



Utrecht
University

Community gardens in Overvecht

How citizens of Utrecht can be inspired and empowered to create more community gardens in Overvecht



Buurtuin de Dreef (Braakhuis, n.d.)

Bachelor Thesis
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Summary

Over the last decades, we have become more prosperous but less engaged in our natural environment. One of the most effective ways to reconnect with nature is to engage in community gardening. This has the added benefits of increased food security and social cohesion. For these reasons, this research aimed to find out what incentives and disincentives citizens currently experience to create more community gardens in Overvecht.

To this end, interviews have been conducted with two community gardeners, four food experts, one municipality employee, one citizen, and one anonymous person. Apart from this, a literature review has been conducted of popular articles, policy documents, and scientific reports.

This research has found that the most significant incentive to create more community gardens is that these have a wide variety of benefits on health, well-being, and the environment. Other incentives are that there are many experienced gardeners and supportive organizations such as Utrecht Natuurlijk and the municipality. The most significant disincentives are potential barriers such as parking spaces, archeological grounds, cables, pipelines, traffic safety, soil quality, and competing interests.

Based on this research, three intervention strategies have been developed. The first intervention strategy is to create and distribute a report that provides all the required information to create a community garden in Overvecht. The second intervention strategy is to remove any legislative barrier that hinders the creation of community gardens unless it is at the cost of crucial interests. The third intervention strategy is to provide more subsidies, material support, food ambassadors, and a food network.

These intervention strategies would inspire and empower citizens to create more community gardens in Overvecht. However, the initiative ultimately needs to come from the citizens. Further research could explore how specific promotion techniques could be used to motivate more citizens to become engaged in gardening.

1. Introduction

Throughout the world, societies are being modernized and urbanized. This is making the lives of many people more pleasant and convenient. However, a modern and urban way of living also makes it more challenging for people to connect with themselves, each other, and nature. This in turn leads to a broad spectrum of emotional, physical, financial, and environmental challenges (Chaudhary, 2013).

Especially since the pandemic and lockdowns, these challenges have increased (Collinson, 2020). One of the most effective ways to combat these challenges is to create community gardens. This is because community gardens have a great potential to bring people together, strengthen social networks, increase physical activity, increase emotional and physical health, and provide socio-economic contributions. These also help to reduce waste which is a major environmental hazard and source of pollution. Other advantages are improvements in knowledge about healthy and sustainable food, gardening skills, and awareness about the significance of nature (Jordi-Sánchez & Díaz-Aguilar, 2021). The most significant advantage may be nutritional benefits because food from community gardens is generally organic, unprocessed, and uncontaminated by pesticides (Jordi-Sánchez & Díaz-Aguilar, 2021).

Apart from these personal advantages, community gardens contribute to achieving the sustainable development goals (SDGs). The most closely related goals are no poverty (SDG 1), no hunger (SDG 2), good health (SDG 3), sustainable cities and communities (SDG 11), responsible consumption (SDG 12), and life on land (SDG 15). From a local level, community gardens help to increase global food certainty and contribute to solving global environmental challenges. Community gardens also challenge the power of global food corporations that at present dominate the global food supply (Gumbert & Fuchs, 2018).

For these personal and collective reasons, it is not surprising that increasing numbers of people throughout the world have started gardening in recent years. An indication of this is the fact that with the onset of the pandemic and lockdowns in 2020, multiple organic seed companies in the United States have run out of organic seeds (Pichii, 2020). However, in many cities, there are still many unused fertile fields that could be transformed into sustainable community gardens (Robbins, 2021).

One of these cities in Europe is Utrecht, Netherlands. Using maps and direct observations, it can be concluded that there are many unused fertile fields. Especially in the green and spacious neighborhood of Overvecht are many fields that could be transformed into community gardens. There are already eleven community gardens which are shown in Figure 1 and Table 1. However, there is much more potential. To realize this potential, the municipality of Utrecht could make use of a wide variety of scientific studies on organic food production, local supply chains, and community gardens.

Some of the previous studies about community gardens focus on New Zealand and Germany and discuss their governance structures (Fox-Kämper et al., 2018). Another study focuses on Florida and provides a comprehensive list of barriers for community gardeners (Diaz et al., 2018). Yet another study focuses on Europe in general and on how community gardeners can be more effectively trained (Ochoa, 2019).

Some studies focus on Utrecht but most of these describe the current community gardens or focus on how local food supply chains can be improved (Walstra, 2017). Many of these studies are related to innovative food initiatives such as Koningshof, Local2Local, and Future Food Utrecht. Koningshof is an urban agricultural initiative that aims to preserve and strengthen the agricultural identity of Utrecht. Local2Local is a company that aims to create more short food supply chains. Future Food Utrecht is one of the four platforms under the Utrecht University strategic theme Pathways to Sustainability. These initiatives have much knowledge about organic food and experience with supporting community gardens (Future Food Utrecht, n.d.).

Despite the usefulness of these studies, most of these studies are not primarily focused on inspiring and empowering citizens to create more community gardens. This research is written to fill this research gap. The focus area was Overvecht because this neighborhood has the potential to get many more community gardens.

This research aimed to find out what incentives and disincentives citizens currently experience to create more community gardens in Overvecht. Based on these results, intervention strategies were developed for the municipality of Utrecht to increase the number of community gardens. To this end, the research question was: How can the municipality of Utrecht inspire and empower citizens to create more community gardens in Overvecht?

This question was aimed at the municipality of Utrecht because it is the most influential stakeholder in the selected focus area. It may not be directly involved in community gardens but it has the influence to create incentives and disincentives through policy. It may even financially benefit from more community gardens through reduced maintenance. The results of this research could also be used by citizens within and outside Overvecht who seek more knowledge and support to create community gardens. In addition to this, the results could be used by municipalities and citizens throughout the Netherlands. This would contribute to not only a happier and healthier society but also to a more sustainable world.

1.1 Focus area Overvecht



Figure 1: Map of community gardens in Overvecht (Schoonhoven, n.d.)

Table 1: List of community gardens in Overvecht (Buurttuinen Overvecht, 2022)

Nr.	Community Garden	Description	Organization
1.	Voedseltuin Overvecht	Collective garden	Foundation
2.	Buurttuin de Dreef	Collective garden	The Salvation Army
3.	Amazonetuin	Collective garden	Health center the Amazone
4.	Burezinatuin	Collective garden	Community center Burezina
5.	Stadstuin Klopvaart	Collective garden	Utrecht Natuurlijk
6.	Stadstuin Plutodreef	Collective garden	Utrecht Natuurlijk
7.	Flora's Hof	Individual gardens (76)	Association
8.	De Doordouwers	Individual gardens (130)	Association
9.	Ons Genot	Individual gardens (183)	Association
10.	Vitoriadreef	Planters on a grass field	Four citizens
11.	Stadstuin Gagel	Urban farm	Utrecht Natuurlijk

2. Theory and concepts

This research has been guided by key concepts, a conceptual framework, and an analytical framework. The key concepts provide background information that is crucial to understand to execute this research. The conceptual framework and analytical framework describe the concepts of the COM-B model and behavior change wheel and how these have been operationalized.

2.1 Key concepts

Community

A community is a group of people who cooperate to achieve a common purpose. Often there is a common history or common social, economic, and political interests. Strong communities are built by community members who are engaged, participate, and feel capable of working through challenges, supported by strong social networks. These are endowed with social, economic, and environmental assets. Often these are also supported by organizational structures that work towards their use over the long term in an equitable manner. Due to increasing modernization, a sense of community is lost throughout the world. Community gardens have the potential to counteract this development (Firth, 2011).

Community garden

A community garden is a shared, semi-public space where people in the surrounding neighborhood share the work and harvest of maintaining a garden space for growing fruits, vegetables, flowers, or even livestock. These have also been shown to provide opportunities to enhance social capital and promote interactions and social inclusion. For example, these can provide a space to help different social groups overcome potential barriers between them. Sometimes, community gardens can inspire and empower citizens as a catalyst to address other issues in the community (Firth, 2011).

