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Temporary Urban Agriculture, a Permanent Phenomenon?

A case-study research on the transition of structurally integrating temporary urban agriculture into metropolitan areas

RENSKE TER HORST

MSC THESIS LAND USE PLANNING
URBAN ENVIRONMENTAL MANAGEMENT
WAGENINGEN UNIVERSITY

WAGENINGEN
UNIVERSITY & RESEARCH

AMS
AMSTERDAM INSTITUTE FOR
ADVANCED METROPOLITAN SOLUTIONS

With this thesis, my student career has almost come to an end. I thank everyone that has contributed to making it outstanding, and I would like to especially thank my parents for all their support.

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Renske ter Horst
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MSc Thesis Land Use Planning,
Urban Environmental Management
Wageningen University

Supervisors:
dr. ir. W. van der Knaap
prof. dr. A. van der Valk

Second reviewer:
dr. B. Pedroli

Abstract

Cities around the world compete with each other to be economically viable, liveable and sustainable, which makes the physical quality of a city, and especially green space, of great importance. A form of green space in and around cities is temporary urban agriculture. Urban agriculture projects have social, environmental and economic benefits that are important for urban areas. However, with cities competing with each other to be economically strong and attractive the land use competition in cities is severe, especially for temporary urban agriculture projects.

The theoretical framework of this research is the multi-level perspective on socio-technical transition theory. The connection between temporary urban agriculture projects and the dimensions on the regime level has been investigated.

This study focusses on the possibility of temporary urban agriculture in metropolitan areas to make a transition towards structurally being integrated in the urban environment. First, the current state of planning temporary urban agriculture is researched. Then, opportunities, challenges and uncertainties and conditions for temporary urban agriculture to integrate in the urban environment are identified.

The metropolitan areas of Paris and Amsterdam have been chosen as cases. In both metropolitan areas a starting, an established and an ending temporary urban agriculture project has been researched. Desk research and interviews have led to insight into the integration of temporary urban agriculture in both metropolitan areas.

From the results of this research, it appears that the dimensions culture and actions, from the multi-level perspective on socio-technical transition theory, are important factors for the integration of temporary urban agriculture in the metropolitan areas of Paris and Amsterdam. The dimensions science, industry and networks and policy also play a role in this process. On the other hand the regime dimension technology did not prove to be an important factor. Besides these regime dimensions, physical aspects and finances appeared to be important factors, that were not yet explicitly covered by the multi-level perspective on socio-technical transition theory. These two dimensions have been added to the framework.

The integration of temporary urban agriculture as a permanent form land use in metropolitan areas could be possible, if it is structural integrated into the regime. This research presents opportunities to make use of, challenges and uncertainties that have to be dealt with and conditions to be met per regime dimension. With these in mind, temporary urban agriculture has a future in cities.

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1. Introduction

1.1 Sustainable Cities

Reaching global sustainability, is to a great extent a matter of making cities more sustainable (Bugliarello, 2006; Ernst et al., 2016). Cities are important places in this period of globalisation, they offer a place to live to more than half of the world population and form the centre of all activities (Bugliarello, 2006; Sonnino, 2009; Jonkhof et al., 2012). Cities around the world compete with each other to be economically viable, liveable and sustainable, which makes the physical quality of a city, and especially green space, of great importance (Jonkhof et al., 2012).

A form of green space in and around cities is urban agriculture. A general definition of urban agriculture given by RUAF Foundation (n.d.) is *"the growing of plants and the raising of animals within and around cities"*. Urban agriculture distincts itself from rural agriculture through its integration in the urban system. Urban agriculture exists in urban and peri-urban sites and is linked to the urban area in many ways. Residents from the urban area work in the gardens, urban resources such as organic waste are used as compost and urban agriculture has direct impacts on the ecology in the urban area. Urban agriculture is an integral part of the '*urban food system'*, there are direct links between the gardens and the consumers. Furthermore, urban agriculture is influenced by policies and plans and has to compete with other urban land uses (RUAF, n.d.). This competition results in pressure on agricultural land in and around cities, because of urban expansion (Stedennetwerk Stadslandbouw, 2013).

Food planning and urban planning have been addressed separately for a long time (Sonino, 2009). However, the two have always been connected to each other and coevolved over time. The emergence of agriculture allowed the planning of food supply, which probably led to the development of cities. In turn cities enabled people to better organise and collaborate which led to the development of a global industrialised food system. This enabled the emergence of large metropolitan areas that are inhabited by millions of citizens that are highly dependent on the industrialised global food system (Sonino, 2009; Ilieva, 2016). In the 1960's it became clear that there were also negative effects of the industrialised agriculture and planned urban forms, mainly on the environment and public health. However, the realisation that these two problems could be tackled together by integrating food planning in urban planning, only came much later (Ilieva, 2016). Nowadays the attention for food planning in urban areas is growing and it is increasingly argued that planners can play an important role in promoting urban sustainability, and that "*the food chain is the key to a more sustainable way of life"* (Van der Valk, 2016 p. 53).

1.2 Urban Agriculture

In cities all around the world, forms of urban agriculture are emerging and gaining the interest of citizens (Veen et al., 2012). In the Netherlands this is for example visible through supermarket deals that promote growing your own vegetables. By every ten euro spent, the supermarket distributes packages of seeds and soil of different vegetables to its customers.

Citizens growing their own vegetables is one form of urban agriculture. However, the concept of urban agriculture comprises many more forms and projects in and around cities, varying in scale, intensity and purpose. Urban agriculture projects are integrated in the urban structure in several ways: in public space, on roofs and in buildings, among others. The projects comprise several

functions, such as: food production, education, biodiversity, leisure and community building, and the initiatives vary from small individual- or community gardens that produce vegetables and herbs for personal use, to large farm companies on the edge of the city that produce for the cities inhabitants (Veen et al., 2012). Furthermore, agriculture can be a permanent land use in urban areas, but often urban agriculture projects are temporarily integrated in metropolitan areas. Temporary land uses allow flexibility in planning, because time and uncertainty can be taken into account, which leads to spaces that are better able to adapt to changing circumstances (Bergevoet & Van Tuijl, 2013). By tackling the challenge of integrating food in urban planning, it is not only about finding the best way to feed the citizens. There are several social, environmental and economic benefits that urban agriculture can bring about (RUAF, n.d.; Ilieva, 2016).

In the social context, urban agriculture projects are important because of their ability to bring people together. They give people a chance to grow their own food, and enhance social contacts and community building. Furthermore, urban agriculture can provide a place for, for example educational and leisure purposes (RUAF, n.d.; Veen et al., 2012)

From an environmental perspective urban agriculture projects are important, because of their multiple functions: they are greening the urban environment, enhance biodiversity, and can improve the urban climate by forming buffer zones without construction within the city (RUAF, n.d.; Veen et al., 2012). Urban agriculture projects can also create awareness around the creation of a sustainable food chain, for example through promoting eating seasonal food (Veen et al., 2012).

From an economic point of view urban agriculture has a positive impact on the liveability of a neighbourhood. An urban agriculture project can make the living environment more attractive and adds value to surrounding property (Veen et al., 2012). In the case of larger urban agriculture projects, local food can be produced for the market and jobs can be created (RUAF, n.d.; Veen et al., 2012).

1.3 The Emergence of Urban Agriculture

Temporary urban agriculture is a phenomenon that has been part of cities for decades, for example in New York in the 70's. Around that time there was an economic depression which let to urban plots remaining vacant. A movement called 'green guerrillas' started to improve these unused and impoverished plots by throwing seed-bombs, consisting of flower seeds and fertilizers, on them. The aim was to improve the living environment of the neighbourhood. The 'seed-bombs' transformed many vacant plots into green space and, after a few years, several plots turned into gardens that were socially, environmentally and economically important for the neighbourhood. This led to fights of inhabitants against the government, who wanted to develop the plots that were transformed into gardens (Van der Valk, 2016; Jonkhof et al., 2012).

Nowadays many temporary urban agriculture projects have emerged in cities. However, urban agriculture projects need space and the availability of space in cities is limited. Agriculture has to compete with other forms of land use, such as housing or business parks, which are often more profitable in an economic sense (Stedennetwerk Stadslandbouw, 2013). During the financial crisis in 2008, plots in urban areas remained undeveloped due to a lack of investment in real estate by developers. These vacant plots and buildings in neighbourhoods led to a reduced liveability, because of a decreased spatial and social continuity (Stedennetwerk Stadslandbouw, 2013; Bergevoet & Van Tuijl, 2013). Part of the vacant plots have been assigned a temporary function, including urban agriculture (Stedennetwerk Stadslandbouw, 2013). Temporary functions can be implemented quickly

and they can create change on the long-term (Bergevoet & Van Tuijl, 2013). However, it is uncertain how the phenomenon of temporary urban agriculture will develop within the metropolitan landscape.

1.4 Problem Statement

In this thesis the possibility of making the transition towards integrating the phenomenon of temporary urban agriculture into the metropolitan area is researched. Urban agriculture projects have social, environmental and economic benefits that are important for cities. However, with cities competing with each other to be economically strong and attractive the land use competition in cities is severe, especially for temporary urban agriculture projects. Despite the environmental and social benefits of temporary urban agriculture projects, the space occupied by temporary projects is attractive for urban development (Santo et al., 2016). To ensure that temporary urban agriculture continues to exist in cities, research needs to be done on the current situation to identify opportunities challenges, uncertainties and conditions on the possibility of integrating the phenomenon of temporary urban agriculture permanently into cities.

1.5 Structure of the Thesis

Following this introduction, first the theoretical framework used in this research will be discussed in chapter 2. The theoretical perspective will be explained and its applicability on the topic of temporary urban agriculture will be discussed. Furthermore, the concept of temporary planning will be described. Second the research objective and methodology of this research will be described in chapter 3. The main research question and sub-questions are described. The argumentation of the chosen design of the research and the chosen cases will be presented in this chapter. Furthermore, the generation and analysis process of the data will be explained. In chapter 4 the urban agriculture projects researched will be described. Chapter 5 shows the results of this research by answering the sub-questions presented in chapter 3. The results will be analysed according to the theoretical framework. Then the limitations of this research will be discussed in chapter 6. In chapter 7, the conclusions, an answer to the main research question will be formulated and recommendations for further research will be made. The sources used in this research are listed in the references and further information that supports the results and conclusions of this research will be included in the appendices.

2. Theoretical Framework

2.1 Transitions in Society

Societal systems have been created to meet our social needs. These societal systems seem to be stable, but over time this stability will always be disturbed and the societal system will be adapted into a system that is functioning in a different way. The way we travel, how we produce energy and the way our healthcare is organised all might appear to be obvious. However, when looking back, these functioning systems have all changed overtime (De Haan & Rotmans, 2011). De Haan & Rotmans (2011 p. 90) state that: "*the way the world around us works is not the way it will work, nor the way it once worked*". This shows that the society we live in, has changed and will change in the future. The society consists of societal systems that are assigned a function and functions by fulfilling societal needs. When these societal systems go through a more structural transformation, they are in transition (Geels, 2002; De Haan & Rotmans, 2011). Ilieva (2016 p.3) defines transition as follows: "*a profound structural transformation of a system vital to the existence and progress of society […] via disruptive or incremental changes of the material and nonmaterial components that keep it in place".* This emphasises that a transition is a series of changes in several dimensions that follow and determine one another (Ilieva, 2016).

One of the theories to study these transitions of societal systems is the transition theory. There are three mainstreams that can be identified within the transitions theory: (1) the sociotechnical approach that focusses on historical transitions (Næss & Vogel, 2012); (2) the complex system view, that includes thinking in terms of stocks and flows (Rotmans et al., 2001); (3) and the governance perspective that focusses on agencies and transition management (Næss & Vogel, 2012). This research will focus on the sociotechnical approach, following the *multi-level perspective (MLP) on socio-technical transitions theory*. This theory has been developed from the start of this century and originates from innovation and technology studies and evolutionary economics (Næss &Vogel, 2012; Geels, 2011; De Haan & Rotmans, 2011).

2.2 MLP on Socio-Technical Transitions Theory

The multi-level perspective is a theory that explains how society has developed. Society exists of socio-technical systems that consist of people and the technologies they use (Geels, 2002). This multi-level framework can be used to follow changes in a system and makes it possible to compare different cases (Rotmans et al., 2001). When looking at socio-technical systems with a multi-level perspective, three main levels can be identified on which different constellations occur: the regime, the niches and the landscape (Geels, 2002).

The *regime* is defined by Geels (2002) as a *"semi-coherent set of rules carried by different social groups […] providing orientation and coordination to the activities of relevant actor groups [and] account for the stability of socio-technical configurations"* (Geels, 2002 p. 1260). This explains the regime as a complexity consisting of cultures, structures and practices that are representing the dominant functioning of the societal system (Frantzeskaki & De Haan, 2009). Regimes relate to interests, dominant rules and practices, shared beliefs and assumptions (Rotmans et al., 2001) and occurs on the meso-level (see figure 1; Geels, 2002).

Niches can be defined as constellations that create and offer protection to innovations and novelties, because of a different selection procedure than the regime applies. Niche actors can work on and

develop innovations that are radically different than the regime. However, innovations are often opposed by the existing *'lock-in mechanisms'* of the regime, such as infrastructure, regulations and consumer practices (Geels, 2011; Geels, 2002; Frantzeskaki & De Haan, 2009; Ernst et al., 2016). Niches are less powerful than the regime and operate on a lower scale, the micro-level (see figure 1; Geels, 2002).

The *landscape* can be defined as the environment in which regimes and niches operate. Landscapes include external factors, like trends and global events (for example: demographical trends, ideologies, norms and values of society and macro-economic patterns). The landscape is the external setting in which actors of the regime and niches operate and cannot be affected by them on the short-term, therefore the landscape changes slowly (Geels, 2002; Frantzeskaki & De Haan, 2009). The Landscape includes physical infrastructure, values, worldviews and paradigms, political climate, economy, demography and the natural environment (Rotmans et al., 2001) and occurs on a bigger scale than the regime, the macro-level (see figure 1; Geels, 2002).

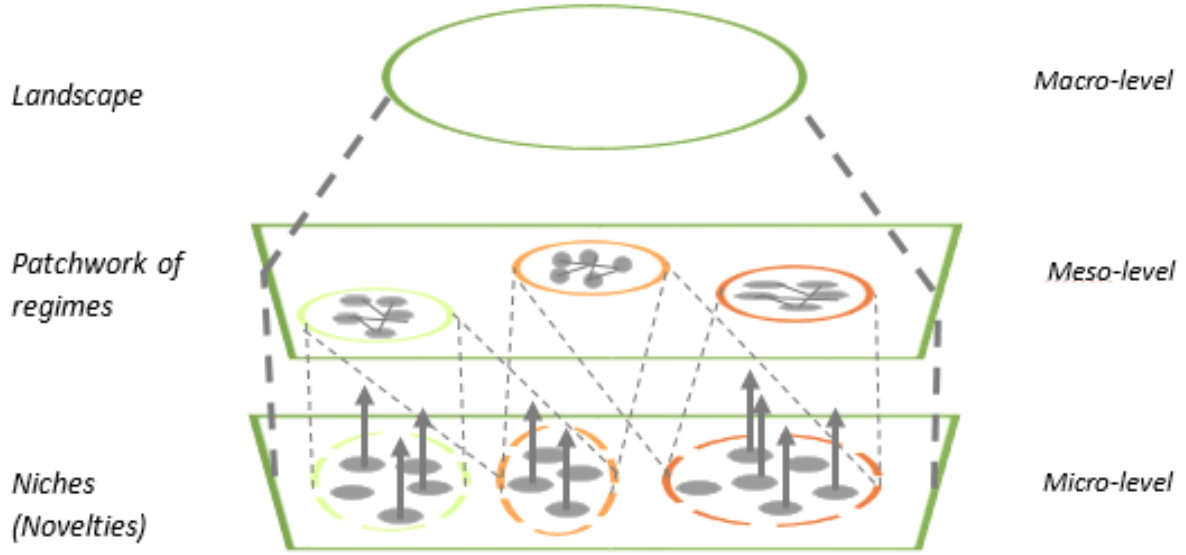

Figure 1: The Multi-Level Perspective (adapted from Geels, 2002)

There is one other constellation mentioned in literature, the so-called *niche-regime*. As the name suggests, a niche-regime is a constellation that is positioned between the niches and the regime. It has the innovative character of a niche and is fundamentally different than the dominant regime. However, it has gained power so it can co-exist next to the regime and has the potential to be an alternative for the regime (Frantzeskaki & De Haan, 2009).

The relations between the different constellations are of interest when a transition is taking place. As shown in the figure 1 *"regimes are embedded within landscapes, and niches are embedded within regimes"* (Ernst et al., 2016 p.2989). There has been discussion in literature about the classification of the landscape, regime and niches into different levels. This might give the idea that these are hierarchically structured. However, as Geels (2011) states, the indicated macro-, meso-, and micro-level in the MLP are not meant to be hierarchical, but to describe the relation between the niches, the regime and the landscape. The concepts 'niches' and the 'landscape' are explained in relation to the regime, respectively as practices or technologies radically different than the regime and the environment in which the regime and niches exist and interact (Ernst et al., 2016 & Geels 2011).

Shifts at one of the levels, will have influence on the other levels. These shifts can create circumstances that can trigger a transition (see figure 2).

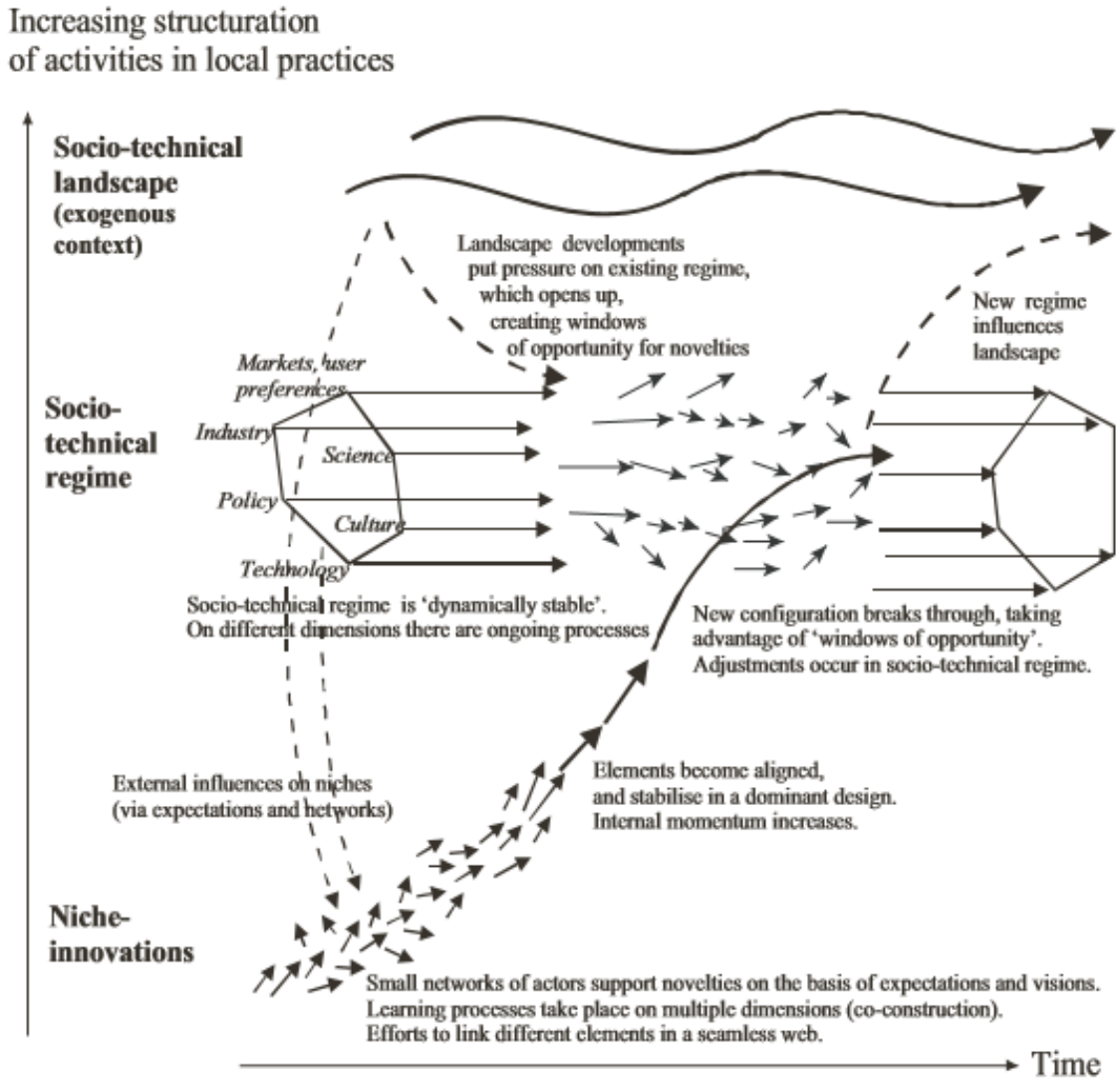

Figure 2: Multi-Level Perspective on socio-technical transitions (Geels, 2011 p. 28)

Within the regime level Geels (2002; 2011) identified different dimensions (see figure 2). These dimensions have been identified as a '*heuristic*' (Geels, 2002), which means that they can be used to methodically analyse and gain knowledge from a certain situation. However, the listed dimensions are related to each other, they are all connected with and influenced by one another. Furthermore, the mentioned dimensions are not fixed and not exhaustive (Geels, 2002). The dimensions identified from the literature and their definition used in this research are shown in table 1.

