April 2018

Governing transitions in local food

Exploring the role of local actors in scaling-up short food supply chains

Master's Thesis for the Environment and Society Studies programme
Nijmegen School of Management
Radboud University

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Colophon

Title:	Governing transitions in local food. Exploring the role of local actors in scaling-up short food supply chains.
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In cooperation with:	Municipality of Heumen

Preface

This thesis is the completion of my Master's degree in Environment and Society Studies at the Radboud University Nijmegen, specialising in Local Environmental Change and Sustainable Cities. The subject of the thesis is short food supply chains; the research is conducted during an internship at the municipality Berg en Dal.

For me, it is not surprising that my thesis is on the topic of food. Due to serious food allergies, I have been conscious about what I eat since I was a child. Later, I also became more aware about the consequences of my food choices for the environment, animals and other people. During my master I have written about food related subjects several times. This thesis is the final piece.

I would like to thank several people who were important during the research and writing process. First of all, my supervisor at the Radboud University, Arnoud Lagendijk. His feedback on my writings was very helpful and stimulated me to be critical on my own work. Moreover, he answered all my questions ever so patiently. Our conversations really helped me to stay positive and to keep confidence in continuing the process. I also want to thank Henk-Jan Kooij from the Radboud University for his involvement during my research and for helping me with the visualisation of the results.

Secondly, I want to thank the people in Berg en Dal and Heumen. Particularly, my supervisor at the municipality of Berg en Dal, Stef van der Graaf, for supporting me during my internship. His thinking along and critical questions supported the set-up of the research and helped me write a report about the findings. I also want to thank Maarten Merkus from the municipality of Berg en Dal and René Joosten from the municipality of Heumen. Their knowledge had an added value for the research and during my internship. It was interesting to be part of the municipality for a few months and I enjoyed working together with all my colleagues. I also want to thank all the interviewees, the farmers, buyers and others from Berg en Dal, Heumen and surroundings. I enjoyed the interesting conversations in beautiful gardens, on land between cauliflowers and carrots and on other surprising locations.

Thirdly, thanks to Alynda for transcribing some of the interviews and for the mental support. Also thanks to Patricia for reading and editing my thesis in the final phase. This really helped improving the quality.

Finally, I want to thank my family; my parents and my brother and sister and their partners. Their support, trust, love and encouraging conversations have been very important to me during the research and writing process in this turbulent year.

Enjoy reading!

Merel Hogendoorn
Utrecht, April 2018

Summary

The short food supply chain is an example of an alternative food system. In this food chain, there are less intermediaries between the producer and the consumer of a product than in the conventional food system. These products are often sold at farmers' markets or in box schemes. As a result of this, the products only reach a small group of people and have a relatively small impact. In order to increase this impact and to reach a broader public, short food supply chains should scale-up. This process is associated with barriers (e.g. lack of infrastructure and keeping sustainable ideals) and raises governance questions.

This study focussed on the benefits and barriers of scaling-up and the possibilities for governing. The research has been conducted under the authority of two Dutch rural municipalities: Berg en Dal and Heumen, who both wanted to gain insight into the network and actors of short food supply chains in their region and the opportunities for scaling-up. The aim of the research was to contribute to these questions. Moreover, this study adds a practical perspective to the existing theory on the governance of scaling-up short food supply chains. The central question in this research was: **What are the benefits and barriers in the scaling-up of short food supply chains and how can scaling-up be governed?**

The research had a case study design and was conducted using qualitative methods, mainly in the form of semi-structured interviews. 34 people were interviewed, particularly producers and intermediary buyers (e.g. supermarkets, restaurants) of local products in/from Berg en Dal and Heumen. The interviews were supplemented with observations at the municipality Berg en Dal.

The results showed that the benefits of scaling-up short food supply chains are hard to define, as these depend on many factors. It is expected that the local economy will benefit, because money spent on local food stays within the region. Moreover, this food system can contribute to the local community, because consumers know how and by whom their food is produced.

Nevertheless, scaling-up is associated with barriers too. The diversity and volume of local products can be too limited to meet the demand, as this quote of a buyer shows: "the winter periods are somewhat difficult. Then people still expect products. They do not understand that cauliflowers do not grow in the winter." Moreover, scaling-up can increase logistic and administrative complexity of short food supply chains. Producers are worried that it will be at the expense of (the values of) small-scale production, which leaves some of them unwilling to scale-up. "Then it becomes an anonymous product again", as a producer said. Their concern has to do with losing direct contact with consumers and with involving larger buyers, which are more profit driven. However, many buyers are willing to increase their purchase of local products.

Governing scaling-up should be focused on removing barriers. Involving food hubs can reduce logistic and administrative problems. Moreover, it was found that actors, both producers and buyers, can collaborate more and should focus on a common goal. The municipality can facilitate such collaboration and should remove barriers in policy. Moreover, the municipality has a role as buyer and should "set a good example themselves". Finally, all actors have an informing role to consumers.

Taking into account the benefits and barriers of scaling-up and the ambition of involved actors, governing should start at the demand side of the food chain. Buyers can collaborate more. This collaboration should focus on expanding and sharing knowledge. They can spread this knowledge and inform consumers, for example by creating a hallmark for local products. "Put it on your façade, just

pin up a sticker. Show a sense of belonging", as a respondent described it. If necessary, the municipality plays a facilitating role in this. If this process leads to a larger demand, the supply will follow. This supply can be offered by existing local producers or by producers that do not sell their products on the local market yet.

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1. Introduction

Over the past decades, many alternative food initiatives have been developed, such as organic markets, fair trade food labels and local food systems. These initiatives and countermovements are created as a reaction to the rationalisation and intensification of food production (Spaargaren, Oosterveer & Loeber, 2012). They react against the drawbacks of the conventional system, which are associated with environmental and public health problems. Moreover, the rationalisation and intensification have consequences for the resilience of agriculture. Alternative initiatives often use other production methods, which cause less harm (WRR, 2014).

This research focusses on one of these alternative food systems: local food, also called short food supply chains. Short food supply chains can have different forms, such as community supported agriculture, box schemes or farmer's markets. In this food systems, the relationship between producer and consumer is important. The consumer is able to make value-judgements about the food, based on information (Marsden, Banks & Bristow, 2000).

A common characteristic of these initiatives is that they are small scale and often only reach a small and limited group of consumers. In order to bring real change and to form an alternative to the conventional food system, short food supply chains need to grow and scale-up. The aim of scaling-up is to reach a larger group of consumers, for example by selling local products in more mainstream supermarkets or in restaurants (Clark & Inwood, 2016). Therefore, in order to scale-up, it is necessary to engage more or larger producers and consumers (Mount, 2012). However, scaling-up short food supply chains is associated with barriers (Connelly, Markely & Roseland, 2011; Day-Farnsworth, McCown, Miller & Pfeiffer, 2009; Matson, Sullins & Cook, 2013).

The governing responsibilities for food and food related topics (e.g. food safety) have changed over the past decades. There have been shifts from national to supra-national, and from state to non-state actors. The EU has an important role when it comes to agricultural policy (Spaargaren et al., 2012). These policies also influence short food supply chains. Local food systems and initiatives have been supported by the European policy on agriculture (Kneafsey et al., 2013). Nevertheless, these initiatives are also seen as alternatives to the European-centred governance of the agricultural sector, as well as alternatives to the common agro-industrial food provisioning schemes. Because of their local scale, initiatives in the short food supply challenge the policy and public governance networks, and local/regional authorities (Van Gameren, Ruwet & Bauler, 2015). This has also to do with the changing role of the (local) government in general.

This research investigates the governance of short food supply chains at the (rural) local level. In this, the role of all involved actors will be discussed: producers, buyers and municipalities. The focus in this is how the benefits (or aims) of scaling-up can be exploited, while dealing with, or overcoming the barriers.

1.1 Research aim and research questions

Short food supply chains have gained attention as an alternative to the conventional food system. Several studies have shown that this form of food production can have positive aspects compared to the conventional food system. It can have benefits for the community, local economy and rural development (Kneafsey et al., 2013). Therefore, this kind of agriculture gains interest in the policy

domain and in the academic world. Nevertheless, scaling-up these kind of initiatives raises (governance) questions. The aim of this research is to contribute to the knowledge on short food supply chains, by adding a practical view, in which all actors at the local level are involved.

The research is carried out by order of two Dutch municipalities, Berg en Dal and Heumen. These are situated in the Dutch province of Gelderland. Gelderland offers a subsidy for municipalities that is aimed to stimulate innovation in the short supply chains, in order to scale-up this supply. The subsidy of the province can be used for starting a collaboration with another municipality or for the development of a project plan (Provincie Gelderland, 2017). Berg en Dal and Heumen planned to apply for the subsidy. They expect that shorter food supply chains can offer economic opportunities and can contribute to landscape development. In order to do a comprehensive request, the municipalities would like to get an overview of the initiatives in the short supply chain which already exist in the municipalities and about the barriers in scaling-up these initiatives. The aim of this research is to contribute to these questions.

In order to contribute to the knowledge on short food supply chains and the questions of the municipalities, the following central question is formulated:

> *What are the benefits and barriers in the scaling-up of short food supply chains and how can scaling-up be governed?*

This question is divided into four sub questions. Each of these questions focusses on an aspect of governing short food supply chains and, in that way, contribute to answering the central question:

1. Which actors and initiatives form the network of short food supply and market in the municipalities?
2. What is the potential and ambition in scaling-up initiatives?
3. What are the benefits and barriers of scaling-up short food chains, related to the values and concerns of involved actors?
4. How can the ambition in scaling-up be governed?