There are many different variations in community gardens. Some are top-down managed by external actors and others are bottom-up managed by community representatives. In urban communities with limited available land, several raised beds in a lot can be rented out to community members, so each renter has their own gardening space. Yet another community garden can grow crops on a privately owned lawn behind a house, and the gardener can distribute the produce to the neighbors as it is harvested in exchange for volunteer labor (McGuire, n.d.).

A community garden can consist of several raised beds on an empty lot and neighbors can come by each day to attend to the plants and pick food to eat. A different community garden can be in the yard of a house of worship and the harvest supplies the soup kitchen and food bank. Despite the many ways to identify a community garden, common among them all is that

more than one family or household contributes to the work and benefits from the produce (McGuire, n.d.).

Organic food

Most community gardeners produce organic food through organic gardening practices such as planting organic seeds, cycling resources, conserving biodiversity, and promoting ecological balance. Studies of the nutrient content in organic food vary in results due to differences in the ground cover and maturity of the farming operation. Nutrient content also varies from farmer to farmer and year to year. However, reviews of multiple studies show that organic food does provide significantly higher levels of Vitamin C, magnesium, iron, and phosphorous than non-organic varieties of the same foods. While being higher in these nutrients, organic food is also significantly lower in nitrates and pesticide residues (Crinnion, 2010).

In addition, except for wheat, oats, and wine, organic food typically provides greater levels of several important antioxidant phytochemicals. Vitro studies of organic fruits and vegetables consistently demonstrate that organic foods have greater antioxidant activity, are more potent suppressors of the mutagenic action of toxic compounds, and inhibit the proliferation of certain cancer cell lines. Apart from this, clear health benefits from consuming organic dairy products have been demonstrated regarding allergic dermatitis (Crinnion, 2010).

2.2 Conceptual framework

COM-B model

This research has been guided by the COM-B model (Figure 2). It has been used to provide an overview of the incentives and disincentives of citizens to create more community gardens in Overvecht. The COM-B model can be applied to any situation and it has been used in studies that vary from hearing-aid usage and antibiotic usage to the adoption of a diet that reduces the risk of cognitive decline later in life (The COM-B Model, n.d.).

This model was developed by Michie et al. (n.d.). At that time, many frameworks of behavior change interventions existed. However, a majority had flaws and thus were ineffective. The COM-B model is based on earlier frameworks' limitations and recognizes that behavior change is dependent on capability, opportunity, and motivation (The COM-B Model, n.d.). For each research, these factors have a different meaning. The meaning of these factors in this research is explained through the next concepts.

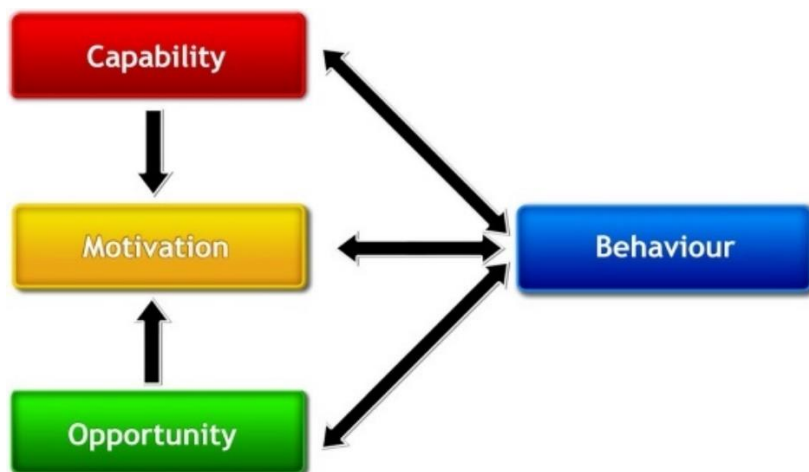


Figure 2: COM-B model

Capability (psychological and physical)

This factor refers to whether citizens are able to create community gardens. Psychological capabilities include knowledge, skills, and commitment. The most significant psychological capability may be commitment because crops require consistent care. Physical capabilities include strength and stamina (Michie et al., n.d.). Community gardening does not require much strength and stamina but it can be physically intensive.

Opportunity (social and physical)

This factor refers to external factors that enable citizens to create community gardens. Social opportunities involve the behavior of significant others and our broader social networks. This could include the approval and commitment of citizens. Physical opportunity refers to the environment and legislation but also to physical resources such as time, money, and resources (Michie et al., n.d.).

Motivation (reflective and automatic)

This factor refers to internal factors to create community gardens. This involves all the internal processes that trigger or inhibit a behavior, and that ultimately result in us performing a particular behavior instead of any other possible competing behavior. Reflective motivation refers to beliefs, attitudes, goals, and plans. Some of the most significant reflective motivations to create community gardens are to increase your health and well-being, to improve your financial situation, and to contribute to the environment. Automatic motivation refers to emotions and habits that may not enter conscious awareness such as a desire to connect with others and nature (Michie et al., n.d.).

2.3 Analytical framework

Behavior change wheel

Based on the results and the behavior change wheel, intervention strategies have been provided. The behavior change wheel is based on the COM-B model (Figure 3). The hub provides the COM-B categories. Surrounding the hub is a layer of nine intervention functions. The outer layer identifies seven policy categories (The BCW, n.d.).

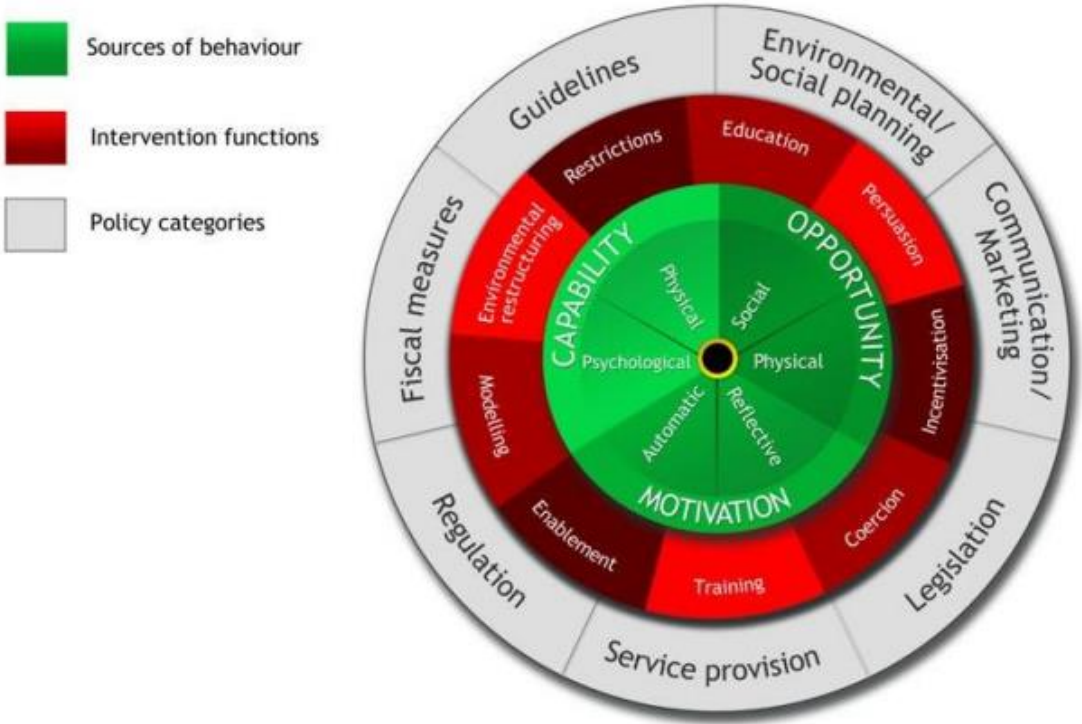


Figure 3: Behavior change wheel (The BCW, n.d.)

To limit the scope of this research, the policy categories have been combined into guidance, rules, and resources (Table 2). Guidance includes guidelines, communication, and marketing. Rules includes legislation, regulation, environmental planning, and social planning. Resources includes fiscal measures and service provision. How the combined policy categories have been used to determine the intervention strategies is shown in Table 2.

