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CONSULTANCY REPORT

SEEDS OF RESILIENCE

FOOD AID REVISED: PATHS TO
THE FUTURE THAT BETTER SERVE
THE UNSUPPORTED!

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We sincerely hope that this report could serve as a starting point for the restructuring of the VT concept and help make it into a more resilient system to better serve the unsupported.

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Executive Summary

For several years now, care farmers in the Netherlands dare to dream of achieving a reciprocity of creating meaningful work for people marginalised from society and providing fresh food for citizens low in income. Plenty of exemplary farms have taken on this idea but the facilitation of this reciprocity happens often on the expense of farmers. Among other obstacles, they struggle with irregular, limited finance, and knowledge support. To assist the farmers and promote the concept of donating healthy produce to food aid channels the two foundations, Stichting DOEN and Landzijde, introduced the concept of Vriendentuinen. Although the concept was started with good intentions, the farmers soon lost trust in it. As there is no central and national structure, stakeholders find it problematic to approach the Vriendentuinen for immediate help.

Those key challenges of the farmers and the Vriendentuinen concept have been identified within a consultancy project commissioned by the Wageningen UR Science Shop. Within the project, transformative pathways for the concept into a resilient food aid system were explored. To be able to analyse the resilience of the current Vriendentuinen, seven resilience indicators have been chosen from an indicator-based framework for assessing agroecosystems (Cabell & Oelofse 2012). Furthermore, the Triple Layered Business Model Canvas has been used to analyse the current state of the organisational structure of the Vriendentuinen farms. This was done, both from an economic- and stakeholder perspective emphasizing social impact and benefits of the organisation's activities.

The tools were used to formulate guiding questions for online and field research on four care farms. They revealed that the communication and collaboration between stakeholders are often far from being sufficient. The communication is impaired since the credibility and understandability of the added value of the concept is weak. This in turn poses a hurdle to the promotion of the Vriendentuinen concept to other farmers, potential volunteers, and sponsors. According to the farmers, the Vriendentuinen did not manage to coordinate and network between the stakeholders to ultimately provide the farming community with the coordination of the distribution of the produce, for instance. Additionally, the farmers are frequently constraint in time and resources and therefore tend to develop a dependency on key actors that organise or assist their daily activities. There is also a great potential for shared learning and self-organisation of farmers. Which ties into the need for administrative sustenance for the bureaucracy of receiving subsidies for their care activities.

In order to find inspirational key insights on how to transform those challenges into opportunities for the Vriendentuinen, a wide range of inspirational case studies have been visited. Impressions were gathered in food gardens, food aid banks, a social food truck and catering. In multiple instances, the stakeholders were pointing out the benefits of having consistent volunteer participation. The connection to the volunteers can be deepened by a holistic assistance of their personal development and through sharing food to facilitate exchange between people of various backgrounds.

The visited case studies seemed to be embedded in the local surrounding by keeping supply chains between food producers and food receivers short and valuing local knowledge. This allows them to benefit from existing resources, networks to ultimately establish stable relationships to the community. With growing trust and connections those networks become more resilient, and participants help each other out. Next to isolated sales, occasional donations and especially partnerships with sponsors contributed to the economic sustainability of the projects. The sponsors are also often attracted with transparency of activities, good communication and promotion channels. The final key learning from the visits, provoked the idea for two potential alternative organisational structures for the Vriendentuinen. The organisation of the De Blauwe Tomaat showcased

a shared ownership and responsibilities within local networks consisting of numerous partnerships and collaborations.

Within a decentralised organisational set-up, the focus is set on bottom-up approaches and local governance. Moreover, diversity of fruits and vegetables is often enhanced to supply the food aid channels with a wide range of products. This organisational structure is tailored towards small-scale production, short supply chains and distribution by highlighting the work with various food aid channels next to the food bank. Consequentially, existing local initiatives and food aid networks can be strengthened.

The transition of the Vriendentuinen from being merely a concept to an active organisation can assist in the process of building up resilience on a local level. Vriendentuin 2.0 will operate through a "Call Center" with paid employees that consult the care farms as members with support in administration, contacts to additional resource or knowledge holders. They will connect farmers with potential volunteers, food aid channels, local governments, and sponsors. The aim of the organisation is to ease the workload through connecting additional helping hands, expert knowledge of people familiar with their farming conditions and take some bureaucratic burdens off their shoulders. To avoid increasing the dependency of the farmers on key actors, the Vriendentuinen 2.0 can initiate the establishment of a resilient, regional Vriendentuinen network enhancing reflective and shared knowledge and resources transfer. The resilience of the Vriendentuinen 2.0 can be further enriched through:



Local focus

Direct, short channels & connections between local and regional stakeholders. For more resilience when facing difficulties such as a lack of volunteers.



Identification

The organization needs to be approachable, inclusive, & transparent, so stakeholders identify with it. Promotion can help to involve stakeholders and enlarge the network.



Facilitation

Sharing the responsibilities for gardening by lending out lots to volunteers. Encouraging them to participate consistently due to a feeling of ownership.



Broad scope

Inviting food gardens and initiatives that are not officially care farms to join Vriendentuinen 2.0 as well.



Food stores

Promote & support the opportunities that stores rather than food banks have. The quantity and variety of the food products can differ and adapt more.



Food variety

Facilitating small-scale production & shorter distribution channels can be an opportunity for enhancing variety of food.

Introduction

1. Introduction

Creating resilient food systems is a priority to meet societal challenges such as increasing global food insecurity, social exclusion, and fresh food supply for everyone regardless of their economic and social situation (Kliem & Sievers-Glotzbach, 2021). At the same time, it has to be acknowledged that the trajectories of social-ecological systems cannot be fully predicted or controlled. Consequentially, this leads to a shift in focus from finding short-term optimal solutions to adopting long-term perspectives on the constant transformation of social-ecological systems (Kliem & Sievers-Glotzbach, 2021). Along this line, the proactive capacity of re-inventing and re-structuring food systems can help people come back to or contribute to society while potentially guaranteeing a fresh food supply. Unfortunately, in countries worldwide, such as the Netherlands, this capacity so often delineates untapped potential. Hence, alternative and long-lasting approaches must be developed to provide food security and tackle societal challenges such as social exclusion.

One promising concept in this field is that of Vriendentuinen (as from now referred to as VT), which refers to (care) farms that donate fresh produce to various food aid channels (mostly food banks) intending to reduce food insecurity (Potze et al., 2021). Hassink defines care farming as the crossroads of the agricultural and healthcare sectors (Hassink et al., 2012). Furthermore, care farms can be characterised as multifunctional and consist of three main functions: care, societal, and agricultural (Potze et al., 2021).

This Academic Consultancy Training (ACT) project is part of a larger project of the WUR Science Shop named 'VT als veerkrachtig en weerbaar systeem' (VT as a resilient system) that investigates ways of how to address food insecurity through the concept of VT. Food insecurity is understood as "the lack of availability of nutritionally adequate and safe foods, or the lack of ability to acquire acceptable foods in socially acceptable ways" (Anderson, 1990). Nevertheless, such a concept has many threats and weaknesses, especially given the complexity and multifunctionality of the care farms in which VT is implemented. Besides, care farms that try to implement the VT concept face financial constraints and logistical complications associated with delivering fresh fruits and vegetables to different food aid channels with diverse needs and requirements. Altogether, these challenges justify the need for further development of the concept of VT into a more resilient and feasible one.

The overarching research project consists of several components at both the general and pilot levels (*Figure 1*) to accomplish this goal. This ACT project belongs to the activities scheduled at the general level, complementing a previous ACT project. The former project provided insights into the challenges and opportunities care farms' multifunctionality, characteristics, motivations, and wider societal developments bring about when aiming to organise food aid and meet the expectations of food aid channels. Hence, this project will build on the existing knowledge by advising on how to improve the organisational structure of the VT to work towards a resilient system that can ultimately be most beneficial for farmers and care and food aid receivers.

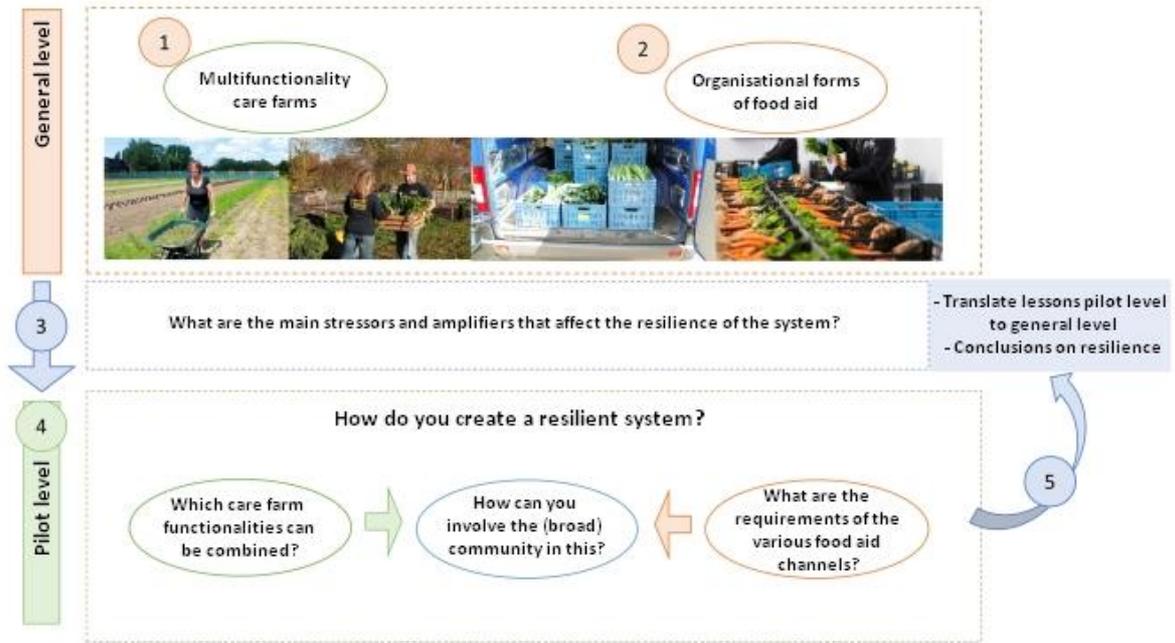


Figure 1. Action plan of conducting the research project to increase the resilience of VT, Rosalie van Dam.

Research questions

2. Research questions

Based on the above, the main research question guiding this report is the following:

What are pathways to transform the concept of VT into a resilient food aid system by giving practical advice informed by inspiring case studies to address weak links regarding the organisational structure of the farms?

This resulted in the following sub-research questions:

1. What lessons from the **resilience indicators** can be taken up to change/improve the operational practice of the VT?
2. What is the current **internal and external organisational** structure of VT?
3. What are Dutch **case studies** of food aid and/or (care) farms that are relevant and inspiring for the concept of VT?
4. Which aspects of the organisational structure of VT are '**weak links**' that need to be addressed to transform the concept into a more resilient food aid system?
5. What are feasible, innovative **pathways** for VT based on examples of and how can they be implemented?

Conceptual framework

3. Conceptual framework

Figure 2 highlights this research process which will be described in more detail in the following section. Firstly, the team has analysed the current organisational structure of the VT through a resilience framework as well as through the Triple P Business Model Canvas (BMC) framework. As for the first lens used, it first looks through the broader, holistic lens of social-ecological-systems (SES) to then use a selection of indicators from the indicator-based framework by Joshua Cabell and Myles Oelofse (Cabell & Oelofse, 2012) as an analytical tool to assess resilience by applying it to the concept of VT. The concept of SES reflects the multi-functionality, diversity, and dynamics of places such as the VT and their lack of resilience due to the complexity.

From the three-layered Triple P BMC, consisting of an ecological, an economic, and a social layer, the economic business layer has been used to analyse the organisational structure of the VT farms. Moreover, the social stakeholder layer has been used to understand better the social impacts and benefits of the organisational activities (Joyce & Paquin, 2016).

These two main frameworks have been used to analyse the concept of VT when applied to different farms in the Achterhoek region. Besides, a BMC has been filled in for the new possible organisational structure of the VT as an umbrella organisation. This way, the more theoretical and abstract understanding of how resilient the investigated care farms are can be linked to a practical analysis generated with the BMC. The combination of theoretical input and practical tools allowed us to identify several key challenges or 'weak links' of the concept of VT. The ACT group wants to guarantee a coherent storyline of the report focusing on the main outputs the group was able to generate. Therefore, the detailed conceptual framework including the different tools used throughout the process can be found in Appendix 1.

At the same time, the team has visited and examined several Dutch case studies on food aid, (care) farms/gardens, or community initiatives. The identified key challenges or 'weak links' provided a lens to focus on best practices that could be applied to improve the VT concept. Hence, these benchmarked examples have helped to provide inspirational and practical recommendations on potential alterations on the organisational structure of the VT, to fulfil their social function better while helping people in situations of food insecurity. Moreover, the insights gained through both ACT groups can serve as a steppingstone for the pilot level of the Science Shop project, where practical implications of the findings can be put into practice in the different participating farms.

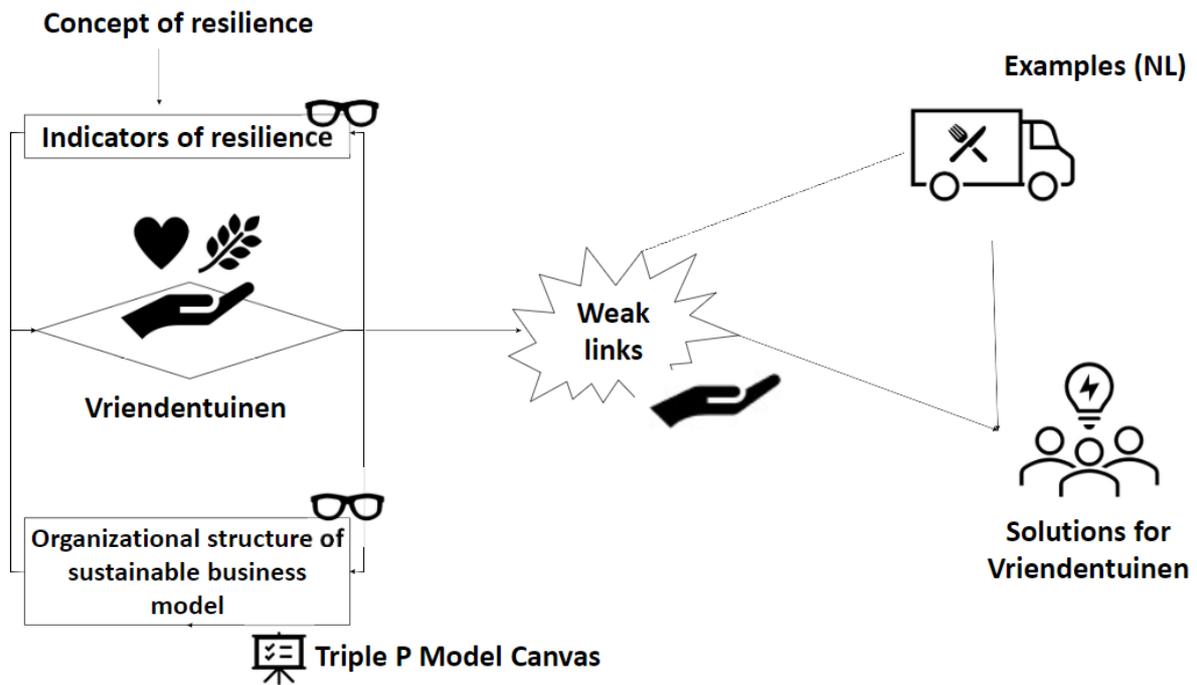


Figure 2. The research process, consisting of research on indicator-based resilience and on the organisational structure of a sustainable business model canvas using a triple P Model Canvas to subsequently identify the weak links of VT, which together with inspirational (Dutch) examples will serve as solutions for VT.

Methodology

4. Methodology

This section of the report aims to outline the different qualitative methods used to collect data: desk research in the form of literature review and field visits consisting of interviews and observations. Qualitative methods were chosen to structure the research according to the needs and standpoints of the subjects of study, rather than according to the team's concerns (Graue, 2015). Moreover, the team actively chose to be as involved as possible with those under research, making sure to visit existing VT and prioritise Dutch case studies over international ones during the benchmarking phase to attain the most holistic overview achievable. The following section describes the literature review and interviews in more detail.

4.1 Literature review (desk research)

In the first stage of the project, a literature review was carried out through wide-reaching search engines such as Google Scholar or the WUR library to collect data from existing sources. This review was meant to provide an overview of the different conceptual frameworks around care or resilience that could be used to answer the research question. For these purposes, keywords such as the ones listed below were used to find sources:

1. "Care " AND "Farm" OR "Resilience"
2. "Assessment of resilience"
3. "Indicator based framework to assess resilience"
4. "Resilience in social ecological systems"
5. "Interrelations ecological and social systems"

Additionally, grey literature such as the previous ACT project report function (Potze et al., 2021) and the 2018 evaluation report on existing collaboration between care farms and food aid channels from the Federatie Landbouw en Zorg have been used. This literature served to get a glimpse of the existing understanding of the situation of the VT and to find out knowledge gaps that needed to be addressed throughout the research.

Lastly, a wide-range search engines, together with the database of city practices competing for the Milan Food Policy Awards under the Milan Urban Food Policy Pact (MUFPP), have been used to find exemplary cases that could inspire the improvement of the organisational structure of the VT. For this analysis, the submitted case studies of the years 2016 up to 2020 of the MUFPP were investigated to find inspirational examples.