1.2 Scientific and societal relevance

Scientific

Over the past years, the attention for scaling-up short food supply chains increased (e.g. Connelly & Beckie, 2016; Friedmann, 2006; Mount, 2012). Scaling-up is considered “the next hurdle” to broader systemic impact of these supply chains (Mount, 2012, p. 107). Empirical analysis has shown that new forms of governance regarding this kind of innovations are necessary (Van Gameren et al., 2015). Academic literature on governing scaling-up often has an abstract character, with important concepts as reflexive politics (DuPuis & Goodman, 2005) and social infrastructure (Connelly & Beckie, 2016). In this, less attention is paid to what it practically means for involved actors. This research contributes to the knowledge on governing scaling-up by taking into account the practical level. Where other research often focuses on one aspect or part of the chain, for example the role of public institutions (Friedmann, 2007) or food hubs (Berti & Mulligan, 2016; Cleveland, Müller, Tranovich, Mazaroli & Hinson, 2014), this research has an explorative character, including many local initiatives and actors and their ambition/motivation, at both the supply and demand side of the chain,

Societal

The societal relevance lies in the fact that the research contributes to a practical question of Berg en Dal and Heumen, the two Dutch municipalities mentioned above. The results of this research offer them the possibility to do a comprehensive request for the above-mentioned subsidy. Furthermore, the consequences of the current conventional food system, such as animal diseases and climate change, make that alternative systems receive more attention. This also requires new policies (WRR, 2014). The research contributes to the knowledge of local policy makers in this field. It can give them the opportunity to develop food policy that supports development of short food supply chains.

1.3 Thesis outline

The next chapter, the theoretical framework, introduces the relevant theories on short food supply chains. The chapter focusses, among others, on the definition of local food, the benefits and barriers of scaling-up and the governance implications. In chapter three, the research methods are explained and the operationalisation of concepts is discussed. The following, fourth, chapter elaborates on the findings and results of the research. Finally, conclusions are drawn in the fifth chapter with answering the research questions. Moreover, this chapter reflects on the research process. The conclusion and reflection are followed by the reference list and appendixes.

2. Theoretical framework

2.1 Short food supply chains

Short food supply chains can be seen as a form of an alternative food network (AFN). AFNs are described as: "forms of food provisioning with characteristics deemed to be different from, perhaps counteractive to, mainstream modes which dominate in developed countries" (Tregear, 2011, p. 419). Tregear (2011) describes different theoretical perspectives in AFN literature. First, it can be seen from a political economic perspective, in which AFNs are placed in broader political and economic structures, such as global capitalism. Second, AFNs can be described from a rural sociology or development perspective, in which also rural communities are taken into account. Finally, Tregear (2011) describes the modes of governance and network theory as a perspective in AFN literature. This is about the network or clusters of actors in a certain region or state and the interaction between those actors. This latter perspective is the main focus of this research.

Before elaborating on the theory on scaling-up and governance, this section gives a general introduction on short food supply chains, the involved actors and networks and the values of these chains.

2.1.1 Defining short food supply chains

In order to understand short food supply chains, it is important to define what is meant by this form of alternative food networks. These chains have a local character. However, the definition of 'local' is not very clear and, therefore, can be broadly interpreted (Kneafsey et al., 2013). Local can refer "to the site where the raw food product is grown, the site where it is processed, or the site where it is prepared for home or commercial consumption" (Futamura, 2007, p. 220).

Different terms and definitions are used to describe this type of food. Marsden et al. (2000) use the term short food supply chain. This means that there has to be some connection between production and consumer. According to them, this is not about the distance or the number of intermediary players, but about the fact that the consumer gets information about the place/space of production, the values of the producer and the production methods. The relationship between the producer and consumer is an important characteristic: "the emphasis upon the type of relationship between the producer and the consumer in these supply chains, and the role of this relationship in constructing value and meaning, rather than solely the type of product itself" (Marsden et al., 2000, p. 425).

Marsden and colleagues (2000) define three types of a short food supply chain. First, face-to-face: this is about direct consumer-producer contact. In this face-to-face contact, the consumer can obtain information about the product(s) he/she buys. Second, spatial proximity: products produced and retailed in a specific region. At the point of retail, consumers are informed about the localness of the product. Third, spatially extended: produced in another region than that of the consumer. He/she even does not have to know the region of production. But information about the value and production is communicated to the consumer (Marsden et al., 2000).

Renting, Marsden and Banks (2003) use the term short food supply chain too. This concept "covers (the interrelations between) actors who are directly involved in the production, processing, distribution and consumption of new products" (p. 394). They see these chains also as a way of shortening producer-consumer relationships. Moreover, they add that it can shorten the relations between food production and locality. In this sense, it can contribute to a more environmentally

sustainable way of farming. They use the same division as Marsden et al. (2000) for categorising short food supply chains: face-to-face, proximate and extended chains. Thereupon, Renting et al. (2003) distinguish between two different quality definitions and conventions that can be employed within short food supply chains. In the first category, the production process and producer have the main focus. These are, for example, farm and cottage foods and traditional and fair trade aspects. In the second category, ecological and natural characteristics, such as organic, natural and GMO free are important. There is not a strict dividing line between these categories. Often, short food supply chains have aspects from both.

As the above-mentioned definitions show, short food supply chains and local food are broad concepts that can have multiple interpretations. In this research, the concept that will be used, is mainly related to the first two types of Marsden et al. (2000). A short food supply chain is defined as follows: *food that is produced within the municipality and consumed within the municipality or surrounding municipalities*. Both above-mentioned categories of Renting et al. (2003) are part of this.

2.1.2 Proximity

An important factor in local food or short food supply chains is proximity. Eriksen (2013) writes about the definition of local food and local food systems. She observes that there is no consistent definition of these systems, but that there are certain characteristics that define them. According to her, local food can be understood in terms of proximity. She defines three domains of proximity: geographical, relational and values of proximity. Each of the three domains understands local food within certain conceptual frameworks and with a different emphasis. Relevant elements from each domain can be used to understand short food supply chains. In general, local food is defined by using one or two of the domains (Eriksen, 2013).

The first domain is about the territorial locality and distance within which the production, distribution, retailing and consumption of food takes place. The third type of Marsden et al. (2000), in which the consumer even does not need to know the region, shows that geographical proximity is not always a condition. However, although defining local food or short food supply chains only in terms of distance is arbitrary (Blake, Mellor & Crane, 2010), there is a strong link between food and place (Eriksen, 2013). Also in this research, geographical proximity is an important direct factor in defining short food supply chains.

The second domain, relational proximity, is about the relations between local actors. This is about connection between producer and consumer, but also between producers and other buyers, such as restaurants and retailers. These relations are less found in the conventional food system (Eriksen, 2013). The relational domain is related to geographical proximity. This latter proximity creates the possibility for other relationships. This makes that relational proximity can be seen as an indirect factor: it is a result of the scale on which the food production and trade takes place.

The final domain, values of proximity, is about the values that different actors attribute to local food. These can be positive associations and symbolic or qualitative meanings, which come from perspectives including environment, social, ethical, health and safety. These perspectives often present values that the conventional food system has not, they are “as a counterpoint to industrial agriculture” (Eriksen, 2013, p. 53). These values are, as well as the relational domain, linked to geographical proximity. This proximity adds value to food. The values of proximity can therefore also be seen as an indirect factor. Section 2.1.4 further elaborates on the values of short food supply chains.

2.1.3 Actors and networks

Different actors are involved in short food supply chains. These are producer and consumer, but also the actors between these first and last link. Their interrelations are part of defining local food, what is related to relational proximity. All actors play a certain role in the chain. In the next section, this is shortly explained, as well as the reasons for these actors to be involved in short food supply chains.

Producers

The first actor in the food chain is the producer. These are mostly farmers and growers, but also producers of other products, such as honey. For agricultural producers, a lot has changed over the past decades. Farms have become more industrialised and increased in scale, in order to deal with the changing demand. Moreover, farmers lost power and the ability to make their own decisions (Mastronardi, Marino, Cavallo & Giannelli, 2015; WRR, 2014). These developments make that some farmers, especially small-scale producers, choose to produce for the local market. With this choice, they can continue their business. Moreover, it can have (economic) benefits, as will be described in the next section. Over the past decades, several alternative models have developed, varying from direct on farm sale to farmer's markets and box schemes (Berti & Mulligan, 2016). Apart from these alternative models, local products are also sold to restaurants, supermarkets or wholesalers (Worley & Strobbe, 2012). Producers often sell their products through multiple of these channels (Kummer, Hirner & Milestad, 2015; Worley & Strobbe, 2012).

Farmers in short food supply chains often produce in a more environmentally sustainable way. They grow, compared to conventional agriculture, more often multiple crops, which can have a positive influence on biodiversity. Moreover, these farms more often use organic methods to grow their products (Mastronardi et al., 2015). An advantage for farmers of selling through short supply chains, is the price they get for their products and the flexibility of contracts (Kummer et al., 2015). Another important motivation for them, is the possibility to develop a relationship with buyers (Cleveland et al., 2014).