Table 2: Combined policy categories of the behavior change wheel

COM-B categories	Guidance	Rules	Resources
Psychological capability	Communication	Social planning	Service provision
Physical capability	Communication	Social planning	Service provision
Social opportunity	Communication	Social planning	Service provision
Physical opportunity	Guidelines	Legislation	Fiscal measures
Reflective motivation	Marketing	Env. Planning	Fiscal measures
Automatic motivation	Marketing	Env. planning	Fiscal measures

3. Methods

This research has been conducted through a qualitative literature review and qualitative interviews. The interviews have provided results from nine participants. The literature review has provided results from local and scientific sources. The results of both methods have been presented through the COM-B categories. These have been used to develop the intervention strategies.

3.1 Interviews

For this research, nine interviews were conducted. The participants were chosen based on their involvement in Overvecht and expertise in organic food. The length of the interviews varied from twenty minutes to one hour. Seven participants have been audio recorded through a mobile phone. Three of them have also been video recorded through Microsoft Teams. Two interviews were not recorded but notes were taken. The first unrecorded interview was an informal interview during the thesis proposal stage. The second unrecorded interview was an unexpected phone call. The recordings and notes have been used to create the interview summaries. The consent form, general interview questions, and interview summaries are provided in Appendix A, B, and C. One interview summary has been omitted because no consent was given for it to be shown in this research.

Before the interviews were conducted, five community gardens in Overvecht were visited during two reconnaissance surveys on a bicycle. Multiple pictures of community gardens and unused fertile fields (Plate 1-6) were taken. These provided an idea of the focus area. After these explorations, multiple interview request emails were sent. Eight to community gardeners, thirteen to food experts, and two to municipality employees.



Plate 1-3: Community gardens in Overvecht (Scholte, 2022)



Plate 4-6: Unused fertile fields in Overvecht (Scholte, 2022)

One of the interviews was conducted in Castellum Hoge Woerd. Next to this museum is the urban farm Steede Hoge Woerd. After the interview, multiple pictures of this urban farm were taken. These have been used for the plates in the results (Plate 7-24). This provides a more tangible idea of what community gardens are. Steede Hoge Woerd is located in the neighborhood Vleuten-De Meern but its community gardens are similar to those in Overvecht.

This method was chosen because interviews provide detailed descriptions of individuals and events in their natural settings. Especially events are often not directly ‘observable’ through other forms of research such as a literature review. Talking to people is natural and relatively unstructured and therefore one of the most effective methods for attaining and exploring hard-to-observe events (Alshenqeeti, 2014). The interview summaries are reliable and valid because the participants had no conflicts of interest in this research.

3.2 Literature review

For this research, local and scientific sources have been analyzed. Table 3 shows the used literature types and their sources and justifications. The literature review has been conducted after the interviews because the most inspiration for the literature review came from the participants. They also send links to relevant articles and documents and gave relevant flyers. Some of the relevant organizations they mentioned are Utrecht Natuurlijk and BuurtNatuur030. These were further researched in the literature review. The results of the literature review have been combined with the results of the interviews.

Apart from local sources, scientific sources have been used to provide more clarification and scientific knowledge of some of the statements of the participants. The scientific reports are a valuable component of the literature review because these are peer-reviewed and checked by at least one independent researcher in the relevant research area. Moreover, this literature is a part of a continuum and systemic synthesis of research results. Another purpose of scientific sources was to come across fresh ideas from previous scholars and to learn from their mistakes and difficulties (Fagard et al., 1996).

Table 3: How the COM-B categories have been analyzed through documents

Literature types	Sources	Justifications
Popular articles	Websites of organizations in Overvecht	Provides information about cultural incentives and disincentives
Policy documents	Website of the municipality of Utrecht	Provides information about legislative incentives and disincentives
Scientific reports	Google Scholar and the Lean Library browser extension	Provides scientific information for more clarity and credibility

3.3 Ethics

Informed consent

To protect the participants, they received a consent form (Appendix A). It contains information about the research and the interview and four conditions to which the participants could give consent.

Privacy

To protect the participants, the interview recordings have not been and will never be shared with anyone. In addition to this, the participants were at liberty to withdraw from the research at any time. The data from the interviews have been stored on only a mobile phone (to record the interviews) and a personal computer (to summarize the interviews).

Fraud

Since in this research ethical principles were taken very seriously, there were no fraudulent activities. To prevent plagiarism, no findings from other sources have been presented as findings from this research. All findings from other sources have been explicitly referenced in APA style. To prevent fabrication and falsification, specific attention has been paid to not providing any result or conclusion without careful consideration of the verifiable facts.

4. Results

The results are based on the interview summaries and literature sources. These are presented as incentives and disincentives through the COM-B categories. The references of the participants are shown in Table 4. A clear and concise overview of the results is shown in Tables 5 and 6.

Table 4: References of the participants

Ref.	Participant
P1	Community gardener 1
P2	Community gardener 2
P3	Food expert 1
P4	Food expert 2
P5	Food expert 3
P6	Food expert 4
P7	Municipality employee
P8	Citizen of Overvecht
P9	Anonymous person

Table 5: Incentives of citizens to create more community gardens in Overvecht

COM-B categories	Incentives
Psychological capability	In Overvecht are eleven community gardens with many experienced community gardeners who can educate new community gardeners
Physical capability	Gardening does not require much strength or stamina
Social opportunity	Many citizens and organizations have a growing interest in local and organic food
Physical opportunity	The municipality and many other organizations are able and willing to provide knowledge and support
Reflective motivation	Gardening improves food security, health, social cohesion, biodiversity, and water management
Automatic motivation	Gardening relieves stress and increases well-being

Table 6: Disincentives of citizens to create more community gardens in Overvecht

COM-B categories	Disincentives
Psychological capability	Many citizens have insufficient knowledge and skills
Physical capability	Some citizens have physical disabilities
Social opportunity	Some community gardens experience theft and vandalism
Physical opportunity	Parking spaces, archeologic grounds, cables, pipelines, traffic safety, soil quality, and competing interests. The required processes to create a formal organizational structure and receive a subsidy can be challenging
Reflective motivation	Community gardens are less efficient than industrial farms and require a lot of time and effort
Automatic motivation	Community gardens could be noisy and appear unorganized

4.1 Psychological capability

Incentives

To create more community gardens, people need sufficient knowledge and skills. Some of the most important knowledge areas are soil, compost, location, seeds, plants & flowers, pollination, gardening techniques, water & drainage, mulching, pruning, harvesting, and pests. Some of the most important skills are: creating nutrient soil, understanding plants and plant growth, working in alignment with nature, not letting pesticides take over, and harvesting (Cardwell, 2021). Most citizens don't have all of this knowledge and skills but in Overvecht are eleven community gardens with many experienced community gardeners who can educate and support community garden initiators (P5).

Disincentives

Overvecht is comparable with Kanaleneiland and has a relatively high degree of poverty and crime. Because of this and other reasons, many citizens have psychological challenges (Dotulong, 2020). This might prevent them from engaging in community gardening. However, since 2007, significant efforts have been made to improve Overvecht. In this effort, the government, the municipality, housing corporations, and other parties are involved (Wilde, 2020).

Some citizens are unaware of the existence of the current community gardens in Overvecht (P8). Those who are aware often don't know about the full range of activities and support options (Wood et al., 2022). There are also language barriers because many citizens come from different parts of the world and don't speak Dutch or English (P8). Because of these reasons, attracting people to community gardens and keeping them engaged in the long term can be challenging, especially when they don't benefit from it immediately.



Plate 7-9: Community gardens (Scholte, 2022)

4.2 Physical capability

Incentives

Some of the most common activities in community gardens are mulching, tilling, digging, weeding, composting, and planting. Perhaps the most significant activity is watering, especially when a garden is without a direct water source (Cardwell, 2021). Most citizens are physically capable of engaging in community gardening because these activities do not require

much strength or stamina. The more physically challenging activities could be done by the more physically capable citizens, especially in collective gardens (Cardwell, 2021).