Table 1: Regime Dimensions

Dimensions in Geels (2011)	Definition used in this research	Dimension in this research
Culture	Symbolic meaning perception, habits, beliefs, values and interests of actors in civil society (based on Geels, 2002; Franzeskaki & De Haan, 2009)	*Culture*
Science	Knowledge, techniques and skills (based on Geels, 2002) regarding developing and coordinating urban agricultural projects in the city.	*Science*
Markets, user preferences	Demands, wants, needs and behaviour of several actors involved (Franzeskaki & De Haan, 2009).	*Actions*
Industry	Actors and activities regarding urban agriculture and the corresponding formal and informal social constructs, which legitimise and enable but can also constrain actions of actors and interactions and connections between actors and urban agriculture projects (Geels, 2002; Franzeskaki & De Haan, 2009).	*Industry & Networks*
Policy	Policies, laws, regulation and directives regarding planning urban agriculture in the city influence and standardise practices (based on De Haan & Rotmans, 2011; Franzeskaki & De Haan, 2009).	*Policy*
Technology	Technologies used in urban agriculture projects.	*Technology*

2.3 Conditions for Change

A societal system does not go through a transition without a reason. As mentioned before, a societal system can be defined as a system with a function, that is functioning in fulfilling a societal need. When a system is in transition, its functioning is somehow disturbed. The conditions for change can be defined as the disturbing factor of the functioning of the system (De Haan & Rotmans, 2011). The macro-, meso- and micro-level are influenced by each other, linkages between developments on these levels will lead to change (Geels, 2002). De Haan and Rotmans (2011) identified three categories of conditions for change: tensions, stress and pressure.

- *Tensions* occur when the environment, on the macro- and meso-level, in which the system operates compromises its functioning. Two categories of tensions can be identified: structural tensions and cultural tensions. Structural tensions address shortcomings in the functioning of the system relating to *"physical, infrastructural, economical, formal and legal aspects"*. An example is depletion of resources. Cultural tensions relate to change that concerns ideologies, discourses, norms and values, such as awareness of the public or the public opinion (Geels, 2002; De Haan & Rotmans, 2011).
- *Stress* occurs when the regime is not sufficient or consistent and therefore unable to provide the dominant way to meet the societal needs. For a system to function, the structures and cultures within the regime have to fit together. When this is not the case, signs of stress will occur. Stress can be indicated when *"what is done is at cross with the philosophy behind it, the system not practising what it preaches so to say"* (De Haan & Rotmans, 2011 p. 94). An example of stress in a system are the subsidy schemes in the agricultural sector that were meant to stabilize the production, but led to overproduction due to the established minimum prices and the guarantee of the government to purchase the products (De Haan & Rotmans, 2011).

- *Pressure* occurs when the functioning of the regime is pressed by alternative ways to meet societal needs. When these alternatives can compete with the regime they can take over the dominant way societal needs are met or make the dominant functioning of the regime outdated. Examples are the emergence of the e-mail made faxing outdated and the agricultural regime that is pressured by the bio-fuel industry that needs land to grow crops for bio-fuel (De Haan & Rotmans, 2011).

Tensions, stress and pressures can occur simultaneously. Also, different kinds of tensions, stress and pressures can occur at the same time. The concurrence of events can create a situation in which change takes place, and is also called a *window of opportunity* (Geels, 2002). Innovations can break out of the niche level, because of tensions, stress and pressures on the regime- and landscape-level.

The concept window of opportunity has many similarities with Kingdon's policy window theory (Kingdon, 1984). In his theory there are three streams: the problem stream, the policies stream and the political stream. When these three streams intersect, a 'policy window' or 'window of opportunity' is formed. The first stream, the problem stream, is about problem recognition by de public, the government or other institutions. The second stream, the policies stream, entails the people that are focusing on the development of policies, spatial planners, interest groups and researchers, among others. The third stream, the political stream, includes the public opinion, interests and political support, among many other aspects (Kingdon, 1984). In the decision-making processes within a governmental organization, these three streams operate separately and independently from each other. The intersection of these separate streams forms a 'window of opportunity'. This happens when a problem is recognized, there is an available solution and the right political climate. This forms the opportunity for a change or a transition in a system to take place (Kingdon, 1984).

Transitions do not occur overnight, as the conditions for change and policy window theory show, many factors contribute to the opening of a window of opportunity (De Haan & Rotmans 2011; Kingdon, 1984). This enables innovations to break out of the niche level. There is a discussion whether transitions are manageable or not.

Rotmans et al. (2001) describe a strategy of transition management. Rotmans et al. (2001) argue in their paper "*More evolution than revolution: transition management in public policy"* that a transition or change can be realized by following a management strategy. They argue that public decision makers and private actors can use management strategies to stimulate transitions. This management strategy includes a transition objective and a vision. These should be multi-dimensional and multi-level and include multiple actors. The vision is not a blue-print of what the future should look like, but can adapt and change over time. To reach the vision, short-term objectives are used to make progress. During the transition the achievements, process dynamics and gained knowledge are evaluated. This enables to find out what is learned and obtained in the process so far and how the process should continue. An important element in transition management is creating public support (Rotmans et al., 2001).

This management strategy has many similarities with the *"trajectories of niche-cumulation"* described by Geels (2002 p. 1271). He has identified three core processes of niche development in transition literature (Geels, 2011): (1) *'Expectations and/or visions'* are formulated, these attract attention and funding, and guide niche innovations; (2) The *'building of social networks'* leads to the involvement of more actors and expands the resources that niche innovations can make use of; (3) '*Learning and articulation processes'* in several dimensions, design, infrastructure, policy instruments, user preferences, market demand and organisational matters, among others (Geels,

2011). When expectations and visions will become more embedded in society, when networks will become bigger and learning and articulation processes will lead to stable structures, the niches will become more powerful (Geels, 2011). However, *"further success of a new technology is not only governed by processes within the niche, but also by developments at the level of the existing regime and the sociotechnical landscape"* (Geels, 2002 p. 1261).

The main difference between the processes described by Rotmans et al. (2001) and Geels (2002; 2011) is that Rotmans et al. (2001) imply that this process is a management strategy that can be followed to encourage a certain change or transition in a system. While Geels (2002; 2011) describes this process more as a process that occurs in order for a change or transition in a system to take place, but is to a minimum extent manageable. There are many aspects on the landscape, regime and niche level that influence the occurrence of a transitions. Most of these aspects cannot be controlled, it can thus be questioned if transitions can be managed.

Transitions take place when a window of opportunity opens. This is based on the coincidence of the three streams intersecting or on the occurrence of tensions, stress and pressure (Kingdon, 1984; De Haan & Rotmans, 2011). It is not possible to fully manage the appearance of a window of opportunity. However, actors can have influence on the course of events by forecasting a window of opportunity when possible, recognising the window of opportunity when it opens, and make use of it when it appears. A flexible management strategy, like the one proposed by Rotmans et al. (2001), can help to cope and adjust to changes on the different levels and enables to make use of the windows of opportunity.

2.4 Transition Paths

Transitions in societal systems do not always occur in the same way. As Rotmans et al. (2001 p. 16) describe: *"Transitions are not uniform, and nor is the transition process deterministic: there are large differences in the scale of change and the period over which it occurs. Transitions involve a range of possible development paths, whose direction, scale and speed government policy can influence, but never entirely control."* This emphasises that the rate, length, path, direction, scale and speed of change are different for each transition (Rotmans et al., 2001).

The MLP on socio-technical transitions theory has been criticised to be biased towards bottom-up developments. Multi-level perspective approaches tend to emphasise on transitions that start as innovations at the niche level, then gain ground and enter the market to compete with the regime and finally absorb the regime. However, processes on regime and landscape level can also lead to change. To emphasise this, four transition paths have been identified by Geels (2011):

- *Transformation*: following this transition path the regime adjusts under the pressure of landscape developments, without niche-innovations breaking through. When developments on the landscape level are pressing on the regime, but innovations on the niche level are not yet so well-developed that they can take over the regime, the regime can adjust. Actors on the regime level can alter the direction of the innovations and developments, by learning from the experiences on niche level, so the regime alters to the landscape level pressures.
- *Reconfiguration*: in this situation the regime will incorporate niche innovations, which change the composition of the regime, as a result of the developments on landscape level. When landscape developments put pressure on the regime, but innovations on niche-level are well-developed and form an addition to the current regime, the existing regime can adopt the innovations.

- *Technological substitution*: in this situation, a niche innovation replaces the regime. Landscape developments put pressure on the regime, which causes tensions on the regime level, while well-developed niche innovations that form an alternative for the regime exist next to the regime. The tensions can form a window of opportunity for the niche innovation to break through and replace the existing regime. The niche innovation can also replace the regime without pressure from the landscape level when the innovation gets financial, political and cultural support and therefore replaces the regime.
- *De-alignment and re-alignment*: following this pathway, pressure of landscape developments on the regime cause that the regime disintegrates, which gives room for innovations on the niche level to develop. Several innovations compete with each other until one appears to be the strongest and absorbs the regime.

In all transition paths developments on the landscape level are very important for the transition to take place. Pressure from these developments on the regime level often form the motivation to adjust the regime. Subsequently the innovations on niche level determine the direction of the transition.

2.5 MLP on socio-technical transitions in a spatial planning context

The MLP on socio-technical transitions has been extensively discussed in the previous sections. However, its applicability to spatial planning has not been covered yet. Therefore, in this section the MLP on socio-technical transitions will be discussed in the context of the city. Næss and Vogel (2012) did research on *"the development of the building stock, land use and transport infrastructure in cities and the prospects of changing this development in a way compatible with a low-carbon and environmentally less unsustainable society"* (Næss & Vogel, 2012 p.37). In their research, they focus on the spatial context as an object that goes through a transition. A city as an object for transition changes constantly, every year new components are added to the urban structure or existing components are expanded or changed. For example, new buildings are developed or roads are closed or redesigned. These kinds of changes are regularly taking place in the urban context, but according to Næss and Vogel (2012 p. 40) the *"business as usual changes in the urban structure are not the kinds of transitions that transition theory is dealing with. Instead, what should be considered as urban transitions within the perspective of transition theory are changes in the ways in which urban structures change."*

There are a few challenges when describing and analysing the changing urban structure by using the MLP on socio-technical transitions theory. The following have been identified by Næss and Vogel (2012):

- Cities are complex systems, different cities are shaped in different ways depending on their *"natural, social, cultural, economic and political conditions".* Furthermore, characteristics of cities such as number of inhabitants, land use, function and position in a larger network of places differ greatly. In other words, the meaning of the concept 'city' is very much context dependent.
- Cities are large scale entities existing of many interrelated elements. When an intervention is made in one part of the city, this will influence other parts of the city. Implementing a new environmentally sound structure into to the city can have a counterproductive effect on other parts of the city. For example, a newly developed high density residential area close to

workplaces and facilities can lead to a more sustainable city because it will reduce car commuting. However, to make place for this new element other workplaces may be moved to the edge of the city which will increase car use for other people.

- Cities are composed of several styles and technologies of houses, neighbourhoods and forms of transportation that are existing next to each other. When for example looking at the steamship example given by Geels (2002) about the transition in sea transport, sailing ships are gradually replaced by steamships. The 'new' technology, steamships, take over the old regime, sailing ships, completely as new ships are build and old ships are taken out of use. When looking at a city as an object for transition this works different. In cities a multi-segmented regime can be identified. This multi-segmented regime consists of a mix of different technologies and styles. The multi-segmented regime *"squares well with what we can observe in the urban land use and transport policies of many European countries, where investments in public transport like metros or light rail take place alongside with road capacity increases, and where new housing development has for many decades taken place as a combination of apartment buildings, row houses/terraced housing and single-family homes."* (Næss & Vogel, 2012 p.42).

The characteristics of the city's context-dependency, interrelatedness and multi-segmented regime make that cities differ from socio-technical systems that are often analysed in transitions (Hernàndez-Palacio, 2017). However, there are also characteristics of cities as a socio-technical system that make it possible to apply the MLP on socio-technical transition theory on them. The city operates on several levels and has a complex network of actors. Furthermore, the city exists of a complex regime consisting of the several dimensions mentioned in the theory: culture, actions, policy, technology, science and industry and networks (Hernàndez-Palacio, 2017). The dimension that is not included in this list, but that is important in spatial planning, is physical aspects. When studying socio-technical transitions in a spatial planning context, these physical aspects, defined as the setting where the transition takes place, should be considered as well.

2.6 Temporary Land Use

Planning has traditionally been practised in a rational and technocratic way. It was believed that there existed a *"unified planning theory"* with which planners as experts could find ultimate solutions to societal problems (Allmendinger, 2009). This was expressed in top-down planning approaches, such as blue-prints and long-term plans with little acknowledgment to the unpredictability and uncertainty of the future. This led to situations in which what was planned did not fit with the changed circumstances (Allmendinger, 2009; Bergevoet & Van Tuijl, 2013). More recently the financial crisis in 2008 led to the undermining of the belief in a permanent growing economy (Bishop & Williams, 2012).

To be able to take time and uncertainty into account, there is interest in a more flexible planning approach. A more flexible approach will lead to spaces that are better able to adapt to changing circumstances. The implementation of temporary land uses in a city are an example of a flexible planning approach (Bergevoet & Van Tuijl, 2013). In periods of crises temporary land uses are encouraged. In these periods, the ideal vision for a certain area cannot be realised for different kinds of reasons, for example financial, collaboration or restriction problems. This offers opportunities for temporary initiatives to develop (Andres, 2013). Temporary land uses can be implemented to quickly respond to changes, but also to realise change on the long-term (Bergevoet & Van Tuijl, 2013).

When researching temporary urban agriculture, it is important to define what is meant with 'temporary'. More specifically what is meant with temporary use of space in cities. Designating a use of space temporary implies that a certain place will have a certain function for a certain amount of time and then disappear. There will be a beginning and an end to that specific use of space (Bishop & Williams, 2012). However, as Bishop and Williams (2012 p.5) correctly state in their book 'The temporary city': *"if we take a long enough time period […] everything is temporary, although it is certainly true that some things last longer than others"*. In other words, all spaces in a city have a certain function that can change, but some change faster than others. The use of space can only be designated as temporary with certainty after it has disappeared from a certain place (Bishop & Williams, 2012). Identifying a certain land use as temporary is thus difficult.

To be able to clarify the concept of temporary land use, some characteristics have been identified from literature. First, Andres (2013p. 759) mentions that temporary land uses are: *"a set of practices with short-term return, developed in a context of economic, urban or political disorder in a more or less unplanned way. Their lifespan varies from a couple of months to several years"* (Andres, 2013 p. 759). Bishop and Williams (2012) add to this that land use can be identified as temporary when it is the intention of the developer or planner to develop a temporary land use. Whether it is a short-term or long-term temporary development. In this research, urban agriculture will be considered a temporary land use when a project is not established as the land use destination in policy. The existence of those projects is unsure, because of possible future urban development at that location.

Temporary land use might be seen as "*a mere substitute for the real thing"* (Bishop & Williams, 2012 p.5). It can be perceived as something that fills up the space until a more permanent use has been designated and realised in this space. However, temporary land use has certain benefits, and is therefore more than just a filling. A special quality of temporary lands use can be that *"the temporal limitation permits many things that would still be inconceivable if considered for the long term"* (Bishop & Williams, 2012 p.5). Furthermore, Bergevoet and Van Tuijl (2013 p.31) argue, that temporary use of space is an opportunity for development in the city on the long term. Temporary initiatives can have many opportunities for the neighbourhood. It can stimulate the economy by enabling people to develop the space, and subsequently hope that they are able to develop a profitable business. It offers the opportunity to renew and stimulate development in a certain area of the city. Furthermore, it can have a positive impact on the attractiveness and quality of the area (Andres, 2013; Bergevoet & Van Tuijl, 2013).

The opportunities for the surroundings of temporary land use depend on the implemented project. In the case of temporary urban agriculture, the specific benefits in the economic, social and environmental domain mentioned in the introduction can have a positive influence on the neighbourhood.

2.7 Conceptual model

In the conceptual model (see figure 3) the relations between the theories and concepts discussed in this chapter are displayed. The model shows how a transition towards temporary urban agriculture being structurally integrated in the city theoretically could take place. The transition is taking place in a context and influenced by its physical conditions. In the model temporary urban agricultural projects started as a niche development in cities. In order for the niche to break through the regime, certain circumstances are needed. The situation in which the circumstances are right for change is called a window of opportunity. In this conceptual model the window of opportunity is displayed as a

certain moment in time. At that moment the conditions on the three levels, landscape, regime and niche, enable a transition to happen. The niche development can break through the regime and influence the dimensions. Temporary urban agriculture can have economic, social and environmental benefits. If this phenomenon will be integrated structurally in the city, these benefits can enhance sustainability and liveability of cities and increase the quality of life for its citizens.

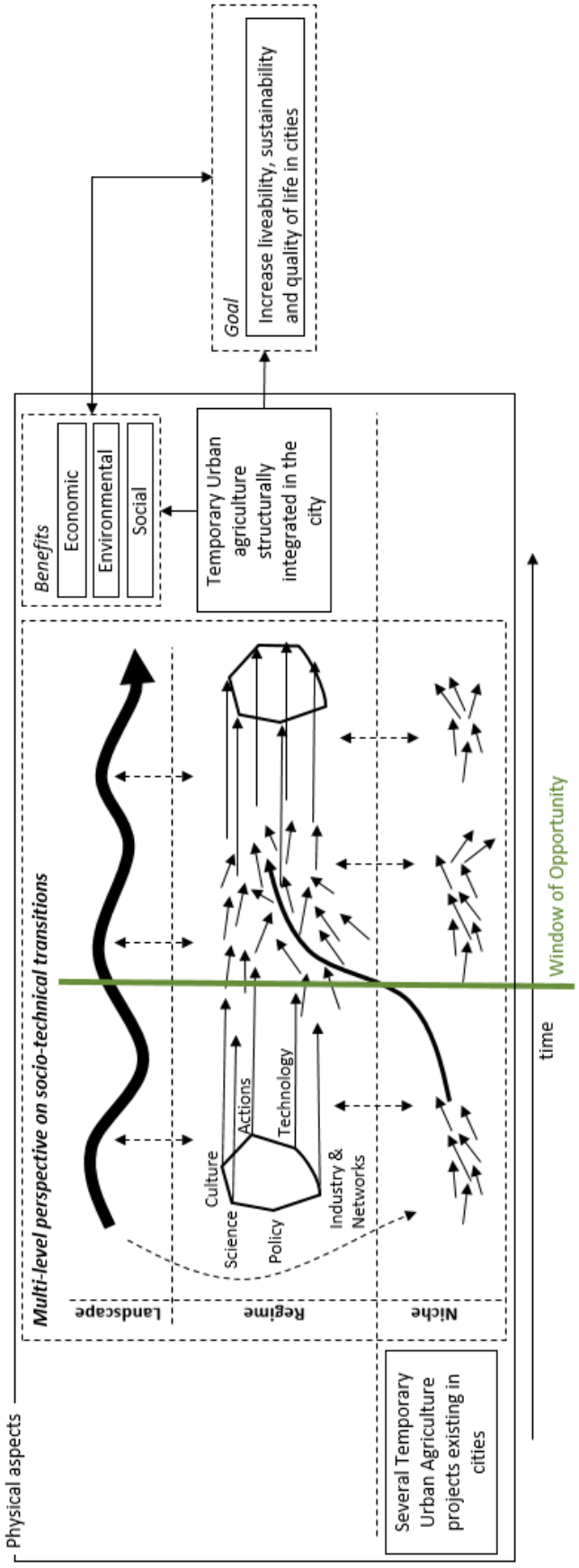

Figure 3: Conceptual model (based on Geels, 2011)

3. Research Objective & Methods

3.1 Research Objective

This research will generate understanding of temporary urban agriculture projects from a multi-level perspective on socio-technical transitions. Therefore, the current situation around planning of temporary urban agriculture in metropolitan areas will be identified. Furthermore, the connection of temporary urban agriculture to the identified dimensions will be examined. The opportunities, challenges and uncertainties for temporary urban agriculture projects in metropolitan areas will be investigated. Then, the conditions that are already there and the conditions that are needed for a transition to take place will be identified. This will provide insight into how temporary urban agriculture in metropolitan areas make a transition towards structurally being integrated. Therefore, this research will answer the following question:

Can temporary urban agriculture in metropolitan areas make a transition towards structurally being integrated in the urban environment?

To be able to formulate an answer to this question, the following sub-questions will be answered in this research:

- What is the current situation around planning of temporary urban agriculture in metropolitan areas?
- What are the opportunities concerning planning of temporary urban agriculture in metropolitan areas?
- What are the challenges and uncertainties concerning temporary urban agriculture in metropolitan areas?
- What conditions are needed in order to better integrate temporary urban agriculture in metropolitan areas?