Buyers

Farmers can sell their products directly to consumers, but also to intermediaries in the catering industry, retail or the public sector. These actors have their own role in the short food supply chain. Companies and institutions in the public sector can use their procurement to buy local food products. This can contribute to sustainable development, transparency and collaborative relationships between caterers and local producers (Lehtinen, 2012).

Also in tourism, there is more focus on local food. Using this food can have a multiplier effect for the local economy and can make the tourism industry more sustainable. Moreover, regions can distinguish themselves from other regions, since local food is seen as authentic (Sims, 2009). This means that using food from short supply chains can be attractive for businesses in the tourism industry, such as restaurants and hotels.

Finally, local food can also be sold to supermarkets or wholesalers. For small or specialised supermarkets, it is easier to buy local. Larger chains are often committed to certain producers or conventional retailers. The reason for buying local lies in the relationship with the local community. Moreover, the quality of local food is important in creating economic benefits for supermarkets (Abatekassa & Peterson, 2011).

Food hubs

One of the links that (often) play a role in short food chains, is the food hub. There is not a clear definition for food hubs (Blay-Palmer, Landman, Knezevic & Hayhurst, 2013). Berti & Mulligan (2016) did a comprehensive literature review on food hubs and distinguished two approaches: the "value-based agri-food supply chain" and "sustainable food community development". The first focuses mainly on the market and supply side, where the second is often non-profit and consumer or civil society driven. Berti & Mulligan (2016) conclude that, regardless of the approach, food hubs are often defined as:

an intermediary business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to both strengthen their ability to satisfy wholesale buyers as institutions, food service firms, retail outlets and end consumers as well (p. 21-22)

Food hubs often have social or environmental motivations to do their work. This give them added value for buyers and farmers and it is an advantage compared to the conventional market. Nevertheless, it can be hard to have social and environmental goals, which are not economically driven, while at the same time trying to become economic viable (Cleveland et al., 2014). The process of balancing between social and economic considerations can be hard to manage (Horrell, Jones & Natelson, 2009).

An advantage of food hubs is that they can serve the needs of large customers, for example in the local tourism industry (EIP-AGRI Focus Group, 2015; Matson et al., 2013). This can be hard for small scale producers on their own, for example because these customers demand large volumes. In this, food hubs can also provide transportation and distribution (Matson et al., 2013). Cleveland et al. (2014) did research into a food hub that delivers local food to local costumers. One of their biggest costumers is a university catering company. The relationship with the university made it possible for the food hub to grow, because of the volume and consistency of orders. This large demand made it also possible for farmers to grow more crops.

Food hubs often play an important role in the information flows between producers and consumers. Therefore, good communication is essential. This communication is two-sided. First, farmers provide information about their products to buyers. The other way around, buyers also provide information to farmers, for example about the prices that consumers are willing to pay (Matson et al., 2013). In the communication, trust between farmers and buyers, and the food hub is important (Bloom & Hinrichs, 2011; Cleveland et al., 2014).

There are also challenges for food hubs. Finding enough financial sources can be a problem, especially for new food hubs (Matson et al., 2013). This makes it hard to invest in necessary infrastructure and, therefore, to become successful. They also often depend largely on volunteers, who can be unreliable and unskilled (Berti & Mulligan, 2016). Another challenge is that larger companies can have requirements which are hard to meet for small food hubs, for example when it comes to insurance (Cleveland et al., 2014).

Reasons for farmers to sell their products to a food hub can be found in personal relationships with the owners of the food hub, and reliability and flexibility. For buyers, it is easier to find information about local farmers. Moreover, a food hub has the necessary distribution infrastructure (Cleveland et al., 2014). These benefits will be further elucidated in the next section on scaling-up.

2.1.4 Values of short food supply chains

As is explained in the previous section, short food chains are often compared with the conventional food system. There is an increased public concern when it comes to food. Different food scandals over the past decades created emergence for food systems that distinguish themselves from the mainstream food system and agriculture. This created momentum for alternative food systems as short food supply chains, in which there is given more attention to aspects as ecology, health and animal welfare (Renting et al., 2003).

Although this is often assumed, local food is not beneficial by definition. Born & Purcell (2006) call this assumption the local trap. According to them, this trap need to be avoided. Nevertheless, (academic) literature often refer to values of short food supply chains; shortening food chains is associated with multiple positive outcomes. First, there can be social advantages. These are related to the above-mentioned relational proximity. At direct sale locations, social interaction and trust between producer and consumer are important aspects (Smithers et al., 2008). Another social benefit of local food is the building of communities around it (Abatekassa & Peterson, 2011). Finally, this kind of food can also increase knowledge about growing food and agriculture by consumers. This knowledge can lead to a change in their consumption behaviour and lifestyle (Cox et al., 2008).

Second, local food can also have economic benefits. Money that is spent on food remains in the region. Therefore, it can contribute to (rural) development and economic regeneration (DuPuis & Goodman, 2005). Another economic benefit is for the producer. Because of the shorter chain, the farmer has a greater share of the profits. Furthermore, he or she can add a price premium (Pearson et al., 2011). Short food supply chains can also offer opportunities for other sectors, for example tourism (Eriksen & Sundbo, 2016).

Finally, there can also be environmental benefits. For example, in the reduction of greenhouse gas emissions and lower energy use. Also, negative consequences associated with intensive farming, like loss of biodiversity and pollution of soil and water, can be smaller in local food production. Nevertheless, as well as for the economic benefits, these claims also are not always very well substantiated with qualitative or quantitative evidence (Kneafsey et al., 2013). Sukkel, Stilma and Jansma (2010) mention too that locally produced food is not always more environmental friendly. According to them, this has to do with the way people do their shopping. They argue that the impact of the use of a car is underestimated: people who buy local products often have to travel over a longer distance (for example to a farmer's market) and, therefore, use their car. This neutralise the positive environmental aspects of locally produced food.

Especially in Northern America, short food supply chains are seen as a form of social justice and a way of making nutritious food available for people with low incomes (e.g. Connelly, 2010; Dimiero & Mayfield, 2014). In the Netherlands, this can be a factor as well (Lelieveldt, 2016), but it seems to play a smaller role, as well as in the rest of Europe. Therefore, this is value is left aside in this research.

2.1.5 Conclusion

This section introduced a number of definitions and concepts related to short food supply chains. The theory from the first parts, on the definition of local food and the role of proximity, is used to demarcate the scope of this research. In this, spatial or geographical proximity is most important; this defines the boundaries of the region and the actors that are part of this. The three dimensions of proximity are also used to characterise the benefits and barriers of scaling-up (next section). The distinction between the different actors is used to outline the network and to distinguish between the

roles that could be found in the short food supply chain network. Finally, the values of these chains will be tested and used to describe the characteristics and values of the actors in the region.

2.2 Scaling-up

This section describes the theory on scaling-up short food supply chains. First by shortly describing scaling-up in general. After that, this section focusses on the benefits and barriers.

The aim of scaling up is to reach a larger group of consumers. This means that more or larger producers and consumers need to be engaged (Mount, 2012). Scaling-up, therefore, looks similar to the conventional system, in which it is used to create more efficiency and larger companies through vertical integration. In the shorter food supply, the aim is partly creating more efficiency. But here, vertical integration is used to form transparent partnerships, which are focused on collaboration instead of competition. Furthermore, the aim is not only to create economic efficiency, but also to contribute to local economic, social and environmental values (Clark & Inwood, 2016).

Where locally produced food is often sold at smaller (direct or farmer's) markets, scaling-up the supply requires the involvement of other players than only food producers. These can be supermarkets and retailers, but also wholesalers or restaurants, because these businesses have a larger range of customers. Abatekassa and Peterson (2011) researched the sale of local food through the conventional food supply chain. They found that important factors in this are traditional supplier criteria such as price, volume and quality. Furthermore, trust, reliability and information sharing influence relationships between producers and actors in the conventional supply chain (Abatekassa & Peterson, 2011).

2.2.1 Benefits

In scaling-up short food supply chains, it is important to understand what the benefits are. These can motivate actors in taking part in scaling-up. In the previous section, the values of these chains in general were already shortly mentioned. Here, this will be further elaborated, by looking at benefits of scaling-up. Most articles and reports on benefits of short food supply chains, focus on the benefits of developing these chains, compared to the conventional food system. There is not much written specific on the benefits of scaling-up short food chains. It can be assumed that the general benefits of short food chains, for example economic and environmental benefits, will expand in scaling-up, but this is not researched as such. Nevertheless, some authors do mention some benefits specifically on scaling-up. These are described in this section.

One of the benefits of scaling-up short food supply chains, is that it can help in transforming the conventional food system (Connelly, 2010). Local food is often mentioned as an alternative to this system. If the scale of short food chains grows and these products become available in more places (and replace conventional products), this can contribute to transforming the conventional system. However, the small scale of short food chains makes the contribution, let alone the transformation, minimal.

A second benefit has to do with the demand. There is a growing demand for local products (e.g. Clark & Inwood, 2016; Day-Farnsworth et al., 2009). More consumers want to know where and how their food is produced, instead of buying food from the nameless global sector. This means there is also potential for transforming the conventional system. Nevertheless, supply and demand not always find each other. Scaling-up short food supply chains, therefore, can help in meeting the growing demand and giving consumers more options, by making local products broader available, for example

in supermarkets or restaurants. At the same time, producers can increase their supply through these buyers (EIP-AGRI Focus Group, 2015; Monteny & Van der Schans, 2015). This can result in a more effective supply chain and increase the relational proximity as described by Eriksen (2013), particularly with conventional buyers. Moreover, working together with corporations as supermarkets and restaurants can offer opportunities for local food actors, such as lower prices and a broader social impact (Navin, 2016).