Disincentives

Some citizens in Overvecht are disabled and may therefore be unable to engage in community gardening. However, many disabilities only partially affect people's ability to garden. Apart from this, disabled people could engage in processing and conserving harvests. Through this, they could be indirectly involved in community gardening and enjoy the benefits of being a part of a community (Mcilvaine-Newsad & Porter, 2013).

Despite this, the inclusion of disabled people may not always be a high priority in the creation of community gardens. This may lead to both formal and informal discrimination and exclusion of persons with disabilities. Formal discrimination occurs when plans are silent on disabilities or do not include persons with disabilities. Informal discrimination happens when disabled people are actively prevented from participating (Tigere & Moyo, 2022). This may become less of a problem when more people become aware of how disabled people can also contribute to community gardens.



Plate 10-12: Community gardens (Scholte, 2022)

4.3 Social opportunity

Incentives

In Overvecht are many social opportunities to create more community gardens. An example of success is the creation of Buurttuin de Dreef. The initiator is Myriam Braakhuis, a member of the Salvation Army. She first contacted other green initiatives such as Amazonetuin, Voedseltuin Overvecht, and Stadstuin Klopvaart. Then, she talked with other users of de Dreef such as DOCK and the manager of the complex whose permission was required. To acquire sufficient money, she used the initiatives fund of the municipality, the social return of companies, and crowdfunding. Other involved stakeholders were a garden architect, charities, and agencies. Many citizens have been persuaded to join the initiative through the app Hart voor Overvecht. The citizens in the flats around de Dreef have been approached through flyers. Through this emerged a diverse group of people that enthusiastically engaged in community gardening (Dreefnieuws, 2022).

This initiative is promising but Voedseltoen Overvecht intends to take it a step further. It recently started to investigate how in Overvecht all citizens can gain access to healthy and affordable food. There are discussions with citizens, caterers, and all kinds of people who are involved in growing seeds, harvesting, and consuming. The overall idea is to create much more food self-sufficiency in Overvecht through the creation of a broad and diverse coalition. This would include cooperatives between citizens, entrepreneurs, and other actors. This could eventually include people who manage livestock and fish. It may be possible to make the neighborhood completely self-sufficient if some of the land in the polder would be used as well (P9). This process may be strengthened by the fact that companies in Overvecht increasingly focus on local food and that increasing numbers of citizens grow their own vegetables (Volkstuinen en stadslandbouw, n.d.).

Another food initiative aims to create bottom-up interventions so that people can more easily make healthy and sustainable food choices. It started by setting up networks with the municipality and well-connected people within Overvecht. Creating and strengthening healthy and sustainable food initiatives is a part of a process that takes years to come to fruition (P6).

In their efforts to make the food sector in Overvecht more self-sufficient, Voedseltoen Overvecht and other food initiatives have access to a great variety of organizations: citizen platforms, citizen organizations, entrepreneurs, caterers, supermarkets, restaurants, snack bars, and a weekly market. Many supermarket managers and caterers are open to cooperation with healthy and sustainable food initiatives including community gardens (P6). Restaurants could base the ingredients of their salads on what vegetables are available today or in this season instead of a fixed list of ingredients. Global food corporations may also become involved in organic food but these have rules and business models to which the employees are bound (P6).

Local companies such as Local2Local may be more cooperative. It has recently started to bring food pallets into Overvecht. These contain food from local farmers: a standard package of potatoes, carrots, onions, other basic vegetables, and seasonable vegetables. One pallet contains sufficient food for roughly forty families. It is affordable and constructions could be arranged where groups of people buy an entire pallet in which families with more money pay more than other families. The pallets could also be used by caterers, supermarkets, and restaurants. To increase the success of this project, the Salvation Army and the Voedselbank could become involved as well (P9).

Disincentives

Even though most citizens in Overvecht are positive about community gardens, food is sometimes stolen. The thieves may be homeless and hungry. Apart from theft, vandalism occurs once in a while. In Buurttuin de Dreef, for example, items have been destroyed and roots have been pulled from the ground and thrown on the square. Once, a tarp above a picnic table was removed (P1).

Some people find the community aspect a disincentive because they may not like the culture of community garden groups or distrust their members (P5). Apart from this, WhatsApp groups could be disorganized. To create more community gardens, you need the support of many different stakeholders and this can be challenging (P7). Even when there is sufficient support, creating a fair and effective organizational structure requires a lot of time and effort (Becker & Wall, 2018).



Plate 13-15: Community gardens (Scholte, 2022)

4.4 Physical opportunity

Incentives

The European Union intends to make 25% of the food production biologically in 2030. However, the Dutch minister of agriculture in the Netherlands has reduced this target for the Netherlands to 15% (P4). Despite this, international and national legislation plays no significant role concerning community gardens. Only the policies from the municipality of Utrecht and its development plan play a significant role (P3). Apart from this, the province of Utrecht supports local and sustainable food initiatives through its vision Voedselagenda 2021-2023 (Voedselagenda 2021-2023, n.d.).

The political parties in the current coalition of the municipality of Utrecht are green and social. In their coalition agreement, the main priorities are to combat wealth inequality, housing shortages, and the climate crisis (Coalitieakkoord 2022-2026 n.d.). Through cooperation with all stakeholders in the city, the municipality intends to create a more fair, sustainable, green, and future-proof city. In its urban planning, it prefers green areas over grey areas such as tiles and asphalt. It also intends to use more facades and roofs for vegetation. Efforts are made to connect all the green spaces and to create green routes through which animals and plants can migrate to new living areas (Planten en dieren, n.d.).

Because of this green vision, the municipality is very open and enthusiastic about community gardens. However, it acknowledges that its main role is facilitating as opposed to initiating. Facilitation often includes raising awareness, showing good examples, and providing support such as subsidies. Many community gardens have emerged through the guidance of gardening foundations and other organizations such as Utrecht Natuurlijk, BuurtNatuur030, Overleg Volkstuinen Utrecht, IVN Natuureducatie, and Groen aan de Buurt (P7).

Perhaps the most prominent organization is Utrecht Natuurlijk. It manages five urban farms and six community gardens throughout Utrecht. Anyone who intends to create a community garden can ask this organization for knowledge and guidance (Over ons, n.d.). Another prominent organization is BuurtNatuur030. It facilitates knowledge sharing and cooperation and shows green community initiatives throughout Utrecht. It also offers many practical tips and links for the greening of public and private spaces. Apart from this, it shows green activities and events in Utrecht. Its website shows profiles of over forty organizations and companies that are committed to green neighborhoods in Utrecht (Community van Groene Utrechters, n.d.).

When an initiator has sufficient knowledge and support to create a community garden in a public space, there needs to be a permit from the municipality (Buurt- en stoepuin, n.d.). The key to receiving a permit is the approval and participation of the citizens. Other requirements are that the community garden is not a monopoly, is open and welcoming to everyone, and is well managed. The municipality sometimes consults neighborhood advisors and environmental analyses before making a decision. It always strives to listen to people who may oppose or protest initiatives so that nobody is disadvantaged. However, the biggest screamers often get the most attention, which is not always good. If a hundred people want to initiate a project but ten people are opposed, it will most likely continue although there may be some adjustments to the plans (P7).

To receive a subsidy as well, the initiatives fund can be used. This is a fund for big and small initiatives in Utrecht that make the environment more pleasant, beautiful, social, or green. There are more potential subsidy sources, some of which are related to climate adaptation. The municipality does not demand rent for community gardens in public spaces (P7). Anyone with a good idea can ask for a subsidy, both citizens and organizations. Sometimes, the municipality may even provide direct support with the execution of the initiative (Initiatievenfonds, n.d.).

Creating a community garden in Overvecht is relatively easy in comparison to other neighborhoods in Utrecht because it is a spacious area with a lot of green (P7). Even asphalt and ornamental gardens could be transformed into community gardens (P8). In the past, the green areas of Overvecht were more beautiful but the management costs became too high for the municipality. Because of this, many green spaces became dominated by grass and trees (P7).

The public spaces are owned by the municipality but the flats are owned by corporations such as Mitros and Hemubo (Mitros en Hemubo, 2019). The roofs on the flats are not very suitable for community gardens and are or will be used for solar energy (P7). Some of the current collective community gardens are not used at maximum capacity but associations with individual gardens have long waiting lists. These consider collectivizing some individual gardens so that more people can participate (P3).