3.2 Research Purpose

The objective of this research is to explore the possibilities of starting a transition towards integrating the phenomenon of temporary urban agriculture into the metropolitan area. The current situation of planning temporary urban agriculture in metropolitan areas, the opportunities, challenges, uncertainties and conditions for temporary urban agriculture projects will be investigated to get a better understanding of the planning of temporary urban agriculture in metropolitan areas. This will gain insights in how temporary urban agriculture is integrated in metropolitan areas and if temporary urban agriculture in metropolitan areas can make a transition towards structurally being integrated in the urban environment. The nature of this thesis work is therefore a combination of a descriptive and exploratory study (Kumar, 2014).

The research method used for this study is dependent on the research objective (Flyvbjerg, 2001). A qualitative research method will be used in this research, because it allows to get an overall and in depth understanding of the situation. By conducting a qualitative research a variety of dimensions, views, understandings, experiences, perceptions of participants can be explored (Flyvbjerg, 2001).

Qualitative research is a process in which a researcher collects and interprets data that participants provide. The interpretation of the researcher is of great importance in this process and has as a result that the researcher becomes part of the research process (Corbin & Strauss, 2015). As Flyvbjerg

(2001 p.32) states: *"Social sciences study self-reflecting humans and must therefore take into account of changes in the interpretation of the objects of study. Stated in another way, in social science, the object is a subject".* This is important to realise when doing research in society, because the researcher has to take two types of self-interpretation in account. First the humans researched self-interpret their behaviour in relation to their context. These self-interpretations have to be understood by the researcher to be able to understand why people act in a certain way. Second there is the self-interpretation of the researcher, as Flyvbjerg (2001 p. 33) describes: *"Just as the people studied are part of a context, research itself also constitutes a context, and the researchers are a part of it. The researchers' self-understanding and concepts do not exist in a vacuum, but must be understood in relation to this context. Context both determines and is determined by the researchers' self-interest."* It is thus important to realise when doing research within a social science discipline, like spatial planning, that what is identified as relevant information is determined by the self-interpretation of the researchers and the self-interpretation of the participating people. Both should be acknowledged and identified during the research (Flyvbjerg, 2001).

Planning is a field of research within natural and social sciences, therefore it is important to understand and acknowledge the weak and strong points of doing social research. Social sciences, opposite to natural sciences, have not yet succeeded in producing a general, context independent, predictive theory. No overall theoretical construction exists in this field of science. The phenomena researched in social sciences cannot be separated from their context as it is the context that gives meaning to the action (Flyvbjerg, 2001). Flyvbjerg (2001 p. 42) states: *"While context is central for defining what counts as an action, context must nevertheless be excluded in a theory in order for it to be a theory at all. It is this contradiction which punctures the aspirations of the social sciences to become normal sciences in the Kuhnian sense [a natural science]".*

The MLP on socio-technical transition theory discussed in the previous chapter is not a context independent and predictive theory. However, what is important and well developed in social science is *"the reflexive analysis and discussion of values and interests, which is the prerequisite for an enlightened political, economic and cultural development in society"* (Flyvbjerg, 2001 p. 3). Therefore, theory can be used more meaningful as a tool with the purpose to analyse and reflect on interests and values of actors within a certain context. The context is essential to understand the action, and context dependent knowledge is of great value and importance in social sciences (Flyvbjerg, 2006).

3.3 Comparative Case-study Analysis

A method that enables to research a certain context is a case study. To be able to get an understanding of the complex situation studying a case or a selection of cases might provide insight for the question (Stake, 1995). Therefore, a comparative case study analysis will be conducted.

A case is *"a specific, a complex, functioning thing"* according to Stake (1995 p. 2). He mentions that a case must be a bounded system with a purpose and working parts, it must be an object rather than a process. Thomas (2011 p. 513) describes this as follows: *"the case that is the subject of the inquiry will be an instance of a class of phenomena that provides an analytical frame — an object— within which the study is conducted and which the case illuminates and explicates".* In other words this means that a case is the subject of the research that forms an example of a certain phenomenon. The case bounds the study and so it can be clarified and explained what takes place in the context of that specific case. In this research the phenomenon temporary urban agriculture in the context of metropolitan areas is investigated. Metropolitan areas are thus the cases that bound the study.

Now it is defined what is understood by a case in this research, it must be determined what is meant by a case study, or researching a case. A case study can be described as a *"detailed examination of a single example"* (Abercrombie et al., 1984 in Flyvbjerg, 2006). Thomas (2011, p. 513) gives a more precise definition of what is meant by case study, according to him *"case studies are analyses of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more method".* What both definitions emphasise is that a case study should describe and explain the chosen system both comprehensively and in depth.

3.4 Context of the Research

This study started with the question of how metropolitan areas can make the transition towards integrating urban agriculture in the planning process. To be able to research this issue two metropolitan areas have been chosen as cases in this research.

3.4.1 Selection of Cases

Urban agriculture is a global phenomenon, in cities all over the world people are growing food and raising animals (Veen et al., 2012). But the purpose of urban agriculture projects in cities differs. In developing countries the main purpose of urban agriculture is to provide citizens with food. In the developed world food security is of less concern, but other challenges such as urban sustainability, liveability and the quality of life are high on the agenda of cities (Gemeente Amsterdam, 2011; Paris Métropole, 2016; Jonkhof et al., 2012). The potential social, economic and environmental benefits of urban agriculture are of great interest to urban areas in North-America and Europe, among others (Deelstra & Girardet, 2000). However, land uses such as urban agriculture, and especially temporary urban agriculture, have to compete with economically more profitable developments such as housing or business parks. The pressure on land available for development in metropolitan areas is high. But there appears an increasing attention for food system strategies and plans in the global north from the 2000s onwards (Ilieva, 2016).

The potential of urban agriculture in North-America has increasingly been recognised (Ilieva, 2016; Morgan 2009). The American Planning Association (APA) realised that *"among the basic essentials for life – air, water, shelter and food – planners have traditionally addressed them all with the conspicuous exception of food"* (Morgan, 2009 p. 341). The APA therefore produced a policy document on food planning, since then much attention has been given to food planning by researchers and policy makers. There are now over a hundred 'Food Policy Councils' in North American cities and counties (Morgan, 2009). Several forms of urban agriculture have emerged in North America and from the beginning of the 21st century they have spread to countries in Europe (Viljoen & Bohn, 2014). Furthermore, there is a growing interest in researching the field of sustainable food planning in Europe (Ilieva, 2016). In several European metropolitan areas appears a growing interest in (temporary) urban agriculture projects.

According to Flyvbjerg (2006) a case study chosen in a strategic way can add to the generalisability of the case study. When selecting a study object the goal is to generate the largest amount of information possible on a given problem. A random sample or average case may therefore not be the best option in this situation. As Flyvbjerg (2006 p. 229) states: *"Atypical or extreme cases often reveal more information because they activate more actors and more basic mechanisms in the situation studied. In addition, from both an understanding-oriented and action-oriented perspective, it is often more important to clarify the deeper causes behind a given problem and its consequences than to describe the symptoms of the problem and how frequently they occur."* By strategically selecting a

case with extreme characteristics, the current situation and interventions can be analysed in the context of integrating urban agriculture into the city. When certain actions are favourable and possible in the extreme context, they might also work in a less extreme context and can therefore be an example (Flyvbjerg, 2006).

Two metropolitan areas will be selected as cases. To be able to select the cases that reveal the most interesting information, they must comply with certain criteria. First, both cases must be western European metropolitan areas. Second, the cases must be extreme compared to each other considering density of the built environment and number of inhabitants. Third, they must contain at least 20 temporary urban agriculture projects.

The largest metropolitan areas in western Europe regarding population size are London and Paris (Eurostat, 2012). There are several smaller metropolitan areas in western Europe: Brussels, Amsterdam, Munich and Berlin, among others. Of these two larger and several smaller urban areas, Paris and Amsterdam have been chosen as case studies based on the third criteria. Both metropolitan areas count over a hundred urban agriculture projects, and for both metropolitan areas much information about the phenomenon of temporary urban agriculture was available. The characteristics of Paris and Amsterdam are discussed in the following paragraphs.

Amsterdam counts many urban agriculture initiatives, from people growing vegetables on their balcony to large gardens. In the *'food vision and agenda of Amsterdam*' is mentioned that the most important contribution of growing food in the city will be to increase the awareness about healthy and sustainable consumption, increase the attractiveness of the city and increase the social cohesion among the citizens (Gemeente Amsterdam, 2014). The main message of the strategic vision of Amsterdam for 2040 is to become economically strong and sustainable. Therefore, plans are made to attract more people and businesses to the city (Gemeente Amsterdam, 2011). Currently Metropole Region Amsterdam (MRA) has a total population of 2.4 million people. The number of inhabitants is expected to grow to 2.9 million people in 2035. The city centre of Amsterdam counts approximately 15.000 people per km^2, while the average density of the MRA with 1489 people per km^2 is much lower (Gemeente Amsterdam, 2015a). According to the strategic vision and these prospects, it seems inevitable that the city is becoming more compact, which will increase the pressure on land and lead to land use conflicts.

To face this land use conflict, Amsterdam can learn from the dense metropolitan area of Paris. Metropole region Paris is the most densely populated area in Europe with 11.9 million inhabitants and the population is expected to grow to 12.4 million inhabitants in 2030. The most densely populated area in Paris is the city centre, with more than 20.000 people per km^2 (JLL, 2016), towards the outskirts the density declines to about 7.000 inhabitants per km^2 (Urbistat, 2014). Despite the large population and built density, urban agriculture still exists in Paris. Also temporary urban projects, are not an exception in the metropole. Therefore, the way of how urban agriculture is integrated and planned in a compact city like Paris, can be an example for Amsterdam.

3.4.2 Selection of Temporary Urban Agriculture Projects

To be able to reveal the most interesting information, temporary urban agriculture projects with characteristics that are interesting for studying transitions must be selected. According to Geels (2011 p.37) *"transitions can be studied by analysing how new practices come into being, how they stabilize, and how established practices disappear*". Therefore, in both Paris and Amsterdam one starting temporary urban agriculture project, one established temporary urban agriculture project and one ending temporary urban agriculture project will be chosen as cases. This results in six temporary urban agriculture projects that will be selected in this research to be able to understand

the phenomenon of urban agriculture in both cities comprehensively and in depth (see figure 4). These cases will provide insight in the process of the integration and the establishment of temporary urban agriculture projects in metropolitan areas and for what reasons they disappear.

With the criteria mentioned above, the six projects have been selected (see table 2). The selection of the projects in Paris was done with the help of a contact person with knowledge about (temporary) urban agriculture in Paris. Based on his advice project 1 and project 2 were chosen and contacted. Project 3 was found through the website and publications of the project on the internet.

The selection of the projects in Amsterdam was done with the help of contact persons with a broad knowledge about (temporary) urban agriculture projects in Amsterdam. Based on their advice project 4, 5 and 6 were chosen and contacted.

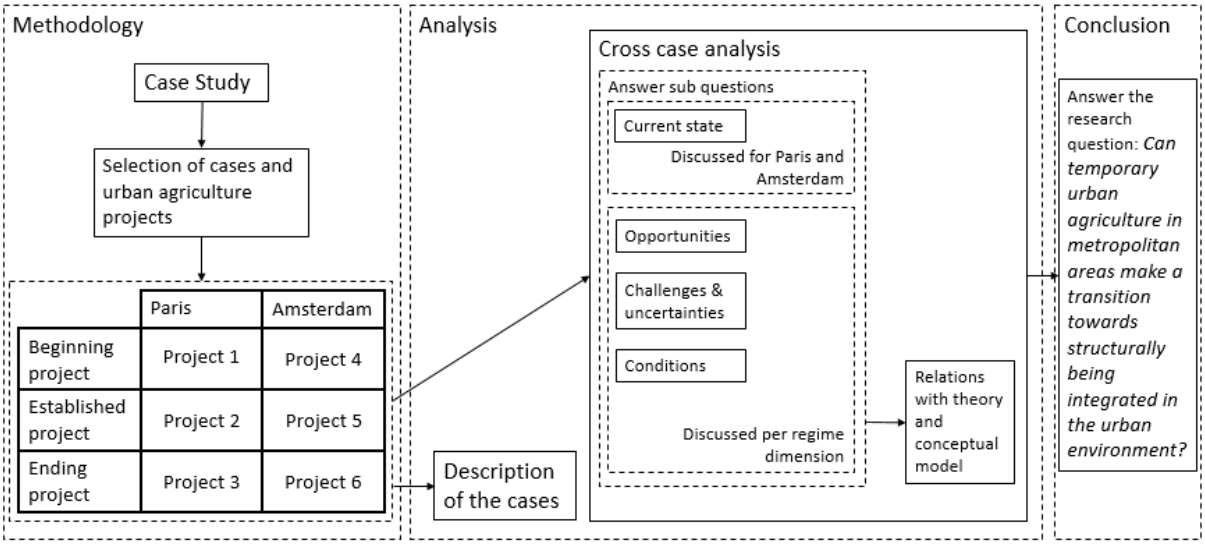

Figure 4: Methodological framework

The six projects are described in chapter 4 of this thesis. The description entails the geographical location and scale of the project, and elaborates on how the project started and which arrangements have been made to realise the project. Furthermore, it is discussed which activities are organised, who are involved and how the project is financed and finally the project's concept and goal are described.

Table 2: Selected projects

Paris		
Project 1	Starting temporary urban agriculture project	Les Jardins Suspendus
Project 2	Established temporary urban agriculture project	Le Jardin des Soupirs
Project 3	Ending temporary urban agriculture project	L'Agrocité
Amsterdam		
Project 4	Starting temporary urban agriculture project	Pluk!
Project 5	Established temporary urban agriculture project	Voedseltuin IJplein
Project 6	Ending temporary urban agriculture project	Boeletuin

3.5 Data Generation

To be able to derive information about temporary urban agriculture in Paris and Amsterdam, desk research on published documents, websites, newspaper articles, among others, is done. Then interviews with people involved in the phenomenon in both metropolitan areas are conducted. It is important to form a complete and diverse overview of urban agriculture projects in both cities. Therefore, the opinion and views of people, institutions, organisations, and agencies that are involved should be included in the process. Part of the stakeholders were identified prior to the field work, others have been discovered during the field work and have been included in the research. An overview of the interviewees can be found in appendix A.

The interviewees have been contacted via email, subsequently appointments for interviews were made. Semi-structured interviews are conducted with the different stakeholders, this form of interviewing enables to adjust the interview to the specific situation of the participant. During the interview the researcher does not have to follow the exact order and formulation of the questions in the interview guide, but it provides a basis to steer the interview to keep the focus on the subject of the research (Dunn, 2010; Longhurst, 2010). However, the several conducted interviews have to be comparable and therefore an interview guide is prepared. For all interviews a standard interview guide will be used. This ensures the comparability of the different interviews. In the interview guide the following themes will be handled: the background of the project, how the project was set-up, the current situation and the future (see appendix B). A time schedule of when the interviews are conducted is shown in table 3.

Table 3: Time schedule data generation

	November 2016	December 2016	January 2017	February 2017	March 2017
Preparing interviews					
interviews					

3.6 Data Analysis

The generated data is analysed in order to formulate the results. To be able to analyse the data the interviews are recorded, if the participants agreed to this. The recorded interviews are transcribed, to be able to organise and analyse the data. Furthermore, the researcher could have taken notes during the interviews, this information is combined with the transcription of the recordings.

The data analysis is the step between generating the data and writing the results. However, not all the data has to be gathered before the generated data can be analysed. The interviews transcripts will be analysed using the program ATLAS.ti. In this program codes can be assigned to the primary data generated in the interviews and secondary data generated from newspapers and websites for example.

There are two types of coding, deductive and inductive, both are used in this research. Deductive coding implies that the assigned codes to the data have been derived from the theoretical framework. The literature and theories discussed in the theoretical framework are translated into codes that can be assigned to the data (Cope, 2010). The codes that have been derived from the theoretical framework are culture, science, actions, industry and networks, policy, technology based on the model published in Geels (2011, see figure 2). The code physical aspects has been added to this list, because of the importance for socio-technical transitions in a spatial planning context

identified by Næss and Vogel (2012) and Hernàndez-Palacio (2017). The codes have been defined based on literature about the socio-technical transition theory, based on these definitions sub-codes have been identified. The deductive codes used in this research are shown in table 4.

Table 4: Deductive codes

Code	Definition used in this research	Sub-code
Culture	Symbolic meaning, perception, beliefs, values and interests of actors in civil society (based on Geels, 2002; Franzeskaki & De Haan, 2009)	Perception Beliefs Values Ethics Interests Preferences
Science	Knowledge, techniques and skills (based on Geels, 2002) regarding developing and coordinating urban agricultural projects in the city.	Knowledge Techniques Skills Procedures Social capital
Actions	Demands, wants, needs and behaviour of several actors involved (based on Franzeskaki & De Haan, 2009).	Demand Wants and needs Behaviour
Industry & Networks	Actors and activities regarding urban agriculture and the corresponding formal and informal social constructs, which legitimise and enable but can also constrain actions of actors and interactions and connections between actors and urban agriculture projects (based on Geels, 2002; Franzeskaki & De Haan, 2009).	Actors Links between actors Organisations Associations Government
Policy	Policies, laws, regulation and directives regarding planning urban agriculture in the city influence and standardise practices (based on De Haan & Rotmans, 2011; Franzeskaki & De Haan, 2009).	Urban planning policy Regulation Directives Laws Standard practices Contractual forms
Technology	Technologies used in urban agriculture projects.	Technology Tools Methods
Physical aspects	The setting in which urban agriculture exists within the urban environment.	Spatial aspects Climate

If there are topics in the data that are not covered by the deductive codes, new codes have to be added. These new codes are based on the data itself and are therefore inductive codes (Cope, 2010).

The process of assigning codes is highly dependent on the interpretation of the data by the researcher. The researcher decides which data corresponds with which code, and therefore how that piece of data will be understood (Cope, 2010).

When all data has been ordered by codes, the data from the interviews and other sources can be compared. This can reveal categories and patterns which then can be related to the theories and concepts discussed in the theoretical framework (Cope, 2010)

3.7 Validity and Reliability

The research needs to be valid, this means that what is stated to be studied is indeed studied in this research (Mason, 2002). Validity of research is also increased when the research is based on multiple data sources and the generated information can be traced back to the source. To ensure the validity of the research, triangulation is used. This means that the research is based on different sources and perspectives (Cope, 2010). In this research multiple forms of triangulation are used. First, multiple urban agriculture projects are selected in the case of Paris and Amsterdam, as described previous in this chapter. Second, multiple stakeholders in the issue of urban agriculture in Paris and Amsterdam will be involved in this research. Third, the research will be based on data generated from different sources: interviews, published documents, websites, newspaper articles etc.

The reliability of a research depends on the accuracy of the used methods for generating the data. To assure the reliability of the research the procedures followed must be consistent and transparent (Mason, 2002).

4. Description of the Projects

As mentioned in the previous chapter, six temporary urban agriculture projects have been selected. Three in Paris and three in Amsterdam. In this section, all projects will be described in detail according to the criteria mentioned in the methodology chapter.

4.1 Paris

The locations of the three selected gardens in the metropolitan area of Paris are shown in figure 5. Project 1 is a starting project, it is called Les Jardins Suspendus. The garden is located in the east of the metropolitan area of Paris in the city Vincennes. Project 2 is an established project, it is called Le Jardin des Soupirs and it is located in the east, in the 20th arrondissement, of the city of Paris. Project 3 is a project threatened to disappear, the project is called L'Agrocité and is part of a bigger project called R-Urban. The project is located in Colombes, a city located in the north-west of the metropolitan area of Paris.

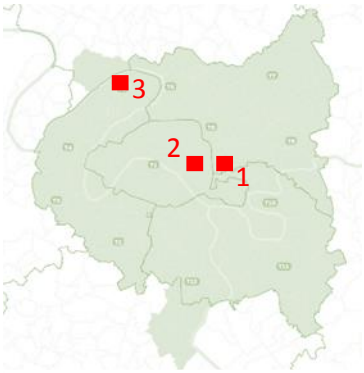

Figure 5: Locations projects Paris (Seine-Amont, 2016)

4.1.1 Les Jardins Suspendus

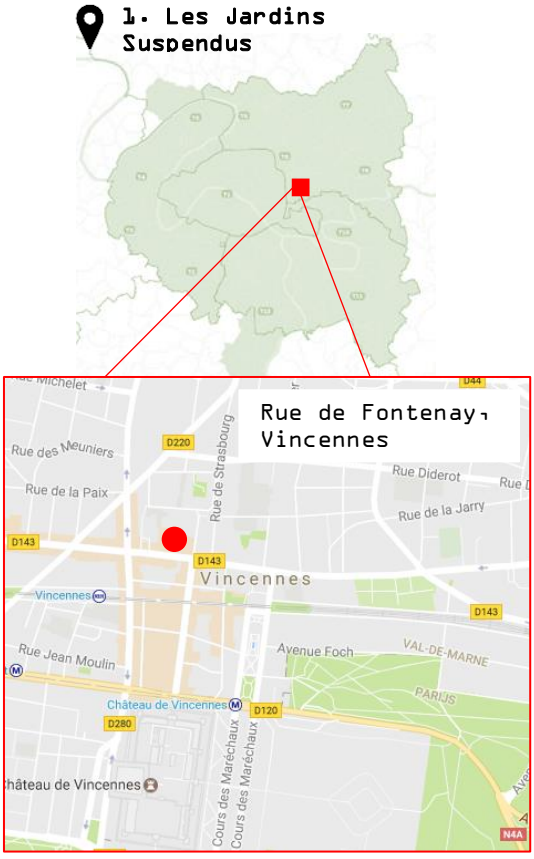

Figure 6: Location Les Jardins Suspendus (above: Seine-Amont, 2016 below: Google Maps, 2017)

Les Jardins Suspendus is a garden in the city centre of Vincennes (see figure 6). Vincennes borders the city of Paris and has around 50.000 inhabitants. It is one of the densest cities in France with an average of 15.000 people per square kilometre (UAPP1).

