog haar eigen regels vinden en intensief biologisch produceren is ook mogelijk. Het is nog een nieuwe techniek die zeker toekomst heeft want we zullen de productie nodig hebben. Het moet nog verder ontwikkelen en de conventionele landbouw toont ook zijn limieten naar uitputting van de gronden toe en zo. Het hangt dus samen met bewustwording van de duurzaamheid van het systeem zelf.”

Section 4.2.5.

“We zien in Brussel dat er een redelijk menging aan bevolkingsgroepen is. Het is een manier om de ongelijkheid te verkleinen voor zolang de projecten ook in buurten implementeren waar er een gevarieerd publiek is Er is geen echte lijn richting een bepaalde groep van mensen (vb hoogopgeleiden,…).”

Section 4.2.6.

“Het economische vlak bestaat nog zo weinig dat deze het meest zal toenemen waarschijnlijk.”

Section 4.2.7.

“Het is altijd een vraag om het evenwicht te zoeken tussen de natuurlijke buffers, dus de ecologische functie en de andere functies.”

Section 4.4.3.

“Er is momenteel een studie gestart om de haalbaarheid van stadslandbouw binnen gebouwen te toetsen, maar daar zijn nog geen concrete plannen voor.”

Quotations from S4, professor of Geography, University of Leuven
Date: 13/02/2013
Location: Leuven

Section 4.2.4.

“Ik denk dat de begeleiding moet blijven en dat men naar de commercialisatie van dergelijke zaken moet kijken.”

Section 4.2.6.

“Het is wel zo dat de projecten onafhankelijk moeten worden van de subsidies.”

Section 4.2.7.

“Ik ben daar eerder realistisch in, maar de mogelijkheden van multifunctionaliteit zijn eerder beperkt. Dat klinkt politiek goed en dat is een mogelijkheid voor de mensen, maar over hoeveel mensen gaat dat?”

Section 4.3.1.

“In de kleine tuintjes vraag ik mij ook af of er niet gestolen wordt.”

“De structuur van Brussel is zodanig compact dat er binnen het stedelijk weefsel geen plaats is om aan landbouw te doen.”

Quotations from S5, researchers at the bio-engineering department, Ghent University

Date: 01/02/2013
Location: Ghent

Section 4.2.2.

“Op milieu vlak is er controle nodig. Het is niet zeker dat het een verbetering is van de omgeving dan als er gewoon bomen ofzo zouden staan.”

Section 4.2.5.

“Momenteel is het zodanig kleinschalig dat het eerder een sociale functie heeft.”
Section 4.2.6.

“Economisch is het moeilijk om een goede toekomst te hebben, het kan wel rendabel zijn, maar echte winsten zullen er waarschijnlijk niet mee gemaakt worden.”

“Het meest economisch is waarschijnlijk de restaurantjes en dergelijke die oa hun eigen afval gebruiken en een gesloten cyclus maken en ze kunnen aangeven dat het eigen geteelde groenten zijn.”

Section 4.3.1.

“De waarde van grond in steden is dus nog groter, dus dat is zeker een probleem. Het is dus niet enkel de beschikbaarheid aan grond, maar ook de waarde ervan.”

Section 4.3.3.

“Er is vaak wel de intentie om biologisch te produceren […], dan is er veel werk nodig […]. Maar het is geen professionele activiteit en als er geen controle is wordt er vlugger iets fout gedaan, vaak uit onwetendheid.”

Quotations from S6, initiator of urban farm on top of the royal library

Date: 13/02/2013

Location: Brussels

No quotations

Quotations from S7, authorized for environmental planning, Molenbeek

Date: 04/03/2013

Location: Molenbeek

Section 4.2.3.

“Er is dus een beweging van mensen naar bewustwording toe en om dingen in hun eigen handen te nemen.”

Section 4.2.4.
“Er zijn hier verschillende scholen (en een jeugdcentrum) die moestuinen hebben, en we hebben ook projecten waar er moestuinen gepland zijn, ook op daken. Moestuinen [...] worden vaak als project opgestart door leerkrachten, ouders of kinderen. Het is een punt waar aan gewerkt wordt.”

“Veel kinderen weten dat namelijk niet meer, ze kennen de ketting niet meer en weten niet waar en hoe hun voedsel wordt gemaakt.”

Section 4.2.5.

“Je moet geen specifieke bevolkingsgroepen selecteren in je beleid, je moet een beleid hebben dat toegankelijk is voor iedereen.”