When a community garden is created, the soil needs to be fertilized. Special plants could be seeded that take nitrogen from the air. Other fertilizing techniques are using the same ground for different plant races each year or using a compost pile. It takes years before soil is of high quality for gardening but you can grow food from the beginning (P2). Seeds can be bought from stores or supermarkets. Using seeds from your own plants is also possible but these tend to be less 'pure' because some of these could be pollinated by other plant races. Another way to 'reproduce' plants is through plant cuttings.

Disincentives

Multiple barriers might hinder the development of community gardens such as parking spaces, archeologic grounds, cables, pipelines, traffic safety, soil pollution, and competing interests (P3). In Overvecht are also developments with a ringway.

The main barrier to creating a community garden is the acquisition of land. After the acquisition, the land may have to be drained and restored. Restoration may be particularly important in soils with high concentrations of heavy metals because of traffic over the last fifty years. Unfortunately, measuring the soil quality before creating a community garden is often not done (P5). Even when the participants are willing to do this, they don't always have the required resources (Diaz et al., 2018).

Even when a community garden is successfully created, it may eventually be removed due to renewed development plans of the municipality or other landowners (Spierings et al., 2018). P2, for example, has to give up his garden due to housing construction plans. However, he will receive a smaller garden in return. Even when all these barriers are overcome, many citizens may not have enough time to engage in community gardening because of competing priorities and obligations such as study and work (Anderson et al., 2018).



Plate 16-18: Community gardens (Scholte, 2022)

4.5 Reflective motivation

Incentives

Community gardens have a wide variety of benefits that could motivate many people to become engaged. These lead to a common purpose and help to overcome barriers between people of different backgrounds (Poulsen et al., 2014). These also improve climate adaptation, water management, biodiversity support, air quality, living quality, and health. People who

garden generally cook more vegetables, eat more vegetables, and find vegetables tastier (P3). Apart from this, community gardens provide people with the opportunity to contribute to the environment on a local level. This may help citizens to feel less anxious or guilty about the destruction of the global environment (P4).

Another overview of the benefits is provided in a study by Draper & Freedman (2010): health benefits, food source and food security, economic development, youth education and employment, open space use and preservation, crime prevention, leisure and recreation, social interaction and cultivation of relationships, cultural preservation and expression, and community organizing and empowerment.

There is also an educational value to community gardens. Nowadays, many people know little about food or nature. For example, many children believe that milk comes from factories instead of cows (P2). They also often consider healthy food negative and unhealthy food positive. This is in part due to the influence of television (P6). Perhaps the most significant benefit of community gardens is that they create more food security. This is especially relevant at this time because food prices have risen significantly in recent years. In the past, most people had their own gardens and were self-sufficient and self-reliant (P2).

All these benefits could be a powerful motivation to engage in community gardening. Many community garden coordinators raise awareness about these benefits, promote community gardens, and recruit new volunteers (P1). Some of them also give gardeners an individual garden as a reward for contributing to the collective garden (P3).

Disincentives

Food from supermarkets is generally much cheaper than food from community gardens unless you take away the price of labor. This is because the Dutch food production and distribution system are very efficient (P4). Community gardens might produce enough vegetables and fruits for the citizens but won't easily meet the demand for wheat and grain (P5). Apart from this, maximizing production would lead to monocultures and less space for biodiversity and climate adaptation (P3).



Plate 19-21: Community gardens (Scholte, 2022)

4.6 Automatic motivation

Incentives

Community gardening is an effective way to relieve stress and feel more at peace. Most community gardeners find great enjoyment in this activity (P3). One of the reasons that it makes people feel better is that it connects people not only to nature but also to each other. Especially for people with psychological challenges, it may be beneficial to become involved in community gardens so that they can get out of their bubbles (P8). Apart from this, community gardens are generally considered beautiful. In some community garden programs, neighborhood beautification is the primary motivation for people to participate (Daper & Freedman, 2010).

Disincentives

Some people find the sight of community gardens unpleasant. They consider these unorganized, especially when they are not managed well. Community gardens could also attract noisy teens. However, while some people see this as a problem, they don't see it as a problem when children of younger ages meet and play with each other. It may be beneficial for the development of teens to meet each other in public spaces such as community gardens (P3).



Plate 22-24: Collective field (Scholte, 2022)

5. Discussion

This research has presented the incentives and disincentives of citizens to create more community gardens in Overvecht. These will be discussed in the interpretations through the six COM-B categories. Apart from this, the limitations and implications of this research will be discussed.

5.1 Interpretations

Psychological capability

In Overvecht are eleven community gardens of various sizes which indicates that there are many experienced gardeners with a lot of knowledge and skills. Some of them may be willing to educate others about gardening. This would be valuable in the creation of new community gardens. This education could also lead to more social cohesion. An example of this is how youth have been educated by adults in East Flint Park and Lakehood Village (Allen et al., 2008). The regular interaction in the community garden has yielded close relationships between youth and adult residents in the neighborhood, friendships among the youth, and opportunities to develop interpersonal skills in negotiation, conflict resolution, and communication. It has also brought together neighborhood residents who previously shared little in common and had little impetus to interact.

Physical capability

Since community gardening does not require much strength or stamina, most citizens would be able to participate. Many physically disabled people could also participate as long as community gardens are sufficiently accessible. This is supported by the research of Mcilvaine-Newsad & Porter (2013) which focuses on McDonough County, United States. Many of the gardeners in this study live in a housing complex of which 31% of the citizens have a documented disability and 14% are elderly. Even when a person is unable to garden, it is often possible to participate in related activities such as processing and conserving harvests. This indirect involvement in community gardening enables disabled people to enjoy the benefits of being a part of a community (Mcilvaine-Newsad & Porter, 2013).

Social opportunity

In Overvecht, there is a growing interest in local and healthy food from both citizens and organizations. The creation process of Buurttuin de Dreef shows that gaining the required support from the municipality, residents, and other actors is feasible. The research by (Twiss et al., 2003) suggests that the support of civic associations and businesses would also be beneficial to the creation of community gardens. When involved organizations organize themselves into community coalitions, these could provide more support and resources to each other (Lanier et al., 2015). This would lead to more resilience and adaptability.

Physical opportunity

The municipality of Utrecht is enthusiastic about community gardens and is often willing to give permits and subsidies. The level of support from the municipality and other organizations might be unique in Utrecht. In many places in the world, requests for permits for community gardens are often rejected because of conflicting development plans and city policies (Mikulec et al., 2013).

Community garden initiators are also able to receive support from multiple gardening foundations and other organizations. The research by Lanier et al. (2015) shows that to shape the physical landscape with community gardens and sustain these changes over time, it takes the collective efforts of social organizations to coordinate their efforts toward a common goal. These include faith-based organizations, community groups, nonprofit organizations, neighborhood associations, schools, and healthcare agencies.

Reflective motivation

Community gardening has a wide range of benefits that can motivate citizens to become involved. These include improved food security, health, social cohesion, biodiversity, and water management. The research by (Allen et al., 2008) shows that community gardens also have a positive impact on people's values. It may especially teach the youth about the value of hard work, commitment, and patience. This may be a significant incentive for both the youth and their parents. However, community gardening requires a lot of labor and is not as efficient as industrial farming. Because of this, achieving complete food self-sufficiency in Overvecht is almost impossible, even if some of the industrial farms in the polder would be included.

Automatic motivation

Many people feel the desire to connect with nature and each other. Since community gardening is an effective way to do this, many people feel attracted to community gardens. Gardening improves one's well-being because of the therapeutic nature of the activities. It also promotes a sense of value achievement, which contributes to an enhanced sense of quality of life (Lovell, et al., 2014). Another motivation for people to create community gardens is that many of these look beautiful, especially during summer. However, some people find the sight of community gardens unpleasant. Perhaps these people may value community gardens more when they receive more information about the value of nature in general.