4.2 Field research

Field research was prioritised and emphasised to get an in-depth understanding of the functioning of the VT and the technicalities of the most relevant case studies found in the Netherlands. Field research was conducted both online, through two expert interviews, and offline during field visits. The field visits consisted of semi-structured interviews and observations. Besides, photographs were taken, which have been used in this research to describe the nine sites visited: two VT, one former VT, one food garden, two community kitchen initiatives, one food bank, one food bank store, and one food truck. To illustrate, *Figure 3* shows a geographical illustration of the different Dutch locations visited.



Figure 3. Geographical illustration on the Dutch case studies regarding alternative pathways of food aid as well as the locations of visited VT. Categories of food aid include food banks, community kitchen initiatives, food gardens, care farms, VT, and the food truck.

The three VT visited were selected so they would reflect a diversity of situations. However, all farms visited were situated in the Achterhoek region and used to belong to a VT network put in place some years ago in the area. First, the team visited Zorgboerderij Slangenburg, a care farm still applying the concept, and one of the farms chosen as pilot VT under the WUR Science Shop research project. Secondly, the team visited Marope Op Landgoed Zelle, a care farm that used to be part of the VT network organised in the region but has now dropped out. Lastly, the team visited Het Liessenhuus, a care farm continuing to be a VT but does not participate in the pilot project.

As for the different initiatives visited in order to showcase alternative approaches to the organisational structures for the VT, a wide range of inspiring projects were selected, which ranged from logistics expertise to community involvement strategies. For these purposes, a food garden in Boxtel (*De Kleine Aarde*), Voedselbank Doetinchem, a food bank store part of Voedselbank Rotterdam, a crisis catering in Rotterdam (*Hotspot Hutspot, Crisis Catering*), a community initiative in Amsterdam (*Cascoland*), and a food truck in Arnhem (*De Blauwe Tomaat*) were visited.

4.2.1 Interviews

During the field visits, semi-structured interviews were conducted. The semi-structural format allows for guidance within the conversation but simultaneously allows a natural unfolding (DeJonckheere & Vaughn, 2019). The sampling method used was purposive sampling. The respondents were deliberately selected to serve the specific purpose of understanding the current structure of VT or to get inspiration from a varied selection of exemplary cases (Russel, 2017).

All interviews conducted during the field visits were face to face and in English, although in some cases, the conversation momentarily switched to Dutch. The interviews were recorded after previously asking for consent to do so and notes were taken during the conversations. Also, guiding questions and topics were prepared beforehand and can be

found in the Appendix 4, 5, 6 and 7. Next, the answers were sorted into categories around the BMC and the resilience indicators in the cases of farms or food gardens.

Besides, two expert interviews were conducted online through Microsoft Teams, following the procedure described above. The experts were Paul Van Berkel, a spokesperson for the Voedselbank Netherlands and Thirza Andriessen, a PhD student at WUR who does research about the dignity of food aid receivers.

4.2.2 Observations

During the field visits, different types of observations were also conducted. As for most visits, disguised naturalistic observations were carried out. This method was selected to keep the awareness of the study by the observed participants to a minimum with the intention to avoid observation biases that result from the reactivity of the participants and the deviation from their "usual" behaviour through the knowledge of the researcher presence and monitoring of their behaviour (Price, Jhangiani, Chiang, Leighton, & Cuttler, 2019)

At the same time, participant observations were also possible in Rotterdam during the visit to Crisis Catering, when all team members present were able to participate in the catering activities. This allowed the team to get acquainted with the case at a deeper level and to access experiential knowledge that proved to be valuable to grasp the potential of the initiative (Russel, 2017).

4.3 Ethical concerns

The ACT group does not want to be a "burden" to farmers and people working in VT, food gardens, etc. Therefore, the group was being cautious in reaching out to stakeholders and scheduling meetings. The ACT group respects their busy schedules and workload and is very thankful for any insight and visit made possible. Furthermore, the ACT group is committed to giving voice to those working in (care)farming and food aid, instead of entering the field with pre-assumptions or generalisations. As a result, all members tried to avoid biases when analysing the data, but the group also believed that being critical in the reflection inevitably leads to some biases. Nevertheless, those biases can be understood as critical "outside view," which can generate valuable advice. The group is considering that the report might cause some tensions or disruptions among the different stakeholders. Lastly, all stakeholders were informed about using the data collected and ask for consent when conducting interviews.

Results

5. Results

The results presented in the next part have been generated by using the analysing tools of the indicator-based framework (Cabell & Oelofse, 2012) and the Business Model Canvas. A generic description of the three Vriendentuinen farms that have been studied, can be found in Appendix 8. First the organisational structure will be analysed, before then going to the resilience assessment. In the last part of the results, case studies from the Netherlands will be introduced which served as an inspiration for envisioning possible future pathways and opportunities for the VT.

Due to time and resource restrictions, not all stakeholders could be involved in the analytical process, and only a small fraction of VT could be interviewed. Consequently, this chapter is limited in its coverage and skewed towards representing the Achterhoek and visited food aid channels throughout the Netherlands.

5.1 Current Organisational Structure of VT

The concept of the VT is unravelled by using the economic analysis of the BMC. This tool facilitates a snapshot of the current situation of the concept and is fed with information of multiple papers, interviews, and field visits. In the following chapters the key points of the BMC are filled out with the collected information. These key points include the value proposition, customer segments and relationships, channels, revenues and cost structures, key activities and resources, and key partners. These concepts are further explained in Appendix 2 and an exemplary, filled out BMC for the VT Achterhoek network can be found in Appendix 9. Finally, this chapter will end with the resilience assessment of VT, based on the conceptual framework on resilience.

5.1.1 Value Proposition

The project of VT started in Noord-Holland with a threefold intention. The main focus lies in creating meaningful daytime occupations for people marginalised from society working at care farms. It is dear to the care receivers to engage in the reciprocity of receiving subsidies and adding to the society supporting them (Elings, 2012). A farmer commented that *"For the participants¹, it is very important that they see where the product of their work goes. They see for themselves how happy the employees are with our vegetables and also get compliments from them which in turn is an extra motivation for the work"* (SFLZ, 2018). Another added value of the concept is providing healthy food for people with low income (VT, 2021). Food aid channels often target to comply with the diet guideline of Schijf van Vijf (translated to Wheel of Five) of the Dutch national center on nutrition (Voedingscentrum, 2021). However, the Voedselbank, the Dutch umbrella organisation of food banks, cannot always stick to their own objective of offering 60% of fresh food (Paul van Berkel, personal communication, 2021). The last key valuation of VT is to strengthen the position of care farming in the Netherlands and local networks between rural and urban areas (SFLZ, 2018). The project wants to achieve its goals by supporting care farmers that produce food for food aid channels.

During the research, one care farmer was interviewed that did not engage in the concept of VT but provides harvested products for food aid (Maria van den Hoogen, personal communication, 2021). Already the previous ACT group encountered a similar case and wondered, *"this raises questions on the necessity of a VT label or middle person between care farms and food aid channels"* (Potze et al., 2021). A shared consensus of the farmers is the wish for a centralised organisation of VT that supports their daily activities. As of now they do not see the added value of the VT as it stays merely the concept of care

¹ The description of care receivers and participants is used interchangeably in this report. Both terms refer to people who receive professional aid through their participation at a care farm.

farmers providing food aid rather than performing as an organisation that supports the farmers in putting this idea into practice.

5.1.2 'Customer' segments and relationships

As VT made it their mission to support the care farmers in the provision of care and food aid, the farmers are the focus of the activities of the VT. Momentarily, farmers mention a need for a direct point of contact supporting them with knowledge and resources to set up and maintain their VT (SFLZ, 2018). The farmers work closely and are, in most cases, (financially) dependent on the farm care receivers. Therefore, Ellen Oomen, the national project leader of VT, facilitated a workshop on mobilizing more volunteers for the care farms recently (Oomen, pers. comm., 2021). Some farms registered an increase of care receivers due to the additional motivation of serving food aid receivers, which is the reason for listing them as indirect clients. In Appendix 3 an illustration is given on the customer segments of the VT. Additionally, the trend of a rising awareness for the preventative health benefits for the mental and physical health of green environments plays a role in the increasing numbers (Van den Berg et al., 2015).

The care farmers in the Netherlands start from various backgrounds ranging from education in care, agriculture, education to experiences outside those sectors. Falco Janssen (manager of the care farm Slangenburgh in Doetinchem) and Patrick Vinkenvleugel (manager of the care farm het Liessenhuus), both have backgrounds in social work for instance. Their motivation to join the VT concept is at least as versatile as their backgrounds. Most of the farmers aim to increase the social contribution of care receivers, improve the image of the farm and diversify the activities on the farm. Unfortunately, the farmers cannot always provide those benefits to the care receivers as they lack time, knowledge, physical space, or money (SFLZ, 2018).

The farmers balance the lack of resources with still motivating the care receivers to join their projects. The participants indicate that, among others, they appreciate the acknowledgement, feeling of belonging, learning, and especially the sense of meaning that the work on the farm gives them (Federatie Landbouw en Zorg, 2021). Every participant comes with a unique story, care need, intensity of disability, and skill set. Therefore, finding suitable care receivers that match the care offered at the farm and the daily activities can be challenging at times. Furthermore, some people deal with mental illnesses, addiction, burnout, learning disabilities, or long-term unemployment while other are asylum seekers in pension or are labelled as "problem youth" (Hassink, Zwartbol, Agricola, Elings, & Thissen, 2007). This complexity and diversity of the participants require creativity from the farmer.

The diversity of the farmers and care recipients is continued in the food aid receivers. To illustrate, according to our interview with Arnold Groot Wassink, one of the coordinators of the organisation Voedselbank Doetinchem, a multitude of nationalities, religions, age groups, and family sizes are recorded (Groot Wassink, A., personal communication, 2021). Whereas half of the food aid receivers live in single households, the financial problems of the aid receivers are multifaceted. They are often caused or increased by divorce, loss of job, addiction, or a handicap/disease of themselves or a person they care for (Groot Wassink, A., personal communication, 2021; Vossen, 2021). Strokes of fate can come sudden, and last longer than some might imagine: *"Once, I had a big, tough man here, who donated to the Food bank for years. He said about himself that six weeks prior, he would have never believed that he would ever in his life use the services of a food bank. And then you see tears running down the cheeks of the big, tough man. He said, I was out here last week for the entrance, but I couldn't do it"* (Groot Wassink, A., personal communication, 2021). It is crucial for the food aid receivers that their anonymity and dignity is preserved. A sense of agency in choosing their food is, therefore, one of the most frequently mentioned wishes. Next to the need for fresh and healthy food, some would also welcome more social functions of the food aid channels (Richters, B., personal communication, 2021).

5.1.3 Channels

Multiple sources point out a lack of a centrally and nationally structured umbrella organisation for VT that is easily approachable for communication, coordination, or food supply and agricultural knowledge (SFLZ, 2018). Nationally this leads to a deficiency of credibility, transparency, and ultimately promotion of the project, thus decreasing sponsorship opportunities. Nonetheless, being a VT attracts many responses from surrounding companies who also want to support with resources (SFLZ, 2018). On a regional level, there is a significant dependency on key actors such as Stichting Doen, Federatie Landbouw, and individuals such as Falco Janssen. When Falco Janssen paused his activities, the Achterhoek network stopped as the farmers were too little engaged and proactive according to Ellen Oomen and Falco Janssen (Janssen, F., personal communication, 2021). Consequentially, the farmer now emphasise the need to strengthen local, decentralised, and direct supply chains (Van den Hoogen, personal communication, 2021).

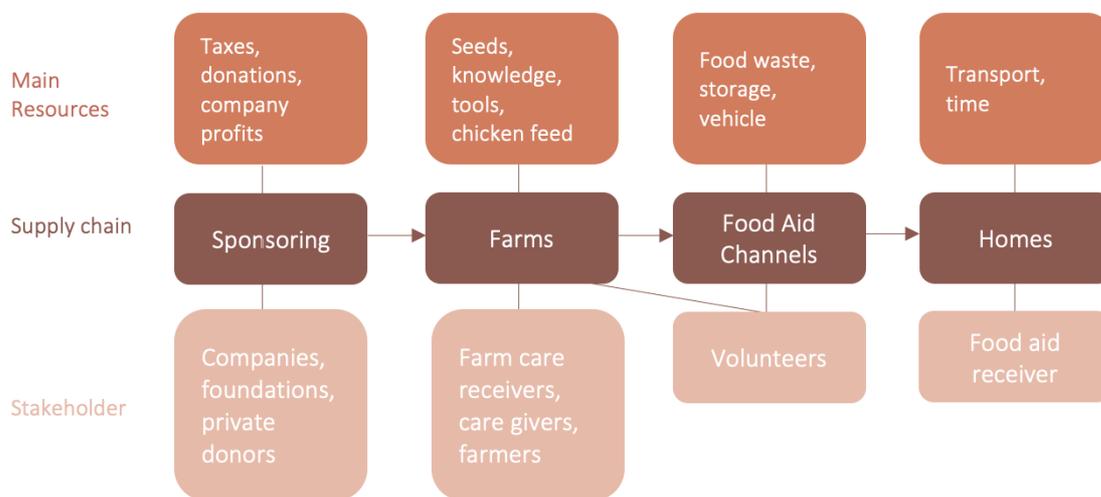


Figure 4. Common supply chain from sponsors to food aid receivers

The core costs and needed resources are mentioned in Figure 4 together with the crucial stakeholders. The sponsoring is elaborated upon in 5.1.5. On the farms, food is cleaned, packaged and sorted in some cases (Van den Hoogen, personal communication, 2021). Food banks sometimes prefer to do the packaging themselves, to distribute the food equally and add the products they receive from other sources (Potze et al., 2021). Either the care farmers or the care recipients transport the products to the food aid channels. There are plenty of examples of food banks picking the food up. In the Achterhoek, the logistics were centrally planned and structured as most food banks prefer a central pickup point for the small produce of the VT. Additionally, due to a crop plan that was spread out, the production to fit the demand of food aid channels and a variety of food that can be harvested weekly was accomplished (Janssen, F., personal communication, 2021). However, the Voedselbank was not sufficiently involved, so farmers collected negative experiences due to an oversupply of food.

The food aid channels are generally flexible and locally organised. "Foodbanks work with very loose agreements with suppliers; these are somewhat more formal with the big suppliers like supermarkets" (Potze et al., 2021). On the other hand, food banks tend to have more strict contracts with bigger players such as supermarkets (Groot Wassink, A., personal communication, 2021). Nonetheless, a hurdle in working with supermarkets, according to Voedselbanken NL board member Paul van Berkel, less food is wasted along the supply chain, which highlights the importance of the fresh food supply of the VT (van Berkel, P., personal communication, 2021).

The food aid receivers pick up then the food packages of the food banks or in some cases get packages or meals delivered (Richters, B., personal communication, 2021). However, the transportation to the food aid channels can be a hurdle with the restricted resources available to the aid receivers. Consequentially, Paul van Berkel points out the importance of a coverage of pick-up points of the Netherlands (van Berkel, P., personal communication, 2021).

5.1.4 Revenues and cost structures

Farmers specify seeding and planting material, and tools and tool preparation to be the highest costs for the VT. Chicken feed, fuel (for irrigation), and buildings such as greenhouses add to the receipts of the care farms (Reith, 2017). Stichting DOEN used to provide a financial impulse to set up the VT. However, funding was stopped since the VT concept did not meet the foundation's expectations (Stichting DOEN, 2021). According to the interviews conducted by Federatie en Landbouw, the farmers need structural and regular support rather than initial reimbursements (SFLZ, 2018). *"Now it is time for us to stand on our own two feet. Fortunately, we occasionally receive contributions from companies and individuals, but for the continuation of our project, we need structural sponsorship or support"* (Reith, 2017). Falco Janssen received 10,000 Euros from Stichting Doen, with which he could cover the costs of the VT for 3 years (Janssen, F., personal communication, 2021). Momentarily, support reaches the care farms in Noord-Holland through Landzijde. The organisation installs hen- and greenhouses that remain to be owned by Landzijde and is taken away when the farms stop being part of VT or use the produce for commercial ends rather than donations to food aid (Potze et al., 2021). Minni Manna is another organisation that supports the stakeholders within the Achterhoek region. Furthermore, there are occasional donations from more prominent players such as Jumbo, Hello Fresh, Albert Heijn, Rabobank (Voedselbank Doetinchem), and local companies like the Lyceum College Doetinchem that donated a vehicle for the Voedselbank Doetinchem.

Besides funds and donations, care reimbursements are the primary income sources. In 2015, there was a trend of decentralisation of the support for care from central to local authorities (Nowak et al., 2015). As a result, the municipalities got more funds that they hand out in the different subsidies such as funding for day care, counselling, and living in form of Natura (ZIN) and Persoonsgebonden Budget (PGB), Wet Maatschappelijke Ondersteuning (Wmo), Wet Langdurige Zorg (WLZ) or Jeugdzorg (Federatie Landbouw en Zorg, 2021). Nonetheless, getting money from the healthcare system is very complex and connected with administration work (Vinkenvleugel, pers. comm., 2021). Other sources of revenues can be agricultural activities of keeping livestock or operating horticulture or arable farming. Some care farms also engage in recreation and educational activities such as campsites, farm shops, educational holidays for children, or tours (Janssen, F., personal communication, 2021).

5.1.5 Key activities and resources

Since the sponsoring of the Stichting DOEN stopped, the activities and resources of the VT are limited. A telling example for those cuttings is the weekly working hours on the VT of Ellen Oomen as the national Project Manager. Currently her working hours on VT are solely 2,5 hours. Within that time, she is trying to support regional and local communication, and networks by, for instance, by gathering ideas to attract more volunteers to farm. Noord-Holland Landzijde is busy promoting VT, making arrangements for participation and drawing up planting schemes to coordinate production. This is done by establishing and managing the contact of farmers to food banks. Farmers can also approach them when in need of knowledge. Nevertheless, they only rarely hand out materials still. In Achterhoek and Limburg similar activities were executed as a 'bottom-up approach' initiated by farmers (SFLZ, 2018).