Les Jardins Suspendus is about 4000 m^2 and located on top of the roof of a cultural centre. The garden is on three sides surrounded by high story apartment buildings and on one side by a road and low story buildings (see figure 7) (UAPP1).

The project is run by the association that is also called Les Jardins Suspendus. The current chairman of the association discovered the place (UAPP1). Before, it was a square that was mostly used by young people to hang out (UAPP1; UAPP2). The plan to transform the square to an urban agriculture project was presented to the municipality of Vincennes by the association. In September 2014, the association signed a contract with the municipality that stated that they could develop an urban agriculture project there. In the contract with the municipality is stated that they can use the space. This is an annual contract that is automatically renewed every year, but the contract can be terminated by both parties (UAPP1).

The concept of the garden is that the area is divided

into several plots that can be rented by people from Vincennes. On these plots the people can grow what they want but they have to comply with certain rules, for example they need to garden in a biological way. Furthermore, it is encouraged to grow vegetables and fruit.

The people that are involved in Les Jardins Suspendus are all local people from Vincennes. But, besides this, it is a diverse group with people of all ages, from families with children to elderly people. The costs of the project are mainly the water bill and occasionally a device. These costs are covered by the membership fee and each year the association can apply for a grant, for extra tools or other big expenses, from the municipality.

The goal of the association is to find as many as possible spaces in Vincennes to develop into an urban agriculture project. Les Jardins Suspendus has multiple objectives. The members of the project learn how to grow vegetables and fruit, it is an opportunity for people to meet each other, and the garden also contributes to the biodiversity in the city (UAPP1).

Figure 7: Pictures of Les Jardins Suspendus (above: Les Jardin Suspendus, n.d.; own picture, 2017, below: own pictures, 2017)

4.1.2 Le Jardin des Soupirs

Le Jardin des Soupirs is a shared garden in the 20th district of Paris (see figure 8). Le Jardin des Soupris is about 40 m^2 and located in Passage des Soupirs. The garden is surrounded by apartment buildings on three sides and is accessible through a gate from Passage des Soupirs (see figure 9).

Le Jardin des Soupirs was founded in 2003 by an already existing association. At that time, the municipality was building in the neighbourhood and they wanted to develop the space that is currently occupied by the garden into a parking lot. The people form the neighbourhood started a petition against this idea, and together with the municipality they decided to set up a shared garden (UAPP4).

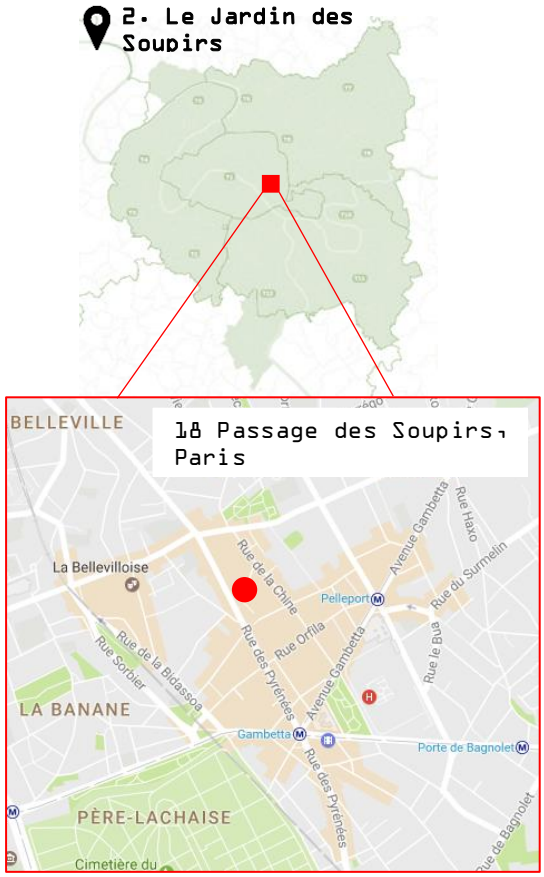

Figure 8: Location Le Jardin des Soupirs (above: Seine-Amont, 2016; below: google maps, 2017)

Le Jardin des Soupirs is part of the Main Verte program of the municipality and the association has therefore signed the Charte Main Verte. In this contracted it is stated that the association can use the space for gardening, when they comply with certain criteria (see section 5.1.1.2). One of the criteria is that Le Jardin des Soupirs has to be open to everyone. Although the garden is closed by a gate, it is open to the public at least twice a week and at all time to the members of Le Jardin des Soupirs.

The garden was realised with help of the municipality, they provided the soil, made a path and donated the little barn that is located in the garden. With a membership fee of 15 euros per year the costs of for example seeds, water and electricity are financed.

The main goal of the project is to create social links between the people in the neighbourhood. Local people of all ages visit the garden and have the opportunity to meet each other. Furthermore, the garden is an opportunity for people to experience nature in the city. The project started as an aromatic garden in which people could taste and smell several herbs and currently there is a space for schools and kindergarten to teach kids how to grow fruit and vegetables (UAPP4).

Figure 9a: Pictures Le Jardin des Soupirs (own pictures, 2017)

Figure 9b: Pictures Le Jardin des Soupirs (Le Jardin des Soupirs, n.d.; own picture, 2017)

4.1.3 L'Agrocité

L'Agrocité is a project in the north west of the metropolitan area of Paris (see figure 10). It is located in the city Colombes, which has about 84.000 inhabitants (Harvard Design Magazine, 2014). The garden is about 3000 m^2 and is surrounded by low story buildings, a road and a parking lot (see figure 11).

The project was initiated by the Atelier d'Architecture Autogérée (AAA). The AAA is an organisation that explores, initiates and researches participation of the local inhabitants to explore the potential of the city (AAA, n.d.). The AAA participated in a contest of the municipality and won with the R-Urban project. The idea was to build a network to increase urban resilience by involving the local inhabitants. The R-Urban project consists of three connected initiatives: L'Agrocité, Recyclab and Ecohab (Harvard Design Magazine, 2014). Only L'Agrocité and Recyclab have been realised until now (UAPP6).

L'Agrocité was implemented in 2011 on a spot that was temporarily not used. The project was realised

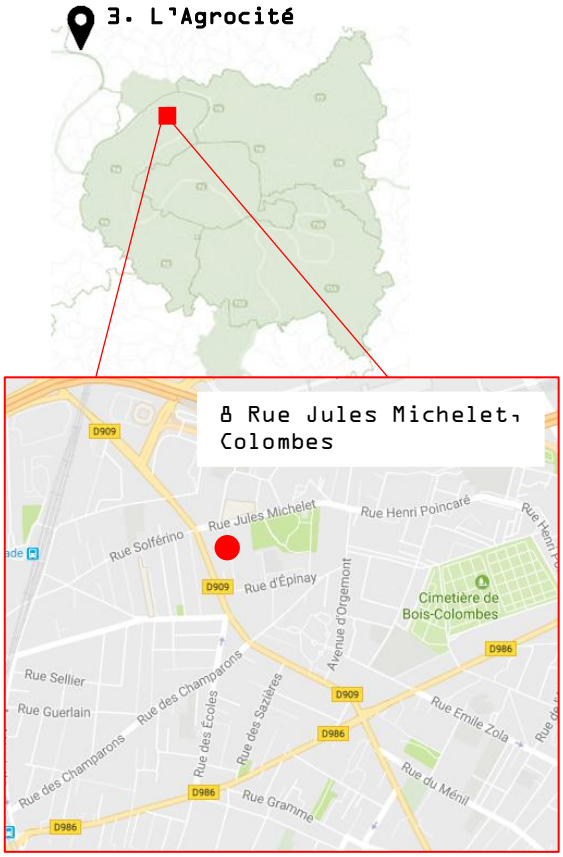

Figure 10: Location L'Agrocité (above: Seine-Amont, 2016; below: Google Maps, 2017)

and ran with financial support from AAA, the regional council of Ile-de-France, the city of Colombes and a grant from the European Union until 2015. Currently L'Agrocité is ran by their own association called L'Agrocité. The costs are covered with money raised by activities and membership fees.

The goal of the project is to get people in contact with the nature and to create social links between people in the neighbourhood. To realise this there is a shared garden in which local people can grow fruit, vegetables and flowers. There is an educational garden and there are going on experiments with composting and rainwater harvesting. In the canteen there is a shop and a space where several activities are organised.

While the project was set up by the AAA, the space remained in ownership of the municipality of Colombes. The project is under pressure, because the current mayor is not in favour of the project. L'Agrocité is threatened by the municipality, because they want to develop the space into a parking lot.

Figure 11: Pictures L'Agrocité (AAA, n.d.)

4.1.4 Overview Projects Paris

The main characteristics of the selected urban agriculture projects in Paris are summarized in table 5.

Table 5: Characteristics projects Paris

characteristics	Les Jardins Suspendus	Le Jardin des Soupirs	L'Agrocité
area size	±4000 m^2	±40 m^2	±3000 m^2
implementation	2014 - indefinite	2003 - indefinite	2008 - 2017
people involved	Volunteers Members	Volunteers members	Volunteers members
financing	Subsidy, membership fee	Subsidy, membership fee	Subsidy, activities fee, membership fee
initiator	Initiated by the association Les Jardins Suspendus	Initiated by the municipality and local inhabitants	Initiated by the association AAA

4.2 Amsterdam

The location of the three selected gardens in the metropolitan area of Amsterdam are shown in figure 12. Project 4 is a starting project called Pluk! It is located in the west of Amsterdam. Project 5 is an established project, it is called Voedseltuin IJplein and it is located in the north of Amsterdam. Project 6 is a project threatened to disappear, the project is called Boeletuin and is located in the south of Amsterdam.

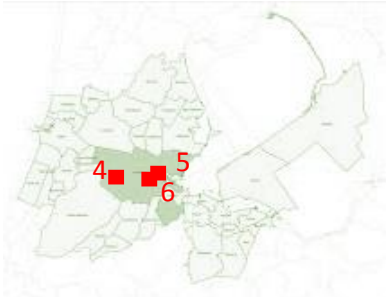

Figure 12: Location projects Amsterdam (Gemeente Amsterdam, n.d.)

4.2.1 Pluk!

Pluk! is a starting project located in the west of Amsterdam (see figure 13). Pluk! will be implemented at the same location of the already existing urban agriculture project Fruittuin van West. Small pieces of unused land in the Fruittuin van West will be allocated to this new project (see figure 14).

Figure 13: Location Pluk! (Left: Gemeente Amsterdam, n.d.; right: Google Maps, 2017)

Pluk! is an initiative from the organisation Cityplot. Cityplot is: *"an urban farming collective that supports people in growing their own organic food, on balconies, on windowsills, in gardens, on empty lots, and along the street."* (Cityplot, n.d.). They have initiated several projects, and the Pluk! will be their largest project up to now.

The garden will be located at Fruittuin van West, an already existing urban agriculture project. Pluk! will cultivate the unused space on the location to grow their products (see figure 14). A contract about the use of the space will be made with the maintainers of Fruittuin van West.

The concept of Pluk! is consumer supported agriculture (CSA). The main idea of a CSA is that a farmer asks consumers to pay a certain amount of money upfront. They will become shareholders of the business. From the invested money, the farmer can produce food. This food will be provided to the shareholders during the season. Furthermore Pluk! used crowdfunding and a subsidy to be able to start the project and to pay for extra means such as tools and a greenhouse (UAPA4; UAPA6).

The goal of the project is to orientate the production of food more towards the city and create direct links between the consumers and producers. The shareholders of the initiative, consumers of the products, are directly in contact with the production of the food. Furthermore, the goal of this initiative is to eventually have a project that is self-sustaining and to inspire people and be an example for others to set up similar projects (UAPA4).

Figure 14: Pictures Pluk! (AUPA6)

4.2.2 Voedseltuin IJplein

Voedseltuin IJplein is a project located north to the city centre of Amsterdam, on the northern bank of het IJ (see figure 15). The garden is about 1000 m^2 and is surrounded by a school and apartment buildings. Before the garden was implemented it was a grass field mainly used for walking dogs (UAPA2).

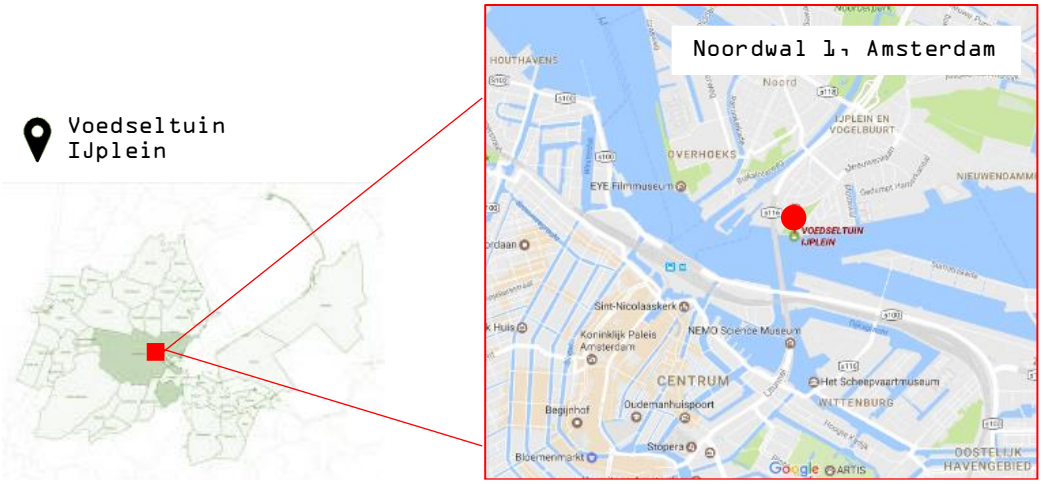

Figure 15: Location Voedseltuin IJplein (left: Gemeente Amsterdam, n.d.; right: Google Maps, 2017)

The project was initiated in 2012 by the organisations stichting BuitenRuimte voor Contact, stichting DOEN, Voedselbank Noord and Resto van Harte and many other local organisations have collaborated in the project. Voedseltuin IJplein was designed as a community garden where people work together to produce food. The food from the garden is for the foodbank and Resto van Harte and the volunteers in the garden. From 2012 to 2015 the project was coordinated by two professional gardeners, they were involved in leading the activities in the garden (Stichting BuitenRuimte voor Contact, n.d.). In 2015 an association was set up to take over the management of the garden. They could take over the contract with the municipality that stated that they can use the space for gardening (UAPA1).

Nowadays the garden has about 25 volunteers that regularly come to the garden. The project is meant for the people from the neighbourhood, however there are also volunteers that live in other areas in Amsterdam (UAPA1; UAPA2; UAPA3). The costs of the project are covered by a small yearly membership fee, activity fees and funding from external funding (UAPA1).

Voedseltuin IJplein has two main goals, one is to create social links between the inhabitants of the neighbourhood. The second is to produce food in an organic way and provide it to the foodbank, Resto van Harte and the volunteers. Furthermore, the project also has an educational aspect, it shows people where food comes from and how and when it grows. Voedseltuin IJplein makes it possible for people from the city to enjoy gardening close to where they live (UAPA1; UAPA2).

Figure 16a: Pictures Voedseltuin IJplein (Voedseltuin IJplein, n.d.; Communydaad, n.d.)

Figure 16b: Pictures Voedseltuin IJplein (Voedseltuin IJplein, n.d)

4.2.3 Boeletuin

The Boeletuin is located south to the city centre of Amsterdam (see figure 17). The garden is about 6000 m^2 and surrounded by high story buildings and a parking space.

The Boeletuin project ended in January 2017, but several initiatives will continue until the space will be built. There are five initiatives located in this place. The Zuidmoes, a community garden project. The Schoffeltuintjes, a project with individual gardening plots. A Mushroom Farm called containing mushrooms. The Groene Leven Lab (Green Living Lab), a lab that stimulates healthy living. And Toos Tuin, an herb garden (Boeletuin, 2017). This research is focussed on the Zuidmoes and Schoffeltuintjes project.

The location of the Boeletuin has a long history in gardening. Before the current projects were initiated, the space was used as a school garden. The school gardens were moved to another part of the city and the space came available for people to garden on individual plots.

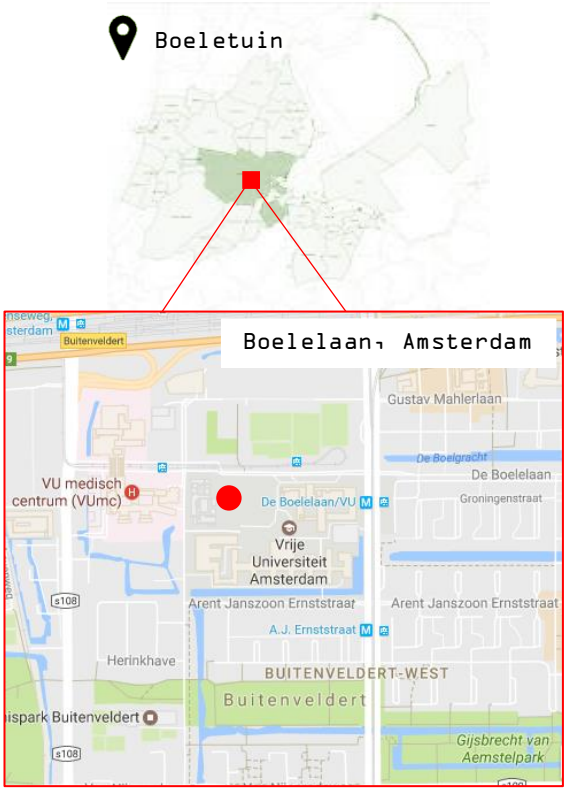

Figure 17: Location Boeletuin (above: Gemeente Amsterdam, n.d.; below: Google Maps, 2017)

Every year, the VU will decide whether the initiatives can stay on the space or whether they are starting the construction work. The VU decided that the initiatives can stay in the Boeletuin for another year, however a part of the area will not be available because of a planned site investigation (UAPA7; UAPA8).

The concept of the several initiatives are different. Zuidmoes is a garden in which about 8 volunteers grow food together. The products are shared among the volunteers. In the Schoffeltuintjes, 33

people have their own individual plot on which they grow food for themselves. Both projects have separate contracts with the owner of the land, the space can be used for free. Furthermore, Zuidmoes received a subsidy to cover the costs.

The goal of the projects is to garden and to grow food within the city. The Schoffeltuintjes operate in a more individualistic way. Within the project everybody can decide themselves how they want to garden and what they want to plant. In the Zuidmoes project an important aspect is gardening together. Despite the differences, in both projects learning about gardening and growing food is an important aspect (UAPA7; UAPA8; UAPA9).

Figure 18: Pictures Boeletuin (above: Natuur & Milieuteam Zuid, 2015; Parkeerbedrijf VU-VUmc, n.d. Below: Green Living Lab, n.d.)

4.2.4 Overview Projects Amsterdam

The main characteristics of the selected urban agriculture projects in Amsterdam are summarized in table 6.

Table 6: Characteristics projects Amsterdam

Characteristics	Pluk!	Voedseltuin IJplein	Boeletuin
area size	± 500 m^2	± 1000 m^2	± 6000 m^2
implementation	2017 – indefinite	2004 – indefinite	2014 – indefinite (each year the possibilities for gardening are reconsidered)
people involved	Farmers, investors	Members	Members
financing	Crowdfunding, subsidy, investments	Funding, subsidy, membership fee	Subsidy
initiator	Cityplot	Buitenruimte voor Contact, Stichting Doen	People involved in the former school gardens

5. Results

In this research in a total of 21 interviews have been conducted. Of these, 14 interviews were held with people involved in the selected temporary urban agriculture projects. The remaining 7 interviews were held with respondents that are involved in (temporary) urban agriculture in Paris and Amsterdam, through research, policy or business. The information gathered from these interviews and additional information from policy documents and websites is used to answer the research sub-questions.