Third, economic and organisational structures can become more efficient if short food supply chains are scaled-up. It can, for example, create opportunities for local processors. Producers that need processing, such as dairy or meat, can profit from this and add value to their products in the own region (Bloom & Hinrichs, 2011; EIP-AGRI Focus Group, 2015). Moreover, the use of food hubs can contribute to efficiency. Nevertheless, it is important that making organisational and economic structures more efficient is done in a way that supports alternative goals, instead of conventional goals as maximising profit (Cleveland et al., 2014). Therefore, scaling-up short food supply chains is more complex than scaling-up conventional chains, which particularly have to become more economic efficient, for example through intensification (WRR, 2014).

Finally, scaling-up local food can mean that this food is available to use in procurement by businesses or public catering. This can contribute to more sustainable food procurement. Moreover, it can establish collaborative relationships between caterers and their suppliers (Lehtinen, 2012). Thus, using local products in food procurement contributes to the relational proximity in the region. This benefit can also be applied for other buyers, such as restaurants, wholesalers or supermarkets.

2.2.2 Barriers

Besides the benefits of scaling-up, it is also important to understand the barriers. These can constrain actors in taking part in processes of scaling-up. Barriers of scaling-up are mentioned more often in articles and reports. This section elaborates on these restricting aspects by describing barriers for scaling-up in general and for producers and buyers specific.

General barriers

First, as shortly mentioned in the previous part, it can be hard to scale-up small initiatives while keeping sustainable ideals (Connelly et al., 2011). The involvement of mainstream distributors can result in undermining sustainability goals, since profit is more important to them (Bloom & Hinrichs, 2011, in Cleveland et al., 2014). Scaling-up seems to be conflicting with the values of the short food supply chain, such as biodiversity and direct relationships (although the previous part showed that scaling-up can also contribute to new relationships). These values of proximity, as described by Eriksen (2013), can decrease as a consequence of scaling-up. If scaling-up is too much focused on economic values, it can even have the same negative consequences as the conventional food sector (Connelly, 2010). It can, for example, be associated with partnering with larger corporations that are more profit-driven, while local food is focused on environmental and social values. Critics are concerned about this, as it can work counterproductive (Navin, 2016).

Another barrier in scaling-up short food chains can be the lack of (enough) capital (Day-Farnsworth et al., 2009). Capital is needed for equipment and for developing a transportation and distribution infrastructure, but also for a Hazard Analysis and Critical Control Points (HACCP), that requires businesses in the food industry to map the risks of their products (Day-Farnsworth et al., 2009; Matson et al., 2013). This latter point has also to do with (national and EU) regulation on hygiene. This and other regulations or tax systems can form a barrier in scaling-up short food chains (EIP-AGRI Focus

Group, 2015). According to the EIP-AGRI Focus Group (2015) the problems with capital funding have to do with perceived higher risks and "atypical" business plans, which constrain the ability to borrow or make it harder to secure bank finance. Moreover, it can be hard to collaborate and share investment and rewards amongst a group of small businesses.

Lack of capital often goes together with a lack of infrastructure. Connelly (2010) distinguishes two forms of infrastructure: physical (hard) and social (soft) infrastructure. With physical infrastructure, he means among others, distribution possibilities, cold storage and office space. Social infrastructure is about the people in the supply chain and the relations between them. This latter form of infrastructure is related to the relations of proximity of Eriksen (2013). The costs for physical infrastructure are very high for small companies. This makes that companies in the short food supply are often not able to compete with the conventional food system when it comes to efficiency in logistics and distribution (Connelly, 2010).

Apart from lack of capital, two other aspects are important in this. First, the small scale of the local food supply makes the logistics less efficient. Inefficient logistics and distribution has consequences for the cost price of products. Second, for producers it can be difficult to lose their hold over their product and the logistics. Therefore, they want to do it themselves, which is not always most efficient (Monteny & Van der Schans, 2015). Thus, scaling-up can create more efficient short food chains (if there is enough capital), but the threat is that this is at the expense of the autonomy of producers.

Barriers for producers

In scaling-up short food supply chains, it can be challenging to match supply and demand (Cleveland et al., 2014). The demand of business customers differs from that of household customers. For restaurants, institutions, grocery stores or wholesale buyers, the supply is often limited by quantity, product availability (for example diversity) or the growing season (Dimiero & Mayfield, 2014; Matson et al., 2013). For farmers, therefore, scaling-up can mean that they have to change or increase their production. This requires extra infrastructure, such as storage possibilities. Not all (small) producers have this infrastructure (Worley & Strobbe, 2012) or can afford it (Connelly, 2010).

If they are willing to increase their production, there are some risks, since they are not sure whether there is enough demand for these products. A farmer in the research of Connelly and Beckie (2016) describes it as a chicken and egg question: "farmers won't increase supply until they are certain demand exists, but it is hard to raise awareness for consumers if there isn't sufficient supply" (p. 61). People and companies who are involved in scaling-up short food supply chains should be aware of the risks that go together with this process. This has also consequences for the governance of scaling-up (see next section).

For some producers, the processing of their product can also form a barrier in scaling-up. Products that do not need processing, for example (most) fruits and vegetables, are easier to scale-up. These can be sold directly to the consumer or buyer. But other products, for example meat or dairy products, require processing before selling them. This processing requires small-scale facilities, which are not always available in the proximity of the producer. Moreover, this processing makes that the price of these products increases. These producers are therefore challenged more to have the advantages of scaling-up short food supply (Mount, 2012).

The number of producers (and related to that, the quantity of supply) within a certain region can also form a barrier. Jolly and Kenfield (2008, in Cleveland et al., 2014) describe an example of a food hub that, in order to scale-up, purchases products from further away and, also, from bigger farms.

Scaling-up can result in bigger farms becoming more important, since they can provide larger quantities. This can go at the expense of the values of proximity. It put a disadvantage on small local farms, which often do not produce enough to supply to larger companies. Moreover, cooperation and coordination with (several) small producers can be more time consuming for buyers, which make them choose for larger producers (Kummer et al., 2015).

For producers who usually sell their products directly to the consumer, selling to food hubs, wholesalers or supermarkets can result in lower profit margins, since there is an extra intermediary between them and the consumer (Cleveland et al., 2014). Thus, for producers, selling through these channels only pays off if they can sell more than in direct sale.

Barriers for buyers

Offering local food products in supermarkets and restaurants could be a way of dealing with the growing demand for local products (Monteny & Van der Schans, 2015). Moreover, possibly more people can come in touch with these products if they are more visible. Nevertheless, for some supermarkets and restaurants, selling local products can be a problem. This is because products are often delivered by individual producers, which means that there are much more deliveries on a day or in a week. This result in a more complex planning and handling for these buyers (Monteny & Van der Schans, 2015). For them, it can be more efficient to use intermediaries as food hubs to purchase products, but often there are not enough intermediaries to deliver large volumes of local products (Abatekassa & Peterson, 2011).

Apart from food hubs, wholesalers or supermarkets, also the public sector can play a role in scaling-up short food supply chains. Sustainability in food procurement is important in this sector and local food could possibly contribute to this. This is challenging, since there is a strong economic pressure and price is an important factor in taking decisions in food procurement. Local food could be more expensive, since it is produced on a small scale. This makes it hard to compete to (often very efficient) national or multinational food companies (Lehtinen, 2012). Moreover, (EU) procurement rules not always offer the possibilities to buy local food (EIP-AGRI Focus Group, 2015).

2.2.3 Conclusion

Scaling-up short food supply chains aims at reaching a larger group of consumers. With this, it is expected that these chains can contribute to transforming the conventional food system. This goes together with the involvement of more and other actors. This research uses the theory for defining and describing processes of scaling-up in the studied region. The benefits and barriers as described above will be tested. Moreover, they are used to characterise the views of actors in the region.

2.3 Governance

Different actors are involved in the short food supply chain. These are, for example, farmers, businesses, consumers and policy makers. Scaling-up short food chains can not only be achieved by individual producers increasing their size. There are also other things important, such as proliferation, co-ordination and connecting-up small-scale initiatives (EIP-AGRI Focus Group, 2015).

According to Gamble (2000) governance is about “the ways in which governing is carried out, without making any assumption as to which institutions or agents do the steering” (in Steurer, 2013, p. 3). Steurer adds to this that also no assumption is made about the means of the steering. Thus, all actors can play their own role in steering. This section focusses on these different roles. Although there

is not much written about all specific roles, it is possible to gain insight into the possibilities. First, general factors are described, then the role of specific actors.

2.3.1 In general

Governance should focus on exploiting the benefits of scaling-up and minimalizing or overcoming the barriers. The previous section showed multiple barriers in scaling-up short food supply chains. One of these barriers is the difficulty of keeping sustainable ideals, while scaling-up. Therefore, it is important not only to focus on existing locally-oriented producers who need to increase their production. It is also necessary to create opportunities for farmers who produce for the global market. More individual producers can help increasing the total quantity and diversity of products.