5.1.6 Key partners

The VT interacts and networks with many stakeholders that are categorised within a Stakeholder Matrix (*Figure 4*). The key partners are divided into four quadrants: managing closely over keeping satisfied and keeping informed to monitor with minimum effort. The matrix consists of two axis, influence and interest, which help to map out stakeholders and classify them according to their power over and interest in the project. Some of the stakeholders have been previously described in chapter 5.1.2 and 5.1.4. (additional stakeholders are briefly explained in Appendix 10).

As the mission states that the purpose of the VT is the support of the care farmers, they are placed as the most important partners of the concept. Next to that, the crucial facilitators of the activities of the care farms are mentioned as stakeholders that require close management. Foundations and municipalities are ranked higher in interest for the VT as they supply more regular and structured financial aid compared to sporadic donations. The collaboration of the VT with the care participants and food aid receivers has been outlined in chapter 5.1.2 customer segments and relationships. The Federatie Landbouw en Zorg (FLZ) represents more than 800 care farmers and encourages interdisciplinary collaboration throughout the Netherlands. This reach marks them as an influential partner for the VT. Stichting Fondsenbeheer Landbouw en Zorg (SFLZ) and the Science Shop of Wageningen University and Research evaluate and carry out research on the VT. The SFLZ was ranked higher as they influenced the VT by proposing to set up pilot farms. For a broader societal scope and support, the collaboration with local citizens can be valuable. As part of more sustainable food consumption and production, citizens increasingly show an interest in local and seasonal produce (Westhoek *et al.*, 2013). Often the citizens are interested but do not impact the farming activities significantly. The communication and collaboration between key stakeholders are elaborated upon in Appendix 11.

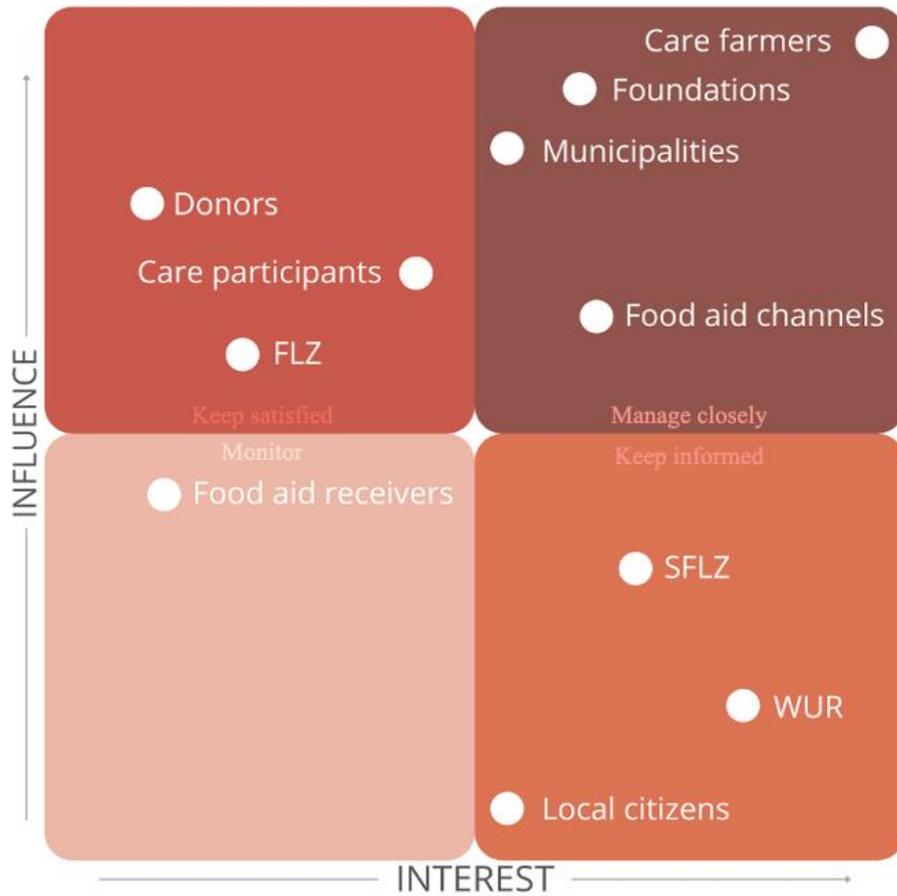


Figure 4. Stakeholder Matrix of those involved in the VT concept. Stakeholders are categorised according to their influence and interest in the concept.

5.1.7 Resilience assessment of VT

The indicator framework for assessing resilience functioned as the conceptual fundament and departing point of this research (Cabell & Oelofse, 2012). The indicators introduced were used to identify the resilience of three different VT: two VT which are still active, Zorgboerderij Slangenburg and Zorgboerderij het Liessenhuus, and one former VT, Zorgboerderij Marope. In Appendix 8, characteristics of and activities on each farm, which are relevant for the resilience indicators, are introduced. To gain insights about difficulties the VT in the Achterhoek experienced the performance for each resilience indicator is discussed. Next, the farm indicator scores are being compared to understand common patterns and overarching challenges for the VT in the Achterhoek region. The resilience indicators have been scored based on the resilience of the VT on each farm and do not reflect the resilience of the entire care farm. The different components, key processes and activities on each farm were analysed based on how they affect the resilience of VT. In the following sections, the similarities and differences of the performance of each indicator between the different farms are discussed.

1. Socially self-organised

When analysing this indicator for the different farms, the only VT which scored positive on this indicator was Zorgboerderij Slangenburg. The ACT group believes that this is mainly due to Falco Janssen being a key actor, promoter, and coordinator of the VT on his farm. His central role is able to maintain the self-organisation of the VT on Slangenburg. This is, however, also a vulnerable situation as there are no other people who can take over the activities of Falco. On the other farms, the care farmers do not play such a central role for the VT on their farm. At Zorgboerderij Marope, there is no dedicated knowledge holder on vegetable growing, and there are no care receivers or volunteers who are fully dedicated to and responsible for vegetable garden activities. At Zorgboerderij het Liessenhuus, the self-organisation of the VT is low because Patrick Vinkenvleugel, the central figure on the farm, is not managing to be directly involved in the maintenance and coordination of VT activities due to bureaucratic pressure on care farms. As a result, it seems that the self-organisation of VT is dependent on the time invested by a single key actor.

2. Appropriately connected

The analysis of this indicator made visible that Slangenburg was the only VT scoring positively. Again, this indicator is appropriately met in Slangenburg, due the central role of Falco Janssen for the VT. As explained in the general description of Slangenburg, Falco Janssen is responsible for the outside connections and channels. At Marope, the external connections concerning the VT were not maintained in a pro-active manner. Jeroen Hoppen had a wait-and-see mentality regarding the provision of seeds and coordination with food aid channels. The group believes that the working moral of Jeroen Hoppen towards this derives from the relatively small production and the feeling of little value-added. At het Liessenhuus, food is not supplied anymore to the food aid bank on a regular, structured basis. Nonetheless, products are delivered whenever small produce is left over in order to avoid waste. This shows there are still connections with the food bank, which embody further opportunities. Additionally, the indicator includes the appropriate quantity and quality of the connections between different components of a system. Based on that, het Liessenhuus is also not appropriately connected when it comes to structurally supporting food aid. There is a risk of becoming an "isolated island" at all three farms due to their location. This became apparent during the COVID-19 crisis, as fewer external people visited the farm. At het Liessenhuus, this resulted in their food box sales, and therefore, financial return on the external incentives for gardening activities and food aid bank donations was affected. This has again affected the appropriate connectedness with local stakeholders and volunteers.

3. Exposed to disturbance

This indicator is mainly related to the ecological disturbance. There are no ecological risks or factors for all three farms that have significantly impacted structural food aid. Still, weather events can influence the quality and quantity of the produce. The effort of the Federatie Landbouw and Zorg to arrange a greenhouse for Slangenburg can, therefore, increase this indicator's performance. Unfortunately, the plans to support Slangenburg with a donation for a greenhouse have still not been realised. Nevertheless, the group analysed that all three farms scored positive on this indicator, although climate change is posing a threat regarding the harvests of VT.

4. Reflective and shared learning

It was analysed that there was no proper reflective and shared learning related to VT activities for all three farms. On the Slangenburg farm, there is a dedicated volunteer who is a knowledge holder on farm practices. He gained his knowledge with guidance from a former volunteer, indicating reflective and shared learning. Unfortunately, his knowledge is currently not being shared actively with other volunteers, mainly due to a lack of consistency of volunteers helping on the farm. Furthermore, in general meetings of the VT network, farmers like Jeroen Hoppen and Patrick Vinkenvleugel did not experience shared learning (Hoppen, J., personal communication, 2021; Vinkenvleugel, P., personal communication, 2021). During these meetings, the focus was set on prioritised problems regarding harvesting, finance, and lack of time. Different farmers mentioned that little solutions or positive experiences were actively shared. Jeroen also stated that he did not learn anything from these meetings.

5. Globally autonomous and local interdependent

Two aspects of the farms, which are part of this resilience indicator, were analysed. The first is ownership of the land. The second is the dependency on subsidies and changing policies regarding care providers. Not all care farms own the land of the farms they work on. This makes the continuation of the farms potentially dependent on the decisions of external parties. However, reflecting on the interviews, it was not identified that this dependency affected the activities regarding the current status quo of the VT. The financial reliance on subsidies does, however, influence the VT's activities. The farms are economically strongly dependent on these subsidies. This leads to farmers putting a lot of effort into arranging and securing financial support and reacting to public tenders. Farmers mentioned that this poses a large administrative pressure on them. Due to this pressure, the success of the VT becomes less of a priority. Furthermore, there is a potential threat for small-scale care farms like het Liessenhuus as the municipalities choose more extensive school care initiatives. For example, the segment (Integrated Ambulatory Youth Care) aims to reduce care providers from more than 200 to 35 (Vinkenvleugel, P., personal communication, 2021). "Someone" could research this potential threat in the future since this would become a problem for the concept of VT if there are only very few care farms. This analysis shows no stable network of partnerships and collaborations, which would make the VT in each location more resilient.

6. Builds human capital

The VT on each care farm provides an important 'infrastructure' for learning and social interaction. Both constructed, cultural, and social capital are being built through relationships within the farm. For example, for care receivers on het Liessenhuus, food production for society increased the level of inclusion as the care receivers were very enthusiastic about selling food boxes and bringing the food to the food bank. Here, the VT enhances the human capital being built. On Marope, this was not the case. It was mentioned that for most care receivers the activities on in the garden were not challenging or appealing. Generally, on this farm, human capital is being built, however, the VT farm did not contribute to this.

7. Reasonably profitable

The three care farms/institutions are all reasonably profitable, mainly due to the care subsidies. However, running a VT, also comes with extra costs for resources such as seeds, logistics, additional working force or garden expertise. In the initial stage of the VT network, all VT received seeds via the Slangenburg farm. Slangenburg and Liessenhuus also assisted in collecting the produce of different farms. At Marope, the people involved managed to deliver the harvest by themselves. However, the farmers that have been interviewed mentioned that other farmers of the VT network had severe problems in delivering the vegetables when there was no assistance available. This was not only caused by the lack of time but also due to costs. Furthermore, at Marope there was no knowledge on cropping plants and at the same time also no budget to find someone with this expertise. To be a successful VT, additional investments are needed for different resources such as greenhouses, proper transportation, seeds, or garden experts. If these needs are not met, farmers cannot implement the concept of VT properly. Hence, they cannot work effectively.

This analysis helped shed light on common patterns and key challenges VT farms in the Achterhoek is faced with. From the seven resilience indicators, four indicators were identified as main challenges for the VT (*Figure 5*): socially self-organised, appropriately connected, reflective and shared learning, and globally autonomous and locally interdependent (Cabell & Oelofse, 2012).

	ZORGBOERDERIJ SLANGENBURG	ZORGBOERDERIJ HET LIESSENHUUS	ZORGBOERDERIJ MAROPE
1. SOCIALLY SELF-ORGANIZED	+	-	-
2. APPROPRIATELY CONNECTED	+	-	-
3. EXPOSED TO DISTURBANCE	+	+	+
4. REFLECTIVE AND SHARED LEARNING	-	-	-
5. GLOBALLY AUTONOMOUS AND LOCALLY INTERDEPENDENT	-	-	-
6. BUILDS HUMAN CAPITAL	+	-	+
7. REASONABLY PROFITABLE	+	+	+

Figure 5. Resilience indicator analysis and comparison of the VT farms, Zorgboerderij Slangenburg in Doetinchem and Zorgboerderij Marope in Hengelo, and the drop-out VT farm Zorgboerderij het Liessenhuus based on the conceptual framework of resilience.

5.2 Inspiring Case Studies

The following section describes the benchmarked Dutch case studies, from which the team has visited most. The ACT group uses the insights presented in this section as relevant and inspiring ideas, which can be translated into opportunities for improving the VT concept. This chapter is structured by the different types of case studies, namely: food gardens, gleaning networks, food banks, community kitchen initiatives, and alternative distribution channels. In each category, the key strengths and values, which inspired the team while visiting, are highlighted in bold.

5.2.1 Food gardens

A (community) food garden is a semi-public place where people of the surrounding neighbourhood can share the effort and harvest of maintaining a garden space for producing fruits, vegetables, flowers, or sometimes even livestock (Feinberg et al., 2021). For this project, De Klein Aarde, also referred to as Voedseltuin Boxtel, was visited to learn more about how they manage their food garden. This initiative will be briefly highlighted in the next section.

De Kleine Aarde, Boxtel

De Kleine Aarde (Literally translated as "The Small Earth") is a small-scale sustainable farm, environmental development center, and social rehabilitation center located in Boxtel, Noord-Brabant. The food garden, entirely run by volunteers, produces solely for the Voedselbank of Boxtel and its surrounding area in a non-profit way. Also, De Kleine Aarde manages to meet the requirements of the food bank, as the preparation for the produce for a pick-up is managed by a stable pool of long-term volunteers that by now help feed around 200 families every week. Furthermore, it provides places for convicts to carry out their sentenced community service. This arrangement has a significant beneficial effect on these people, as many grew up in families in poverty who needed food bank assistance, so with the work they do, they can immediately see the beneficial effects that their work has on society (Van den Hoogen, M., personal communication, 2021).

Primarily due to its role in probation rehabilitation programs, the farm **has a significant source of labour power**, even though it's non-profit and thus entirely relies on volunteers. However, the non-profit setup also brings some **constraints** for the farm, especially **financial capital**, that they try to solve through donations. Furthermore, human capital in terms of knowledge differs significantly among all the volunteers (as most are not specialists). Thus, the current food garden leader, Maria van den Hoogen, always welcomes **new knowledge** from outside of the farm to improve De Kleine Aarde's design and production methods (van den Hoogen, M., personal communication, 2021).

Our research has found that food gardens are often very similar to the (care) farms applying the VT concept, as they produce food for food banks on small plots of land. However, often such food gardens do not officially provide care to their employees or volunteers, and there are often significantly fewer financial flows within the organisation. This has brought us to analyse it according to the conceptual framework on resilience used for the VT. In this light, the resilience indicator about building human capital is present, and the appropriate connections to their stakeholders. Also, the garden is socially self-organised through the powerful leadership of Maria van Hoogen, but it could potentially become vulnerable without her. Besides, they are not globally autonomous because there is an upcoming shift in ownership of the garden that can cause many disturbances in the future. Furthermore, the food garden faces challenges related to the food donation to the food bank, given the diversity of food aid receivers in terms of culture, age, family composition, etc.

After the field visit and conducted interview with Maria van den Hoogen, the following inspirational characteristics or opportunities are identified:

- **Socially self-organised** with the help of a strong leader in coordination of the organisation
- **A stable pool of long-term volunteers** that manage to meet Voedselbank requirements
- Through collaboration with rehabilitation programs, the farm is a **significant source of labour power**
- **Knowledge generation** from outside the farm to improve its design and production methods

5.2.2 Gleaning networks

Gleaning networks are generally described as the practices performed by organisations (often using volunteers) who then donate the items to food banks or pantries serving those who need them. As a result, gleaning can be viewed as a useful technique for reducing food waste and alleviating food insecurity at the same time (Sönmez, Lee, Gómez & Fan, 2016). Within this category of food aid, three inspiring initiatives have been examined, but not visited. Two of these initiatives are based in Flevoland, while the third is located in Amsterdam. These initiatives will be briefly highlighted in the following sections.

Stichting Buitengewoon, Almere

Stichting Buitengewoon Almere is a non-profit foundation run entirely by volunteers since July 2018, which aims to make society more sustainable and combat poverty (Buitengewoon Almere, 2021). At Stichting Buitengewoon, they strive for less food waste and an increase in the self-reliance of vulnerable households. To achieve this objective, they make healthy(er) food available and activate the minimum households. To do so, daily, they **collect fresh food surpluses locally, distribute them as food bags** at several pick-up locations, and with the help of a professional chef and their customers themselves they **cook meals** which can be enjoyed at their dining tables for those who need support. Stichting Buitengewoon Almere works with various **partners from both the social and commercial sectors**, who all want to contribute to their objectives. Through their collaboration with professional care assistance agencies such as neighbourhood teams and debt counselling agencies they come into **closer contact with their target group**. Furthermore, this collaboration also means that those agencies can advise Stichting Buitengewoon to be on the same page in terms of assistance. While their clients are increasing their self-reliance, Stichting Buitengewoon offers them a weekly food bag for a full calendar year.