Section 4.2.7.

“Multifunctionaliteit is zeer belangrijk, dat is ook de reden waarom wij het in ons bestuursakkoord hebben opgenomen.”

Section 4.3.1.

“De investeringen op daken, wat wij ook aan het bekijken zijn, zullen waarschijnlijk zwaarder uitvallen. Mensen moeten er op een veilige manier kunnen opstaan; Het is iets anders dan er gewoon zonnepanelen op installeren want mensen moeten er regelmatig veilig naartoe kunnen gaan, er moeten bakken met aarde op worden geplaatst,... De toegankelijkheid, beveiliging.”

“Het is natuurlijk wel zo dat in het dichtbevolkte centrum de mensen dichter op elkaar wonen, elkaar beter kennen en dat er meer verenigingen zijn. [...] In hoog molenbeek is het moeilijker om mensen samen te brengen want er zijn minder verenigingen en er is minder infrastructuur aanwezig.”

Section 4.3.2.

“In molenbeek gaan we bijvoorbeeld niets planten in de grond, maar in bakken want het is hier een industriezone, dus een zeer vervuilde grond.”

Section 4.4.2.
“De investeringen op daken, wat wij ook aan het bekijken zijn, zullen waarschijnlijk zwaarder uitvallen. Mensen moeten er op een veilige manier kunnen opstaan.”

“Het wordt specifiek opgenomen in het bestuurzakkoord, dus het is zeker gedragen binnen de meerderheid, maar we moeten wel opletten dat we de draagkracht van de diensten bekijken die dat opvolgen.”

Quotations from S8, involved in the new project on top of the meat market, Anderlecht

Date: 26/03/2013

Location: Anderlecht

Section 4.3.1.

“Dus er gaat zowieso meer vraag naar voedsel komen, dat kan daar een antwoord op zijn.”

Quotations from S9, environmental consultant, Etterbeek

Date: 08/04/2013

Location: Etterbeek

Section 4.2.1.

“Food security; that is more ideological than real.”

Section 4.2.7.

“You cannot be only economic because the surface is too small. You cannot be only social because the politics won’t accept it.”

Section 4.3.1.

“I would like to ask to have a flat roof with a strong structure so we can grow on it. This could be an opportunity, the link between the new urbanization and UA has to be made.”

Quotations from S10, Employee of the BCR, regarding agriculture
Date: 31/01/2013

Location: Brussels

Section 4.2.4.

“Mensen opleiden is geen principieel doel. Wat na de opleiding? Weinig landbouwoppervlakte blijft over. Misschien in andere streek werken. […] Helft mensen stoppen met opleiding na enkele weken. Ze moeten eerst voldoende moeite doen, maar dat doen ze niet, en ze moeten nog werk vinden.”

Section 4.2.5.

“Er is bijvoorbeeld dankzij de volkstuinen meer en meer communicatie in wijken waar mensen oorspronkelijk bijna geen sociaal contact hadden. Dit is zeer belangrijk voor Brussel.”

“Er zijn ook nieuwe projecten op daken bijvoorbeeld. Daardoor is stadslandbouw sterk aan belang aan het winnen, maar dan spreken we niet zozeer over het economische aspect, maar eerder over het sociale aspect, wat zeer groot is.”

“Stadslandbouw begint van de grond te komen in de wijken waar er veel armoede is vb.: eco-innovation in Anderlecht aan het lemmensplein. Dus sociaal gezien heeft stadslandbouw een meerwaarde voor Brussel, meer dan economisch.”

“Belangrijke stijging van de bevolking in Brussel, meer dan 200.000 mensen sinds 15 jaar: demografische boom. In de stijging vnm bevolking met Weinig middelen: sociaal aspect zeer belangrijk.”

Section 4.2.6.

“Als ze willen uitbreiden tot grotere bedrijven wordt dat zeer moeilijk, dus in de toekomst zullen het eerder kleinere bedrijfjes zijn.”

Section 4.4.2.
“De mensen zijn erin geïnteresseerd en via een evenement gaan de mensen er vlugger heen. Er ontstaat meer interesse en de mensen willen dat dan ook proberen. Er is dus een stijgende vraag naar stadslandbouw in Brussel.”

Quotations from S11, founder of an UA-organization in Brussels

Date: 13/02/2013

Location: Neder Over Heembeek

Section 4.2.1.