First, in section 5.1, the research question concerning the current situation around planning of temporary urban agriculture in metropolitan areas will be discussed for Paris and Amsterdam. Then, in section 5.2, the collected data will be discussed according to the dimensions of the regime that were defined for this research. Finally, in section 5.3, the research questions concerning the opportunities, challenges and uncertainties and conditions concerning the planning of temporary urban agriculture in metropolitan areas will be discussed per regime dimension.

5.1 Current Situation

This section will answer the first sub-question: what is the current situation around planning of temporary urban agriculture in metropolitan areas? The results are ordered per metropolitan area researched, first the situation in Paris and second the situation in Amsterdam will be described.

5.1.1 Paris

5.1.1.1 Temporary Planning

Probably the most famous example in Paris of an object that was planned to be a temporary part of the city is the Eiffel Tower. The structure was built in 1889 by Gustav Eiffel as part of the Exposition Universelle to celebrate the 100th anniversary of the French Revolution. The intention was to remove the Eiffel Tower after 20 years, however the tower seemed useful for many different purposes such as a radio and telecom transmitter. Nowadays it is one of the landmarks in Paris and attracts many tourists to the city (Societe d'exploitation de la tour eiffel, 2010).

At present, there is interest in temporary land uses from the inhabitants and the authorities of the metropolitan area of Paris. In a conference initiated by the city of Paris the possibilities of organising temporary urban activities in the metropolitan area were discussed (Pavillion de l'Arsenal, 2016). There are a few programs for temporary urban agriculture in the municipality of Paris and in the metropolitan area of Paris. These programs will be described in the next section.

5.1.1.2 Urban Agriculture

There are several forms of urban agriculture situated in the metropolitan area of Paris. The organisation NatureParif created a map on their website on which anyone can indicate a garden in Paris. They divided the gardens into seven categories, shown in figure 19. This reveals that there are many different initiatives regarding urban agriculture, spread all over the city (Nature Parif, n.d.).

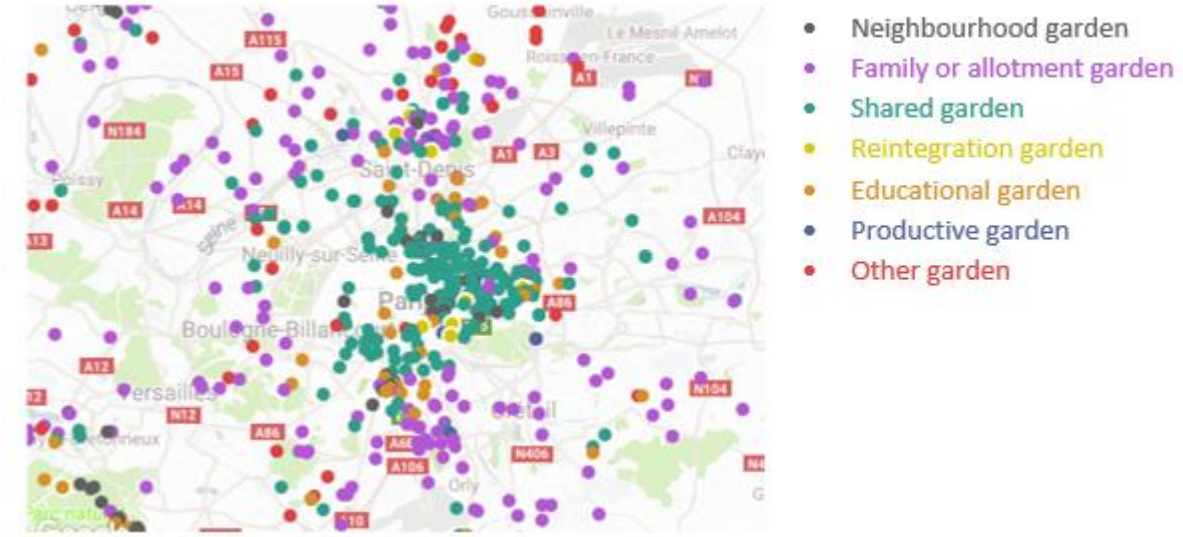

Figure 19: Map of urban agriculture initiatives in Paris (NatureParif, n.d.; Accessed on 08-02-2017)

The green dots in figure 19 represent shared gardens (jardin partagés). The municipality of Paris started a program called Main Verte around 2003-2004 to encourage inhabitants to set up a shared garden. The municipality created La Charte Main Verte, a contract, in which the rules that the shared gardens have to comply with were stated. The municipality agreed to help citizens to start up a shared garden if they comply with the rules stated in La Charte Main Verte. La Charte Main Verte contains rules about growing food in an organic way, being open to the public at least two times a week, organising activities and reporting all practices to the municipality once a year, among others. Between 2004 and 2014 the number of shared gardens increased from three to more than one hundred (MAUP1). When citizens want to create a shared garden, there is a standard procedure that must be followed (Paris municipality, 2017):

- The initiator of the project must identify a land plot to set up the garden. For example, on a former urban wasteland or in public (green) space.
- The inhabitants that initiate the project must form an association. The formed association should contact Main Verte.
- The association, arrondissement and the city of Paris can then work together to set up the shared garden according to the regulations.
- The organisation Main Verte then advises and monitors the project. And together with the Arrondissement council they ensure that the project will be carried out in accordance with the regulations and agreements.

Figure 20 shows all the 'Jardin Partagé' in the municipality of Paris in 2015. From the map it can be observed that most gardens exist in the east of the city, the reason for this is that this part of the city used to be industrial. In the last few decades the industry has moved away from the city resulting in vacant spaces that could be used for other purposes and were partly developed into shared gardens (MUAP5).

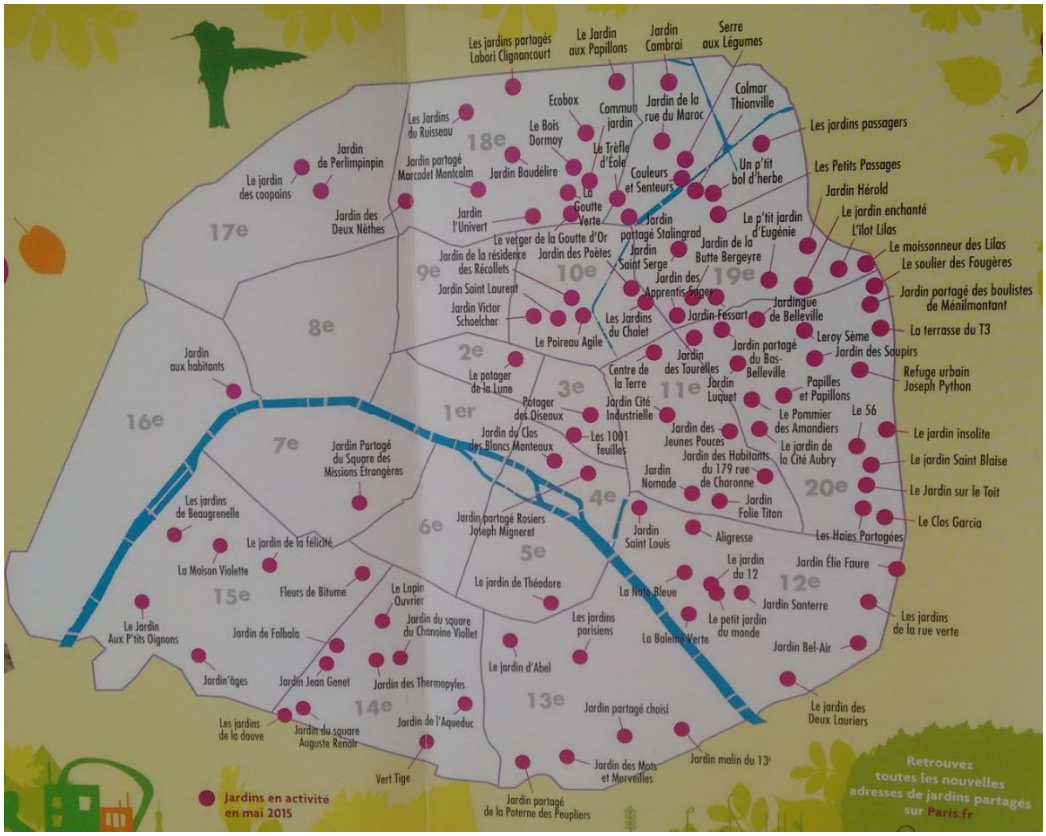

Figure 20: Location of jardin partagé in Paris (Marie de Paris, 2015)

The program Main Verte is also involved in providing information, knowledge and skills about gardening to the inhabitants of Paris. Maison du Jardinage, located in Parc de Bercy in the west of Paris, is an information centre for all inhabitants of Paris that are interested in gardening. In the information centre there is an exposition of the gardens in Paris and gardening workshops are organised for everyone that is interested in gardening (MAUP5). There are several goals of Main Verte to set up shared gardens in Paris. A representative of Main Verte says the following:

> *"There are several goals: social, environmental and urban. It is more social and environmental. It is the goal to make social connections between people so that people can connect and know each other. Because Paris is a big city and people tend to be a bit individualistic and we try to make people meet and do things together so that there is more social bond. And also to make people more committed into the life into the local life. Committed in the everyday in their neighbourhood. Also so that we can exchange know-hows, for example if someone knows how to grow that kind of vegetable and the other one doesn't know how to sow, that can teach each other how to do. And also so that people can create stuff, they are free to grow whatever they want. So they can do some experimentation, so there is a big social goal. But also, and I would say that is the most important one, the environmental one. It is to make people more aware of all those sustainable development goals that we have in the policy of the city." (MAUPP5)*

From this the most important goals seem to be to connect people by giving them the opportunity to participate in a project and learn from each other. Moreover, getting people involved in caring for the environment is an important outcome of the project.

Beside the Main Verte Program the municipality of Paris aims to create 100 hectares of green space on roofs, walls and facades in the period from 2014 to 2020. A third of these hectares should be urban agriculture. To realise this the program Paris Culteurs was launched in 2016. The municipality of Paris prepared the regulations for the program and selected rooftops that could be suitable for the implementation of urban agriculture. These rooftops were analysed and about thirty rooftops were selected to be part of the Paris Culteurs program (see figure 21). A competition was organised in which companies could present their urban agriculture business models and an international jury was appointed to select the winners. The winning projects signed a contract about the use of space and technical and administrative prerequisites. At the end of 2016 the start was made with the implementation of the projects. In the spring of 2018 a campaign will be launched to promote the implemented projects (Paris Culteurs, n.d.; MUAP1; MAUP2).

Figure 21: Selected rooftops in the Paris Culteurs Program (Paris Culteurs, n.d; Accessed on 10-02-2017.)

Another strategy to green the city is 'Le permis de végétaliser' (vegetation permit). All inhabitants of Paris can apply for a permit to plant flower, vegetables of fruit in public space. The application will be reviewed by the municipality and when the request is approved, citizens can sign an agreement and start their project in the public space (Paris Municipality, n.d.; MUAPP5). This agreement will last for 3 years and after this period it can be renewed up to 12 years. This program started in June 2015 and since then already 2000 permits have been issued (MUAPP5).

There are several projects in Paris that stimulate the integration of (temporary) urban agriculture in the urban area. They are different in nature and they can roughly be divided into two categories. First there is professional (temporary) urban agriculture that focus on the production of food in the city. Second, there is (temporary) urban agriculture projects that aim to give inhabitants the opportunity to garden in the city. A respondent involved in researching urban agriculture in Paris mentions that these two types of (temporary) urban agriculture are often not connected:

> *"Jardin Partagé in Paris are really for the inhabitants that want to have little garden, but it is a world apart from professional urban agriculture." (MUAP2)*

5.1.2 Amsterdam

5.1.2.1 Temporary Planning

In 2012 the municipality of Amsterdam and Project Management Bureau (PMB) published the report 'Tijdelijk Amsterdam' (temporary Amsterdam). This report shows some examples of temporary land uses in Amsterdam and gains insight in the practices of organising temporary land use in Amsterdam. One of the examples is 'ArenA park'. The ArenA stadium was opened in 1996 and plans were made to

develop the surroundings. In 2010, it seemed that the plan could not be executed, because of financial reasons. Therefore, the decision was made to transform the area into a park for at least 5 years (Gemeente Amsterdam & PMB, 2012). Nowadays it is still a park where many activities and events are organised (ArenApark, 2017).

An overall result from the report is that temporary land use is a phenomenon of all time and that every temporary project is different (Gemeente Amsterdam & PMB, 2012). The last decades temporary land use has come to the attention of society and the municipality in Amsterdam. The municipality of Amsterdam has published a map (see figure 22) on their website that shows the vacant lots that can be temporarily developed. The colour of the dots is explained in the legend and refers to the availability to temporarily develop a plot. The size of the dots refers to the size of the plot that is available (Gemeente Amsterdam, n.d. 1).

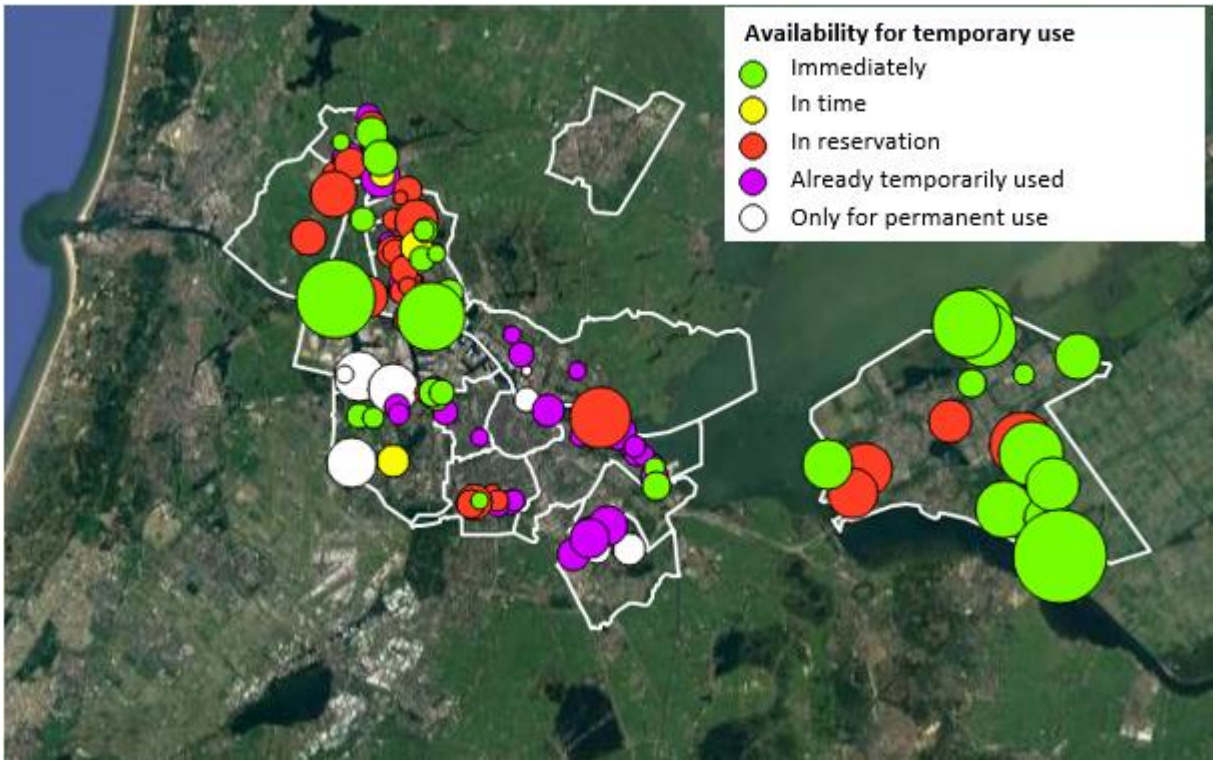

Figure 22: Availability for temporary use (Gemeente Amterdam, n.d. 1; Accessed on 22-01-2017)

5.1.2.2 Urban Agriculture

In 2014 the municipality of Amsterdam published the 'Voedselvisie' (Food vision). In this vision the importance of food in society is emphasized from a wide perspective and the direct relation of food with health, economic strength of the city and region, citizen participation and sustainability is described (Gemeente Amsterdam, 2014; MUAP1). Furthermore, the growing awareness about the production and consumption offer opportunities for the production and consumption of local food. In 2014 there were already about one hundred urban agriculture initiatives in Amsterdam. To encourage the ongoing development of the relation between food and the city a vision and agenda were formulated. The points of focus are promotion of food production in the city, increasing the consumption of healthy and sustainable food, encouraging a sustainable food cycle and knowledge exchange about food. To be able to realise these goals, financial resources and collaboration with other organisations and companies focussing on food and the city will be needed (Gemeente Amsterdam, 2014).

Part of the points of focus mentioned in the 'voedselvisie' were included in 'de agenda groen' (the green agenda) of the municipality of Amsterdam (Gemeente Amsterdam, 2015b). 'De agenda groen' presents a plan to invest in the public green space in the city of Amsterdam to increase the attractiveness of living, staying and working in Amsterdam. Public green space in Amsterdam has multiple functions. The availability of green space is important for the wellbeing and quality of life of Amsterdam's inhabitants. Furthermore, green space is essential to make Amsterdam climate proof and to enhance biodiversity. To be able to improve the green space in Amsterdam 'de agenda groen' contains actions and measures per subject to be taken in the period of 2015-2018. The actions and measures to be taken in the period of 2015-2018 regarding urban agriculture and food are (Gemeente Amsterdam, 2015b):

- Co-financing the construction of long- and short term urban agriculture initiatives on vacant lots, squares or parks.
- Co-financing initiatives regarding alternative ways of food production, processing and distribution in the metropolitan area of Amsterdam.
- Make initiating urban agriculture projects easier by keeping the information on municipal websites up to date and by setting up 'Voedselpoort' together with civil organisations.
- Identify which barriers initiatives regarding food and urban agriculture encounter in the municipal regulations and remove of these barriers when possible.

The first two actions and measures are concerning financing. The municipality of Amsterdam is providing one-time subsidies to projects involved in making the food chain more sustainable (Gemeente Amsterdam, 2016). There are a few characteristics and criteria which the projects have to comply with to qualify for the subsidy. First, the projects should be in line with 'De agenda groen'. The subsidy is available for projects focussing on alternative food production, processing and distribution or on raising awareness about the sustainable food chain and urban agricultural projects. Second, five criteria have been developed. To qualify for the subsidy the initiative has to comply with at least three of the five criteria.

- The project has a certain degree of innovation regarding food production, -processing and/or -distribution.
- The project can be scaled up and be implemented in another place and expanded.
- The project is circular and links different parts of the food chain, shortens the food chain and ensures that the value of the streams in the chain is preserved.
- The project contributes to multiple objectives; production, education, participation, sustainability and health, among others.
- With the one-time subsidy the project can continue independently, relying on own income or other forms of financing.

In addition, a management and budget plan and a visual image of the project after its realisation must be provided.

The costs that can be covered with the subsidy must be related to realising the project; are essential according to the municipal [college]; and remain after the deduction of contributions by third parties. The subsidy entails a maximum of 50% of the costs with a minimum of €5.000, - and a maximum of €80.000, - per project.

The maximum amount of subsidy provided to projects that comply with all the criteria is €120.000, - per year until December 31 of 2018. There are a number of other reasons why a subsidy application may be rejected (Gemeente Amsterdam, 2016). After the subsidy has been provided to a certain

project the project must be realised within a year and if the project is located in public space, it must stay open to the public.

The third point of the action and measures that were identified to be taken is: make initiating urban agriculture projects easier by keeping the information on municipal websites up to date and by setting up 'Voedselpoort' together with civil organisations.

On the website of the municipality of Amsterdam there is an information page about urban agriculture. This page includes a map that shows the already existing initiatives in the city (see figure 23).