After studying this initiative, the following inspirational characteristics or opportunities are identified:

- **Active participation of the vulnerable households** who make use of the services Stichting Buitengewoon provides in, for example, food bag distribution and meal preparation
- **Partnerships with social and commercial sectors**, which brings customers directly to Stichting Buitengewoon and works on improving the self-reliance of their customers

“Flevourbox” support your locals, Flevoland

Flevourbox is an initiative that started in the province of Flevoland in the Netherlands as a response to local producers who were left with their carefully grown products when the COVID-19 pandemic hit the Netherlands (MUFPP, 2020). By setting up this initiative, Flevourbox aims to **support its local producers** and prevent food waste. Flevourbox is

a box filled with local products which allows the inhabitants of Flevoland and beyond to **get to know their food landscape**. Furthermore, the box allow for a **short supply chain** between food producer and recipient. Apart from the traditional arable crops the province is famous for, the box also provides locally grown mushrooms, nectarines, apples, root vegetables like carrots and beets, and even saffron. Furthermore, each box contains a **recipe with inspiration** for all the things made of these homegrown products. By doing so, the Flevourbox offers **inspiration, convenience, and pleasure for the local consumer** while allowing the local food system to become more resilient. After six successful weeks, over 1200 Flevourboxes have been sold (Flevofood Vereniging, 2021).

After studying this initiative, the following inspirational characteristics or opportunities are identified:

- **Short supply chain** between food producer and recipient
- **Recipe inspiration and familiarisation with the local food landscape**
- The sale of food boxes **generates income** for the local farmers, which in response become more resilient

Rabobank “Boeren voor buren,” Amsterdam

Boeren voor buren (translated to food for neighbours) is also a local initiative that started during the peak of the COVID-19 pandemic. Because of COVID-19, many farmers in Flevoland could not sell their products to the hospitality industry, creating a surplus. At the same time, it was noticed by one of the founders of the initiative that there were 600 families in Amsterdam in dire need when it came to buying food. As a result, Boeren voor Buren was created with **financial support** from Rabobank, aiming to bridge this gap between overproduction of food and poverty among those in Amsterdam with a small income. Within three days, the organisational structure of Boeren voor Buren was set up, and 24 people were set to work, including Rabobank global trainees and other volunteers. Together, they set up a business plan to transport food from Flevopolder directly to Amsterdam and the families who need it. Accordingly, Boeren voor Buren offers these food packages at an affordable price and ensures that farmers get a decent price for their products. Besides, Boeren voor Buren also strives to keep the **food chain as short** as possible. The fruit and vegetables are currently transported directly from the Flevopolder to Amsterdam, where the packages are put together and distributed to the distribution points.

After studying this initiative, the following inspirational characteristics or opportunities are identified:

- **Short supply chain** between food producer and food recipient
- **Support from Rabobank** generated a financial incentive as well as volunteers that could, in a concise time, help set up the organisation and provide food aid to those in need.

5.2.3 Food banks

In the Netherlands, the main food bank is the umbrella organisation, Voedselbanken (as from now referred to as VB) Nederland. For this project, VB Doetinchem and one social store of VB Rotterdam were visited. These initiatives will be briefly highlighted in the next sections.

Voedselbank, Doetinchem

During our visit to VB Doetinchem, one of the organisation’s coordinators was interviewed, Arnold Groot Wassink, to get some more insights into the relationship between the VB Doetinchem and the VT concept, as the VT Slangenburch is one of their leading suppliers of fresh produce. VB Doetinchem has been established at their current location for around eight years now. They have become a **well-known contact point** for wholesalers,

institutions, other companies, and individuals around the area where (food) surpluses can be donated to. During the interview, it became evident that VB Doetinchem accepts every call regarding food surpluses. Arnold Groot Wassink quoted: *"We have the attitude: when people or companies offer something, or if we hear something, we never say no. This philosophy is known by many companies and institutions here. It must be very special when we say no"* (personal communication, 2021). Besides, VB Doetinchem also tries to **limit food waste by redistributing surpluses** that they might receive (e.g., from wholesalers) to other channels (e.g., VB Lichtenvoorde, VB Zutphen, or the VB distribution center in Arnhem). Moreover, they stressed that they always ensure that nothing of the produce they receive from VT Slangenburg is wasted and encourage their clients, in the case of a large harvest, to take extra, and, for example freeze the produce for later use. Besides their transparent approach to managing their food donations, their **established and dedicated team** is what makes them stand out. Similar to other volunteer-run organisations, there are a lot of volunteers coming and going every week within their organisation. However, they do have a handful of volunteers, of which some have already been there for over fifteen years. As a result, **knowledge, and wisdom are retained**. In addition, the **absence of a strict hierarchy** within their organisations brings an extra sense of motivation to the volunteers since everyone is involved in the daily practices.

After the field visit and conducted interview with Arnold Groot Wassink, the following inspirational characteristics or opportunities are identified:

- **Well-known organisation** within the local area that is always available to pick up (food) leftovers
- **No food waste approach** to donations they receive
- **A dedicated team of volunteers, some of them long-term**, where knowledge stays within the organisation
- **Flat hierarchy within the organisation**, volunteers as well as coordinators participate in the daily activities

Voedselbank, Rotterdam

The Voedselbank Rotterdam was visited in order to get some insights into the newly implemented concept of the VB grocery store, where food aid receivers can 'just' do their shopping after weekly reservation, instead of receiving a food package. Figure 5 gives a small insight into the lay-out of this store. In the store, food aid receivers are handed a food guide template with color-coded categories of which they can choose a certain number of items with the help of a volunteer. This system allows for **irregular amounts and types of products to be delivered to the store**. There is no need for homogeneous packages to be delivered, but rather the food aid receiver chooses to depend on the product availability of the moment they go to the store. This is highly inspiring in terms of how the VB can better adapt to the needs of their clients. To illustrate, fruits and vegetables is one of the color-coded categories on the template of which a certain number of portions can be picked per food aid receiver. This fresh produce is mostly supplied by big supermarkets such as Jumbo. Yet, one small supplier of the grocery store is the **Voedseltuyn Rotterdam**. This food garden, which has some resemblances with the VT of the VT visited but does not have the official care aspect, **donates part of their produce to this VB grocery store**. Hence, food aid receivers can choose local products over those delivered by big retailers, which they prefer in some cases. However, one problem was identified in relation to the fresh produce from the Voedseltuyn Rotterdam, related to the lack of proper preparation of the produce when delivered to the store. For example, snails could be found at times, making it less appealing for customers to choose it over "good looking" vegetables from the big retailers.

After the field visit and conducted interview with the store manager and one of the volunteers, the following inspirational characteristics or opportunities are identified:

- The system allows for **irregular amounts and types of products to be delivered to the store**
- Preference for local products must be accompanied by **properly prepared** and delivered fresh **produce from food gardens**



Figure 5. Illustration of Voedselbank store Rotterdam. The blue shelves indicate the product category dry goods.

5.2.4 Community kitchen initiatives

In community kitchens, meals are prepared using excess food from, for example, wholesalers or supermarkets to keep expenses down. Subsequently, people can come into these kitchens to enjoy a freshly cooked meal at a low cost or often for free (Buisman, Haijema, Akkerman & Bloemhof, 2018). For this project, two initiatives that related to the community kitchen concept were visited: the Crisis Catering of Hotspot Hutspot in Rotterdam and Cascoland in Amsterdam. These initiatives will be briefly highlighted in the following sections.

Hotspot Hutspot, Rotterdam

In the sixth week of the project, four members of the ACT group went to Rotterdam to talk to Bob Richters, the founder of the organisation called "Hotspot Hutspot" and organiser of "Crisis Catering", and Pip Wong, one of the chefs and specialist in social work and nutrition. In short, Hotspot Hutspot collects commercial food waste and transforms it into nutritious, **tasty meals for anyone in need** in Rotterdam and Schiedam. Even those who do not meet the requirements for receiving food from the VB are welcome at Hotspot Hutspot. An example of a meal prepared by Hotspot Hutspot is shown in Figure 6. At the same time, they ensure that food aid receivers are doing well by taking a **holistic approach** and providing support beyond delivering meals. Also, by actively providing the social support that vulnerable people need, they consider all Sustainable Development Goals at once.

A wide range of volunteers participates at Hotspot Hutspot, each of them having a unique life story, and some of them previously engaged with the initiative as food aid receivers. However, they are **not just considered as volunteers** helping the organisation, instead, Hotspot Hutspot tries to **help them to actively develop** their interpersonal and professional skills. As Pip Wong quoted: "at Hotspot Hutspot, we look at the individual and ask how we can help this person reach their dreams" (personal communication, 2021). By doing so, Hotspot Hutspot aims to make **bottom-up improvements** within the limits of existing systems while also offering a space where **anybody is welcome to partake**.

Bob Richters stated: "above all, Hotspot Hutspot is about the people" (personal communication, 2021).

After the field visit and conducted interview with Bob Richters and Pip Wong, the following inspirational characteristics or opportunities are identified:

- **A holistic approach to food aid provision**, beyond only delivering meals
- **Approachable to everybody**, including those people that do not meet the requirements of the VB
- **A bottom-up approach** to people facing food insecurity by including them in the process as volunteers
- **Volunteers** are not just considered as such, but their **personal and professional development is encouraged**



Figure 6. Example of a nutritious, sustainable, microwavable meal of Crisis Catering.

Cascoland, Amsterdam

The last field visit of the project took place in Amsterdam, where one member of the team visited the neighbourhood of Lodewijk van Deysselbuurt to talk to Anna Kooi, a chef, philosopher, and sociologist working for Cascoland. Cascoland is a network of creatives in the broader sense of the term do was illustrated by Anna when she stated: "*what we basically do is use **art as a tool to accelerate or to incubate social transformations in public spaces, so our work is always takes place within a very situated context***" (Kooi, A., personal communication, 2021). At their site at Van Moerkerkenstraat 83, Cascoland has **reconfigured and reclaimed the public space** to serve the needs of the residents better. At this location, they manage a public space consisting of a house and the surrounding green area, now converted into a fruit orchard that everyone can make use of. The glasshouse built next to the already existing building (Figure 7) symbolises the **transparency** of the project, as the activities are visible, and everyone can walk in and benefit from the space. Besides, Cascoland encourages its employees to live in the area and stay around outside office hours. This enables their effective **integration in the neighbourhood** and the possibility to witness all social interactions and activities happening, no matter the time of the day. Thanks to this internal strategy, Cascoland can **identify what is already happening** and spotlight it to **amplify it**. As Anna described: "*It's really about **facilitating encounters** between people who live here, but broader than that. Also, between people from the municipality, people from the university... Through the arts*" (Kooi, A., personal communication, 2021).

When it comes to **food**, Anna believes in its power as a **mechanism for intercultural communication and exchange**. Her work as a chef in Cascoland seeks to engage with people differently, by **involving local chefs and using their knowledge** to experiment in the kitchen while exchanging information as equals. For these purposes, cooking workshops are organised weekly, bringing together the local community around the kitchen table while involving them in the co-creation of the public space they wish to share.

After the field visit and conducted interview with Anna, the ACT group concludes with some observations and statements:

- **Long-term relationships** of trust due to integration of Cascoland in the neighbourhood
- **Transparency and accessibility** of the public space managed by Cascoland
- Identification and **valorisation of local potential and knowledge**
- **Food as a tool for intercultural exchange** and communication



Figure 7. The glasshouse of Cascoland symbolizing the transparency of the project.

5.2.5 Alternative distribution channels

Alternative distribution channels to alleviate food insecurity could be a food truck. For this project, the food truck “De Blauwe Tomaat” was visited to learn more about how they provide food aid to vulnerable people in one of the cities in the Netherlands ranked highest on poverty. This initiative will be described in the following paragraph.

De Blauwe Tomaat, Arnhem

In the sixth week of the project, a visit was made to Arnhem to talk to Loes van der Meulen, the founder of the grassroots organisation called “De Blauwe Tomaat”. De Blauwe Tomaat is a food truck that works locally and delivers cheap vegetables and fruits to local, marginalised groups of people in Arnhem suffering from poverty (Figure 8). The insights during the visit were **highly inspiring** seeing how a great idea turned out to be a successful concept. On the website, Loes states: “*In England, I had seen supermarkets according to this concept. Fruit and vegetables with a flaw, products that would otherwise*

be thrown away and that at very affordable prices. Inspiring!" During an evening philosophizing with a friend, this idea came up again. "With a glass of wine, I thought that I wanted to sell these types of products with an old SRV car at various locations in Arnhem" (van der Meulen, L., personal communication, 2021).

De Blauwe Tomaat quickly became **very well known** in Arnhem, and people could see its **(social) value**. The ACT group strongly believes that the main reasons for that are the **extensive networking** and putting **a lot of time** and **effort** into it. This led to the project being **easily accessible** to people. Loes van der Meulen knows the people she is offering the service to, and she understands how to connect people. Furthermore, from the beginning the founder was committed to creating a **stable network** with a lot of **active collaborations** and **partnerships** which resonates with what is being said by the team. Loes van der Meulen quoted: "We love working together. Because it is precisely through all these collaborations that we anchor our social function in Arnhem. And we are proud of that!" (personal communication, 2021). On the website De Blauwe Tomaat explains further: "The Blauwe Tomaat is for all Arnhemmers. We believe it is important that everyone has access to healthy food. That's why we drive through various Arnhem neighbourhoods, we work together with 'stay-away-from-my-body' Moviera and weekly demented elderly people from the Drie Gasthuizengroep come to do their shopping" (van der Meulen, personal communication, 2021).

After the field visit and conducted interview with Loes van der Meulen, the following inspirational characteristics or opportunities are identified:

- **High social value** to the local people, including extensive community work
- Very well-functioning, organisational structure by **shared responsibilities and shared ownership**
- Horizontal networks without vertical power structures
- **Transparent** work and task division
- Good communication and promotion channels
- **Outstanding inclusion** of volunteers and people wanting to help and be part of the project



Figure 8. De Blauwe Tomaat food truck in Arnhem. Fresh fruit and vegetables are sold in various underprivileged neighbourhoods for a low price.

Discussion

6. Discussion

The aim of this discussion is to interpret the ACT group's findings by referring to what was already known about the problem under investigation. Hereby, the group focuses on any new insights and understandings of the weak links of the concept of VT to answer the research question of *"What are pathways to transform the concept of VT into a resilient food aid system by giving practical advice informed by inspiring case studies in order to address weak links regarding the organisational structure of the farms?"* Since the beginning of the project, the ACT group was committed to thinking critically to bring innovative recommendations and deepen the understanding of the research problem, which can then be used for further research around the concept of VT. The discussion will provide an answer to each of the sub-research questions. In this light, it will first describe the results around the organisational structure of the VT and the weak links identified. It will then continue with a more general deduction of lessons learned by making links to the investigated case studies and references to the previous research. In the third step, the discussion will be steered towards the conclusion and practical advice by discussing some key mechanisms and processes of making the VT more resilient. Finally, in the last step, the discussion will shed light on some limitations encountered during the research process.

6.1 Organisational structure of the Vriendentuinen

- What lessons from the resilience indicators can be taken up to change/improve the operational practice of the VT?
- What is the current internal and external organisational structure of VT?

The analysis of the resilience indicator framework and the BMC has helped the group shed light on some patterns of the organisational structure. The ACT group finds it useful to make valid general abstractions from that. Although, the group is aware that the sample size and number of field visits do not allow an in-depth discussion of the organisational structure of the VT.

The resilience indicators and BMC have shown that within the concept of VT or care farms in general, there is a great potential for shared learning and self-organisation. Still, this shared learning, as well as purpose giving to marginalised people struggling in society, is only possible if there are all the necessary means available such as funds, volunteers, seeds, seedlings, tools, and crop plans available. Moreover, when farmers cannot handle the amount of work, both physical and administrative, this has a strong negative effect on the social function of the VT. Therefore, the group has understood the need for bottom-up approaches and an administration team that can take care of coordination and bureaucracy. The group also believes that this support should come from the concept of VT. As the amount of bureaucracy is mainly caused by farmers not owning the land, having to apply for subsidies or search for other resources (volunteers, seeds, etc.) to sustain themselves, a "central" organisation of VT could assist farmers where it is needed. Unfortunately, so far there is no organisation of VT which could help, coordinate, divide responsibilities and tasks.

When looking at the results around small-scale care farms such as het Liessenhuus and the identified (potential) thread of municipalities choosing more extensive care initiatives such as schools, it becomes evident that future implementations of the concept of VT must consider this in their risk assessment. Furthermore, as already stated in the results, such extensive reductions of care providers (from 200 to 35 in the case of het Liessenhuus' municipality) require new measurements and further research to prevent care farms from having to stop their work.

6.2 Challenges of the concept of Vriendentuinen

- Which aspects of the organisational structure of Vriendentuinen are 'weak links' that need to be addressed in order to transform the concept into a more resilient food aid system?

The analysis of the concept of VT showed that there is little to no value proposition on the concept. This has already been stated by the former ACT group, which worked with the concept of VT. The concept, as well as its broader organisation, is rather vague and non-transparent. The ACT group experienced this lack of transparency by wondering about matters such as: *Who stands behind the organisation of the VT? How do the farmers themselves think about the concept? Did the funding of the Stichting Doen stop? If so, why?* The difficulties in understanding the concept of VT reflect the lack of resilience in the organisational structure.

Furthermore, the ACT group believes that there is a lack of shared responsibilities and division of workload. Additionally, there is a strong need for new volunteers and getting more people involved in the project. The identified problems present in the current VT and farms lead to the following key challenges for the VT as an umbrella organisation:

- There is no central, national, structured project organisation that is easily approachable for communication with stakeholders
- No coordination and networking between stakeholders (e.g., to prepare a crop plan and coordinate production with neighbouring farmers and food aid channels)
- Communication to stakeholders as credibility and (understandability of) concept is weak. Which consequentially is a hurdle to the promotion to other farmers, potential volunteers, and sponsors

At the same time, the farms where the VT concept is currently applied face different challenges, of which the following points are the most pressing:

- Insufficient, unstable financial support
- Limited (support on) knowledge on farming and administrative work
- Dependency on key actors (such as Falco Janssen from Slangenbung for the Achterhoek or volunteers)
- Lacking communication and collaboration with other stakeholders (like a centralised crop plan)

6.3 Opportunities inspired by case studies

- What are Dutch and case studies of food aid and/or (care) farms that are relevant and inspiring for the concept of VT?