In this, infrastructure for the whole local food system is needed to enable a transition to local production and supply. As described above, not only physical infrastructure is needed, but also social infrastructure, such as trust, reciprocity and collaboration. Not only between farmers, but for all actors between producer and consumer that play a role in the food chain (Connelly et al., 2011). Social infrastructure is essential to determine the objectives of scaling-up. A reflexive approach in this can ensure that investments in scaling-up are done deliberately (Connelly & Beckie, 2016). Eriksen & Sundbo (2016) describe the importance of social network relations in developing short food supply chains too. This means that in governing scaling-up, it is important to understand the network relations and, if necessary, to invest in these.

Another important aspect in this social infrastructure, is the motivation of actors. Cleveland et al. (2014) call this a critical requirement for the success of scaling-up via a food hub. It is important that all actors understand that economic goals are not the main drive. These economic criteria should be embedded in social and environmental criteria. It is relevant to communicate this information to potential buyers. If these values are guaranteed, it is possible to keep sustainable ideals. Notwithstanding these values, actors can have different priorities, which should be taken into account. The approach of governance should respond to and incorporate these diverse priorities (Mount, 2012).

The communication of values can be organised in a collective way, for example through branding and labelling. These labels could, for example, give information about the region of origin or about the producer and make products recognisable (EIP-AGRI Focus Group, 2015). Labelling can create awareness for consumers. Connelly (2010) mentions the importance of this awareness. Although the demand for local products grows, conventional products by far have a bigger share in the global food supply. Consumers need to be aware of the trade-offs and costs of the global food system and what is needed for a resilient food system (Connelly, 2010).

Also important in scaling-up is the pace in which it occurs. It is necessary that the changes have an incremental character (Connelly & Beckie, 2016). Cleveland et al. (2014) give the example of a dining service that started with using local food in its salad bar and gradually scaled-up to local food in other meals. They could do this because of their relationship with a food hub. Incremental change and scaling-up could be implemented by all actors involved. With this change, it is important to understand the long-term objectives of the initiative or local food system (Connelly et al., 2011). This latter point again is important in keeping the sustainable ideals of short food supply chains.

2.3.2 Producers

For producers, scaling-up can have specific barriers. This has to do with the possibility of losing the values of small-scale production. Moreover, increasing their production can create a risk, as was described above (Connelly & Beckie, 2016). Therefore, it is important to have knowledge about the

market and consumer behaviour. Then, producers can anticipate the consumer demand and take related decisions (Monteny & Van der Schans, 2015). This can limit the risk of increasing production.

Worley & Strobbe (2012) write about the strategies that can be implemented by both farmers and wholesale buyers to increase the trade between them. According to them, farmers could learn from each other. Producers which already sell their products to wholesalers could educate others on how to serve the wholesale market by increasing efficiency, infrastructure and scale. Farmers could also change certain aspects in their production or business development in order to make it more suitable for wholesalers, for example in crop choice or pricing (Worley & Strobbe, 2012).

Collaboration between (small-scale) producers can improve the diversity of products and, by that, become more attractive for larger buyers. They can also work together in creating more consumer awareness, for example with information about the true costs of food (Connelly & Beckie, 2016). Promotion and storytelling can be effective in this development. Collaboration has benefits for the producers themselves too. First, because it can reduce the competition between them and create mutual support. Second, collaboration can contribute to sharing transport facilities and knowledge and, as a consequence, improving the efficiency in logistics (EIP-AGRI Focus Group, 2015). Also, the risks associated with scaling-up can be shared among different producers (Connelly & Beckie, 2016).

2.3.3 Buyers

For wholesalers and other larger buyers, complex logistics and economic pressure could form barriers in buying local products. It could help to create an internal infrastructure that solidify local food purchases, for example by setting goals or having multiple staff involved in the purchasing process. It might also be helpful to have a more intensified collaboration between buyers and farmers. This communication can help education and mutual understanding (Worley & Strobbe, 2012). The critical requirement that Cleveland et al. (2014) proposed, motivation, is also important for buyers. They often have economic motivation, but they need to recognise that social and environmental values are more important in local food. Economic criteria need to be embedded in social and environmental criteria (Cleveland et al., 2014).

Another important task for buyers lies in the information to consumers. Not all consumers know about the supply of local food. Buyers can inform them through flyers or local media. They can also organise events to get to know local products and their producers (Monteny & Van der Schans, 2015).

2.3.4 Food hubs

Food hubs are often mentioned as a possibility to scale-up short food supply chains (Koch and Hamm, 2015, in Berti & Mulligan, 2016; Cleveland et al., 2014; Monteny & Van der Schans, 2015; Mount, 2012). According to Cleveland et al. (2014), using food hubs to scale-up is more efficient than scaling-down conventional systems in order to create more direct marketing. This has to do with the fact that scaling-down the conventional system is too often focused on decisions that focus on maximising profit.

Food hubs have the potential to meet the needs of large customers or businesses in, for example, the local tourism industry (EIP-AGRI Focus Group, 2015). One of the important benefits of these intermediaries, are the personal relationships between food hubs and farmers, and food hubs and buyers. This personal trust can function as a governance mechanism in coordinating the short food supply chain (Bloom & Hinrichs, 2011) and can contribute to the social infrastructure.

Another role for food hubs can lie in providing distribution infrastructure and logistic support. They can be useful in overcoming logistic problems. Moreover, food hubs can play a role in the information supply and transparency between actors in the food chain (Barham et al., 2012). This information can also be used in promotional activities and publicity, which can help in selling more local products (Willis, 2012).

2.3.5 Municipality

Although the local government is not a direct actor, it can play a role in governing the scaling-up of short food supply chains. Policy-makers, for example, can be useful in ensuring that necessary operational, funding and regulating settings are available to actors in the short food supply chain, in order to realise transformation (Connelly et al., 2011). This can, for example, be information about available real estate and composition of the population. This information can be helpful in creating farmer's markets or (temporary) shops (Monteny & Van der Schans, 2015; Willis, 2012).

Moreover, the municipality can play a role in forming partnerships, for example by developing projects that link producers and (potential) buyers. Involving actors from different groups, such as local businesses, other public institutions and community groups, can contribute to a broad-based public support (Willis, 2012).

The (local) government also has a responsibility in their own food procurement (Crabtree, Morgan, & Sonnino, 2012). They can set a good example by buying products from local producers for catering, receptions and formal dinners. These products should have a recognisable and apparent position. Apart from buying these products themselves, the municipality can also stimulate other (public) institutions to take local food procurement into account (Monteny & Van der Schans, 2015).

2.3.6 Conclusion

In governing the scaling-up of short food supply chains a number of factors seems to be crucial. The factors as explained above are used to describe the possibilities for governing the process of scaling-up in the researched municipalities. These are both the general factors as social infrastructure, motivation and communication, but also insights into the roles of specific actors. Moreover, these factors can help in finding out other governing strategies.

2.4 Conceptual framework

Based on the theoretical framework, the conceptual framework in figure 1 was created.

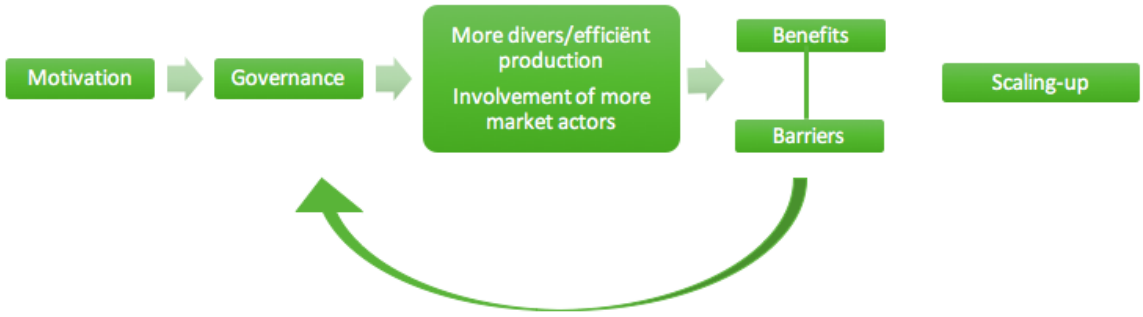


***Figure 1**: Conceptual model.*

First, it is important that actors inside or outside the existing short food supply chain are motivated to scale-up. In this, sustainable ideals are more important than economic profit. This motivation can lead to governing the process of increasing the supply of local products (by existing or new producers) and involving more or other market actors. In this, different benefits and barriers can be experienced, which can raise new governance questions. This process can lead to scaling-up the short food supply chain.

3. Methods and operationalisation

This chapter elaborates on the methods and operationalisation of the research. First, it describes the research strategy and secondly the research methods. In the final sections, there are some words on the research philosophy and on the validity and reliability.

3.1 Research strategy

The research strategy is a guideline for the research (Bryman, 2012). This research had a qualitative approach. This is suitable, since the aim of the research is to find out the underlying values, benefits and barriers of involved actors in the local food network. These are complex concepts, which are hard to describe in a quantitative manner. According to Bryman (2012), qualitative research is more focused on words than on numbers, when it comes to data collection.

The design of this research is a case study. This means that the research focuses on one instance. In this case, the research focuses on the combination of the municipalities Berg en Dal and Heumen. The selection of these had a pragmatic basis. They work together on the topic of short food chains and the research was conducted by order of these two municipalities.

Case studies have different advantages compared to other research designs. First, it offers the possibility for in-depth study. Not only by looking at 'what', but also at 'why': it has a holistic view. This means that it also offers the chance to go into detail on processes and relationships (Denscombe, 2003). In this research, this meant that the study was not only used to map the network of local food, but also to look into the values of involved actors and their role.