“Sécurité de la nourriture; c’est quelque chose de secondaire.”

Section 4.2.6.

“Mais l’opportunité en ville c’est que les gens sont là, il ne faut pas faire des kilomètres, ils peuvent même venir et aguilliez les légumes aux mêmes.”

Section 4.3.2.

”On peut peut-être contrôle aux endroits dangereux, mais le nue est de contrôle la terre en avant. Mais il peut nettoyer des terrains avec des plants, donc ca n’est pas un problème[…] Pour la plupart il n’y a pas de danger avec des terrains agriculture.”

Quotations from S12, consultant regarding sustainable food and UA

Date: 21/02/2013

Location: Brussels

Section 4.2.2.

“Op milieuvlak zie ik niet echt een grote toekomst, ik betwijfel of dat een groot verschil zal maken.”

Section 4.2.3.
“Naar economisch nut toe gaat dat weinig opleveren, maar qua sensibilisering gaat dat veel doen en het gaat de stad aangenamer maken. Als je bijvoorbeeld terrassen met groen ziet, of het idee van hangtuinen gaat de stad veel leefbaarder maken.”

“Daar denk ik vooral aan de sensibiliserende waarde, voornamelijk naar scholen toe.”

Section 4.2.4.

“Het kan wel een oplossing zijn voor armoede en werkloosheid. [...] Waardoor je een opleiding krijgt en daar kan je veel aan vastkoppelen. Je kan bijvoorbeeld een opleiding krijgen voor het kweken zelf, voor de winkel, of een restaurant,...”

Section 4.2.5.

“Ik zie het eerder evolueren naar ofwel heel kleine, individuele tuintjes of naar heel grote commerciële landbouw. In die zin zie ik de traditionele stadstuintjes geleidelijk aan verdwijnen.”

Section 4.2.6.

“[…]. Maar dat maakt wel dat als je daar een boerderij kan opzetten en dat kan verhuurd worden, bedrijven zullen daar zot van zijn. Je hebt het voordeel van groendaken (wat je nu al hebt), van bewatering, isolatie,... En als daar nog eens verhuur bij komt zien bedrijven daar wel de meerwaarde van in.”

Section 4.3.1.

“Ik denk dat je in de stadsrand en in het centrum andere vormen van stadslandbouw hebt. In de stadsrand heb je namelijk meer plaats, terwijl in de stadskern zal het meer met hangende tuintjes zijn. Er zullen dus andere oplossingen moeten zijn.”

Section 4.3.2.

“Fijn stof vliegt bijvoorbeeld omhoog, maar het is niet zeker waar het land, niet alleen de stad, maar ook de velden hebben last van die problemen. In die zin denk ik niet dat daar niet zo veel verschil op zit, [...] maar in de perceptie van de mensen gaat dat wel een rol kunnen spelen.”

Section 4.3.3.
“Ik denk dat er te weinig stadslandbouw gebeurd op tijdelijke gronden, je zou er meer uit kunnen halen. Maar je moet al heel idealistisch zijn om het te doen.”

Section 4.4.2.

“Ik zie wel mogelijkheden voor innovatieve toepassingen inzake verticaal tuinieren, kleine stadstuintjes,... naar meer privé en minder collectief.”

“Je moet in Brussel namelijk weg van het klassieke idee dat je grond nodig hebt om via landbouw te produceren. Je gaat eerder moeten kijken naar creatieve oplossingen met groene daken bijvoorbeeld.”

Quotations from S13, employee and founder of an UA-organization in Brussels

Date: 05/02/2013

Location: Anderlecht

Section 4.2.1.

“Als je alle mogelijk sites zou betalen, zou je 8% van de Brusselse bevolking kunnen voeden. Voor specifieke gevallen kan het bijdragen aan de voedselzekerheid, want er zijn gevallen waar men het volledige jaar met de volledige familie zelfgeteelde groenten eet.”

Section 4.2.6.

“De economische rentabiliteit is belangrijk maar het blijft en uitdaging want het is moeilijk om de drie duurzaamheidsaspecten een evenwicht te geven.”

Section 4.2.7.

“Vooral het ecologische en sociale zijn uitwisselbaar. Het economische vlak is nodig om ergens de continuïteit te verzekeren van de projecten zelf.”

Section 4.4.1.