There are many lessons that can be learned from the nine case studies presented above, that can potentially inspire or be included in the concept of VT. Many lessons can be learned from the nine case studies presented above that can potentially inspire or be included in the concept of VT. Yet, for the report, several lessons have been selected that were found most relevant or applicable to the context:

1. Consistent volunteer participation and holistic assistance of their personal development;
2. Food is considered as a tool for intercultural exchange;
3. Local knowledge is valued, used and promoted;
4. Short supply chains between food producers and food receivers;

5. Strong embeddedness in the local context and surroundings, which allows to make use of locally existing connections and resources and to establish long-term relationships of trust;
6. Partnerships with sponsors, as well as the sale of produce in some cases, could help to achieve the financial of the projects;
7. Good communication and promotion channels as well as transparent work and task division;
8. Shared ownership or responsibilities, which translate into horizontal networks without many vertical power structures.

At the same time, various case studies, such as the food garden and the food truck, do not meet the characteristics of a VT but have proven to be very successful and efficient in delivering fresh produce to people in need, having a high social value without being an actual care farm. Moreover, regarding the reciprocity of care work and giving care receivers a sense of purpose and contribution, many initiatives reflect notions of care beyond food aid, which are gaining importance due to increasing poverty, food insecurity, societal exclusion, or loneliness. Lastly, initiatives such as the VB grocery store or Cascoland, which do not require regular amounts, or homogeneous types of products for their activities, can also present opportunities. However, the fresh produce must be adequately prepared before delivery if local products are to be chosen by food aid receivers.

6.4 Match challenges of VT to opportunities from case studies

The different challenges faced by the VT concept, both as an umbrella organisation and when operationalised in the concrete (care) farms that apply the concept, could be matched to some of the inspirational opportunities extracted from the case studies. This section has selected some of the clearest links between these challenges and the inspirational cases that were examined.

In this vein and regarding the VT as an umbrella organisation, the lack of coordination between stakeholders could be inspired by the strong embeddedness in the local context of some of the case studies. This rootedness allows local initiatives to build long-term relationships and to establish a food aid network with a strong social function. It also makes it possible to use additional resources such as volunteers, time, or commitment to community work and inclusion, which are very valuable when trying to establish robust connections. In this light, most of the local projects showed the ability to successfully collaborate and create strong partnerships leading to a resilient food aid system. Besides, the weak credibility and (understandability of) the VT concept make communication difficult. This challenge can be inspired by the transparency and good use of promotion channels of some initiatives, such as De Blauwe Tomaat.

Concerning the key challenges of the VT concept when applied to specific farms, the insufficient and unstable financial support they can rely on can be inspired by some of the case studies that establish partnerships with sponsors to get some funds. Furthermore, in the case of some food garden initiatives, the sale of some boxes with fresh produce helps them achieving financial stability. The limited knowledge of farming and administrative work and the dependency on key actors of some of the farms, could draw some inspiration from some of the initiatives, such as creative initiatives like Cascoland or social kitchens Hotspot Hutspot that are close to people and easily approachable. Bottom-up approaches strengthen their ability to include neighbourhoods actively. This helps add value to the projects, gain resources, and collaborate with local partners who are willing to help.

6.5 Limitations

The following section will reveal the limitations of this research project. One limitation of this ACT group is the size of data samples. The field visits to VT, food gardens, food banks, food trucks, etc. are all very valuable to the project's process to deliver some useful findings. At the same time, considering the complexity of a social-ecological systems and more specifically the diversity among the VT all over the Netherlands, the small data set available has no external validity and will rather be used as inspirational insight to make some general suggestions based on the experiences made on the field. This also made the group aware that the common understanding of VT was not properly aligned among the various stakeholders and that there was a strong need for clarification.

Moreover, the group is not entirely sure if the concept of resilience used in the process matches the commissioner's understanding of resilience. Another limitation is the time available within an ACT project, which does not allow in-depth studies, follow-up interviews or visits, or a larger data set. This additionally resulted in studying only Dutch cases and not being able to study international examples. In this sense, Dutch studies were given priority first since they could more easily relate to the local concept of VT.

Besides, looking at the limitations of this research project and the results presented in the former ACT and Landzijde reports, the ACT group is reflecting on further questions such as: *"Will the project add value in a practical manner to VT farms? Is it going to be implemented?"* Those questions are relevant as the group has the feeling that recommendations informed by former reports have not been put into practice.

6.6 Key processes to enforce resilience

Based on the results, the ACT group defined two different solutions. Committing to one of the two processes by taking all the necessary measurements can lead to a more resilient concept of the VT. This two-folded analysis has been made after identifying a clear mismatch in the current organisational structure regarding scope, production, output/quantity, and the chosen distribution channels.

The first path consists of scaling up the production on the farms. This scenario is relevant when considering the Dutch food banks as the leading distribution channel. It implies having large quantities of more or less standardised vegetables and fruits. As a result, logistics, crop plans, workforce, and administration must be set up accordingly. The downside is a mismatch with the overall goal of offering a large variety of fruits and vegetables and meeting the needs and expectations of the food aid receivers. It also does not improve local networks including community work or alternative food aid channels. Furthermore, it is questionable how relevant the work of the VT would turn out to be as there is a satisfactory amount of food coming from big traders and supermarkets. Although, according to the Paul van Berkel of Voedselbanken NL, fresh food waste is decreasing (personal communication, 2021). This trend means that fresh food produce will be needed, which again could be an opportunity for VT.

The second path, on the other hand, focuses on small-scale production and distribution with the help of alternative food aid channels. The value in this scenario is that it concentrates on existing local initiatives and food aid networks, which can play a central role in the distribution. Furthermore, it offers a diversified "portfolio" of vegetables and fruits to people in need. This also means delivering fresh produce to different marginalised local groups of people, including those who might not have the chance to get food from the food bank due to legal regulations. When looking through the lens of resilience assessment, the great potential of smaller-scale production is the bottom-up approach

and the decentralised governance. Therefore, the next part of the recommendations is tailored to this second path.

6.7 Recommendations

- What are feasible, innovative pathways for VT based on examples of and how can they be implemented?

The different recommendations envisioned are guided by the answer to the last sub-research question. In this light, the main recommendation of this consultancy project is an alternative pathway for the concept of the VT. As for the concept in its current form, no added value for farmers or other stakeholders has been identified. Therefore, a different pathway for the VT is described as VT 2.0. Furthermore, a BMC has been created, showing insights into how the organisational structure can provide added value to farmers, volunteers, and food aid channels. Besides a redefinition of the VT and its organisational structure, three practical ideas and opportunities for the current VT are discussed. These are:

1. Shifting from owning the VT concept to facilitating;
2. Focusing on variety of fruits and vegetables;
3. Shifting delivery channels to local food aid stores or trucks.

6.7.1 Vriendentuinen 2.0

This consultancy project proposes that the VT becomes an active organisation of which gardens, let by volunteers or care farms that deliver to food aid channels, can become a member. On a regional level, there is a service (à la "Call Center") with dedicated employees, who can take care of administration and communication. This coordination includes actively connecting farms, volunteers, food aid channels, sponsors, and local governments. Hereby, the ACT group wants to emphasise the importance of local governance structures and bottom-up approaches. Top-down national governance will not enhance resilience in the different locations. Nevertheless, the added value of the VT organisation is that key actors are included in an active network which can assist in closing gaps to improve the effectiveness of the VT. This role can be fulfilled by facilitating autonomy, providing seeds, linking volunteers to farm activities, linking alternative food aid channels, and linking key partners with expert knowledge. This service aims to become more resilient by actively connecting local farms, volunteers, and food aid channels, especially during crucial moments such as planting and harvesting. Additionally, establishing a resilient, local, or regional VT organisation includes enforcing reflective and shared knowledge. A filled out BMC for the Vriendentuinen 2.0 can be found in Appendix 12.

Advice to enhance resilience for a VT 2.0:

1. Focus on local level, active on regional level, connected to global

During this research, it became apparent that projects were successful, operated on a local and regional level. Connections and links with external parties and channels were kept short and direct. Therefore, it is viewed as important that support from the VT is performed on a local or regional level, with local or regional stakeholders. The group understood from the different case studies that it is crucial to actively construct collaborations and partnerships close by to establish a more resilient food aid network. Having a stable network and investing time can help with difficulties and disturbances such as the lack of volunteers, seeds the lack of volunteers, seeds, or expert knowledge. Besides, the local and or regional success stories or best practices can be shared in a later step through the national network of the VT.

2. *Shifting from owning the concept to facilitation*

In this research, it became apparent that care farmers are often also the knowledge holders of garden practices on their farm, e.g. Maria van den Hoogen from the food garden in Boxtel. However, through increased bureaucratic pressure and its multifunctional identity gardening is often not a priority for care farmers. Hence the question raises why the care farmer should be responsible for garden activities? Therefore, it is proposed that a group of volunteers could also lead the garden lots. Instead of asking volunteers to help occasionally, volunteers are searched for who want to take ownership of the production of these gardens. It has been shown that successful food gardens can be run entirely by volunteers. Through this manner, the added value of a VT on a care farm, inclusion for care receivers, can also be guaranteed. Care receivers can still play an important role in the garden, and through interaction with the volunteer's inclusion can be enhanced. The newly described VT organisation could help to actively share and promote opportunities such as Zorgboerderij Marope being willing to give out parts of their garden.

3. *Identification with concept and shared responsibilities*

To make the concept of VT a resilient system, people who want to get involved first need to identify with the concept and see its value. Therefore, the concept needs to be approachable, inclusive, and transparent. It also requires proper promotion through different marketing channels such as social media, the spread of work by local communities and organisations. This promotion can also help get new volunteers and farms involved, which might eventually result in a "snow-ball"-effect. There is also a strong need for shared responsibility in terms of people involved taking the lead and not relying too much on one central person. Of course, this needs to be built up as it requires knowledge, people, and deep motivation to contribute to something good. Furthermore, it can only be reached with trust and decentralised structures.

4. *Broadening the scope of potential members*

Currently, the VT concept seems to be purely focused on care farms that are acknowledged by the Dutch government. In this consultancy project several successful operating food gardens producing fresh foods to food aid channels have been identified. These initiatives are run by volunteers of which some are also in need of care. The gardens cannot deliver professional care for these volunteers, however, the garden offers a place in which volunteers are being included and get a purpose by a sense of belonging. Current VT can learn a lot from these gardens how reciprocity can be an added value for volunteers and food aid. Furthermore, gardens could also potentially learn from the care farms and improve even more their social function and caring aspects. Therefore, this project recommends that VT should also focus on food gardens which deliver fresh food for food aid channels and where there a caring aspect towards the volunteers can be found.

5. *Opportunity shift delivery channels to food aid stores*

The Voedselbank in Rotterdam experiments with a food aid store. This could be a potential channel to deliver fresh products, which could replace or complement the regular food aid bank distribution center. In the centre, the focus is set on preparing boxes which are somewhat similar. Therefore, quantities need to be high and rather standardised. In a store the products from the VT could increase the variety of choices for food aid receivers reflecting the agency and dignity of food aid receivers. This is further discussed in the next point. Lastly, diversity also contributes to enhancing resilience from an ecological point of view.

6. Focusing on variety of fruits and vegetables

Facilitating small-scale production and smaller distribution channels can be an opportunity for enhancing variety of the fruits and vegetables delivered to the food aid channels. This reflects the necessity for meeting the needs of the food aid receivers by considering different cultural backgrounds and the heterogeneity of the food aid receivers. An analysis made in the store could inform which type of vegetables and herbs food aid receivers are looking for that the store has difficulty delivering. The specialising as well as the food delivery in general needs to make sure to deliver the produce in a way that it can be distributed and given out in the different channels (in terms of cleaning, packaging etc).

6.7.2 Next steps

After presenting the advice described above, the ACT group wants to give a brief list of next steps, which includes actions that need to be taken in order to reach a more resilient VT 2.0. All nine steps are listed below:

- Create organisation of TV (including support services)
- Make concept transparent and approachable
- Invest **time** and **donations**
- Connect to farmers and other stakeholders (**act locally!**)
- Listen to needs of farmers
- Set up channels of **promotion**
- Focus on local, small-scale distribution channels
- Decentralise organisational structure
- Share responsibility (**bottom-up approach!**)

Conclusion

7. Conclusion

The aim of this conclusion is to answer the main research question of the ACT project:

What are pathways to transform the concept of Vriendentuinen into a resilient food aid system by giving practical advice informed by inspiring case studies to address weak links regarding the organisational structure of the farms?

The careful analysis of the VT concept through the indicator-based resilience framework and the BMC has shown that there is little to no value proposition on the concept. Besides, there is a lack of transparency associated with the concept or the broader organisation behind it. Furthermore, the lack of shared responsibilities and workload, and an insufficient number of volunteers on the farms are two hindering factors for the concept to be transformed. The identified problems present in the farms lead to five main assumptions. Firstly, the organisational structure on VT farms is too dependent on one central person. Secondly, there is too little support for knowledge holders and main drivers on the farms. Thirdly, too little financial support is being given to farmers who want to become a VT. Fourthly, too little education and knowledge transfer is being facilitated. Fifthly, the status quo shows little to no identification with the concept. At the same time, key challenges for the VT as an umbrella organisation have been identified: (1) no central, national, structured project organisation that is easily approachable for communication with stakeholders, (2) no coordination and networking between stakeholders, (3) no proper communication to stakeholders as credibility and (understandability of) concept is weak. Which consequentially is a hurdle to the promotion to other farmers, potential volunteers, and sponsors.

Nevertheless, these key challenges identified provide a lens to focus on what needs to be improved in the VT concept. Various practices have been collected through the examination of Dutch case studies, which have generated inspirational and practical recommendations on potential alterations of the organisational structure of the VT. The advice was tailored to the VT being resilient and as a result better perform the social function while helping people in situation of food insecurity. The advice, therefore, consists of: (1) focus on a local level, active on a regional level, connected to global; (2) shifting from owning the concept to facilitation; (3) identification with concept and shared responsibilities; (4) broadening the scope of potential members; (5) opportunity shift delivery channels to food aid stores; and (6) focusing on a variety of fruits and vegetables.

The ACT group concludes that even though inspirational examples can be used to make the VT concept more resilient, general structural adjustments of the concept of VT are needed. This can help to overcome the lack of identification with the concept. Addressing food insecurity related to the lack of fresh fruits and vegetables while dealing with the societal inclusion of those who receive care in the farms/gardens cannot be the responsibility of small-scale farms such as the ones in which the VT concept is applied. Instead, the VT needs institutional assistance. This institutional assistance should be committed to key principles of bottom-up approaches and local governance. **In this light, if (care) farmers are to contribute to fulfilling high societal goals, money, effort, time, and other resources such as seeds need to be allocated.** Hence, the VT 2.0 concept is proposed. The VT becomes an organisation supported at the institutional level, of which farms or food gardens that deliver to food aid channels can become active members. At the same time, concrete suggestions such as shared responsibility by decentralizing the power structure or the delivery of produce to food stores/ local food initiatives rather than to food banks can help the concept to be transformed into a resilient food aid system.

The group hopes that the conducted research has contributed to the quest for alternative pathways to improve food aid provided through (care) farms while prompting higher

discussions related to value creation and societal appreciation of care work and support of marginalised groups. To bring about change for society and the environment, there is an urgent need for re-thinking values upon which decisions regarding the provision of basic needs are based on an institutional level. Translating this to the case of care(farming), necessary resources and means need to be made available to assist farmers and help them act autonomously without putting additional burdens on them. The future consists of shared responsibility among all stakeholders including the most vulnerable as well as the most powerful ones. Because sharing is caring!

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Appendix

Appendix

Appendix 1

Resilience framework

This section of the report aims to conceptualize the subject under investigation to grasp the phenomena the academic consultancy team has been engaged with throughout the research process. Furthermore, this framework gives useful tools for the analysis of complex matters such as measuring resilience or enhancing resilience. Therefore, the conceptual framework first looks through the broader, holistic lens of social-ecological-systems (SES) to then define concepts of resilience as well as care. In the next step, the framework is being narrowed down to farms focusing on the social aspects of (care)farming and food aid. A selection of indicators from the indicator-based framework by Joshua Cabell and Myles Oelofse (Cabell & Oelofse, 2012) serves as an analytical tool to assess resilience by applying it to the concept of VT. The concept of SES reflects the multi-functionality, diversity, and dynamics of places such as the VT and their lack of resilience due to the complexity.

Relevant discussions in state-of-the-art literature

Definition of key words

This section focuses on existing literature around the topic of resilience. More specifically, the report uses the theory of social-ecological-system (SES) first introduced by Holling (1973) and further developed by other scholars from different disciplinary backgrounds (Cabell & Oelofse, 2012). The framework of SES is being used in a wide range of fields for understanding the dynamic relationship between humans and the environment (Cabell & Oelofse, 2012). In their article "An Indicator Framework for Assessing Agroecosystem Resilience" Joshua Cabell and Myles Oelofse give three definitions of how to measure resilience: 1. the amount of change the system can undergo and still remain the same controls on function and structure; 2. the degree to which the system is capable of self-organisation; and 3. the ability to build and increase the capacity for learning and adaptation (Cabell & Oelofse, 2012). These three ways help measuring resilience, nevertheless in practice it is rather difficult to operationalize resilience due to its multidimensional and abstract characteristics (Cumming et al., 2005). This ACT project around resilience in farms/ care farms supplying food aid channels with fresh produce represents the urgent need to find new paths to food security and sustainable resource management by investigating the specific case of the VT in the Netherlands. This again shows that resilience in most of the research/ case studies is highly context dependent, particularly in spatial-temporal scales and perspectives (Cabell & Oelofse, 2012). When operationalizing resilience in specific case studies it is vital to consider the fact that the internal conditions or larger system in which the research is embedded can and will change (Cabell & Oelofse, 2012). Therefore, the next part will introduce resilience in SES to conceptualize the complexity of interactions and interwovenness of humans and the environment.