5.2 Limitations

One of the limitations of this research is that it only focuses on Overvecht. Even within Utrecht, many areas are very different such as the city center or neighborhoods with more grey areas. Within the Netherlands, this focus area is relevant for most other areas but for countries with other climates, it is less applicable. Nonetheless, almost all community gardens require similar circumstances such as sufficient soil quality, water, and sunlight. Another limitation of this research is that only two community gardeners have been interviewed. This may limit the perspective on gardening itself. However, they have provided a lot of gardening knowledge which has been included in this research.

5.3 Implications

Previous studies about community gardens in Overvecht mainly focus on providing an overview of the advantages and disadvantages. No previous studies have shown in significant detail what incentives and disincentives exist in Overvecht to create more community gardens. This research has filled this research gap. Apart from this, it has compared the insights of a wide variety of actors including a municipality employee and various researchers. This has provided a clear and comprehensive overview of community gardens in Overvecht.

This research has also contributed to an understanding of how community gardens can help to achieve multiple Sustainable Development Goals (SDGs). It contains valuable insights on how community gardens can decrease poverty (SDG 1), reduce hunger (SDG 2), increase health (SDG 3), increase sustainability (SDG 11), increase responsible consumption (SDG 12), and improve life on land (SDG 15).

Despite the comprehensiveness of this research, more research on community gardens and organic food in Overvecht can be done. Perhaps the most significant research area would be how Overvecht can become self-sufficient concerning food through community gardens and other forms of agriculture. This could include industrial farms at the edge of Overvecht, indoor farming, vertical farming, and the transformation of ornamental gardens into food gardens. This research could be expanded with how Overvecht could become self-sufficient concerning water and energy as well. The implementation of this research would make Overvecht one of the most sustainable and inspiring neighborhoods of the Netherlands and perhaps even the world.

6. Conclusion

In this research, the incentives and disincentives of citizens to create more community gardens in Overvecht have been presented and discussed. The most significant incentive is that these have a wide variety of benefits on health, well-being, and the environment. Other incentives are that there are many experienced gardeners and supportive organizations such as Utrecht Natuurlijk and the municipality.

The most significant disincentives are potential barriers such as parking spaces, archeological grounds, cables, pipelines, traffic safety, soil quality, and competing interests. Apart from this, many citizens have insufficient knowledge and skills to engage in community gardening and community gardens might experience theft and vandalism. Based on these key findings and the combined policy categories of the behavior change wheel, multiple intervention strategies are provided. These answer the research question: How can the municipality of Utrecht inspire and empower citizens to create more community gardens in Overvecht?

Guidance

The municipality of Utrecht could create and distribute a report that provides all the required information to create more community gardens in Overvecht. This report could begin with an overview of the most significant advantages of community gardens such as food security, health benefits, and social cohesion. It could include two maps. The first map could present the current community gardens. Information could be added about how residents could become involved. This map and information could be similar to Table 1 and Figure 1. The second map could provide an overview of the green and grey areas which can be transformed into new community gardens. Information could be added about under what conditions the areas can be transformed.

Apart from this, the report could include a clear and concise overview of the steps that residents can take to create community gardens. These steps include creating a realistic goal and strategy, asking for approval and support from citizens, asking for permission from key actors, acquiring the required resources, constructing the required infrastructure, creating a formal organizational structure, and setting up cooperation with other food initiatives. This information could include all potential funds and subsidies and all potential experts and organizations who could provide support. This report could be promoted through the website, social media, emails, advertisements, posters, flyers, events, and activities.

Rules

The municipality of Utrecht could remove any legislative barrier that hinders the creation of community gardens unless it is at the cost of crucial interests. Especially simplifying the required processes to create a formal organizational structure and receive a subsidy could save initiators a lot of time and effort. The municipality could also create more long-term certainty about the preservation of community gardens by guaranteeing that as long as these

are managed well, they will remain for at least ten years. Apart from this, community gardens could play a more significant role in social plans, environmental plans, and development plans.

Resources

The municipality of Utrecht could provide more and higher subsidies for community gardens. Initiators and coordinators could also receive more support through direct material support, food ambassadors, and the food network of the municipality. Apart from this, the municipality could spend more resources to promote community gardening and its psychological, physical, societal, and environmental benefits.

7. Acknowledgments

I would like to thank my supervisor Dr. Kevin Mganga for his support and guidance during the research process. I would also like to thank the participants in this research. Most of the results are based on their insights and they have provided valuable literature sources. Without them, this research would not have been possible.

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Appendix A: Consent form

Bachelor Thesis: Community Gardens in Overvecht

Researcher: Rob Scholte

Study: Global Sustainability Science

Organization: Utrecht University

Email: r.m.scholte@students.uu.nl

Information about the research

The purpose of this research is to develop strategies for the municipality of Utrecht to inspire and empower the citizens of Overvecht to create more community gardens. To this end, a literature review will be done and interviews will be conducted with community gardeners in Overvecht, food experts, and employees of the municipality of Utrecht.

Information about the interview

- I understand that participation involves a semi-structured interview of 20 to 30 minutes.
- I understand that I can refuse to answer questions or withdraw from the interview at any time.
- I understand that I can access the information I have provided at any time.
- I understand that I can withdraw permission to use data from the interview at any time, in which case it will be deleted.
- I understand that all information I provide for this research will be treated confidentially.
- I understand that all information I provide for this research could be used for this research unless I mention that some information should remain confidential.



Bachelor Thesis: Community Gardens in Overvecht

Participant: _____

Hereby I declare the following statements:

- I have read and understand the information provided above.*
- I have had the opportunity to ask questions about the research.*

Participant: Hereby I voluntarily consent to participate in the research under the following conditions:

- I consent to the interview being audio recorded. This will not be shared with anyone.*
- I consent to notes being made during the interview.*
- I consent to have my identity disclosed in the products of the research.*
- I consent to be quoted in the products of the research.*

Signature of the participant: _____

Researcher: Rob Scholte

- Hereby I promise to adhere to the procedures described in this consent form.

Signature of the researcher: _____

Date of the interview: _____

Appendix B: General interview questions

Community gardeners

1. How did you become involved in community gardens?
2. What are the most important advantages of community gardens?
3. Are there also downsides to community gardens?
4. How much time per week do you spend on community gardening?
5. How does community gardening influence your health and well-being?
6. How does community gardening influence your economic situation?
7. How does community gardening influence your connection with nature and your neighbors?
8. What are the most important stimuli and barriers to creating community gardens?
9. How can citizens be inspired and empowered to create more community gardens?

Food experts

1. How did you become involved in the food sector?
2. What are the most important advantages of community gardens?
3. Are there also downsides to community gardens?
4. How have community gardens developed since 1990?
5. To what extent is community gardening a social movement?
6. How healthy is food from community gardens in comparison to food from supermarkets?
7. What are the most important stimuli and barriers to creating community gardens?
8. How can citizens be inspired and empowered to create more community gardens?

Municipality employees

1. How did you become involved in the food sector?
2. What are the most important advantages of community gardens?
3. Are there also downsides to community gardens?
4. How does international, national, provincial, and municipal legislation influence community gardens?
5. Under what circumstances are people allowed to create community gardens?
6. What are the most important stimuli and barriers to creating community gardens?
7. How can citizens be inspired and empowered to create more community gardens?

Appendix C: Interview summaries

P1: Community gardener 1

Buurttuin de Dreef is an open community garden on the square before Buurthuis de Dreef. It is a project of the Salvation Army and was founded by Myriam Braakhuis as a place to bring people together. For the foundation, there was enough support from the citizens because they enjoy green areas. There was also support from the municipality of Utrecht through a permit and a subsidy from the initiatives fund. Other involved stakeholders were the manager of the square, a garden architect, volunteers, charities, and agencies.

Despite the support from the citizens in general, there is vandalism once in a while. For example, sometimes items are destroyed or roots are pulled out from the ground and thrown on the square. Once, a tarp above a picnic table was removed. Sometimes, homeless people come and eat from the garden but this is considered acceptable.

There are one paid employee, four permanent volunteers, around fifteen other volunteers, and a few trainees. On working days in the peak season, there are generally four to five people present. At action days such as NL Doet, there are around fifty people present. The Salvation Army provides a lot of room for local initiatives.