“Er komen steeds meer mensen in de stad wonen, dus stadslandbouw is wel nodig. De verstedelijking neemt toe en de stap is veel kleiner voor mensen die geen echt affiniteit
hebben met de landbouw om landbouw in de stad te gaan ontwikkelen om er effectief naartoe te gaan.”

Section 4.4.2.

“Als de huidige trend zich blijft verderzetten is er zeker een toename aan stadslandbouw. Met de boom van de stadslandbouw is er ook een boom aan creativiteit. De variëteit aan initiatieven is echt enorm en er is nog enorm veel ruimte voor verbetering als men het vergelijkt met steden als Rotterdam, Berlijn en Stockholm.”

“Wij krijgen subsidies van verschillende overheden die projecten uitvaardigen. Een belangrijke actor is het BIM. Zij doen geregeld projectoproepen rond groene wijken, duurzame voeding,… Het kabinet van leefmilieu, onderwijs, kir (professionele opleiding), dus verschillende kabinetten van het Brussels gewest, verschillende gemeenten en de federale regering ook. “

Quotations of S14, Honorary professor of Botany, Ghent University

Date: 05/03/2013

Location: Zaffelare

Section 4.2.3.

“Als die mensen het zelf ook zouden kunnen maken, hoeven ze niet naar de parken om het te stelen. Dat gaat niet vanzelf, maar dat is opvoeding van het volk, en dat is iets dat moet groeien en dat kan via de media en via filmpjes. […] Stadslandbouw moet dus een maatschappijverandering teweegbrengen en dat is een van de hoofdtaken van stadslandbouw om aan de mensen te leren hoe ze hun eigen leven kunnen verbeteren. De stadsmensen denken er namelijk niet aan want ze zijn het gewoon om niet naar de natuur te gaan.”

“Brussel heeft de mogelijkheid om een zeer groene stad te worden, niet alleen met bomen op lanen en in parken, maar naar groen overal. In Tokyo hangen er bijvoorbeeld aan vele balkons bakken met groene voedselplanten, dus waarom kan dat
niet in Brussel? De mensen moeten er zich alleen maar van bewust worden dat het kan.”

Section 4.2.4.

“In een stad hebben we ook veel scholen, waarom niet tegen de schoolmuren verticale tuinbouw opzetten. Leerlingen zouden er nog veel van leren ook. [...] Ik ben er van overtuigd dat zelfs de onderwijzers dit niet weten.”

Section 4.2.5.

“Ik zie voor stadslandbouw vooral de sociale functie bovenuit steken: het creëren van mogelijkheden om mensen bij elkaar te brengen, daar waar mensen nu uit elkaar groeien met tv en andere dingen.”

”Het vlees rond de ruggengraat (wetenschappelijk onderzoek) is dan het sociale weefsel waarbinnen het moet gebeuren. Maar je kan niet naar de bevolking toegaan met die serieuze studies want dat gaat hun petje te boven.”

Section 4.4.2.

”Het vlees rond de ruggengraat (wetenschappelijk onderzoek) is dan het sociale weefsel waarbinnen het moet gebeuren.”

Quotations from S15, Jette: Technical director for the environment and assistant

Date: 13/03/2013
Location: Jette

Section 4.2.4.

”Maar Jette heeft dus het voordeel van de kinderboerderij waar alle klassen van Jette naartoe komen [...]. Er is daar nu ook een groentetuin voor de kinderen. De kinderen kennen namelijk het verschil niet meer tussen de verschillende groenten.”

Section 4.2.5.
“De trend nu is dat er meer en meer jonge gezinnen stadslandbouw beoefenen vaak om economische redenen.”

“Als we plotseling een groot terrein zouden hebben zouden we proberen om dat op individuele manier te organiseren, maar wel met een soort samenwerking zodat er toch een sociaal leven aan vasthangt. Nu gebeurd het ook, maar het is zeer weinig […], het is niet dynamisch genoeg.”

Section 4.3.1.

“We hebben al groene daken, maar nog niet om te kweken. Op daken gaan we meer naar bijen toe.”

“Als men naar duurzaamheid wil toegroeien, moet dat zeker in de stad verwerkt worden in open ruimten met opvoeding van het publiek.”

References


8.4. Annex 4: Codebook

This annex gives an overview of the codes that were determined during the encoding process (table 2). The interviews were categorized using these codes. Not all the codes are represented in the study because the amount of references in some codes were too few to visualize. Usually these arguments are just mentioned in the document as written text to make sure that all arguments are taken up.
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