Resilience in social-ecological-systems (SES)

In their work "Navigating social-ecological systems – Building Resilience for Complexity and Change" Fikret Berkes, Johan Colding and Carl Folke discuss broader approaches and solutions regarding not only resource and environmental issues but also a wide front of societal problems (Berkes & Colding & Folke, 2003). A fact most researchers who engage with urgent, complex challenges such as climate change, increasing inequality, poverty and food insecurity agree upon is that common threats "seemed to have radically outgrown its previously accepted conceptual framing" (Berkes & Colding & Folke, 2003). Innovative

explanations and solutions call for a collaboration between science and society and creating a broader public participation (Berkes & Colding & Folke, 2003). There is a growing consensus about the nature of the problem that such resource and environmental challenges are complex systems in themselves. Hence, they consist of complex interactions between the natural and social system (Berkes & Colding & Folke, 2003).

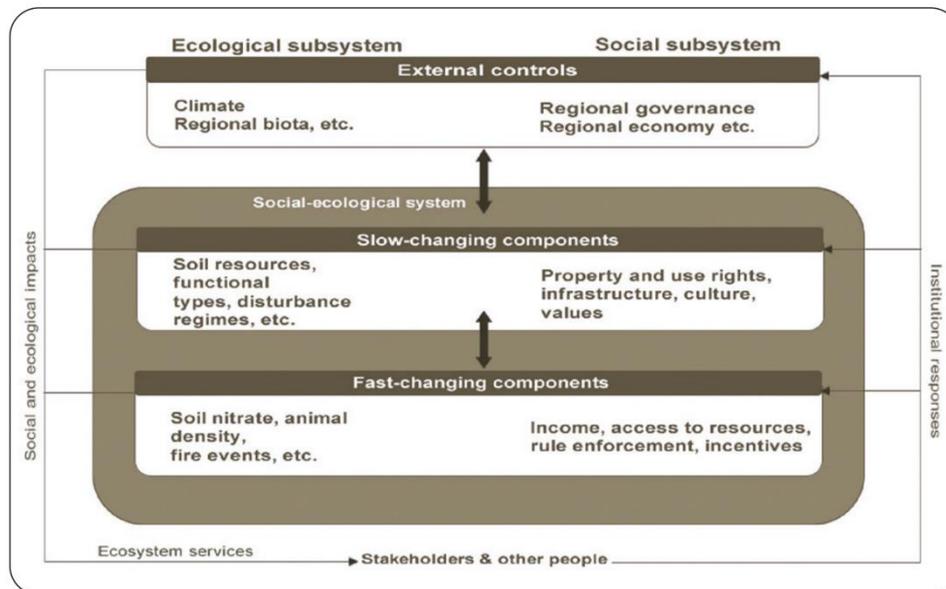


Figure 1: Social-ecological systems (SES)

The dynamic process of enforcing sustainability requires an adaptive capacity of a society to deal with change (Berkes & Colding & Folke, 2003). This can eventually lead to resilience in systems but requires an analysis of the interrelations between ecological systems and social systems. Furthermore, solutions must fill those gaps where a mismatch exists between the social as in "property rights and access to resources" and "the dealing with governance" behind it and the ecological as in "self-regulating communities of organisms interacting with one another and with their environment (Berkes & Colding & Folke, 2003). Re-thinking food aid and the implementation of care farms and concepts such as the VT are both examples of alternative ways as well as alternative knowledges to envision human-nature relationships. How resilient those systems are in neoliberal economies with capitalist modes of production committed to privatisation and profit is a question which for sure requires further research. For the feasibility of this ACT project the group looks at the micro level of organisational/ structural improvements, which can be made directly by VT committed to care and delivering fresh food to food aid channels.

Care, Care farming and notions of passivity/activity in care

Existing literature defines care as an open interaction between partners consisting of close attention, concern, and responsibility (Morse et al., 1990). It can also be seen as a maintenance treatment of those in need by being cared for (Hassink et al. 2020). Care as a verb can be to have an interest in or to be mindful of someone/something (Oxford dictionary, 2021). Morse et al. describe two outcomes of caring: "caring as the subjective experience" and "caring as the physiologic responses in patients" (Morse et al., 1990). Taking up the notion of care as a verb Bredewold critically states that receiving care without being able to reciprocate can feel ashamed and embarrassed for the passive care receiver (Bredewold et al., 2020). Alternative ways of caring for people and nature are therefore increasingly needed especially when looking at marginalised groups of people who do not have the means to sustain themselves in their daily lives due to their economic and/or social status. By adding a VT to the care farm, the care-receiver is getting out of the passive role of being cared for. The caregiver and the care receiver become co-producers and makes them both active participants (Hassink et al. 2020). The concept of

a VT can thereby strengthen the purpose of a care farm, which benefits both the care and the food aid.

Applying indicator-based framework for assessing resilience to concept of VT

The ACT group will use the indicator-based framework by Cabel and Oelofse (Cabell & Oelofse, 2012) consisting of 13 indicators to assess resilience in SES. The framework is a useful tool to look at the concept of VT and assess its resilience. Hereby, resilience is being understood as an emergent property of the VT, created from unique interactions between farmers, farms and context (Cabell & Oelofse, 2012). Darnhofer et al. State that "agroecosystems embody all the complexity an SES can possibly have, making it nearly impossible to account for every factor that contributes to resilience both now and in the future (Cabell & Oelofse, 2012). The ACT group understands this to be one of the key limitations of using the framework together with the limited number of field visits. Therefore, the group decided to review the list of 13 indicators and to choose the most relevant for the research around the concept of VT to guarantee feasible and valid results. Table 1 and 2 below show the list of all 13 indicators.

Step 1:

Reviewing List of Indicators for Assessing Agroecosystem Resilience

Table 1: Indicator-based framework to assess resilience in agroecosystems (Indicator 01-07)

Indicator (sources)	Definition	Implications	What to look for
Socially self-organized (Levin 1999, Holling 2001, Milestad and Damhofer 2003, Atwell et al. 2010, McKey et al. 2010)	The social components of the agroecosystem are able to form their own configuration based on their needs and desires	Systems that exhibit greater level of self-organization need fewer feedbacks introduced by managers and have greater intrinsic adaptive capacity	Farmers and consumers are able to organize into grassroots networks and institutions such as co-ops, farmer's markets, community sustainability associations, community gardens, and advisory networks
Ecologically self-regulated (Sundkvist et al. 2005, Ewell 1999, Jackson 2002, Swift et al. 2004, Jacek and Toensmeier 2005, Glover et al. 2010, McKey et al. 2010)	Ecological components self-regulate via stabilizing feedback mechanisms that send information back to the controlling elements	A greater degree of ecological self-regulation can reduce the amount of external inputs required to maintain a system, such as nutrients, water, and energy	Farms maintain plant cover and incorporate more perennials, provide habitat for predators and parasitoids, use ecosystem engineers, and align production with local ecological parameters
Appropriately connected (Axelrod and Cohen 1999, Holling 2001, Gunderson and Holling 2002, Picasso et al. 2011)	Connectedness describes the quantity and quality of relationships between system elements	High and weak connectedness imparts diversity and flexibility to the system; low and strong impart dependency and rigidity	Collaborating with multiple suppliers, outlets, and fellow farmers; crops planted in polycultures that encourage symbiosis and mutualism
Functional and response diversity (Altieri 1999, Ewell 1999, Berkes et al. 2003, Luck et al. 2003, Swift et al. 2004, Folke 2006, Jackson et al. 2007, Di Falco and Chavas 2008, Moonen and Barbieri 2008, Chapin et al. 2009, Damhofer et al. 2010b, McIntyre 2009)	Functional diversity is the variety of ecosystem services that components provide to the system; response diversity is the range of responses of these components to environmental change	Diversity buffers against perturbations (insurance) and provides seeds of renewal following disturbance	Heterogeneity of features within the landscape and on the farm; diversity of inputs, outputs, income sources, markets, pest controls, etc.
Optimally redundant (Low et al. 2003, Sundkvist et al. 2005, Damhofer et al. 2010b, Walker et al. 2010)	Critical components and relationships within the system are duplicated in case of failure	Also called response diversity; redundancy may decrease a system's efficiency, but it gives the system multiple back-ups, increases buffering capacity, and provides seeds of renewal following disturbance	Planting multiple varieties of crops rather than one, keeping equipment for various crops, getting nutrients from multiple sources, capturing water from multiple sources
Spatial and temporal heterogeneity (Alcorn and Toledo 1998, Devictor and Jiguet 2007, Di Falco and Chavas 2008)	Patchiness across the landscape and changes through time	Like diversity, spatial heterogeneity provides seeds of renewal following disturbance; through time, it allows patches to recover and restore nutrients	Patchiness on the farm and across the landscape, mosaic pattern of managed and unmanaged land, diverse cultivation practices, crop rotations
Exposed to disturbance (Gunderson and Holling 2002, Berkes et al. 2003, Folke 2006)	The system is exposed to discrete, low-level events that cause disruptions without pushing the system beyond a critical threshold	Such frequent, small-scale disturbances can increase system resilience and adaptability in the long term by promoting natural selection and novel configurations during the phase of renewal; described as "creative destruction"	Pest management that allows a certain controlled amount of invasion followed by selection of plants that fared well and exhibit signs of resistance
Coupled with local natural capital (Ewell 1999, Milestad and Damhofer 2003, Robertson and Swinton 2005, Naylor 2009, Damhofer et al. 2010a,b, van Apeldoorn et al. 2011)	The system functions as much as possible within the means of the bioregionally available natural resource base and ecosystem services	Responsible use of local resources encourages a system to live within its means; this creates an agroecosystem that recycles waste, relies on healthy soil, and conserves water	Builds (does not deplete) soil organic matter, recharges water, little need to import nutrients or export waste

Table 2: Indicator-based framework to assess resilience in agroecosystems (Indicator 08-13)

Reflective and shared learning (Berkes et al. 2003, Darnhofer et al. 2010b, Milestad et al. 2010, Shava et al. 2010)	Individuals and institutions learn from past experiences and present experimentation to anticipate change and create desirable futures	The more people and institutions can learn from the past and from each other, and share that knowledge, the more capable the system is of adaptation and transformation, in other words, more resilient	Extension and advisory services for farmers; collaboration between universities, research centers, and farmers; cooperation and knowledge sharing between farmers; record keeping; baseline knowledge about the state of the agroecosystem
Globally autonomous and locally interdependent (Milestad and Darnhofer 2003, Walker et al. 2010, van Apeldoorn et al. 2011)	The system has relative autonomy from exogenous (global) control and influences and exhibits a high level of cooperation between individuals and institutions at the more local level	A system cannot be entirely autonomous but it can strive to be less vulnerable to forces that are outside its control; local interdependence can facilitate this by encouraging collaboration and cooperation rather than competition.	Less reliance on commodity markets and reduced external inputs; more sales to local markets, reliance on local resources; existence of farmer co-ops, close relationships between producer and consumer, and shared resources such as equipment
Honors legacy (Gunderson and Holling 2002, Cumming et al. 2005, Shava et al. 2010, van Apeldoorn et al. 2011)	The current configuration and future trajectories of systems are influenced and informed by past conditions and experiences	Also known as path dependency, this relates to the biological and cultural memory embodied in a system and its components	Maintenance of heirloom seeds and engagement of elders, incorporation of traditional cultivation techniques with modern knowledge
Builds human capital (Buchmann 2009, Shava et al. 2010, McManus et al. 2012)	The system takes advantage of and builds "resources that can be mobilized through social relationships and membership in social networks" (Nahapiet and Ghoshal 1998:243)	Human capital includes: constructed (economic activity, technology, infrastructure), cultural (individual skills and abilities), social (social organizations, norms, formal and informal networks)	Investment in infrastructure and institutions for the education of children and adults, support for social events in farming communities, programs for preservation of local knowledge
Reasonably profitable	The segments of society involved in agriculture are able to make a livelihood from the work they do without relying too heavily on subsidies or secondary employment	Being reasonably profitable allows participants in the system to invest in the future; this adds buffering capacity, flexibility, and builds wealth that can be tapped into following release	Farmers and farm workers earn a livable wage; agriculture sector does not rely on distortionary subsidies

Step 2:

Selection of indicators for the case study of VT

The ACT group chose 7 indicators from the list. This selection was made after the first visit of a VT. The group decided on the most relevant indicators based on what has been found on the field and what seems to be realistic to gather in the limited time available. The coding of the indicators refers to the full list above meaning that the first indicator on the list, is coded as indicator "01", the last indicator is indicator "13". The ACT group is categorizing and analysing the data collected with the following indicators:

- 01 Socially self-organised
- 03 Appropriately connected
- 06 Exposed to disturbance
- 08 Reflective and shared learning
- 09 Globally autonomous and locally interdependent
- 12 Builds human capital
- 13 Reasonably profitable

Table 3: Selected indicators from indicator-based framework to assess resilience in agroecosystems (Indicator 01-07)

Indicator (sources)	Definition	Implications	What to look for
Socially self-organized (Levin 1999, Holling 2001, Milestad and Darnhofer 2003, Atwell et al. 2010, McKey et al. 2010)	The social components of the agroecosystem are able to form their own configuration based on their needs and desires	Systems that exhibit greater level of self-organization need fewer feedbacks introduced by managers and have greater intrinsic adaptive capacity	Farmers and consumers are able to organize into grassroots networks and institutions such as co-ops, farmer's markets, community sustainability associations, community gardens, and advisory networks
Ecologically self-regulated (Sundkvist et al. 2005, Ewell 1999, Jackson 2002, Swift et al. 2004, Jaeke and Toensmeier 2005, Glover et al. 2010, McKey et al. 2010)	Ecological components self-regulate via stabilizing feedback mechanisms that send information back to the controlling elements	A greater degree of ecological self-regulation can reduce the amount of external inputs required to maintain a system, such as nutrients, water, and energy	Farms maintain plant cover and incorporate more perennials, provide habitat for predators and parasitoids, use ecosystem engineers, and align production with local ecological parameters
Appropriately connected (Axelrod and Cohen 1999, Holling 2001, Gunderson and Holling 2002, Picasso et al. 2011)	Connectedness describes the quantity and quality of relationships between system elements	High and weak connectedness imparts diversity and flexibility to the system; low and strong impart dependency and rigidity	Collaborating with multiple suppliers, outlets, and fellow farmers; crops planted in polycultures that encourage symbiosis and mutualism
Functional and response diversity (Altieri 1999, Ewell 1999, Berkes et al. 2003, Luck et al. 2003, Swift et al. 2004, Folke 2006, Jackson et al. 2007, Di Falco and Chavas 2008, Moonen and Barbieri 2008, Chapin et al. 2009, Darnhofer et al. 2010b, McIntyre 2009)	Functional diversity is the variety of ecosystem services that components provide to the system; response diversity is the range of responses of these components to environmental change	Diversity buffers against perturbations (insurance) and provides seeds of renewal following disturbance	Heterogeneity of features within the landscape and on the farm; diversity of inputs, outputs, income sources, markets, pest controls, etc.
Optimally redundant (Low et al. 2003, Sundkvist et al. 2005, Darnhofer et al. 2010b, Walker et al. 2010)	Critical components and relationships within the system are duplicated in case of failure	Also called response diversity; redundancy may decrease a system's efficiency, but it gives the system multiple back-ups, increases buffering capacity, and provides seeds of renewal following disturbance	Planting multiple varieties of crops rather than one, keeping equipment for various crops, getting nutrients from multiple sources, capturing water from multiple sources
Spatial and temporal heterogeneity (Alcorn and Toledo 1998, Devictor and Jiguet 2007, Di Falco and Chavas 2008)	Patchiness across the landscape and changes through time	Like diversity, spatial heterogeneity provides seeds of renewal following disturbance; through time, it allows patches to recover and restore nutrients	Patchiness on the farm and across the landscape, mosaic pattern of managed and unmanaged land, diverse cultivation practices, crop rotations
Exposed to disturbance (Gunderson and Holling 2002, Berkes et al. 2003, Folke 2006)	The system is exposed to discrete, low-level events that cause disruptions without pushing the system beyond a critical threshold	Such frequent, small-scale disturbances can increase system resilience and adaptability in the long term by promoting natural selection and novel configurations during the phase of renewal; described as "creative destruction"	Pest management that allows a certain controlled amount of invasion followed by selection of plants that fared well and exhibit signs of resistance
Coupled with local natural capital (Ewell 1999, Milestad and Darnhofer 2003, Robertson and Swinton 2005, Naylor 2009, Darnhofer et al. 2010a,b, van Apeldoorn et al. 2011)	The system functions as much as possible within the means of the bioregionally available natural resource base and ecosystem services	Responsible use of local resources encourages a system to live within its means; this creates an agroecosystem that recycles waste, relies on healthy soil, and conserves water	Builds (does not deplete) soil organic matter, recharges water, little need to import nutrients or export waste

Table 4: Selected indicators from indicator-based framework to assess resilience in agroecosystems (Indicator 08-13)

<p>Reflective and shared learning (Berkes et al. 2003, Darnhofer et al. 2010b, Milestad et al. 2010, Shava et al. 2010)</p>	<p>Individuals and institutions learn from past experiences and present experimentation to anticipate change and create desirable futures</p>	<p>The more people and institutions can learn from the past and from each other, and share that knowledge, the more capable the system is of adaptation and transformation, in other words, more resilient</p>	<p>Extension and advisory services for farmers; collaboration between universities, research centers, and farmers; cooperation and knowledge sharing between farmers; record keeping; baseline knowledge about the state of the agroecosystem</p>
<p>Globally autonomous and locally interdependent (Milestad and Darnhofer 2003, Walker et al. 2010, van Apeldoorn et al. 2011)</p>	<p>The system has relative autonomy from exogenous (global) control and influences and exhibits a high level of cooperation between individuals and institutions at the more local level</p>	<p>A system cannot be entirely autonomous but it can strive to be less vulnerable to forces that are outside its control; local interdependence can facilitate this by encouraging collaboration and cooperation rather than competition.</p>	<p>Less reliance on commodity markets and reduced external inputs; more sales to local markets, reliance on local resources; existence of farmer co-ops, close relationships between producer and consumer, and shared resources such as equipment</p>
<p>Honors legacy (Gunderson and Holling 2002, Cumming et al. 2005, Shava et al. 2010, van Apeldoorn et al. 2011)</p>	<p>The current configuration and future trajectories of systems are influenced and informed by past conditions and experiences</p>	<p>Also known as path dependency, this relates to the biological and cultural memory embodied in a system and its components</p>	<p>Maintenance of heirloom seeds and engagement of elders, incorporation of traditional cultivation techniques with modern knowledge</p>
<p>Builds human capital (Buchmann 2009, Shava et al. 2010, McManus et al. 2012)</p>	<p>The system takes advantage of and builds "resources that can be mobilized through social relationships and membership in social networks" (Nahapiet and Ghoshal 1998:243)</p>	<p>Human capital includes: constructed (economic activity, technology, infrastructure), cultural (individual skills and abilities), social (social organizations, norms, formal and informal networks)</p>	<p>Investment in infrastructure and institutions for the education of children and adults, support for social events in farming communities, programs for preservation of local knowledge</p>
<p>Reasonably profitable</p>	<p>The segments of society involved in agriculture are able to make a livelihood from the work they do without relying too heavily on subsidies or secondary employment</p>	<p>Being reasonably profitable allows participants in the system to invest in the future; this adds buffering capacity, flexibility, and builds wealth that can be tapped into following release</p>	<p>Farmers and farm workers earn a livable wage; agriculture sector does not rely on distortionary subsidies</p>

Step 3:

The third step consists of analysing and describing the data collected during field visits, observations, and interviews. The aim of this analysis is to find key mechanisms and key processes (as well as the lack of such structures) to identify what resilience means in the case of VT. Furthermore, the group aims to find some common patterns and similarities, which can help to understand the challenging dynamics existing in the concept.