Overvecht is comparable with Kanaleneiland and is considered a disadvantaged neighborhood with a relatively high degree of crime. The population is multicultural and relatively poor. Many citizens have psychological or social challenges and live from benefits. Many people come originally from Morocco and Turkey.

P2: Community gardener 2

This community gardener from outside Utrecht is highly experienced and knowledgeable in community gardening. He tenants an individual garden within a group of individual gardens from a church. The price he paid was very cheap. Tenancing provides more rights for him than renting. However, he needs to give up his garden due to plans to build houses on it within a few years but he will get a smaller garden in return.

Some advantages of community gardens are belonging, contact, food sharing, and mutual support. There is a waiting list for individual gardens, partly due to rising food prices. Some people find community gardens unattractive when they look disorganized. Community gardens might be best placed at the edge of a village.

Many children believe that milk comes from factories instead of cows. In that sense, community gardens would be good for the education of children. In the past, most people had their own garden, there was no grocer. Almost all people were self-sufficient and self-reliant.

He had never experienced food shortages. His family had pigs, chickens, rabbits, a dog, and a cat.

These days most people know little about plants in general. Seeds can be bought from stores or supermarkets. Using seeds from your own plants is also possible but these tend to be less 'pure'. Some plants could be pollinated by other plant races. Another way to 'reproduce' plants is through plant cuttings.

There are plants you can grow that take nitrogen from the air and in that way fertilize the ground without any need for fertilizer. Another technique is to use the same ground for different plant races each year. He also uses a compost pile for fertilizer. An advantage of community gardening is that you could do it instead of walking. Apart from increasing your health it also leads to profit in the form of food. Most of the food in community gardens is not sold but leftovers are mostly given to other community farmers or neighbors. Some food is also given to food stamps. It takes years before soil is of high quality for gardening but you can grow food from the beginning.

P3: Food expert 1

In almost all locations of Utrecht Natuurlijk, there is a garden. Utrecht Natuurlijk is seven years old and was a part of the municipality of Utrecht. There are many advantages of community gardens. To different people, different advantages are the most important. Social cohesion is the most important advantage. Other advantages are climate adaptation, water management, biodiversity support, and social meeting. There is no biodiversity loss in community gardens. This is partly because the city is a very biodiverse environment with many microenvironments.

A disadvantage of community gardens is that some people find these ugly, especially when they grow wilder. Other people fear that it could be a place for young people (from the age of twelve) to gather. However, it is weird that people see that as a problem while they don't see it as a problem when children of younger ages meet and play with each other. It would be good for the development of young people to meet each other.

In the last decades, community gardens have given more attention to permaculture and have gained more diverse elements to increase biodiversity. Community gardens have become more mainstream. Also, a more diverse age group has become interested. There is also more interest in community gardens instead of individual gardens. There are community gardens with constructions that give people an individual part as a reward for contributing to the collective garden.

Community gardening is a social movement. It is easy to participate, there is not one owner, and there is much support from famous people and political parties. It also helps with air quality, living quality, and health. It is also about how to use the collective space to maximize production and happiness.

The municipality of Utrecht is enthusiastic about community gardens but there are multiple interests that might hinder the development. These include parking spaces, archeologic grounds, and pipelines which have to remain accessible. You can sometimes transform asphalt into community gardens. Some of the demands for the municipality would be that it must not be a monopoly, it must be open and welcome to everyone, and there must be good management. The construction of a community garden could involve drainage. The municipality could lose money if people stop with the community garden.

You can't transform all grass fields into gardens because sometimes these already have important functions such as traffic safety (high plants can limit sight) and park spaces to walk and picnic. An initiative would preferably start with a big group of ten to fifteen people. There should be a plan that states how many hours per week people will work. There could also be a foundation with a treasurer. You can't initiate it alone.

Many community gardens have waiting lists. These consider collectivizing parts so that more people per m² can enjoy them. People in community gardens eat more vegetables and find them tasty. Gardens improve people's relationship with food and their eating habits. Some community gardens use toxic compost.

Stimuli to create more community gardens include belonging to a group, being outside, working with hands, and guarantees that if you go on vacation other people can help you. It is important to make participation as easy as possible and to use various promotional actions. People could be convinced to become involved through information flyers and directly talking with people in communities. These people could also be asked to talk to their own neighbors so that it becomes more personal.

Gardening is an important source of happiness. Humanity does not see itself as part of nature anymore. Office environments and screens are very unnatural and we are not designed for this. Another advantage of gardening is that it makes you calmer and relieves stress.

It is not possible or desirable to make Overvecht self-sufficient through community gardens. Maximizing production would lead to less space for biodiversity and climate adaptation. Some food could be sold on markets but this should not be the main purpose. Monoculture does not contribute to biodiversity.

P4: Food expert 2

Decades ago, biological agriculture was a small but growing movement. At the same time, there was significant scaling in Dutch agriculture and half of the farmers stopped. Instead of scaling, industrializing, and chemistry it would be better to create more biological agriculture.

The EU intends under the leadership of Frans Timmermans to have 25% biological food in 2030. The Netherlands is below concerning bio-production and bio-consumption. The new minister of agriculture in the Netherlands wants to have 15% by 2030 but this target is not easy to reach due to industrializing, and the population is not very concerned with sustainability. It is more concerned with prices. The most significant challenge is to make biological food available to consumers through unwilling actors: supermarkets. In the intermediate trade, there are no real challenges. The intermediate trade includes the primary sector (production), processing, and trade. The Netherlands is very well organized concerning this. There are no significant challenges between producing and consuming except the supply itself.

A problem concerning the global food sector is the growing world population: 30% of all produced food does not reach the consumers (logistics/ rotten) and we eat too much meat. In the Netherlands, there are as many chickens as in France. The Netherlands may be the worst wrongdoer concerning meat production. We mainly have cows, chickens, and pigs. We are efficient but much of the cattle feed such as soja comes from Brazil and Argentina. We produce much more than we can eat but for a much lower price than we can export. This creates a nitrogen problem.

Local is in the case of the Netherlands national because we are a small country. 90% of the food on the menu/ supermarket has an international component. Almost no food we eat is purely national. The only food from the Netherlands that we eat is dairy products, meat, and maybe potatoes and onions.

There are two types of community gardens: for and by the community or only for the community (where the gardeners are not necessarily from the neighborhood). Community gardens create food security but many people don't have the time and knowledge to engage in it. You would have to inform, organize, and coordinate/ produce but this is challenging.

Food from the supermarket is the result of a mercilessly efficient system. Unless you take away labor, food from community gardens won't be cheaper than supermarket food. But for people to see where their food comes from is important. The Dutch people have for the most part become disconnected from food reality. You could go to a farmyard to buy food or make collective agreements with (gentleman) farmers.

We should collectively let the food be produced by farmers and maybe provide a contribution. This is more reachable than producing it together. The fields in Overvecht could be managed by farmers to do agriculture or cattle farming. All people should do their own profession.

There are tens and maybe hundreds of initiatives in the Netherlands that are focused on short food supply chains such as Eerlijk Eten Uit De Streek. There are also many gentleman farmers such as Land van Ons. He believes there is much interest in local food and that it is a growing movement. Local food also means the circle is small. However, only 5% of the people are

concerned or aware of healthy food, concerning both production and consumption. How to motivate the other 95% to become more involved is the big question.

In the Netherlands, yearly 750.000 calves are born and another 750.000 are being imported. We don't eat this meat ourselves, it is all exported to countries like Italy and France because of the efficiency in the Netherlands to 'process' the calves. To make the consumers more aware of this animal suffering, the government should engage in a long awareness campaign but the current government protects the producers, not the consumers. With the current political climate, it is almost impossible to make people more aware. The agro-complex in the Netherlands is of enormous supposed interest to our economy and keeps it like this. Otherwise, it would lose its business model.