According to Denscombe (2003), another advantage of case study research is that it allows and invites the researcher to use multiple sources and methods for data collection. This can contribute to the validity of the research through triangulation. The next sections will elaborate on this in more detail and related to this research.

An important aspect of case study research is the role of the researcher (Yin, 2009). He/she has to be aware of his/her own values and assumptions and how these influence the research. Also, the ethics regarding the participants are important. These are guaranteed by reflecting on them in each phase of the research. Moreover, all interviews started with an introduction to the research. With this, interviewees were informed about the content of the research and about the procedures. The respondents therefore know for which aim the data are used and that the descriptions of data are anonymous.

Generalisation could be a point of criticism when it comes to case study research. Whether generalisation is possible depends on how far the case is similar to others. In order to compare the case to others, it is important to define significant factors and to show how cases compare on these factors (Denscombe, 2003). In this research, factors of comparison could, for example, be geographical or landscape characteristics, since these influence the food sector. The possibility of generalisation will be further clarified in the conclusions chapter.

3.2 Research methods

This section describes the methods of data collection and data analysis which are used in this research.

3.2.1 Data collection

In this study, qualitative methods were used for data collection. The most important was interviewing. Semi-structured interviews were conducted with stakeholders who play a role in the short food supply in Berg en Dal and Heumen.

Interviews seemed to be the most relevant method, given the exploring character of the case study and the complexity of the used concepts. Interviews are targeted and can, therefore, focus on relevant case study topics (Yin, 2009). Semi-structured interviews have an informal tone and allow for an open response in the participants own words (Clifford, French, & Valentine, 2010). Therefore, this method is useful in gaining insight into the values of and relationships between actors in the short food supply chain. Moreover, semi-structured interviews create enough structure for the interviewer and make sure that the different interviews could be compared.

Nevertheless, using interviews as data collection method has weaknesses too. First, bias plays a role. The interviewer can be biased in selecting the interviewees and in asking the questions. Second, the interviewee can give socially acceptable answers (Yin, 2009). The researcher was aware of these factors.

The selection of interviewees started from a list of local producers and buyers from the municipalities. Furthermore, searching on the internet and snowball sampling were used to find more potential interviewees. There were a few criteria for the selection. Producers should produce and sell (at least a part of) their products within one of the municipalities or surrounding municipalities. Buyers should buy products from producers in this municipalities, but could be located themselves in another municipality. Additionally, people that work for organisations related to food, for example in tourism or landscape, were interviewed.

In total, about 60 people were contacted, of which more than half responded. Eventually, 34 people were interviewed. Twelve of them produce food for the local market and ten of the interviewees buy local products. Five have both the role of producer and buyer, for example because they sell (their and other local) products at their own farm. The remaining seven people work for organisations which are related to food.

Denscombe (2003) described that case study research offers the opportunity for using multiple methods. Using multiple methods of data collection, triangulation, for the foundation of results, contributes to the validity of the research and is therefore recommended. In this research, multiple sources are used to validate the results. This meant that not one group of stakeholders is interviewed, but different groups. The case in this research did not create many opportunities for triangulation through multiple methods, in the form of document analysis or participation. The attention for short food chains is relatively new and this research contributes to the development of policy in this field. Therefore, there were only a few opportunities to use multiple methods. Nevertheless, policy documents and conversations with policy makers are used as an addition to the interviews and to gain insight into the role of the municipality.

3.2.2 Operationalisation

In the introduction chapter, the central question and four sub-question were described. These sub-questions are:

1. Which actors and initiatives form the network of short food supply and market in the municipalities?

2. What is the potential and ambition in scaling-up initiatives?
3. What are the benefits and barriers of scaling-up short food chains, related to the values and concerns of involved actors?
4. How can the ambition in scaling-up be governed?

A number of concepts can be gathered from these questions. First, short food supply chains. As was described in the previous chapter, these can be defined by proximity (Eriksen, 2013). Short food supply chains have a network of actors, producers and buyers. These are related to each other by selling or buying local products.

The second concept is scaling-up. This is about reaching a larger group of consumers (Clark & Inwood, 2016). In order to realise this, the actors are important. Scaling-up can have benefits, but actors can also run into barriers, which limit the possibilities of success.

The final concept in this research is governance. All actors can play their own role in governing the process of scaling-up. Governing should focus on exploiting the benefits of scaling-up and limiting the barriers. The motivation of actors is essential in this; sustainable ideals should be more important than economic profit (Cleveland et al., 2014).

The above-mentioned concepts and theories are complex and cannot directly be translated into variables. Therefore, operationalisation is needed, in order to make the ideas measurable (Boeije, 't Hart & Hox, 2009). The concepts that can be derived from the theoretical framework and the conceptual model are presented in table 1. These concepts will be operationalised in the following parts of this section, where they are linked to the methods of data collection.

***Table 1**: Concepts of the research*

Concept	Variables	Values
Short food supply chain	(Local food) network and actors	• Actors: - Producers - Buyers - Food hubs • Relations
	Proximity (geographical, relational and values of proximity)	• Location • Relations • Values: - Social - Economic - Environmental
Scaling-up	Supply and demand	• Variety • Quantity • Location of sale
	Benefits	• Transforming conventional system • Meeting growing demand • Efficiency of structures • Availability for procurement
	Barriers	• General: - Keeping sustainable ideals - Lack of capital - Lack of infrastructure • Producers: - Too little production - Risks of increasing production - Processing facilities - At the expense of small scale - Lower margins • Buyers: - Complex logistics - Economic pressure
Governance	Role of actors	• Social infrastructure • Motivation (ambition) • Communication and sharing

Short food supply chain

The first concept is that of the short food supply chain. For this concept, it was necessary to gain insight into the network and its actors. The first interview question for this purpose was:

1. *What is your role in the local food market?*

Expected answers to this question were: type of consumer or buyer, the kind of products that are traded and whether these are fresh/processed or organic produced. It was also asked how products are distributed. The second interview question was:

2. *With which other persons and organisations do you have contact?*

This question aimed at the relation between actors, especially between producers and buyers when it comes to the exchange of products. It was expected that the market for local would not only be in the researched municipalities, but also in surrounding municipalities, especially in the city of Nijmegen. Related to this question the third interview question was asked:

3. *Is there any collaboration when it comes to short food chains?*

This question focused on existing collaborations, the want or need for new collaborations and the kind of role that these could play. Expected answers to this question were collaborations between a group of producers or buyers, but also partnerships with other actors, for example from tourist organisations.

Related to the questions above, producers and buyers were asked what their reasons are for selling or buying locally. For producers, these could be economic (for example a larger margin) or social reasons (for example direct contact with consumers). For buyers, these could be anticipating to the demand of consumers or sustainability standards.

With the answers to these first questions, the first sub-question of the research could be answered. The network could be showed in a diagram and on a map. Moreover, the mutual relationships in the network will be described. This will give insight in the geographical and relational proximity. Finally, the answers give insight into the values of the actors in the network.

Scaling-up

The second concept of the research is scaling-up. The first question related to this is:

4. *Do you know whether there are already developments in scaling-up?*

The answers to this question give insight into the already existing examples of scaling-up of short food supply chains, for example through (larger) supermarkets or restaurants or in adapting the production to a larger demand. Related to this question, interviewees were also asked whether they think it is desirable if scaling-up is speeded up. The other questions related to scaling-up are:

5. *What are the possibilities/benefits of scaling-up short chains, according to you?*
6. *What are the barriers of scaling-up short chains, according to you?*

These questions will give insight into both the benefits and barriers of scaling-up. Expected benefits are related to tourism, the local economy, sustainability, the local community and marketing. Besides insight into the benefits of scaling-up, this question can also add insight into the general values of short food supply chains, since these are often similar and related to each other. Barriers that could be mentioned are: logistics/distribution, (too) little insight in the demand, concurrence, loss of small scale farms, law/regulation and loss of contact with consumers.

With the answers to the questions above, the second and third question of the research could be answered. It can be described whether different actors have ambition for scaling-up the short food supply chains and what the benefits are. Also, it can be described whether there will be any expected barriers in this process.

Governance

The final concept of the research is governance. To gain insight into this concept, the next question is asked:

7. *Which role can different stakeholders play?*

This question was specified to the different actors in the process: producers, buyers and food hubs, but also the municipality. It was expected that answers for the role of the producer could be: investing in knowledge about the demand of consumers and in strategies for increasing the trade with, for example, wholesalers. Producers could also collaborate or educate each other.

Answers about the role of buyers could also be about collaboration and about investing in the infrastructure. Moreover, they could have a role in informing consumers about local food consumption. It is expected that food hubs will be mentioned as important in scaling-up, because they have a good insight in the network.

Finally, it will be asked what the role of the municipality could be. Possible answers in this are about the municipal procurement and ensuring operational, funding and regulatory settings.

Besides the interview question, also observations and conversations at the municipality were used to gain insight into process of governance and especially into the role of the municipality in this.

With the answers to the question about governance and the findings of the observations and conversations, the final question of the research could be answered. This will describe what is needed from different actors in order to govern the scaling-up of short food supply chains.

3.2.3 Data analysis

The analysis of qualitative data is about interpretation. Therefore, the researcher plays a significant role in this. Denscombe (2003) distinguishes two ways of dealing with this role. On the one hand, the researcher should try to distance him-/herself from his/her normal values and attitudes during the research. On the other hand, he/she can use these values and attitudes and come clean about the way their research has been shaped by them. These two ways are two sides of a continuum, so there are more varieties of dealing with the own role. In this research, the researcher was aware of her own role

and the fact that this played a role in the research. Nevertheless, it is tried to analyse the data as objective as possible, free from own values.