Step 4:

The purpose of the last step is to generate valuable outputs for the ACT project, the commissioners and any further project connected to the VT and how to improve the organisational structure. Therefore, the selected data from the previous steps will be used to fill out the Triple P Business Model Canvas.

Appendix 2

Triple P Business Model Canvas (BMC)

The BMC "Is a strategic management template used for developing new business models and documenting existing ones" (Sadeghi, 2016). Additionally, to the business perspective on the organisational structure, the Triple P BMC provides inside into an environmental and societal layer to the organisation at stake. Business models can be used to innovate business activities both through an outside-in as well as in an inside-out method (Joyce & Paquin, 2016). Through the inside-out method through an analysis of the current model different organisational structures can be tested. With the outside-in method external business model archetypes are inspiration to alter the current business model. For this consultancy project both activities have been conducted. First the current business model was analysed after which external examples were studied and used as inspiration. From

the Triple P BMC, the economic business layer has been used to analyse the organisational structure of the VT farms. The social stakeholder layer has been used for this project to better understand the social impacts and benefits of the organisational activities (Joyce & Paquin, 2016). Through this analysis key challenges could be analysed.

For the **economic** layer the following organisational elements were studied.

Value proposition: The value proposition focuses on describing the products and services that create value for a specific customer segment. A value proposition can solve a problem of the customer or satisfy the customer's need. (Osterwalder & Pigneur, 2010)

Customer segment & customer relationship: The customer is defined as different groups of people or an organisation that an enterprise focuses on reaching with their products and services. The relationship with these customers is important to understand as it reveals what type of interaction is needed to establish a beneficial relationship with these customers. (Osterwalder & Pigneur, 2010)

Channels: The channels describe how products and services are reached to the customer and what form of communication is necessary. (Osterwalder & Pigneur, 2010)

Revenues and costs: This describes the most important sources and through which activities the organisation generates cash. Also, the major costs for the organisation are described. (Osterwalder & Pigneur, 2010)

Key activities and resources: The key activities describe the most important things a company must do to make its business model work. Besides activities resources are described which are crucial for the operation of the enterprise. (Osterwalder & Pigneur, 2010)

Key partnerships: This section covers the most important stakeholders of a company. These partnerships can be forged for many different reasons. (Osterwalder & Pigneur, 2010)

The **social** layer of the business model canvas aims at capturing key social impacts of the activities the organisation (Joyce & Paquin, 2016). The social impact is analysed through understanding the interaction between the organisation, local communities, end users and employees. Of special importance is the relation between the social value of the products and services of the organisation and the end-users (Joyce & Paquin, 2016). Does the social value of the products fit with social needs of the end-users? For this consultancy project the social layer has been filled in for the three different farms. This layer has been used to better understand the weak links of the Vriendentuinen network.

The Business Model Canvas - Economic



The Business Model Canvas - Social Layer

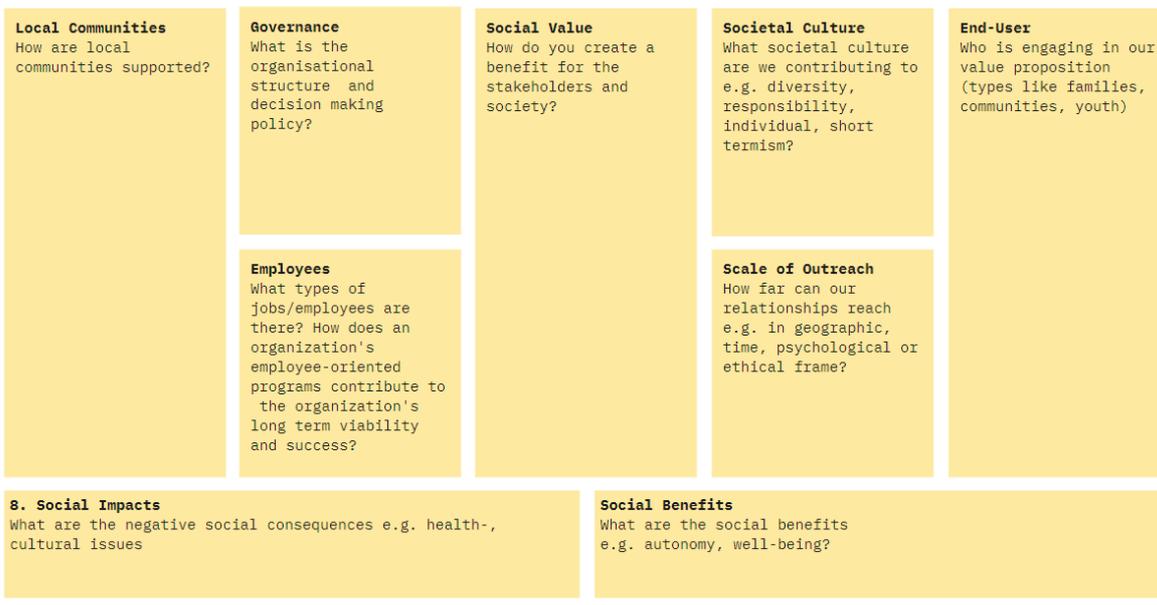


Figure 2: Business layer and social layer of the triple layered Business Model Canvas with guiding questions - Adapted from Osterwalder & Pigneur (2010) and Joyce & Paquin (2016)

Appendix 3

Overview of direct and indirect customer segments for the VT

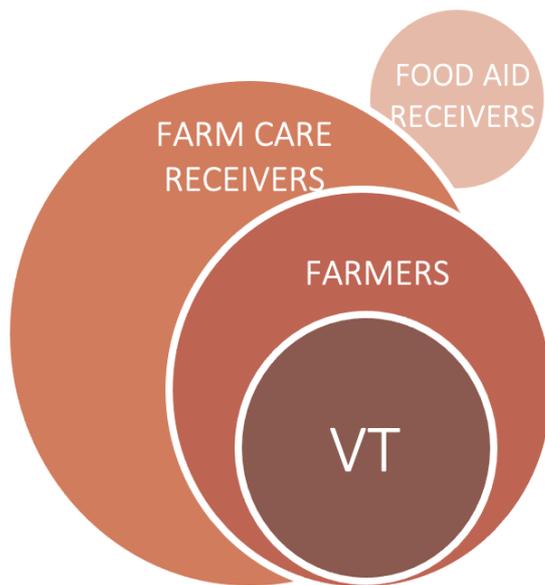


Figure 3: Direct and indirect customer segments of the VT

Appendix 4

Interview Guide VT 1

1. From your perspective, who are the key stakeholder and what role(s) do they play in the concept/ organisational structure of VT? How are they connected? (Indicators: Socially self-organised & appropriately connected)
2. What are the larger-scale external mechanisms/ controls that interact in a significant way with the organisation around the VT? Are there any? (Indicator: Exposed to disturbance)
3. How does the decision-making process at VT take place? (Indicator: Globally autonomous and locally interdependent)
4. Are there power dynamics in the social/economic domain of the VT that significantly influence how the concept is structured and how it functions? (Indicator: Builds human capital)
5. What are the social impacts of the main issue(s) that can be identified in the concept of VT? (Indicator: Exposed to disturbance)
6. In your opinion, how is the concept of VT/ care farming being perceived by local communities, food aid givers as well as food aid receivers? (Indicator: appropriately connected)
7. What existing networks are there to communicate visions and goals of the VT? Do you feel like it is something that could be improved? (Indicators: Socially self-organised & appropriately connected)
8. What ways are there to build trust with communities through personal interactions and regional stakeholder? (Indicator: Builds human capital)
9. What ways are there for synthesizing knowledge? Do you feel like there is a need for creating forums/spaces to promote dialogue and to exchange expectations and needs? (Indicator: Reflective and shared learning)

10. How could key stakeholders be aligned with other key actor groups in order to improve the concept of VT to enhance resilience? (Indicator: Reflective and shared learning)

Appendix 5

Interview guide VT 2

Client = food aid recipients

Participant = volunteers and care receivers on care farms

Customer: food bank, municipality

End-Users: client, participants

Business Model Canvas Questions

ECONOMICS

1. Value Proposition
 - Motivation: What motivated you to have a care farm/start with the concept of VT?
 - Did this motivation change over time?
2. Customer segments
 - Identify segments: To whom do you deliver the food?
 - Participants: What are the most common reasons for the care receivers being marginalised from society?
 - Matching needs: What do the participants need that you can give them here?
 - What else would they need, want or expect that you cannot provide?
 - How does the wants and needs of the food aid recipients influence you? E.g., planting certain varieties of crops
3. Channels
 - Supply chain: How did you set up the logistics of the food supply to the food aid kitchen?
 - Who transports the food (food bank, care recipients e.g.)?
 - What vehicle is used?
 - Where and how do you store the food?
4. Key activities
 - What are key activities on the farm? Examples:
 - Agricultural: Seeding, planting, use of chemicals, soil preparation
 - Care: cooking, reflection rounds, coffee break
 - Societal: recreation, events
 - What major disturbances such as drought, pests, changes in organisational structure have you experienced in the last years?
5. Revenues and costs
 - Do you get something back from the cooperation with the VT? What?
 - How do you financially sustain the VT?
 - What are your main costs (external inputs)?
6. What are trends in the sector that you are influenced by e.g., regenerative agriculture, biodynamic, changes in care/corona?
7. What are legislations that you are influenced by e.g., care subsidies?
8. Key partners
 - What stakeholders (e.g., organisations, businesses, governmental institutions) are involved in the VT?
 - What do the VT need to fulfil for a cooperation with care farms?

- Is it tricky to adhere to those? Why?
- Is there a contract to hold you accountable?
- How does the cooperation with the food banks work?
 - What tensions, hurdles, leaning outcomes have you experienced and gained?
- What ways are there for synthesizing knowledge? Do you feel like there is a need for creating forums/spaces to promote dialogue and to exchange expectations and needs?
- How could key stakeholders be aligned with other key actor groups?

SOCIAL

1. Social value
 - a. What greater purpose or social value do you intend to create?
2. Scale of outreach
 - a. How is the concept of VT/ care farming being perceived by local communities, food aid givers as well as food aid receivers?
 - b. What existing networks are there to communicate visions and goals of the VT? Do you feel like it is something that could be improved?
3. Local communities
 - How are local communities supported? / Are the inhabitants in the vicinity of the farm involved in the care farm? How?
 - What ways are there to build trust with communities through personal interactions and regional stakeholder?
4. Governance
 - a. How are decisions made and who manages the farm? E.g., democratic, authoritarian, cooperative
 - b. Are there power dynamics in the social/economic domain of the VT that significantly influence how the concept is structured and how it functions?

SWOT Analysis

- What are the strengths and weaknesses of the farm, farm management and the VT specifically?
 - What did you need to start being part of the VT? (volunteers, money, machines, contacts, logistics, knowledge, values, stakeholders)
 - What were the biggest hurdles and complications in the initial phase?
 - What are threats and opportunities that the current organisational structure is confronted with?

Appendix 6

Interview guide foodbank

Aim project: our project focuses on the transformation of the VT care farm concept into a resilient system. Besides, our specific task is to investigate ways to improve their organisational structure, so their provision of food aid through different channels, mainly the Food Bank, can better address the needs of all parties in a context of food insecurity.

Objective meeting: get an understanding of the relationship between the Food Bank and the VT concept and get a feeling of the social perspective regarding the Food Bank clients.

Interview questions:

1. Organisation: Can you describe, in short, what your collaboration looks like with the VT?
 - a. What does the organisational structure look like between the Food Bank and VT?

2. Challenges link: What are hurdles and challenges in the cooperation with the VT?
 - a. Improvements: What improvements in the organisational structure and cooperation would you wish for?
 - b. Logistics: What are the challenges regarding the delivery of fruits and vegetables from VT to the Food Bank?
3. Expectations: What criteria/expectations does the VT have to meet (e.g., in terms of product quality, variety, timing and quantity of delivery, etc.) in terms their delivery to the Food Bank?
4. Logistics: How did you set up the logistics?
 - a. Who picks up the food (volunteers e.g.)? How often?
 - b. How are the food packages distributed to clients? How often?
 - i. What are the criteria for each food package?
5. Costs: What are the most important costs inherent in the Food Bank organisation? (e.g., fixed costs (salaries, rents, utilities), variable costs, economies of scale, economies of scope)
6. Revenues: What are the most important sources of income for the Food Bank? (e.g., consistency of donations)
7. Employees: What role do the volunteers have within the Food Bank?
8. Challenges food bank: What are challenges that the food banks experience in the collaboration with the food recipients?
 - a. Food portions, cultural requirements for the variety, seasonality of food, shame & dignity
9. Recipients: Who are the end-users of the Food Bank (ethnicities, families, etc.)? What societal culture are you contributing to?
 - a. What are the needs, wants, limitations of the food aid recipients?
10. Outreach: How many individuals/families can benefit from the fresh fruits and vegetables from VT in your packages?
 - a. Is this sufficient or do you receive a surplus of fruits and vegetables?
11. Quantity and variety: In terms of nutrition, what is the variety and quantity of fruits and vegetables which the Food Bank delivers to their clients? Is this sufficient or is there a surplus?
12. Perceptions: What are the perceptions of the food aid receivers from the VT fruit and vegetables?
 - a. Do you have any insights into the use of the fresh fruits and vegetables by the food aid recipients? (lack of nutritional value?)

Appendix 7

Interview guide community kitchen initiatives / food truck

Key partners: Who are your most important suppliers? Local farmers? Are the products local and seasonal?

Expectations: What criteria/expectations does suppliers have to meet (e.g., in terms of product quality, variety, timing and quantity of delivery, etc.) in terms their delivery to your organisation?

Logistics: How did you set up the logistics?

- a. Who picks up the food (volunteers e.g.)? How often?
- b. What are your requirements for the food that you collect?
- b. How are the products/ food packages distributed to clients? How often?
 - i. What are the criteria for each food package?

Costs: What are the most important costs inherent to your organisation? (e.g., fixed costs (salaries, rents, utilities), variable costs, economies of scale, economies of scope)

Revenues: What are the most important sources of income for your organisation? (e.g., consistency of donations)?

Employees: Do you work with employees or volunteers?

If having volunteers, what role do the volunteers have within your organisation and how do you manage or support them?

Challenges: What are challenges that your organisation experiences in the collaboration with the food recipients?

- i. Food portions, cultural requirements for the variety, seasonality of food, shame & dignity

Recipients: Who are the end-users of your organisation (ethnicities, families, etc.)? What societal culture are you contributing to?

- i. What are the needs, wants, limitations of the food aid recipients?
- ii. Do they collaborate in any way within the organisation?

Outreach: How many individuals/families do you reach?

Quantity and variety: In terms of nutrition, what is the variety and quantity of fruits and vegetables which your organisation delivers to their clients? Is this sufficient or is there a surplus or shortage?

Perceptions: What are the perceptions of the food aid receivers from the products you sell?

- a. Do you have any insights into how the use of the fresh fruits and vegetables are received?

The **social** layer of the business model canvas aims at capturing key social impacts of the activities the organisation (Joyce & Paquin, 2016). The social impact is analysed through understanding the interaction between the organisation, local communities, end users and employees. Of special importance is the relation between the social value of the products and services of the organisation and the end-users (Joyce & Paquin, 2016). Does the social value of the products fit with social needs of the end-users? For this consultancy project the social layer has been filled in for the three different farms. This layer has been used to better understand the weak links of the VT network.