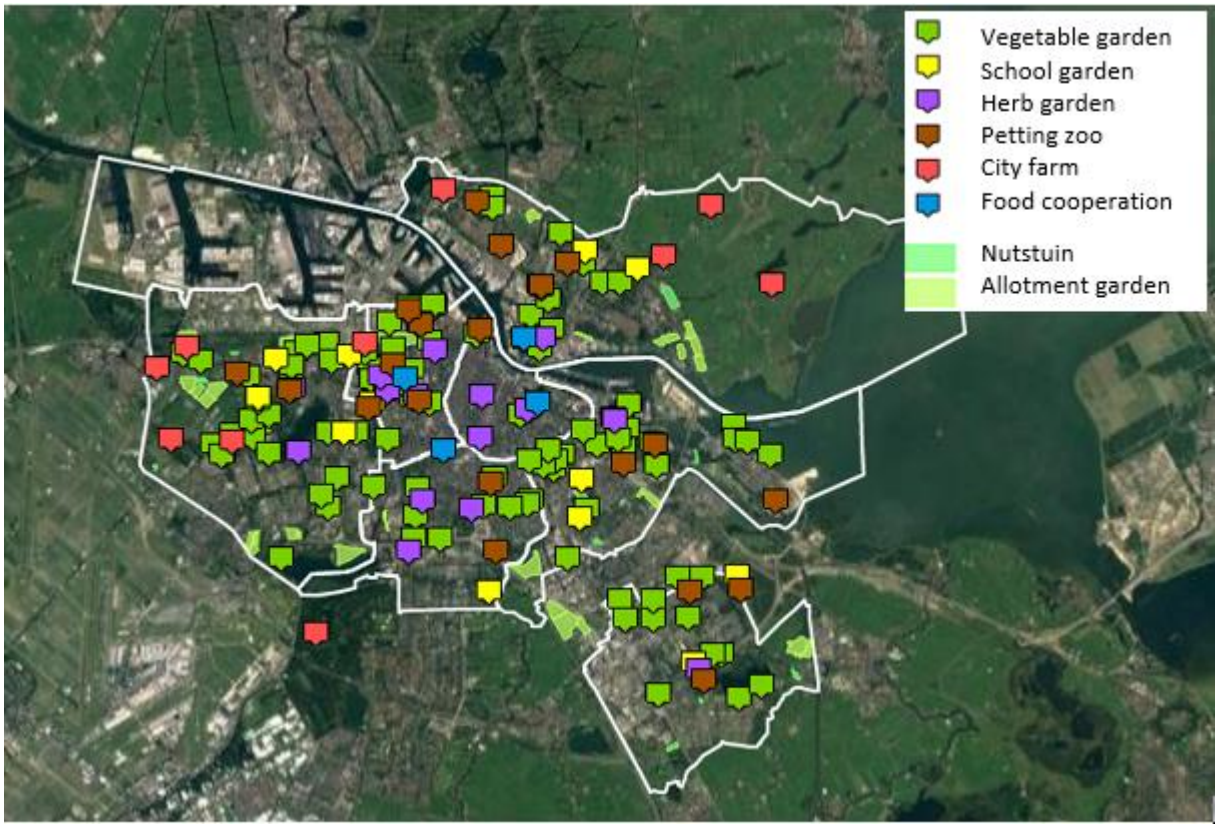

Figure 23: Map of urban agriculture projects in Amsterdam (Gemeente Amsterdam, n.d. 2; Accessed on 22-01-2017)

'Van Amsterdamse Bodem' (from Amsterdam's soil) is a recently launched platform that is focussing on the foodscape of Amsterdam from the farmer to processing, selling and eating food and finally recycling the waste. 'Van Amsterdamse Bodem' gives an overview of the initiatives and events regarding food in Amsterdam and is the place to find answers questions related to Amsterdam's foodscape (Van Amsterdamse Bodem, 2017). The initiative for the platform was taken by the municipality and it was realised in collaboration with several parties that are connected to the Amsterdam foodscape. The future goal is that the platform will be run by several organisations involved in the Amsterdam foodscape with the municipality as one of the partners (MUAP1). The municipality of Amsterdam wants to take a facilitating and connecting role in organising (temporary) urban agriculture in the city. However, it is still an explorative process of how to conduct in a facilitating and connecting role. One of the main issues mentioned by a representative from the municipality of Amsterdam is to connect and align the policies and regulations concerning food among the several departments of the municipality (MAUP1).

5.1.3 Paris compared to Amsterdam

The metropolitan areas of both Paris and Amsterdam examples of temporary land uses can be found. In both metropolitan areas there is also interest in developing temporary land uses in the urban area. Furthermore, urban agriculture can be found in many forms in both metropolitan areas. In Paris, several organisations have contributed to map the initiatives. In Amsterdam the municipality has initiated to map the urban agriculture projects. The municipality of Paris has launched programs for several forms of (temporary) urban agriculture projects to develop in the urban area, a division can be made between community gardens and productive urban agriculture projects. The programs contain strict rules to which the projects should comply. In Amsterdam the municipality tries to fulfil a more facilitating role. The municipality of Amsterdam integrated urban agriculture into the policies and visions. A way in which they support (temporary) urban agriculture is by providing subsidy. There are strict rules to which the projects should comply to qualify for the subsidy. Furthermore, the municipality was involved in launching a platform to enable several initiatives regarding food in the city to get in contact with each other.

5.2 Coded Data

In this section the collected data will be discussed according to the dimensions of the regime (based on Geels, 2011) that were defined for this research. The category physical aspects has been added as a deductive code because the importance of context mentioned in literature (see Næss & Vogel, 2012; Hernàndez-Palacio, 2017). The category finances has been added as an inductive code, because of the importance apparent from the primary data.

The relative proportions of the assigned codes per code family are displayed in a graph in figure 24 for the interviews in Amsterdam and Paris (the relative and absolute numbers on which the figure is based are included in appendix C). The codes belonging to the regime dimensions actions and culture have relatively been assigned most to the interviews about temporary urban agriculture in both Amsterdam and Paris. The codes belonging to the regime dimension technology has been assigned little to the data. The remaining regime dimensions: physical aspects, finances, science, policy and industry and networks are all assigned regularly to the data for both Amsterdam and Paris. The main differences in the data obtained from Amsterdam and the data obtained from Paris occurs in the regime dimensions policy, physical aspects and industry and networks.

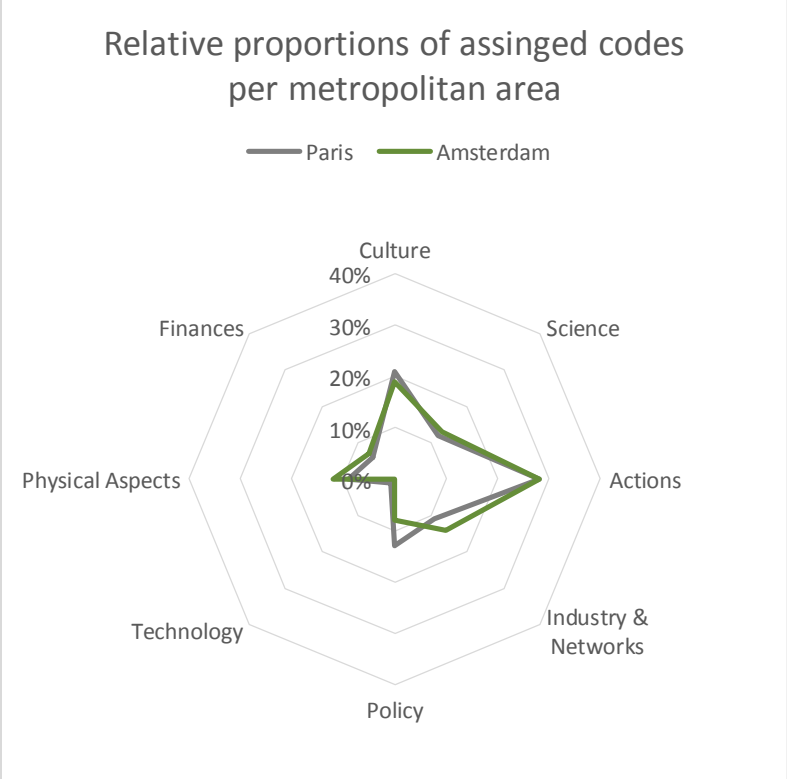

Figure 24: Relative proportions of the number of codes assigned to the primary data collected in this research organised per metropolitan area.

The relative proportions of the assigned codes per regime dimension are displayed in a graph in figure 25 for the interviews held with respondents about starting projects, established projects and ending projects. The relative amount of codes assigned to the primary data is almost the same for the regime dimensions technology, industry and networks, policy and finances. For the other regime dimensions, culture, actions, science and physical aspects the relative amount of codes assigned per code family for starting, established and ending projects varies.

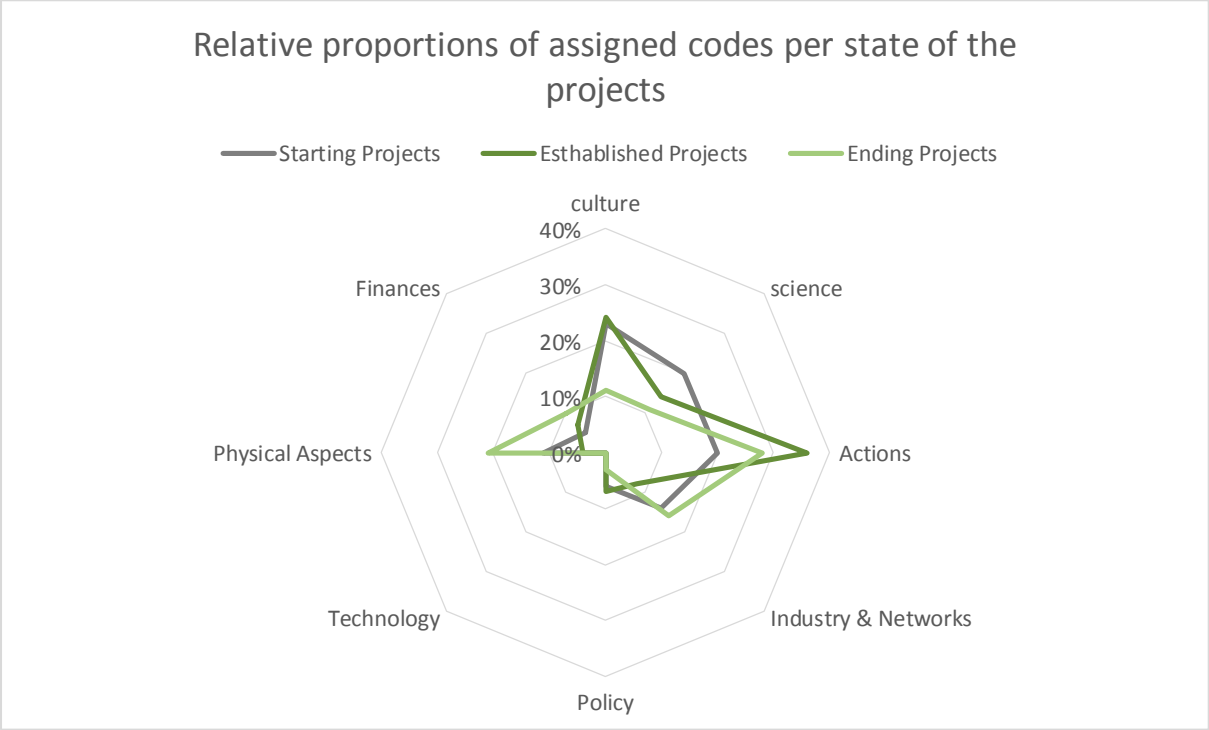

Figure 25: Relative proportions of the number of codes assigned to the primary data collected in this research organised per state of the projects.

5.3 Regime Dimensions Data

To be able to give a meaningful explanation for figure 24 and 25, the primary data that is assigned the codes should be analysed. This is done in the following sections (5.2.1 -5.2.8). Per regime dimension the following sub questions (see also section 3.1) will be answered per regime dimension:

- What are the opportunities concerning planning of temporary urban agriculture in metropolitan areas?
- What are the challenges and uncertainties concerning temporary urban agriculture in metropolitan areas?
- What conditions are needed in order to better integrate temporary urban agriculture in metropolitan areas?

To be able to identify the opportunities, challenges and uncertainties and conditions from the data the terms are defined. Opportunities can be defined as a favourable set of circumstances. A challenge is a situation in which the abilities of something to occur are tested and uncertainty is a situation in which it is unclear what is going to happen. A condition is a prerequisite that is needed for something to occur.

In the next sections the collected data about temporary urban agriculture projects in Amsterdam and Paris, has been divided into three categories: (1) opportunities; (2) challenges and uncertainties; (3) conditions. The data has been coded, according to the sub-codes, per regime dimension. Subsequently, the coded data has been categorised as opportunity, challenge and uncertainty and/or condition, this is shown in a table per regime dimension. The applicability of the opportunities, challenges and uncertainties and conditions on the metropolitan areas (Amsterdam and Paris) and on the state of the project (starting, established and ending) is shown in the table, the box is filled when applicable. The opportunities, challenges and uncertainties and conditions shown in the tables will be explained and motivated in for each dimension. Finally, for each regime dimension the differences of the relative proportions of the assigned codes per metropolitan area and state of the project will be explained.

5.3.1 Culture

In this research the category culture has been defined as: the symbolic meaning perception, habits, beliefs, values and interests of actors in civil society (based on Geels, 2002; Franzeskaki & De Haan, 2009). The sub-codes used to code the data are: beliefs, ethics, habits, interests, perception, preferences and values. The most important opportunities, challenges and uncertainties and conditions concerning 'culture' are shown in table 7.

Table 7: Culture

		Metropolitan area		State of the project		
		Amsterdam	Paris	Starting	Established	Ending
Opportunities	Interest in urban agriculture by several actors	■	■	■	■	■
	Direct link between consumer and growing food	■	■	■	■	■
	Using urban agriculture as an image for the city		■	■	■	■
	Interest in fresh food	■	■	■	■	■
	Projects perceived as successful	■	■	■	■	■
	Gardening connects, social links, working together, building a community	■	■	■	■	
Challenges + uncertainties	landowners have no interest in temporary development		■			■
	Dependence on politics and visions	■	■	■	■	■
	Less interest when it is known that project goes away	■	■			■
	Different ideas of what the garden should look like	■	■	■	■	■
Conditions	Initiative from the people or associations	■	■	■	■	■
	Interest from inhabitants	■	■	■	■	■

Interest and involvement of different actors in temporary urban agriculture projects is necessary for projects to emerge and exist. The two main actors mentioned in the interviews are the inhabitants and the local government.

There are a few reasons why inhabitants are interested in the temporary urban agriculture projects A gardener from Le Jardin des Soupirs expresses this as follows:

> *"[people come here] to be in nature inside of Paris and to share more social moments, to get to know their neighbours. And I have been living in this area for mostly 20 years and the 10 first years I didn't know my neighbours and now I know a lot of people." (AUPP4)*

A gardener from Voedseltuin IJplein adds to this:

> *"I have just worked a few times in the garden, but it provides connections with [other people working in the garden] that I didn't build up for years at work. Because you have the same goal, the same rhythm, you can understand each other without having to talk much about it. So you create a bond through gardening, and for me that is a very important motive. And it is also important for me that I can take some vegetables home, every once in a while" (UAPA3)*

Important reasons to participate in an urban agriculture project is to be able to grow fresh food, to come in contact with neighbours and likeminded people and to be in green space in the city. The interest of inhabitants is a reason for the government to show interest in the phenomenon of urban agriculture. A representative from the municipality of Amsterdam says:

> *"It is quite difficult in a city as Amsterdam, a full and busy city, to develop new initiatives. Because the space is limited, but also because of the regulations, especially concerning the public space in a full city there are limitations on the use of the public space. This is a given, you cannot cast that aside. There are many claims on the public space and those claims have to be weight against each other. I am convinced that there are more places in the city suitable to launch urban agriculture projects, but it is certainly not unlimited. It is good to have to think about where it would be possible. For example in a city park, if you take into account the people that want to play football, barbecue, play, relax then there are, in my opinion, also places to set up a garden. But it all the claims on the public space have to be considered. And that goes for parks […] actually everywhere." (MAUA1)*

This states that the interest of the inhabitants is an important reason that urban agriculture should be implemented in the public space. However, there are more interests among the inhabitants that should also be taken into account. A researcher on the phenomenon of urban agriculture in Paris even states that urban agriculture could be used as an image to promote the city (MAUP1).

Continuing interest of inhabitants in a temporary urban agriculture project is not a given. Especially ending projects experience that less people come to visit the garden when it is known that the land will be developed on short term (UAPP5; UAPA7; UAPA8).

Apart from the ending of some projects, temporary urban agriculture projects are perceived to be successful. Reasons for success that were often mentioned are: a lot of products from the garden,

people are happy, working together, taking your own food home and cooking meals from it, learning new skills, when the project already exists for a long time (UAPP1; UAPP4; MAUP5; UAPA1; UAPA3; UAPA7).

However, there are also some challenges countered by the projects. First of all, landowners do not always have interest to temporary develop a piece of land. A researcher on the phenomenon of urban agriculture explains:

> *"Once a community of persons are really frequent in this site, it is very difficult to say, well now we put you out. For example, very recently some of the shared gardens were used to welcome migrants and there is a strong attachment now of the communities to the shared garden. [… another] example are the urban projects on the roofs. It is possible that these could be temporal, but […] in reality this can become a problem because a lot of building owners see that it could be very problematic if they have a conflict with the urban farmer, to put him out. And this question of intending to make a secure form of occupation, is well done from the point of view of the gardener but not so well done form the point of view from the owner. And it can be now an obstacle to upscale this." (MAUP1)*

These examples show why land- and roof owners are not always in favour of temporarily develop their site into an urban agriculture project. According to the respondent this might be an obstacle for temporary urban agriculture to integrate in the city. Another challenge might be that the interest of the municipality in urban agriculture is very dependent on politics and visions. A representative from the municipality of Amsterdam says:

> *"It is important that people can work on this topic (urban agriculture), and that they are given the time to create cohesion. We need to get the space to connect several initiatives and initiate new projects. There are enough ideas to work on this topic, but it is mainly about getting the space and the capacity to work on urban agriculture. And in that area, I think, we could improve." (MAUA1)*

This emphasises that ideas regarding urban agriculture can only be carried out if for example a municipality has the capacity to work on that topic.

A challenge on project level is that the people working in the garden often have different ideas of what the garden should look like. This can cause conflicts among the members. This is especially experienced by gardens that use the concept of a common garden.

Concluding, the relative proportions of codes assigned to the regime dimension culture in the interviews about temporary urban agriculture are almost the same for Amsterdam and Paris (see figure 24). The relative proportions of codes assigned to the category culture per state of the project differs, there is a large difference between ending projects and starting and established projects (see figure 25). From table 7 and the quotes in this section it can be seen that the interest in a project decreases when it is known that the project will end.

5.3.2 Science

In this research the category science has been defined as: knowledge, techniques and skills (based on Geels, 2011) regarding developing and coordinating urban agricultural projects in the city. The sub-codes used to code the data are: knowledge, techniques, skills, procedures and social capital. The

most important opportunities, challenges and uncertainties and conditions concerning 'science' are shown in table 8.

Table 8: Science

		Metropolitan area		State of the project		
		Amsterdam	Paris	Starting	Established	Ending
Opportunities	Exchange experiences, advice, skills					
	Workshops					
	Educate people (of all ages)					
Challenges + uncertainties	Unfamiliarity with urban agriculture					
Conditions	People capable of taking the lead					

The main activity in the urban agriculture projects is gardening. Many people involved in the projects have experience in gardening, but the gardens are also a place to learn. For all people involved in gardening workshops are organised to learn new gardening skills, examples of workshops mentioned during the interviews are: bee-keeping, composting, how to implement permaculture, and pruning trees, among others.

In Paris there are workshops organised by the municipality, for all people that are interested in gardening. In L'Agrocité, Les Jardin Suspendus and the projects in Amsterdam there are also workshops organised in the gardens for the members and for other people that are interested.

In addition, the majority of the gardens organises activities to get children more involved in gardening and growing food. The reason for this is explained by a gardener from Voedseltuin IJplein:

> *"The project also has an educative function, schoolchildren come here to learn about nature. The lessons are for example about ladybugs or plants. Children sometimes even do not know that milk comes from cows, they think milk comes from a carton from the supermarket. And [during the nature lessons] we show, these are beets and this is how sprouts grow. I really think that this has an added value." (UAPA2)*

However, this role of education does not only apply to children, a gardener explains:

> *There were beginning gardeners, when you saw their garden they had no idea about how to grow kale and no idea which crops should be planted next to each other. In a school garden children learn how to grow crops, and this garden had the same function for adults. That is very nice to experience." (UAPA7)*

Each project in this research is involved in education in the field of gardening. Each garden organises activities for people to gain experience with gardening and learn how to garden for people from all age groups.

A condition to keep a project running, is the need for people that are capable of taking the lead. As described in section 5.3.3 (actions) it is sometimes difficult to find people that want to put time and energy in this.

Concluding, the relative proportions of codes assigned to the regime dimension science in the interviews about temporary urban agriculture are almost the same for Amsterdam and Paris (see figure 24). The relative proportions of codes assigned to the category science per state of the project differs, there is a large difference between starting projects and established and ending projects (see figure 25). This does not become clear from table 8, but can be explained because starting projects use the advice and exchange of experiences to set up a project, especially the project Pluk! has used this a lot in their setting-up process (UAPA4).

5.3.3 Actions

In this research the category actions has been defined as: Demands, actions and behaviour of several actors involved (based on Franzeskaki & De Haan, 2009). The sub-codes used to code the data are: demand, wants and needs, actions and behaviour. The most important opportunities, challenges and uncertainties and conditions concerning 'actions' are shown in table 9.

Table 9: Actions

		Metropolitan area		**State of the project**		
		Amsterdam	**Paris**	**Starting**	**Established**	**Ending**
Opportunities	Activities					
	collaboration					
	The inhabitants take care of a piece of land					
Challenges + uncertainties	Less pleasant tasks					
	Unsure future					
Conditions	Collaboration					
	responsibility and accountability of members					

The concepts of the temporary urban agriculture projects researched can roughly be divided into two categories. First, there is the concept of dividing the space in small individual plots that are taken care of by one or more people. Second, there is the concept of common gardens in which the members together take care of the whole garden. The temporary urban agriculture projects Schoffeltuintjes (part of the Boeletuin project), Les Jardins Suspendus and L'Agrocité belong to the first category, Pluk!, Voedseltuin IJplein, Zuidmoes (part of the Boeletuin project) and Le Jardin des Soupirs belong to the second category.