The interviews were audio taped and then transcribed. These transcripts were coded in order to use them for analysis. For coding, the software ATLAS.ti was used. The seven interview questions as described above formed the categories of codes and later analysis. The answers to these questions were translated into codes. During the coding, some codes were added or modified for clarification. These chances were recorded.

3.3 Research philosophy

Research philosophy can be viewed in two ways: epistemologically and ontologically. Epistemology is about the creation of knowledge and about what knowledge is or should be. When social sciences are studied according to the same principles as natural sciences, this is called positivism. The opposite of positivism is interpretivism. This view requires a different logic of research procedure, in which differences between people and objects are respected (Bryman, 2012). Positivism and interpretivism could be placed on a continuum.

Ontology is about the nature of social entities, about what exists. These could be described in an objectivist way: reality then is objective, external to social actors. In the opposite, constructivist view, reality is constructed by its actors (Bryman, 2012). Objectivism and constructivism could be placed on a continuum too.

This research can be placed at the interpretivism and constructivism sides of the continuums. The aim of the study is to create a picture of a social group, a local food network. This is constructed by the people in that group and described and interpreted by the researcher.

3.4 Validity and reliability

Validity is about the question whether the findings of the research represent the real world. If the study is conducted by someone else, he/she should be able to draw the same conclusions (Yin, 2011). This is about the "correctness of a description, conclusion, explanation, interpretation, or other sort of account" (Maxwell, 1996, in Yin, 2011). Conclusions should do justice to the complexity of the findings and not be oversimplifications (Denscombe, 2003). As described before, triangulation is a strategy to secure validity. This was hard in this research, because of the limited possibilities for multiple methods. Observations at the municipality are used to create a possibility for triangulation. Also, stakeholders from multiple groups are interviewed in order to create a complete picture.

Reliability is about the question whether the results of the research are repeatable (Bryman, 2012). This is also an important criterion in case study research. A later investigator should be able to follow the same procedures and find the same results (when using the same case). In order to do so, it is necessary to document all the procedures in the case study research and to make steps operational (Yin, 2009). Reliability can be hard in research using interviewing as method, because consistency and objectivity are hard to achieve in this. It is, therefore, important to explain all the decisions made (Denscombe, 2003). Reliability is realised by keeping the research as transparent as possible, through describing decisions and recording adjustments and modifications.

4. Findings and results

This chapter describes the findings and the results of the research. The first section gives a short description of the characteristics of the region, followed by an overview of the network and its actors in section 2. The third section addresses the (possibilities of) the scaling-up of the local food network in this region and the benefits and barriers of this. Finally, the fourth section describes the governance of scaling-up and the role of different actors in this.

4.1 Region

The municipalities of study, Berg en Dal and Heumen, are part of the Dutch region 'Rijk van Nijmegen' in the province of Gelderland. The Rijk van Nijmegen region includes the city of Nijmegen and six surrounding municipalities (figure 2&3). These municipalities work together on different themes.

***Figure 2**: Region Rijk van Nijmegen in The Netherlands. Source: Internationalstudents.nl, 2017*

***Figure 3**: Municipalities in Rijk van Nijmegen. Source: Regionaal Platform Ervaringskennis, 2017*

Berg en Dal is the largest of the two municipalities in this research. It has a surface area of 44.14 m^2 and a population of 34,724 people (Berg en Dal (gemeente), n.d.). The municipality is located at the southeast side of Nijmegen, between this city and the German border. Berg en Dal consist of a number of bigger and smaller centres, of which Groesbeek is the largest. The municipality has a very varied landscape, with among others, the Ooijpolder hills and woods. This makes the area suitable for different forms of agriculture and contributes to the attraction of tourists. Therefore, agriculture is an important economic support in this area.

The other municipality in this research, Heumen, has a surface area of 41.54 m^2 and a population of 16,421 people (Heumen (gemeente), n.d.). The municipality is situated at the south-west side of Nijmegen. This is also a large municipality, with westwards the centre Nederasselt and to the east Malden. An important scenic area is the watery 'Overasseltse en Hatertse Vennen', partly situated in Heumen. This makes this municipality attractive to tourists too.

4.2 Network and actors

This second section gives a short description of the local food network and its actors in the two municipalities. This network could be formed using the information from interviews with producers

and buyers.[1-27] In both Berg en Dal and Heumen food for the short food supply chain is produced. There is a large variation in the supply, with fruits and vegetables, meat, dairy and cheese, but also drinks as wine, beer and juice. In Berg and Dal, the supply is large and broad. Approximately 25 producers sell their products in the short food supply chain. As mentioned above, the varied landscape offers possibilities for the production of different sorts of food. Groesbeek is famous for its wine and has a number of vineyards. Moreover, this town hosts a number of (organic) fruit and vegetable growers and a few cattle farmers. There is also a local brewery in Groesbeek and the baker uses local grown grain. Finally, there also is a bee-keeper that produces local honey.

In Heumen the supply is divers too, but the number of producers is smaller, with approximately 15 producers. There is a number of (small-scale) fruit and vegetable growers and also cattle farmers, which produce meat and dairy products. Moreover, Heumen hosts a brewery and bee-keeper too. In Malden, one can find a local coffee roaster and an importer of tea. The raw materials of them indeed are not locally grown, but the companies do process them locally, so they can be considered as local products.

The locally produced food is sold at different places. Both Berg en Dal and Heumen have a number of farmer markets that sell the products. These farmer markets sell their own products and exchange products with other farmers. There also is a national cooperation, Landwinkel, with 95 farmers. These farmer markets from all over the country exchange their local products (Landwinkel, n.d.). This short food supply chain can be considered as the third type of the definition of Marsden and collegues (2000): spatially extended. In this type, the food is not sold in the region of production, but information about production and the values of the products are communicated to the consumer. Customers of these farmer markets are local consumers, but also tourists and day trippers.

Besides this sale at the farm, a number of farmers in fruit and vegetables sell their products in boxes. Consumers can subscribe to these boxes and these are delivered at home. Other buyers are (organic) supermarkets. Organic supermarkets often have a large supply of local products. For regular supermarkets, this depends on their chain. Not all parent companies offer the possibility to include local products in the assortment.

Besides above-mentioned buyers, local products are also sold to the catering industry and a number of health care institutions uses these products. A number of restaurants has local products on their menu. These are often restaurants in the higher segment. These groups of buyers sometimes buy from a food hub. This region hosts two food hubs. The first, Oregional, is a cooperation of farmers, that focuses primarily on the business market. They offer a wide range of products, if necessary supplemented with products from outside the region. Their buyers are health care institutions, restaurants and caterers. The other food hub in the region, Lekker Lokaal is a small business that operates in Nijmegen and surroundings. This company mainly delivers products to consumers directly, but there is also a number of restaurants that buy its products. It has contact with many farmers and growers in the region and, therefore, can offer a broad range of products. Both Oregional and Lekker Lokaal can be considered as the first type of food hubs, as described by Berti & Mulligan (2016): the “value-based agri-food supply chain”. This type is focused on the market and supply side of the chain and less consumer or civil society driven.

Many products from Berg en Dal and Heumen are sold outside these municipalities, particularly in Nijmegen. For example to organic supermarkets, cafés and restaurants or to citizens who have subscribed to one of the box schemes.

Figure 4 shows the network of short food supply chains in the region and its actors and the relations between them. The size of the node demonstrates the number of relations of an actor. This is about relations in which exchange of products find place, other contacts or collaboration is left aside. The figure distinguishes between three groups of actors: producers, buyers and companies that both produce and buy local products.

The figure shows that the local food network consists of a large number of actors. A number of things attracts notice. First, the food hub Lekker Lokaal has most contacts, particularly with producers. Less producers in this region sell their products to the other food hub, Oregional. This food hub receives their products from producers in a larger region. The figure also shows that most producers deliver their products to one or a few buyers, apart from some exceptions, for example the pick-your-own orchard Ooijs Moois and organic dairy farm Groenhouten. These companies deliver to a large number of buyers in the region. The water cress market garden De Klispoel is an exception too: it is the only business of its sort in the Netherlands and it delivers to buyers all over the country. Nevertheless, it also has a large direct sale. A set of four producers (at the bottom of the figure) does not have any relationships with intermediaries. They sell their products to consumers directly, in the form of home delivery or in their own farm shop. Finally, it attracts notice that a number of similar producers have mutual contact, for example the market gardens and the winegrowers.