Appendix 8

Description of three case care farms

Slangenburg

The Slangenburg has been active for three years on a rented farm the group visited on the 4th of October 2021. The central person on the farm, who is functioning as a "leader" of 55-60 people, is Falco. These 60 people are a mix of paid employees and care receivers. There are no volunteers and everyone who is involved in the farm is called a colleague (Falco, personal comment 2021). The care receivers learn from each other; Falco empathizes that every colleague has a unique potential that the farm will help to revile. Additionally, the fact of being a rented farm has a positive effect of all being equal, and not having power imbalances or hierarchies. Many activities were identified on the farm such as; forestry, landscaping, bricklaying, creative hotspot lunchroom, camping site, market garden, kitchen garden and lunch kitchen. Before COVID-19, the care farm has been hosting an event called "Open day", which was meant to give people involved in the farm a chance to promote themselves by talking about their work.

One weak spot on the care farm is the exposure to weather disturbance, affecting weekly donations to the food bank. Therefore, Ellen, head of VT, has arranged a donation to the care farm for starting a greenhouse (Oomen, pers. comm., 2021), to make the care farm less vulnerable to such disturbances. Moreover, the purpose behind this was to improve the diversity of produce.

Back in 2016, together with 10-11 other care farms in Achterhoek, the Slangenburg made a crop plan to avoid delivering simultaneously the same vegetables to the Foodbank. Falco played a crucial and central role in this network through organizing meetings, coordinating transportation and preparation of products for the food aid bank. At this moment this network is scaled down, as the working pressure of maintaining this network was too high. Currently the main network of the VT is formed by four stakeholders which were brought together namely; the Voedselbank Doetinchem, Zorgboerderij Slangenburg, Stadsboerin Doetinchem, and the Mini Manna Stichting. This network helps each other in the practical coordination of local food aid channels. Furthermore, local and regional connections are also important for this farm as there is a potential risk for Slangenburg to become an "isolated island" due to its geographical location and the lack of resources available (referring to volunteers and involvement of locals). The weak link hereby is the threat of being able to only connect within the farm and not involve the outside world enough. Nevertheless, Falco is very committed to not make this happen (Falco, personal comment 2021).



Figure 4: Current main network of VT

Marope

Marope is a farm in Hengelo offering care for a community of 16 young adults. Marope is situated on the estate 'Landgoed Zelle' which is 350 ha. The estate is still owned by the nobly family who still reside on the estate. Marope is allowed to use the terrain for their activities in exchange for maintenance work of the estate. Therefore, there are many activities care receivers are involved in such as; gardening, forestry, cattle farming, and carpenter. A large part of the estate is covered with forest. Besides that, a small herd of Brandrode cows is grazing freely in the forest and meadows.

Jeroen Hoppen is the founder of Marope and key actor. He is responsible for among other activities assuring funds, writing for tenders. In total there are 3 employees active on this farm which were identified as valuable knowledge holders. One of the farm employees worked for 18 years as a gardener for the garden and maintenance work. He has expert knowledge on most of the plants and knows how to trim them. This allowed that students from schools who are studying how to become a gardener come and work on the estate as an intern. Another employee is a forestry expert.

This farm used to be a VT, as the centrally located garden was used to produce vegetables for the food aid bank. This plot is less than half a hectare. In 2015-2016 Jeroen received seeds and a crop plan from the VT network & Falco (the Slangenburger). The communication stopped however in 2017 and Jeroen did not receive any seeds or cropping plan anymore. As a result, Jeroen stopped with the VT activities.

Other challenges regarding the VT at Marope is that the care receivers perceived the garden activities as "boring" since they involved repetitive tasks. The other activities on the estate were perceived as more challenging and appealing. Besides that, though there is expertise on gardening and forestry there is no expert with specific knowledge on growing vegetables. Vegetable production is not a core focus on the estate, also the garden and its produce were perceived as little by Jeroen food

Liessenhuus

Liessenhuus is a small-scale care institution in the Achterhoek region. Patrick Vinkenvleugel, the central person in the institution, believes that by bridging care farms with food aid/ food production one can create inclusion.

Patrick states that on Liessenhuus, everybody can live a dignified life by pursuing personal goals and actively participating. The institution provides green jobs as garden maintenance, pruning of trees, etc. "At Liessenhuus, you can be as you are" (webpage, 2021). From the beginning, the needs of the care receivers are being included and met. This can be an important activity of personal importance to the care receivers or a contribution to the institution. What matters, is giving space to people who are struggling in order to improve their situation so they can be part of a network and help. This inclusion is an indicator of building human capital, reflection, and appropriate connection. Hassink describes this as an essential and highly valuable process for the care receiver in developing skills and self-esteem (Hassink, 2020). Patrick, for example, modified a loan mower for a care receiver who walked severely. Another example is, when Patrick built a drum studio for a care receiver who got distressed when he could not figure out a drum

pattern he heard on the radio. He could go back to work again when he had practiced for some time and got the pattern settled (Patrick personal comments 2021).

Before COVID-19, the farm produced vegetable boxes for selling directly from the farm. These boxes had two advances: Firstly, the care receivers had the opportunity to handing over boxes and engage in social interactions. Secondly, it provided 2% of the farm's income. Half of the revenue from the boxes was donated directly to the VT. In addition, the farm used to produce onions on 50 m² for the Food Bank in 2016. Patrick explained that he does not have time for the garden work anymore. Before the pandemic, there were six volunteers on the farm; now, there are only two, and the garden is not being prioritised. Therefore, there are only small and rare donations of fresh produce to the food bank in the current state.

Appendix 9
Generic BMC of the VT Network Achterhoek



Figure 5 – Economic and social layer of the business model canvas of Voedselbank Doetinchem

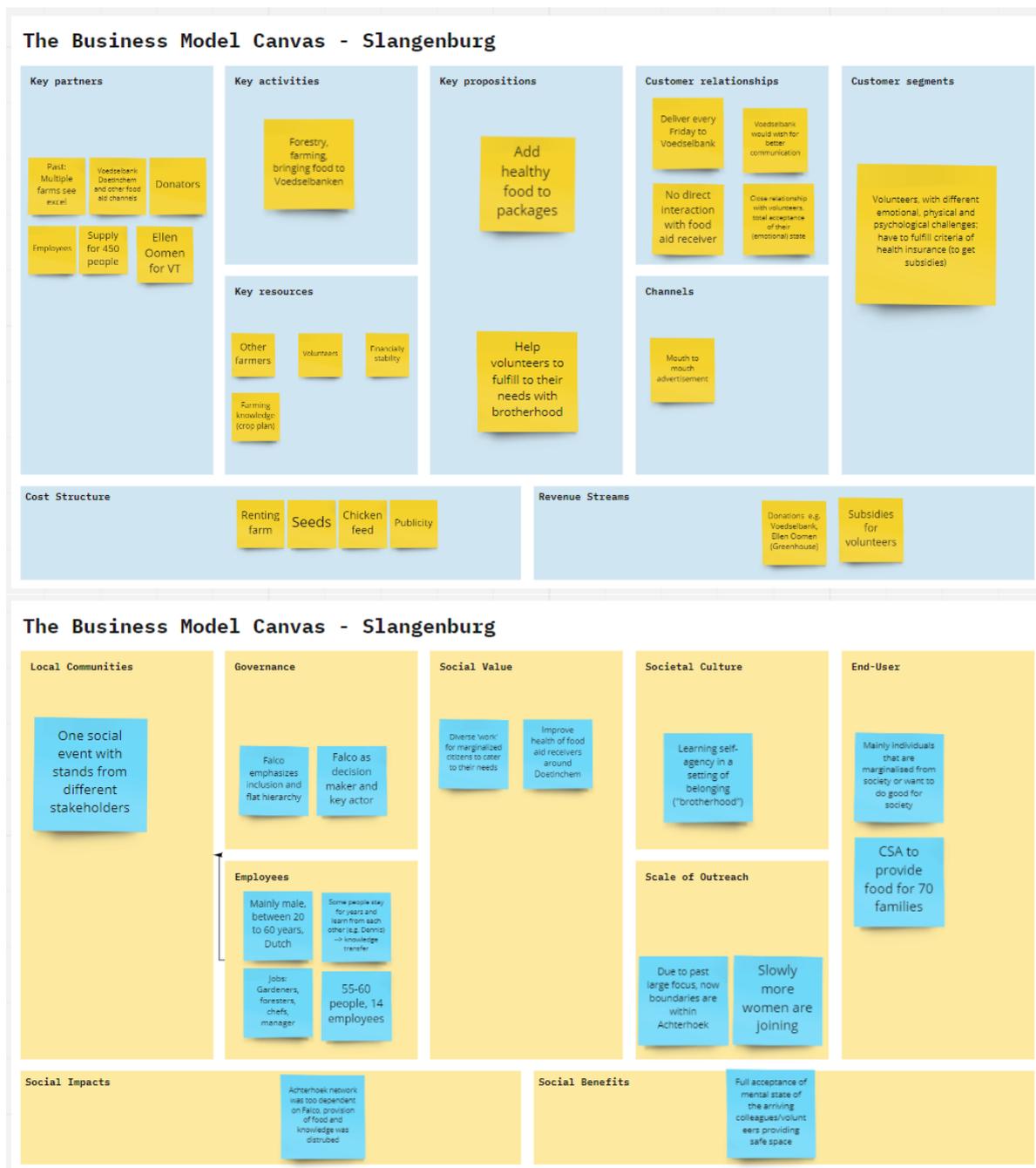


Figure 6: Economic and social layer of the business model canvas of Slangenburg

Appendix 10

Elaboration of stakeholders that were not previously described

Federatie Landbouw en Zorg (FLZ)

The Federatie Landbouw en Zorg (Federation of Agriculture and Care) is the national sector organisation for care agriculture, which collaborates with 16 regional member organisations (Federatie Landbouw en Zorg, 2021). Together those organisations represent more than 800 care farmers (Federatie Landbouw en Zorg, 2021). The Federatie Landbouw en Zorg brings together stakeholders from the agricultural and care sectors and encourages collaboration and innovation (Federatie Landbouw en Zorg, 2021). Furthermore, the organisation and its members promote regional and national interests to the national government.

Stichting Fondsenbeheer Landbouw en Zorg (SFLZ)

In 2018, the St. Fondsenbeheer Landbouw en Zorg (SFLZ) was commissioned by the Doen Foundation as well as the Federatie Landbouw en Zorg to carry out an evaluation study of the VT project (VT, 2021). The intrinsic motivation of this project is to create added value for society. The evaluation conducted by the SFLZ has concluded that further value can be added by setting up additional pilot farms (VT, 2021). Between 2020-2022, the SFLZ will investigate to what extent new organisational forms can lead to a successful collaboration between food banks and care farms (VT, 2021).

Voedselbank NL (Food Banks Netherlands)

In many high-income countries, food banks have become the primary response to food insecurity (Middleton et al., 2018). In general, food banks are described as non-profit organisations that collect, store, and distribute donated and surplus food to people in need, either directly or through front-line social welfare organisations (Middleton et al., 2018). In the Netherlands, 171 food banks and 10 Distribution Centers are affiliated with the Association of Dutch Food Banks, called Food Banks Netherlands for short (Voedselbanken NL, 2021). Food banks in the Netherlands are active in 96% of all municipalities (Voedselbanken NL, 2021). All the members comply with legislation and requirements in the field of food safety (Voedselbanken NL, 2021). The Food Banks collect food that would otherwise be wasted, and customers are not being asked for any financial contribution for the packages (Voedselbanken NL, 2021).

WUR Science Shop

The Wageningen University & Research Science Shop is in charge of organizing research that is commissioned by non-profit civil society organisations with limited financial means (WUR, 2021). The goal of the Science Shop is to generate direct societal impact by carrying out bottom-up research and creating new bridges between science and society (WUR, 2021). The science shop project "VT als veerkrachtig en weerbaar systeem" aims to provide useful insights and advice to SFZL on how to organize a resilient system of VT in providing food aid for people in food insecurity (WUR, 2021).

Appendix 11

Communication and collaboration between crucial stakeholders

As the VT is pointed out to have been a support in make connections between stakeholders, it is crucial to have a closer look at the current state of cooperation. As Farmers don't have too much contact with (potential) collaboration partners due to time constraints, the VT plays a crucial role in bridging the lack of communication. For the same reasons, the farmers think the promotion of the concept of VT is best done by VT themselves (SFLZ, 2018).

Depending on the region, farmers either communicate to Landzijde (Noord-Holland), Stichting VT Achterhoek (Achterhoek) or Federatie Landbouw en Zorg when they want to interact with the VT. As mentioned before, the care farmers see a lack of a central, national contact point. In some cases, VT has customised agreements with farmers to promote the local approach of VT in regard to investments and agreements with the food bank.

Those arrangements include agreements about logistics, type and quantities of products. Good communication for the selection of plants is crucial due to the preferences of food aid receivers considering what they know how to prepare and cultural background (Voedselbank Midden-Limburg, 2018). In the interviews it was pointed out by the Voedselbank Doetinchem that the weekly updates on food deliveries by Slangenburger could be improved. When asking Falco Janssen about the communication with the food bank, he was not aware of a lack in information exchange. Previously some communication attempts have been started to coordinate the delivery and avoid food waste. Not all farmers have been shown to be cooperative (SFLZ, 2018). Several farmers voiced that there is a lack of gratitude on the part of the food banks and that they get mad when the Voedselbank throws away food when they have too much abundance, the food is dirty or contain living organisms (Voedselbank Store Rotterdam). The response to the food aid in

the food aid receivers is often unnoticed by the farmers and care receivers as the interaction is limited, even though it is perceived by the farmer as potentially beneficial (SFLZ, 2018).

Appendix 12
Business Model Canvas of VT 2.0

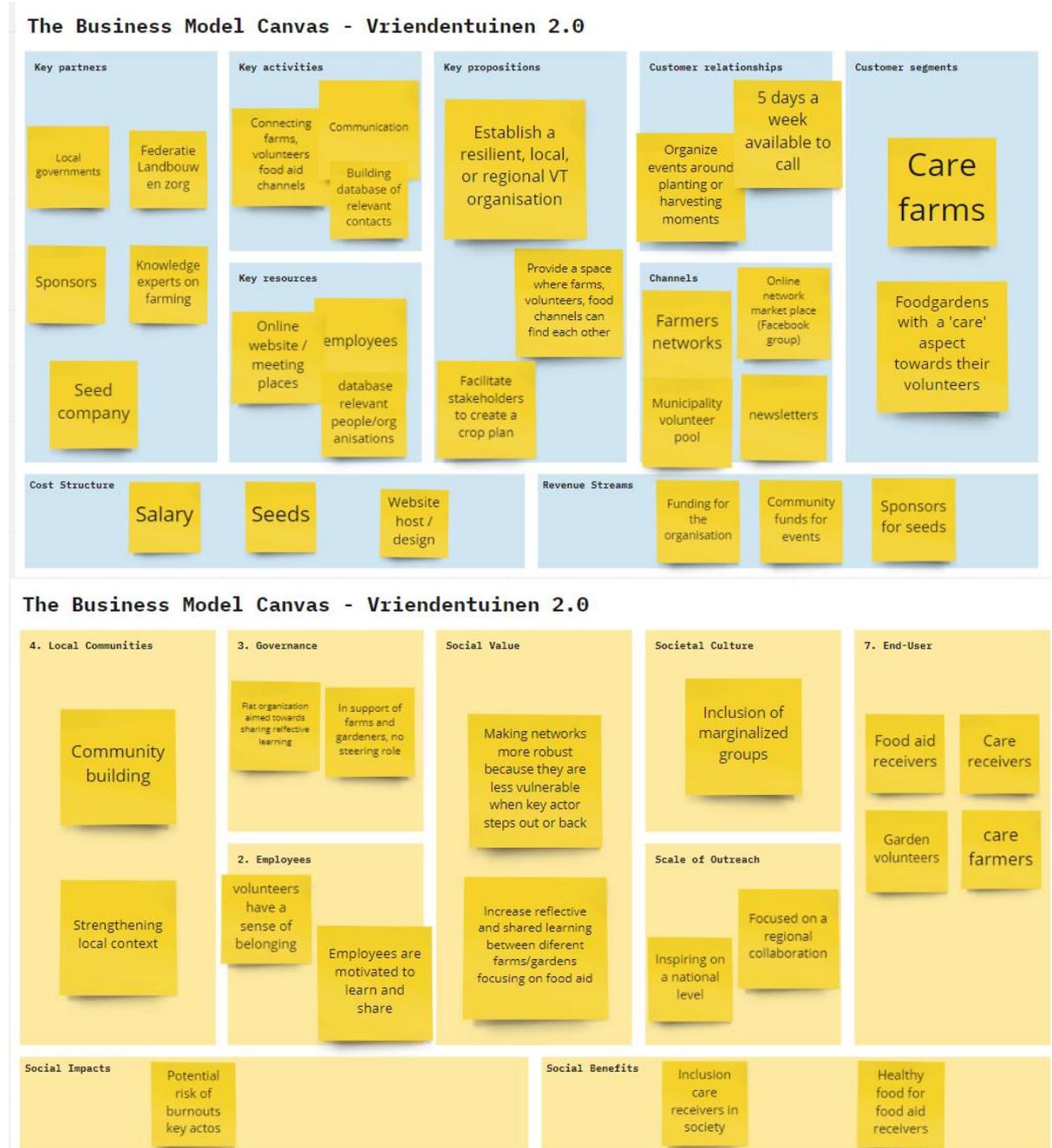


Figure 7: Economic and social layer of the business model canvas of the Vriendentuinen 2.0