The main actions in the projects are related to gardening. In all gardens members maintain the garden, together or individual depending on the design of the garden. A gardener from Voedseltuin IJplein describes this as follows:

"Green fingers, working in the garden, that is what I am coming for." (UAPA2)

In most projects the volunteers visit the garden about two times a week. The tasks vary: making a sowing plan, preparing the ground, sowing the crops, weeding, harvesting, and composting, among other things. Besides the actions regarding growing food also other activities are organised such as, workshops, parties, volunteer days, among others.

To make sure that the necessary activities are done, each garden has people that take the lead. These people are engaged in the organisation of the garden, which is necessary to keep it running. However, the tasks that go with that are not always experienced as nice to do. A gardener of Voedseltuin IJplein says:

> *"I think it is an issue for many volunteer organisations, that people say: but I am a volunteer, in short they do not want to do the things they don't like. But such an organisation also has an unpleasant side. So if you have to do the other things, then that should be in balance. […] You need to have a few people that also want to do the not so fun things and that do not get tired from that, [or] maybe a little bit tired." (UAPA1)*

In every project people are needed to ensure the project to keep running. There are thus people needed that also want to be involved in the organisational tasks, that have less to do with gardening. Examples of these tasks that are experienced as less nice are: fundraising, board meetings, administration, among others. The gardener from Voedseltuin IJplein continues that the people fulfilling these functions should also not always be the same:

> *"When someone thinks: it is enough. There must be someone else that carries on. And we are not yet there. A few times someone from the board has quit, and then there is someone else to take over." (UAPA1)*

There thus need to be a few people that want to take responsibility to carry out the necessary organisational tasks. A researcher on urban agriculture in Paris adds to this:

> *"The successfulness of a project is really determined by the people involved. You need motors in the project, that put time and effort in the urban agriculture project." (MAUP6)*

For projects of which it is known that they have to go away it is difficult to keep the people interested in carrying out the gardening and organisational actions. A gardener of the Schoffeltuintjes part in the Boeletuin says:

> *"We want to see if we can maintain it, but we want to leave the responsibility [of maintaining the area] to the people themselves. [..] Actually because the future is so uncertain, if you can stay here for 10 years, you can build up something structural. But it may just be that next year they [landowner] say that it is over, so it is too uncertain to build up something structural" (UAPA8)*

For the gardeners of the Zuidmoes project, also part of the Boeletuin the unsure future also affects the actions in the garden:

> *"Every time we have the setback of having to move, and we have to rebuild everything. But at a certain point you accept it and make the best out of it. […] This year we do not do crop rotation because it [the project] will only last for a*

year. When you have several years you can build it up, make a long-term schedule. […] When you know you can stay somewhere, you can invest. For me, especially the multiannual crops are interesting, if you get that to work you will produce more each year" (UAPA9)

In the case of this project, the uncertainty about the future even affects the gardening actions.

An important aspect that is addressed in all gardens is collaboration. From the interviews it can be identified that this is an opportunity, challenge and a condition at the same time. Working together with others in the garden is highly valued by the respondents. However, the challenge of working together in a garden is that everyone has their own ideas of what the garden should look like and how the gardening should be done. This can lead to conflicts between the members of the garden. On the other hand, collaboration is needed to keep the project running. A project cannot exist without cooperation, and therefore it is also a condition.

Concluding, the relative proportions of codes assigned to the regime dimension actions in the interviews about temporary urban agriculture are almost the same for Amsterdam and Paris (see figure 24). The relative proportions of codes assigned to the category actions per state of the project differs, it is the highest for established projects and smaller for the ending and projects (see figure 25). For ending projects the reason for this could be the unsure future that affects the activities in the garden. For starting projects the reason could be that these projects need some time to organise the activities and has therefore be mentioned less during the interviews.

5.3.4 Industry & Networks

In this research, the category industry and networks has been defined as: Actors and activities regarding urban agriculture and the corresponding formal and informal social constructs, which legitimise and enable but can also constrain actions of actors and interactions and connections between actors and urban agriculture projects (based on Geels, 2002; Franzeskaki & De Haan, 2009). The sub-codes used to code the data are: actors, government, organisations, links between actors. The most important opportunities, challenges and uncertainties and conditions concerning 'industry and networks' are shown in table 10.

Table 10: Industry & Networks

		Metropolitan area		**State of the project**		
		Amsterdam	**Paris**	**Starting**	**Established**	**Ending**
Opportunities	Contacts with relevant organisations					
	Food for the foodbank					
	Platform					
	Using the information and contacts from the municipality					
Challenges +	Less diverse projects through					

uncertainties	involvement of the government					
Conditions	Involvement of the government					

There are many actors involved in temporary urban agriculture in metropolitan areas, that have different roles: inhabitants that work in the gardens, the municipality, researchers, and organisations, among others. There are links within and between these groups of actors. As mentioned in section 5.2.2 the municipality of Amsterdam initiated a platform called 'Van Amsterdamse Bodem'. This is an opportunity for creating links between the several actors in the field of (temporary) urban agriculture. This platform has only recently been launched. The need for such a platform is however something that has been indicated some time ago, a representative from the municipality of Amsterdam says:

> *"Four years ago it has been mentioned by actors, all people that are involved in food and urban agriculture, that a platform is needed to increase the visibility [of urban agriculture] and to connect. Since two week we have the platform, so it has yet to prove itself, but I am very curious if it meets the need and how it will develop. If it does, I see this as a means to further develop [urban agriculture]. […] That it becomes one story, in the end it is about the relation between the producer and the consumer. [..] there still is a huge potential for development." (MAUA1)*

In Amsterdam this platform forms a new opportunity to create links between the several actors involved in temporary urban agriculture. In Paris, Maison du Jardinage fulfils the role of contact point and connector. Maison du Jardinage is resource centre for gardeners in Paris. An employee working at Maison du Jardinage says:

> *"if they [inhabitants] want to be part of a community garden we will give them that piece of paper [with a map of all Jardins Partagés]. […] and we will give them the contacts of all the associations. […] So if someone wants to be part of a garden, depending on where he lives or where he wants to be part of, we give them a contact, email addresses and telephone numbers." (MAUp5)*

At Maison du Jardinage they have an overview of all initiatives that are part of the Main Verte program. Furthermore they organise activities focussed on gardening in the city:

> *"We give conferences for anyone, for people who have a gardening permit and for people who belong to community gardens. To give them some advice and help them on the everyday life, if they need help, if they have problems with their garden, if they don't know how to take care of the plants we can help them and give some advice. And also we organise workshops, like gardening workshops, basically it is like helping people with gardening so it can be anything." (MAUP5)*

From several interviews about different projects in Amsterdam and Paris it becomes clear that it is important that the government is involved with the projects. In Paris, the government is more involved in the activities of the projects. A gardener from Le Jardin des Soupirs mentions:

> *"Every year we have to report our activities to the municipality. every year the association has to say to the municipality what they did. […] and if the municipality doesn't agree or she thinks it is not going well they can stop our plans. But they are happy with what we do." (UAPP4)*

In this case more involvement from the government in the project results in the expression of appreciation. Lack of interest from the government in the project can have a negative effect on the attitude of the gardeners towards the government. A gardener from Voedseltuin IJplein says:

> *"The municipality organises for example evenings on which they invite everyone who is working on initiatives in this neighbourhood. They [municipality] say, we want to keep in touch more with the neighbourhood. Everybody [all organisations] there says, give us a permanent contact person that we know we can call when something is happening. That is already a year ago, but you never hear anything about it." (UAPA1)*

The gardener continuous:

> *"We maintain this whole area with people who earn nothing and they [municipality] do not have to maintain it. […] But they do not express their appreciation, I consider that very weak." (UAPA1)*

This reveals a conflict between what the project wants and how the government acts. The urban agriculture projects want recognition and appreciation from the municipality. On the other hand, the involvement of the government can also lead to a larger governmental influence on the activities and practices in the gardens. When they do not agree with the course of events, they can take measures that will affect the project.

The involvement of the municipality in Paris in gardens in Paris is organised in the program Main Verte. This program has as a result that when there is space and interest to start a new project, the contract is there and it is clear what has to be done by whom. The process of setting up a garden is standardized. This has as a result that urban agriculture in this form is already integrated in the urban policy. As a downside, all the gardens have to comply to the contract which can decrease the diversity of the several gardens.

Concluding, the relative proportions of codes assigned to the regime dimension industry and networks in the interviews about temporary urban agriculture differ for Amsterdam and Paris (see figure 24). In Amsterdam, there is much attention for connecting the several initiatives there are regarding food in the city. An example of this is the recently launched platform. The relative proportions of codes assigned to the category industry and networks per state of the project are roughly the same for starting, established and ending projects (see figure 25).

5.3.5 Policy

In this research the category policy has been defined as: Policies, laws, regulation and directives regarding planning urban agriculture in the city that influence and standardise practices (based on De Haan & Rotmans, 2011; Franzeskaki & De Haan, 2009). The sub-codes used to code the data are: urban planning policy, regulation, directives, laws, standard practices, contractual forms. The most important opportunities, challenges and uncertainties and conditions concerning 'policy' are shown in table 11.

Table 11: Policy

		Metropolitan area		State of the project		
		Amsterdam	Paris	Starting	Established	Ending
Opportunities	Contract about use of space					
	Removing obstacles in regulation					
Challenges + uncertainties	Fragmented policy					
	Many claims on the public space					
	Regulation can restrict the activities					
	Urban development					
Conditions	Urban agriculture mentioned in policy documents					

In Both Amsterdam and Paris (temporary) urban agriculture is mentioned in policy documents and regulation. Representatives of the municipalities of both metropolitan areas highlight the importance of removing obstacles from the regulation to make it easier to implement urban agriculture projects into the city. In Paris the Plan d'Urbanisme was adjusted so for example greenhouses could be implement on roofs (MAUP1). In Amsterdam one of the action points mentioned in Agenda Groen was to identify and remove the barriers from the current regulation (Gemeente Amsterdam, 2015b; MAUA1). Another opportunity is that in policy documents of Amsterdam and Paris (temporary) urban agriculture is mentioned as an activity to implement in the city. In Paris the municipality has even set quantitative goals about realising urban agriculture before 2020.

A challenge about policy is that it is fragmented. For larger projects it is sometimes unclear if the activities fall under the urban or rural policy and regulation. A representative of the municipality of Amsterdam mentions:

> *"The moment you give [a piece of land] an agrarian destination, different rules apply. All kinds of things had to be sorted out, how are we going to fit it [urban agriculture] into the zoning plan and what does that mean for the environmental regulation. There are a lot of small-scale initiatives in and on the edge of the city of Amsterdam, but Amsterdam is surrounded by rural area. But these are bounded to certain rural regulation, and that can partly be restrictive for further development." (MAUA1)*

This shows that policy and regulation are not always clear and can restrict the activity of agriculture in the city.

Furthermore, visions and policies can be contradicting, for example the metropolitan area of Amsterdam has the objective to become more compact and build more houses, but at the same time there is a document that preaches to implement more green in the city and orientate the food production more towards the city. These contradictory documents make developing urban agriculture difficult and uncertain. A gardener says the following on these contradicting policies:

> *"There is also a vision that they want to produce food closer to the city. That is also there, it depends on what you think is more important. And I know from the people that work in the school over there [primary school next to the garden], that project developers regularly come there and propose to build a new school for them. Because this land is worth a lot of money, it is very tempting to build here. But we can only make sure that the project runs as good as possible and hope that many people enjoy the garden. So, when it comes to that it will be very difficult to remove this project." (AUPA1)*

The several policy objectives of metropolitan areas can thus be contradictory. The gardener of Voedseltuin IJplein states that their goal is to run the project as good as possible to show what the value of urban agriculture is for the city.

Concluding, the relative proportions of codes assigned to the regime dimension policy in the interviews about temporary urban agriculture differ for Amsterdam and Paris (see figure 24). This could be explained by the great involvement of the municipalities in the metropolitan area of Paris in urban agriculture, resulting in policies regarding this activity. The relative proportions of codes assigned to the category policy per state of the are roughly the same for starting, established and ending projects (see figure 25).

5.3.6 Technology

In this research the category technology has been defined as: Technologies used in urban agriculture projects. The sub-codes used to code the data are: technologies and tools. The most important opportunities, challenges and uncertainties and conditions concerning 'policy' are shown in table 12.

Table 12: Technology

		Metropolitan area		State of the project		
		Amsterdam	Paris	Starting	Established	Ending
Opportunities	-					
Challenges + uncertainties	The image of agriculture vs. new technologies. Productive urban agriculture.					
Conditions	-					

The topic technology has not been covered extensively by the interviews. In the urban agriculture projects investigated in this research, technology has not revealed to be an opportunity or condition.

A challenge that has been mentioned by a researcher of the phenomenon of urban agriculture in Paris and Amsterdam is the unfamiliarity with food being produced in the city. This was described by a researcher from Paris as follows:

> *"[A] problem, but perhaps not only in Paris, [… is that] some very high-tech farms such as indoor farming, vertical farming including the urban greenhouses are not so well appreciated by the people. They think regarding food production it will make food without taste. The French people are very interested by the origin of the food, for them it is the agriculture in field with the old figure of the farmer. And then it is not obvious for example that there will be a development of indoor farms, vertical farms and urban greenhouses." (MAUP1)*

The technological solutions that enables food production in the city, does not seem to align with the image that citizens have of food production.

An employee of the municipality of Amsterdam also mentions this issue, he says:

> *"The unfamiliarity also still plays a role, especially when talking about [food production on] a larger scale. About entrepreneurs and companies, we are of course not used to those being located within the city." (MAUA1)*

From these quotes, it appears that citizens are not used to the idea of high tech food production within the urban area. However, the temporary urban agriculture projects that were investigated in this research do not make use of these technologies, and are therefore not dealing with this specific challenge.

Concluding, the relative proportions of codes assigned to the regime dimension technology in the interviews about temporary urban agriculture is very low for both Amsterdam and Paris and for starting, established and ending projects (see figure 24 & 25).

5.3.7 Physical Aspects

In this research the category physical aspects is defined as: the setting in which temporary urban agriculture projects appear. The sub-codes used to code the data are: space and climate. The most important opportunities, challenges and uncertainties and conditions concerning 'policy' are shown in table 13.

Table 13: Physical Aspects

		Metropolitan area		**State of the project**		
		Amsterdam	**Paris**	**Starting**	**Established**	**Ending**
Opportunities	Involvement of the government					
	Available space in suburbs					
	Location of the garden					
Challenges + uncertainties	Limited space					
	Spatial restrictions					
	Limited movability					

	Reluctant land- and roof owners					
	Climate change					
Conditions	Open to the public					
	Free use of space					

There are two ways in which the urban agriculture projects investigated in this research found a place. First there is the way in which there is space available to develop something, and the initiative is taken to implement an urban agriculture project in that space. This was the case for Les Jardins Suspendus, Le Jardin des Soupirs, Voedseltuin IJplein and the Boeletuin. Then there is the way in which there is a concept for an urban agriculture project that has to find a space in the city to be implemented. This was the case for L'Agrocité and Pluk!, and for the ending projects, L'Agrocité and Boeletuin, to find a new space in the city. A researcher on the phenomenon of urban agriculture in Paris indicates that the most space to develop urban agriculture is in the suburbs of the metropolitan area.

For both ways of finding land in Paris and Amsterdam there are restrictions. A manager of the project Pluk! says the following about finding a space to set up the project:

> *"[Urban Agriculture] is really challenging to implement in Amsterdam, because there is not much land and you need to have a bigger piece of land to produce food for more people. So we have been looking for many years for land and sometimes we found little bits of land but it turns out that they have been contaminated, because all of Amsterdam is pretty contaminated with heavy metals." (UAPA4)*

This shows that the lack of space and contamination of the soil is a restricting factor for urban agriculture to be implemented in a metropolitan area. The contamination of the soil is mentioned in various interviews and seems to be a problem both in Amsterdam and Paris. The lack of available space in metropolitan areas is also a challenge for urban agriculture to integrate in the city. There are many land uses that have to compete with each other for space and land in metropolitan areas is expensive. This is acknowledged by a gardener in the Boeletuin, he mentions the following:

> *"We have to give up this land at some point, this land is really very expensive. It is actually pretty ridiculous that we are planting potatoes and radishes on land that is worth 2000€ per square meter. You notice it on the whole Zuidas, everywhere is being built." (UAPA9)*

On certain locations there is a lot of pressure on the land to use for multiple reasons, which adds to a lack of space for urban agriculture. This problem is faced as well in Paris as in Amsterdam. A researcher on the phenomenon of urban agriculture say the following:

> *"Well the fact is in Paris the biggest problem is the lack of space, there is no space. So the only space you have is the rooftops. And without the municipality it is very difficult for the project leaders to find someone who wants to give his rooftop. So without the municipality it would be possible I think, but not as rapidly, as quick as it is now. […] The lack of space makes that you have to have the municipality involved to get access to all the spaces in the city" (MUAP2)*

From this statement it seems that in Paris the involvement of the government is perceived as important in the process of finding space to implement an urban agriculture project. For example, in

the Main Verte program, the local government is actively involved in the implementation and organisation of temporary urban agriculture projects. This also creates certain conditions that have to be met, depending on the characteristics of the space. An employee of the municipality of Paris working for the Main Verte program explains this as follows:

> *"It [an urban agriculture project] can be in public or private space, but the condition to start a shared garden is that it has to be open to everyone. It has to be open for the public. It is a condition, very important, because it has to be shared. So it can be in a green space, in a park or in an independent parcel, if there is a small part in the city that is not used anymore, they can use it for that [urban agriculture]. […] Or it can also be in a building, you know there is an area in the building where you have a green space, it will be a private space. But if you have the permission of the owner of the building and if the owner says yes, they can do it. But they have to open to the public. Anyone has to be able to go. So even in public space and private but it has to be open for the public." (MAUPP5)*

In Amsterdam the municipality wants to act in a more facilitating and connecting way. The local government in Amsterdam is therefore also less involved in finding space for urban agriculture projects. An issue that is brought up by a representative of the municipality of Amsterdam is the limited movability of temporary urban agriculture projects, the following is stated:

> *"The ability of initiatives to move is limited. Because the strength of those initiatives is very local, depending on the size. […] the Fruittuinen van West are examples in the city [Amsterdam] with a wider support, people from the other side of the city might even go there. But especially [when it comes to] local gardens, that are driven by the strength and energy of the people from the neighbourhood, you cannot say just go 2 kilometres further because there is a vacant piece of land. That is limited. But I do think that there is a role for the municipality, and especially for successful projects that have proven themselves, to think about the possibilities." (MAUA1)*

For successful urban agriculture projects, this representative thinks that the municipality can help with looking for a new space. However, there are limitations to moving a project due to local nature of urban agriculture projects.

Another issue that came up during multiple interviews was climate change as a challenge for urban agriculture. A manager from the project Pluk! says:

> *"The biggest uncertainty is global climate change, and how that is going to impact weather patterns here. We see that a lot in our farming, you know every season is so different and you really have to plan your crops so that you have some sort of resilience and diversity. […] in a perfect situation you will have a crop plan and you will harvest everything. That of course never happens with farming but climate change makes it even more unpredictable I think." (UAPA4)*

This shows that the unpredictability of the weather will according to this gardener be increased because of climate change. Especially for projects that focus mainly on producing fresh food close to the city, extreme weather circumstances can cause problems for the production.

Concluding, the relative proportions of codes assigned to the regime dimension physical aspects in the interviews about temporary urban agriculture differ for Amsterdam and Paris (see figure 24). The

relative proportions of codes assigned to the category physical aspects per state of the project also differs, for ending projects the physical aspect is more important than for starting and established projects (see figure 25). This can be explained because these projects are concerned with leaving their current location and finding a new place.

5.3.8 Finances

In this research the category finances has been identified as important from the primary data and has been added as a code. The category finances can be defined as: financial resources and expenses that are needed to set up a project and to keep the project running. The opportunities, challenges and uncertainties, ad conditions concerning 'finances' are shown in table 14.

Table 14: Finances

		Metropolitan area		**State of the project**		
		Amsterdam	**Paris**	**Starting**	**Established**	**Ending**
Opportunities	Subsidy	■	■	■	■	
	Crowdfunding	■	■	■	■	
	Fundraising	■	■	■	■	
	Membership/activity fees	■	■	■	■	■
	Selling products from the garden	■	■	■	■	■
Challenges + uncertainties	Not self-sustaining	■	■	■	■	■
	Costs to allow temporary land use	■		■	■	■
	High set-up costs	■	■	■		
Conditions	Funding	■	■	■	■	■

To set up a project and keep it running money is needed, therefore funding, in several ways, can be seen as a condition. Each project that has been investigated in this research used money that was made available by the government. None of the projects is yet self-sustaining. This makes the existence of urban agriculture projects vulnerable for political interest in the phenomenon. A researcher on the phenomenon of urban agriculture says:

> *"Without financial support it is a little bit difficult to launch at least an activity. After some years it is possible and it is feasible to have its own economy but in the beginning it is difficult without support." (MAUP1)*

The largest amount of money is needed to set up the project. Then, to keep the project running and money is needed for electricity and water expenses, for tools, seeds, and soil, among others. The dependency on funding is a challenge for the existence of urban agriculture. However, there are other ways besides subsidy to raise money for a project and each project uses multiple ways to raise money. The gardens are selling products from the garden, crowdfunding, subscribing for funds, and ask for membership and activity fees.