The power relations in the food sector are ultimately in the stores, so most supermarkets. There are five main purchasers in the Netherlands. Two German ones: Lidl and Aldi. Two Dutch ones: Jumbo and Albert Heijn. One increasingly small Superunie which includes all other chains. So five purchasers and sellers who determine what you eat except five percent in nature stores, alternative scenarios, catering, and normal markets. These five purchasers together determine what you eat and their business model is only as low price as possible. These all tell the consumers that they are the cheapest but this does not allow for innovation or sustainability. If you want to be the cheapest, you will never be the best.

The Netherlands is the most expensive country for Coca-Cola products because we are a small country with a lot of citizens. Dutch supermarkets try to buy Coca-Cola from supermarkets in Germany but this has been made impossible through packaging and registration. It is a game without winners.

P5: Food expert 3

In a perfect food system, the inputs would not exceed the outputs of the system so that it is in balance with ecology. There also needs to be social justice where people can earn a fair wage and have reasonable working conditions within the food system. The food should be healthy and the food system should be embedded within social and cultural structures.

Community gardens can produce vegetables and fruits but won't easily meet the demand for wheat and grain. More important than food production, community gardens reconnect people with food and each other. It makes people more aware of the value of food and this may result in them buying less food with chemicals and more food from local farmers. It also changes people's perspective on how food should be produced. Together working on producing food is a good way to build strong communities.

To make more people involved in community gardens it is important to raise more awareness of current initiatives and to have leaders who take new initiatives. These leaders need education and support. Education about farming and bringing people together can come from

existing community gardens. Support could come from the municipality for land and funding. The main barrier is the acquisition of land. Some people find the community aspect a barrier because of a lack of trust. In the city environment, there is a lot of pollution. The ground can have high concentrations of heavy metals because of traffic over the last fifty years. Looking at soil quality is important, which is often not done.

Creating community gardens on campus is very different because here students are only for a short time. Staff members remain longer but they are often full-time at work. In a neighborhood, people stay for a long time and generally have more time. Students can set up an institution to take care of a community garden. A successful student food initiative is Groentetas despite that the involved students change each year.

To build community gardens on campus, you need support from the university. All land on campus, even though it looks bare, has functions or intended functions. There are many rules and regulations around it. You need support from ambassadors from the university. Academic staff can talk to people who are on the management side. Some of these managers are quite enthusiastic about food initiatives. They can help as ambassadors to get a community garden off the ground and through the regulatory hurdles.

The food system is very well organized to be safe but some food contains pesticides and there is not always much information about how the food is produced. Food can also be bought from local sustainable farms.

The social process to create a community garden is challenging, especially the creation of a governance model that is flexible for different situations. It is very important to be clear about the goal before you start. If the goal is to produce a lot of food, it is very important to have a high commitment of certain individuals and even perhaps a business model behind it where people can earn money.

If it is more about education and community cohesion, then how much food is produced is not the most important metric of success, which lowers the pressure. Clarity about the goal will avoid disappointments. It is important to create a realistic plan and realistic expectations. The initiative needs to come from the community despite that the municipality can facilitate the process. If the municipality would take the initiative, it probably won't work.

P6: Food expert 4

In Overvecht, there is a food research project with the goal to create bottom-up interventions so that people can more easily make healthy and sustainable food choices. It has started with setting up networks with the municipality and well-connected people and is a part of a process that takes years to come to fruition.

The ideal food system would be one where healthy and sustainable food is the easiest to get and the most affordable. People have the intention to eat healthily but it is often expensive or unavailable or it is 'normal' to eat unhealthily.

You can control your food choices but you are always influenced and steered by your environment, such as family and friends, expectations, and temptations. These are hard to resist. Living healthy is more expensive and challenging than living unhealthy. Television influences people's eating habits. Healthy food is often considered negative by children. They see unhealthy food as positive. Eating healthy is mainly influenced by price and knowledge.

In Overvecht you can't go out for dinner except through snack bars. There are multiple supermarkets and a weekly market. A possible intervention strategy is that caterers sign an intention declaration to supply healthy and sustainable food.

People who could become involved in community gardens are those who find it interesting. There will always be a group that doesn't find it interesting. It is important to provide information on how to get involved and to make it as easy as possible. There is a demand for community gardens for individuals. Maybe creating more availability of community gardens and creating more awareness about them could be a simple and effective intervention.

In Bennekom, the food environment has changed due to big corporations. These have recently placed snack bars and the people think these don't belong there. Corporations have much influence through advertisements and social media. You can cooperate with supermarkets and many managers of them want to be involved. It is also possible to cooperate with corporations but there are profit models and rules.

P7: Municipality employee

Overvecht is a spacious area with a lot of green. Only the Leidsche Rijn has more green spaces as a neighborhood in Utrecht than Overvecht. In the past, it was more beautiful but the management costs became too high for the municipality. Because of this, many green spaces became dominated by grass and trees. Problems started to occur when many different people with many different backgrounds were unable to get along with each other. There are many rental apartments. These attract people with personal challenges but in many areas of the neighborhood, it is going well.

Concerning community gardens, international and national legislation plays no significant role. Only the policies from the municipality of Utrecht and its development plan play a significant role. The municipality is very open and enthusiastic about community gardens. However, it acknowledges that its main role is to facilitate citizens as opposed to initiating community gardens. Facilitation often includes raising awareness, showing good examples, and providing support such as subsidies. Many community gardens have emerged through the guidance of foundations and other organizations such as IVN and Utrecht Natuurlijk. IVN is

more commercial and national. There is also a platform called BuurtNatuur030 which shows green community initiatives in Utrecht and facilitates cooperation and knowledge sharing.

The key to receive a permit for a community garden initiative is the approval and participation of the citizens. The municipality always strives to listen to people who may oppose or protest initiatives so that nobody is disadvantaged. However, those who make the most noise often get the most attention, which is not always good. If a hundred people want to initiate a project but ten people are opposed, it will most likely continue although there may be some adaptations. For community gardens, multiple different subsidy sources could be used. Some of these could be related to climate adaptation.

To create a community garden, there should be no problems with other plans, cables and pipelines, and soil quality. In this process, the initiatives fund can be used for guidance. For a community garden, continuity is very important. Ideally, multiple people from Overvecht would be ambassadors. Members of community gardens do not have to pay rent. The municipality does for certain purposes consult neighborhood advisors and environmental analyses. Some grass fields can't be transformed if they are very meaningful to people. Because of this, an initiative should not come from outside the neighborhood. Coming up with a standard plan to create a community garden may not be a good idea, people need to initiate community gardens themselves.

The public spaces are owned by the municipality but the flats are owned by corporations. The roofs on the flats are not very suitable for community gardens and are or will be used for solar energy. In the last decades, the ground levels of multiple flats have been transformed to make a number of community gardens more accessible. The political parties in the current coalition are green and social and enthusiastic about community gardens.

Utrecht has always been a green municipality. The intermediary food company Local2Local wants a food transition and its core business is to deliver local food to the city. Koningshof is an educational garden and has received a subsidy to get started. To make Utrecht completely self-sufficient concerning food, you need the support of many different stakeholders. This is very difficult to achieve and the municipality is ultimately more focused on the environment as a whole than on only food production.

P8: Citizen of Overvecht

There is enough space in Overvecht for community gardens. Many gardens before houses are ornamental gardens that could be transformed into food gardens. Community gardens would be great for bringing people together. There are shopping facilities but through these, it is challenging to bring people together.

Overvecht is not seen as the best neighborhood in Utrecht. This is why it is relatively easy to find a room there. You have to be careful with bikes, these are often stolen. There is quite some small criminality but not big criminality.

For people with psychological problems, it may be good to become involved in community gardens so that they can get out of their bubbles. Not all citizens in Overvecht speak Dutch so there is a language barrier. Another barrier for poor people who live on a benefit would be to buy seeds. Perhaps the municipality can help with that. Other barriers are interest, time, money, and the fact that some people have never heard of community gardens in Overvecht.

Community gardens are good for social cohesion and help to overcome barriers between people of different backgrounds. It would lead to a common purpose, cooperation, and information sharing. People from Indonesia often have a lot of plants in their rooms. Those who come from dry areas may have less or no plants in their rooms.

Local and biological food is important. Non-organic food often contains a lot of pesticides and herbicides. People have to some extent lost connection with food. We export and import too much.