All projects have a contract that states they can use the space. None of the investigated in this research do have to pay to use the space. However, temporary use of vacant land is not always without costs. A representative from the municipality of Amsterdam says the following:

> *"It is said that it doesn't cost anything to allow temporary land use on vacant land, but in some cases it does cost money. That has to do with taxes and that sort of things, that are often not visible for inhabitants. However, for the municipality there might be financial risks [when allowing temporary land use] so in that respect an informed decision needs to be made if temporary land use can be allowed" (MAUA1)*

That the projects can use the space for free is an opportunity for projects to emerge in the city, however the fact that vacant land cannot always be used for free might be a challenge.

Concluding, the relative proportions of codes assigned to the regime dimension finances in the interviews about temporary urban agriculture are almost the same for Amsterdam and Paris and for starting, established and ending projects (see figure 24 & 25).

6. Discussion & Conclusions

In this chapter, the conclusions of this research will be presented and the findings will be discussed. First, an overview of the most important results will be given. Second, the results will be discussed in the light of the theoretical framework. Then an answer to the main research question will be formulated. Finally, recommendations for further research will be proposed.

6.1 Important Results

The purpose of this research, as described in section 3.2, was as follows:

> *"The objective of this research is to explore the possibility of starting a transition towards integrating the phenomenon of temporary urban agriculture into the metropolitan area. The current situation of planning temporary urban agriculture in metropolitan areas, the opportunities, challenges, uncertainties and conditions for temporary urban agriculture projects will be investigated to get a better understanding of the planning of temporary urban agriculture in metropolitan areas. This will provide insight in how temporary urban agriculture is integrated in metropolitan areas and if temporary urban agriculture in metropolitan areas can make a transition towards structurally being integrated in the urban environment."*

The sub questions have been answered in the previous chapter, which has contributed to the stated objective. First, the current state of temporary urban agriculture in Paris and Amsterdam has been investigated. Then, the opportunities, challenges and uncertainties and conditions for the investigated temporary urban agriculture projects have been identified per dimension. The most important findings of this research are summarized hereafter.

Currently temporary urban agriculture is a form of land use that occurs in the metropolitan areas of Paris and Amsterdam. In both areas over a hundred urban agriculture initiatives can be found. Added to this, urban agriculture is in both Paris and Amsterdam integrated in the policy and regulation. In both metropolitan areas there is also financial support for urban agriculture initiatives.

The people involved in temporary urban agriculture projects perceive the projects as successful because: social links are created, they enjoy gardening and they can grow their own food. Also, the fact that many projects have been running for years, makes that the projects are perceived as successful. Furthermore, an opportunity experienced by the gardeners is the educative aspect that most gardens have. The people involved in temporary urban agriculture projects gain experience in gardening, learn from each other and gain knowledge at workshops.

On the other hand, temporary urban agriculture has less successful aspects: sometimes difficulties are encountered when working together and climate change possibly effects urban agriculture. Furthermore, there are some challenges encountered that are related to the physical environment. A lot of soil in metropolitan areas is contaminated, which makes growing food in some places impossible. There is a lack of space, especially in a dense metropolitan area like Paris. Added to this, landowners are sometimes reluctant to agree with temporary development on their property. Another challenge is that the announcement that a project will end in the near future at a certain place, results in decreased involvement of people in the projects. The temporal aspect of urban agriculture projects can thus restrain temporary urban agriculture to become a more structural part of the city.

A condition for temporary urban agriculture projects is the availability of financial support. All projects have been set-up with financial support from the government. This makes the projects dependent on the availability of money that is made available by governmental institutions. The financial dependence on the government leads to the dependence of temporary urban agriculture projects on political interest. The interest of the inhabitants in urban agriculture appears to be large. This is a motivation for the government to also show interest in this form of activity. However, inhabitants interested in gardening should keep showing interest in urban agriculture and take initiative to organise temporary urban agriculture.

6.2 Discussion of the Theoretical Framework

6.2.1 Regime Dimensions

In this research temporary urban agriculture projects have been seen as practices that operate on the niche level. During the research the connection between temporary urban agriculture projects and several regime dimensions has been investigated.

In practice, the categorisation of experiences from the interviews, into the six dimensions of the regime described by Geels (2011), seemed difficult. Therefore, two dimensions have been added to the regime. First, the category physical aspects has been added to the regime dimensions based on literature by Næss and Vogel (2012) and Hernàndez-Palacio (2017). Then, finances was added to the regime dimensions as an inductive code, because the topic was mentioned many times during the interviews. Both physical aspects and finances were not explicitly covered by the multi-level perspective on the socio-technical transition theory (i.e. by Geels 2002; Geels 2011). However, they seem to be of importance for the integration of temporary urban agriculture in the metropolitan area.

The regime dimensions culture and actions can be seen as the most important. These two dimensions have been discussed most during the interviews (see figure 24 and 25. The regime dimensions science, industry and networks, policy and finances have also been discussed often during the interviews. The topic technology has not been discussed much during the interviews, and thus does not seem to be of great importance for temporary urban agriculture projects in Paris and Amsterdam. There can be several reasons for the little attention for technology. First of all, temporary urban agriculture is a social development, whereas the multi-level perspective on socio-technical transitions mainly focusses on technical developments. This might be the reason why technology has been identified as a regime dimension in the MLP on socio-technical transitions theory (Geels, 2002;2011), but is not an important issue in this context. Second, the technology used in the gardens can be seen by the respondents as obvious and therefore require no further explanation. Another reason might be that other interview questions could have led to a more extensive discussion about technology. For further research, it might be interesting to investigate this.

6.2.2 Trajectories of Niche-Cumulations

The trajectories of niche-cumulations described by Geels (2002) consists of three core processes in niche development, (1) expectations and/or visions, (2) building of social networks and (3) learning and articulation processes.

The first process, expectations and/or visions, is about attracting attention and funding, and guiding niche innovations. In both Amsterdam and Paris, urban agriculture has succeeded to attract attention

of the inhabitants and funding from several institutions. The number of members varies between the projects, but in all the six projects researched, people are interested and active to keep the project running. A difference between Paris and Amsterdam is that in Paris urban agriculture is promoted through several programs led by the municipality, while in Amsterdam the municipality tries to fulfil a more facilitating role.

The second process, building of social networks, is about increasing the involvement of actors and expand the resources. In both Amsterdam and Paris, many informal links between actors in the several urban agriculture and other organisations exist. In Paris, the network Main Verte is organised and coordinated by the municipality and only applies to the city of Paris. In Amsterdam, the recently launched platform 'Van Amsterdamse Bodem' is a way to create a network between food related initiatives in the city. This network is initiated and facilitated by the municipality but also involves other organisations.

The third process, learning and articulation processes, is hard to identify from the interviews due to the available time for this research the projects have only be researched at one moment in time. However, in both cities a starting, an established and an ending project have been investigated, which gives the opportunity to research the different stages of a temporary urban agriculture project. As shown in the results (chapter 5), different issues were present at different stages of a project. For further research it might be interesting to research the learning and articulation processes of temporary urban agriculture projects by following the projects over a longer period of time.

6.2.3 Window of Opportunity

As written in the theoretical framework, chapter 2, a transition can take place when a window of opportunity occurs. A window of opportunity is the concurrence of certain circumstances. According to Kingdon (1984) a public stream, political stream, and policy stream can together create a window of opportunity. De Haan and Rotmans (2011) argue that tensions, stress, and pressure can create the right circumstances for a transition.

From the results, it appears that there is attention from the public for urban agriculture. At the same time, urban agriculture is mentioned in policy documents, and goals regarding urban agriculture in the city are set. Also temporary land use planning is mentioned as a possible and flexible way of urban development (Bishop & Williams, 2012; Bergevoet & Van Tuijl, 2013). At the same time there is political attention for feeding in the city. However, it is not a political priority and temporary urban agriculture is only a part of that matter.

Tensions, stress and pressure can also be identified from the results. Like the public stream, cultural tensions relate to the awareness of the public or the public opinion (Geels, 2002; De Haan & Rotmans, 2011). A tension that can be identified is the awareness of people for a healthy lifestyle and attention for local food. Stress relates to an insufficient and inconsistent regime (De Haan & Rotmans, 2011). The contradiction of policies regarding urban development on the one hand and realising sustainability and green space on the other hand are often in conflict with each other. Pressure occurs when there are alternative ways to meet societal needs. Temporary urban agriculture can be seen as a form of green space, a form of recreation for inhabitants of metropolitan areas and as a way to produce food, among others. On these areas temporary urban agriculture competes with other land uses in the city.

The circumstances needed for a window of opportunity to open are present. However, there are also many challenges identified that may counteract the integration of the phenomenon into the regime,

such as: spatial restrictions, unfamiliarity with the phenomenon and dependency on policies. To integrate temporary urban agriculture into the metropolitan area, the right circumstances should be recognised and used, for example: opportunities for financing, interest in the phenomenon and creating links through networks. However, as mentioned in the theoretical framework it is not possible to manage a transition, only afterwards it can be said with certainty that a transition took place.

6.2.4 Multi-Segmented Regime

The multi-segmented characteristic of regimes in cities enables the existence several land uses next to each other. Temporary urban agriculture as a form of green space, recreation and a way to produce food can exist next to other ways that fulfil these needs.

As a way to produce food, temporary urban agriculture is part of the foodscape of a metropolitan area. Foodscapes are environments that are involved in food production, processing, distribution, consumption and waste processing (Viljoen & Wiskerke, 2012). In metropolitan areas temporary urban agriculture is part of the foodscape. From the data collected in this research temporary urban agriculture projects contributes to all stages of the cycle. From food production to preparation and consumption and finally in processing the waste, for example by composting. The number of temporary urban agriculture has grown the past decennia in Paris and Amsterdam and the phenomenon has become a part of the urban foodscape. However, the part of temporary urban agriculture projects of the total foodscape of an entire metropolitan area is very small.

6.3 Answer to the Research Question

The research question stated in section 3.1 is:

Can temporary urban agriculture in metropolitan areas make a transition towards structurally being integrated in the urban environment?

To be able to structurally integrate temporary urban agriculture into the urban area, many conditions must be met. Furthermore, there is a need to take advantage of the opportunities and encounter the challenges. As a result the circumstances that create a window of opportunity should be recognised and made use of to be able to integrate urban agriculture into the regime.

In Paris urban agriculture is more integrated in the policy than in Amsterdam. The quantitative goals and programs such as ParisCulteurs encourage the phenomenon of structural and temporary urban agriculture. However, policy is only one of the dimensions of the regime. For temporary urban agriculture to be structurally integrated into the regime, the other dimensions are also important.

Temporary urban agriculture has a future in cities. One of Murphy's laws states that *"there is nothing as permanent as temporality, and nothing as temporary as what is called permanent"* (Gemeente Amsterdam, 2012). Temporality is thus a constant, which shows that temporary urban agriculture as a permanent form land use in metropolitan areas could be possible, if it is structural integrated into the regime.

An ongoing challenge for temporary urban agriculture will be to find a new locations. The integration of urban agriculture in policies contributes to the perseverance of the phenomenon. Furthermore, people should keep interest in urban agriculture and keep the projects running. Links with organisations and institutions connected to urban agriculture and with other urban agriculture projects should be created to build a network. Furthermore, to decrease the dependency on

subsidies, the financing of the projects could be diversified by exploring the possibilities of private financing.

6.4 Recommendations for Further Research

This research gives an overview of the integration of temporary urban agriculture in two metropolitan areas at a certain moment. The research shows that there is a lot of interest in urban agriculture in Paris and Amsterdam and that the field is changing fast. New projects are started, other projects have to move, new actors are entering the field and new practices show up. It is therefore interesting to keep following these events and see how it is going to develop. For example, it would be interesting to follow the developments of the recently launched network 'Van Amsterdamse Bodem' and investigate the collaboration between the several parties included in this network.

If temporary urban agriculture becomes a permanent phenomenon in cities, finding new locations for ending projects or integrating new projects in metropolitan areas forms a challenge. Therefore, it would be interesting to map suitable locations for urban agriculture in metropolitan areas. To integrate temporary urban agriculture in the city, money is needed. To decrease the dependence of the projects on subsidies, different ways of financing temporary urban agriculture projects should be explored. Furthermore, it would be interesting to expand this research and investigate the phenomenon of temporary urban agriculture in other metropolitan areas across Europe.

The application of the multi-level perspective on socio-technical transitions to spatial planning in the context of urban agriculture, resulted in the addition of two regime dimensions, physical aspects and finances. In further research, the application of this theory on spatial planning could be further investigated and tightened. The added regime dimensions should then be included and possibly complemented.

7. Reflection & Limitations

7.1 Limitations to the Research

First, the selection of the projects in Paris and Amsterdam has been done based on the available knowledge and information about the existence of temporary urban agriculture projects in both cities. There was however not a full and clear overview of the existing projects. There might have been projects in Paris and Amsterdam that would have been more interesting or suitable for this research. However, during this research there were no better suitable temporary urban agriculture projects that came forward.

Then, the appointments for interviews were made with people involved in the chosen projects and with people involved in temporary urban agriculture in general in Paris and Amsterdam. The approached people were recommended by contact persons with a broad knowledge of (temporary) urban agriculture in Paris and Amsterdam, or stated as the contact persons of the approached projects, organisations or institutions. The appointments for interviews were made via e-mail in English or Dutch, depending on the language spoken by the respondents. The correspondence language with the French respondents was English. This occasionally resulted in a language barrier, which meant that they did not want to be interviewed. In a few cases they would propose to interview another person with a better level of English.

The interviews were held in Dutch or English depending on the spoken language by the interviewee. The interviews were transcribed in the language in which the interview was held. When needed quotes have been translated from Dutch to English. During the interviews with French people there was sometimes a language barrier. This was solved in several ways. First, during many interviews words were translated by using mobile devices during the interview. Second, the interviewee would point at something to show what was meant. Besides the challenges experienced in this research regarding the language barrier, much useful information has been gathered.

7.2 Reflection on Coding

Coding is a subjective activity. How the interviews are coded is dependent on the interpretation of the researcher. Another person might have linked parts of the interview to different codes. To reduce the subjectivity of coding, more persons should have coded the interviews independently. However, for this research there was neither the time nor the manpower to code the interviews by other people.

To increase the consistency of the coding, the interviews have been analysed several times. First, to get familiar with coding, five interviews have been coded. After coding the fifth interview, the first interview was analysed for the second time to ensure the consistency. Then the rest of the interviews was coded, during the process of coding the consistency was regularly checked with previous coded interviews. After coding all the interviews, all interviews have been looked through for a last time to check if the interviews were coded in a consequent way.

A challenge that was encountered during the process of coding was the overlap between the eight categories. Despite the definition given to each dimension, there is still a lot of overlap. An example are the very connected dimensions culture and actions. Beliefs and values that fall under culture are

expressed by behaviour that is defined as actions. The overlap made it difficult to code the interviews according to this scheme. Furthermore, it made the coding dependent on my interpretation of the data. In this research, I tackled this problem to be consequent in coding similar experiences from the different interview with the same code, at the same time I acknowledge that they could belong to multiple codes.

7.3 Reflection on the Results

The opportunities, challenges and uncertainties and conditions are ordered per metropolitan area in the results chapter. Some issues only came forward in the interviews with respondents involved in urban agriculture in one of the metropolitan areas. It could, however, be the case that this is an issue in both metropolitan areas, but this did not become clear from this research. Furthermore, there might be opportunities, challenges and uncertainties or conditions that are important for temporary urban agriculture projects, that were not identified in this research.

The opportunities, challenges and uncertainties and conditions identified, play a role in integrating temporary urban agriculture into the metropolitan areas of Amsterdam and Paris. This research should be extended to other metropolitan areas to be able to say that these also apply to other metropolitan areas. This might also complement the currently identified opportunities, challenges and uncertainties and conditions for integrating temporary urban agriculture in metropolitan areas.

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Appendix

A. Respondents

Paris

Interview with	Code used in text
Manager Les Jardins Suspendus	UAPP1
User Les Jardins Suspendus	UAPP2
User Les Jardin Suspendus	UAPP3
Manager Le Jardin des Soupirs	UAPP4
Manager L'Agrocité	UAPP6
User L'Agrocité	UAPP7
Researcher Urban Agriculture Paris	MAUP1
Researcher Urban Agriculture Paris	MAUP2
Company Owner Urban Agriculture Paris	MAUP3
Main Verte Representative	MAUP5
Municipality Representative	MAUP6

Amsterdam

Interview with	Code used in text
Manager Voedseltuin IJplein	UAPA1
User Voedseltuin IJplein	UAPA2
User Voedseltuin IJplein	UAPA3
Manager Pluk!	UAPA4
Manager Schoffeltuintjes Boeletuin	UAPA7*
Manager Schoffeltuintjes Boeletuin	UAPA8*
Manager Zuidmoes Boeletuin	UAPA9
Municipality Representative	MAUA1

**UAPA7 and UAPA8 were interviewed together*

Other primary data sources	Code used in text
Presentation of Pluk!	UAPA6

B. Interview Guide

Background: *The first questions are about the background of this project, to get a clear picture of the situation.*

Can you describe this project?
- What is the goal of the project?
- For whom is this project?

What is your role in this project?
- Why are you involved in this project?

Setting-up the project: *The following questions are about how this project came about, from the idea to the actual implementation.*

How did the plan for this project emerge?

Which parties were involved in setting-up this project?
- Public, private, NGO's, volunteers, etc.
- What role did these parties play in the process?
- How was the collaboration between the different parties?

How was this project financed?

Why did the project emerge in this specific place?

What is needed to successfully set up an urban agriculture project?

Which challenges were encountered when setting-up this project?
- How was reacted on these challenges?
- Did this change anything of the initial plan?
- Did this cause delay in the process?

Would you have addressed anything differently when you had to set up a new urban agriculture project now?
- What?
- Why?

Current situation project: *the following questions will be about what is currently happening in the garden.*

Why do you visit this project?
- Can you describe what you do when you visit the garden?

What kind of activities do take place in this garden?
- Do you attend the activities?

What is the mix of users of this garden?
- Interaction between the users?
- Who is not visiting the garden?

Would you consider this project successful?

- What makes this project successful/unsuccessful?
- Is it less/more successful in other perspectives?
- What would make this project more successful?

Future: *the following questions will be about the urban agriculture project and the expectations and prospects for the future.*

What is the vision of this urban agriculture project?
- Prospects for the future?
- Uncertainties?
    - How do you deal with them?
    - What is the effect of the uncertainties?

Visions of metropolitan areas often contain plans to make the city more compact, more houses and businesses have to be built to be able to grow economically and compete with other metropolitan areas.

Do you think this will affect this urban agriculture project?
- How?

General questions: *Finally I would like to ask you some general questions about your view on the concept urban agriculture.*

How would you define urban agriculture?

What is the added value of urban agriculture to cities according to you?
- Benefits?
- Any drawbacks?

What is your ideal image of urban agriculture in cities?

Conclusion

Thank you very much for your time and answers!
- Would you like to add something?
- Do you have any questions for me?
- Do you know any other people that might be interesting to interview for my research?
- Are you interested in the results of this research?

C. Coding

Absolute proportions of the number of codes assigned to the primary data collected in this research organised per metropolitan area.

Table 15: Absolute proportions of assigned codes per metropolitan area

Codes	Amsterdam	Paris
Culture	46	46
Science	31	25
Actions	67	60
Industry & Networks	33	23
Policy	19	28
Technology	0	3
Physical Aspects	29	19
Finances	18	13

Relative proportions of the number of codes assigned to the primary data collected in this research organised per metropolitan area.

Table 16: Relative proportions of assigned codes per metropolitan area

Codes	Amsterdam	Paris
Culture	19%	21%
Science	13%	12%
Actions	28%	28%
Industry & Networks	14%	11%
Policy	8%	13%
Technology	0%	1%
Physical Aspects	12%	9%
Finances	7%	6%

Absolute proportions of the number of codes assigned to the primary data collected in this research organised per state of the projects.

Table 17: Absolute proportions of assigned codes per state of the project

Codes	Starting	Established	Ending
Culture	22	30	10
Science	19	17	10
Actions	19	45	26
Industry & Networks	13	10	15
Policy	6	9	3
Technology	0	0	0
Physical Aspects	10	5	19
Finances	5	9	9

Relative proportions of the number of codes assigned to the primary data collected in this research organised per state of the projects.

Table 18: Relative proportions of assigned codes per state of the project

Codes	Starting	Established	Ending
Culture	23%	24%	11%
Science	20%	14%	11%
Actions	20%	36%	28%
Industry & Networks	14%	8%	16%
Policy	6%	7%	3%
Technology	0%	0%	0%
Physical Aspects	11%	4%	21%
Finances	5%	7%	10%