***Figure 4**: Local food network Berg en Dal and Heumen.*

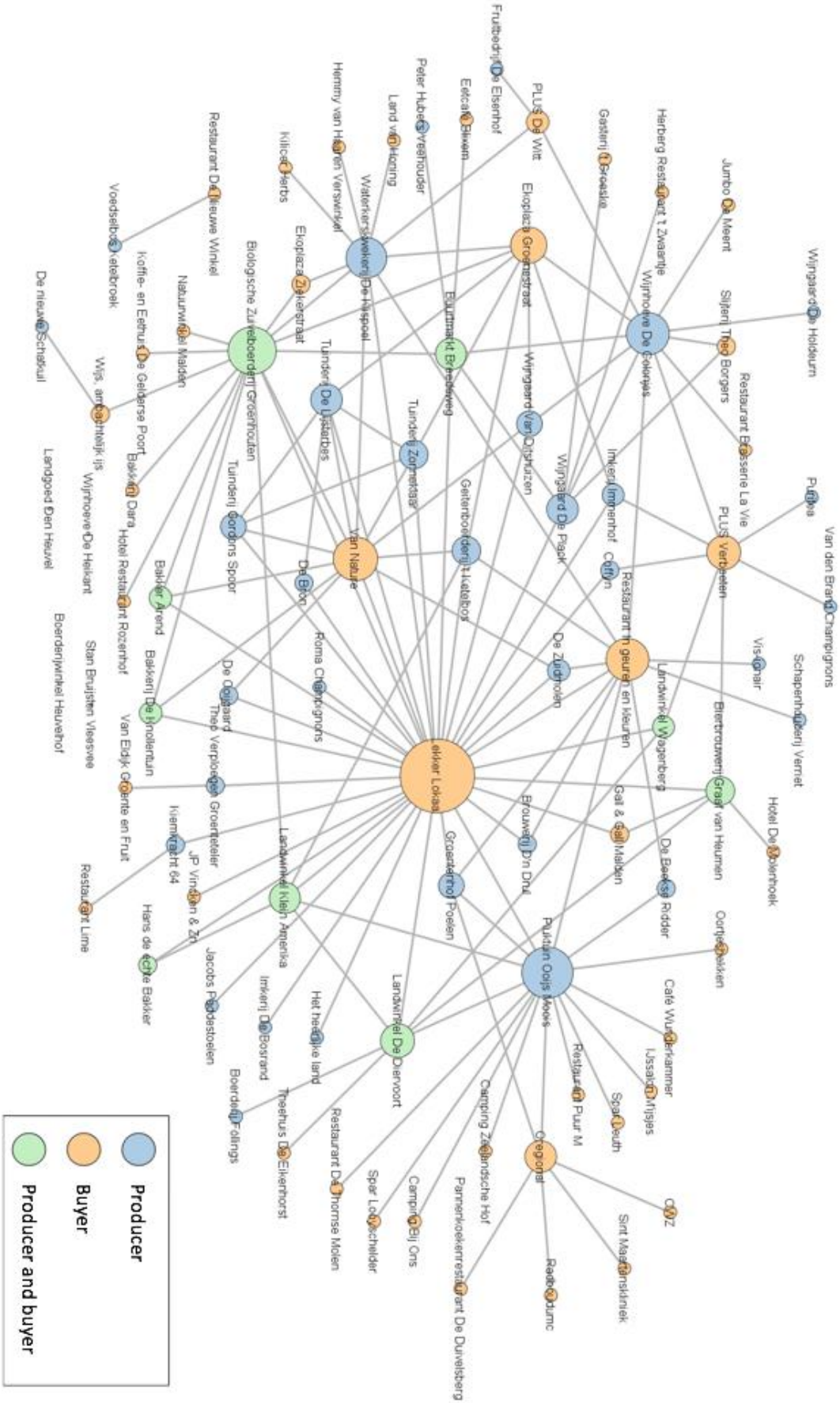
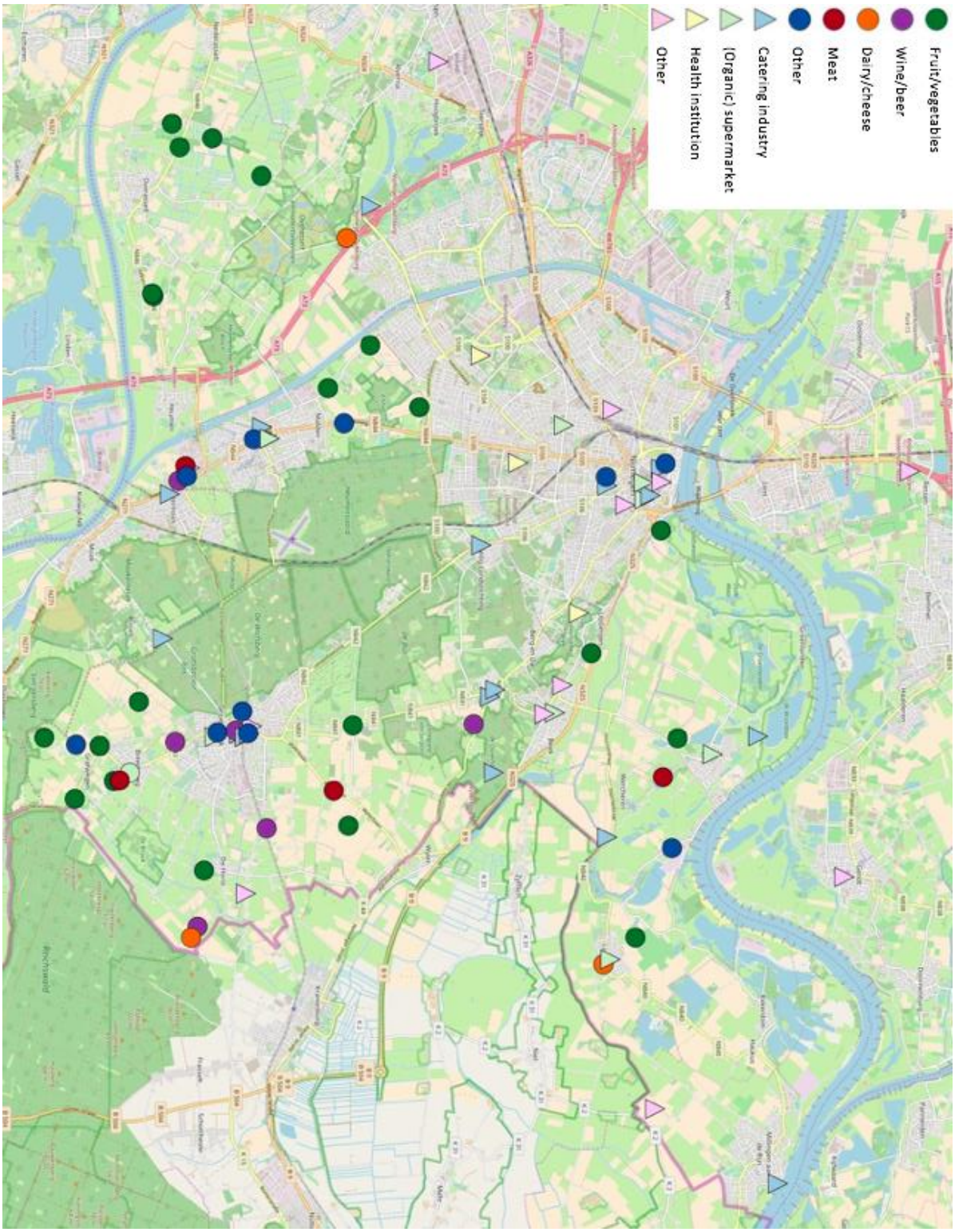


Figure 5 shows the network on a map. This demonstrates the distribution of both producers (circle) and buyers (triangle). The category 'other' for producers represents, for example, bee-keepers. Under the category 'other buyers' fall, for example, ice-cream parlours. The map shows that most producers are located in the rural area and most buyers in the centres and in the city of Nijmegen.

***Figure 5**: Producers (circle) and buyers (triangle) on a map.*



Values

Producing or buying products for/from short food supply chains is associated with a number of values. Based on the theoretical framework, it was expected that values would lie in social, economic and environmental aspects (e.g. Abatekassa & Peterson, 2011; DuPuis & Goodman, 2005; Kneafsey et al., 2013). The findings show that these values are found in the researched municipalities too.

In this research, sustainability is seen as an important value of short food supply chains, although a few people acknowledge that this is not necessarily the case.[8,29] However, sustainability was mentioned by approximately half of the 34 respondents: farmers and other producers, but also by supermarkets and food hubs. This sustainable value has mainly to do with little food kilometres, and thus less emissions from transport.[e.g. 2,12,31] As a producer phrased it: "You do not have to drag far with products".[1] Also, less energy is needed, because there are fewer moments of cooling: ". . . otherwise it has to go from here to the auction first, there it has to be cooled, it has to be processed, it has to be loaded and unloaded. These are all actions, so it is all energy . . .".[2]

Another sustainable aspect can be found in small-scale production.[e.g. 9,23,33] Although this is not true for every case, food for short food supply chains is often produced on small scale farms. This kind of production pays more attention to environmental aspects and biodiversity, as five different respondents mentioned. According to the municipality of Berg en Dal, this intrinsic value of biodiversity makes that agriculture can function as an economic support to the landscape (personal observation, 23 August 2017). Moreover, small-scale farms can continue to exist if they produce for the local market and less production is intensified. A buyer says about small-scale production:

> Everything lives and flowers there, while it is also just suitable for consumption. If you compare that with the 'green deserts', as it is called, for livestock farming, where only grass grows on an acre and where the soil is no longer suitable for insect life because it has become too acid, where no flower grows anymore, no more birds are landing. That is fateful for our nature. It is actually much more beautiful if you do something else with that land.[3]

Besides the aspects of sustainability which were found in the literature, such as less transport kilometres and more biodiversity, the findings show an additional value of small scale production: it ensures that the landscape remains attractive for recreation and tourists.[e.g. 3,20,30] As a respondent phrased: "And that landscape is not just hills where people cycle, but landscape is also where cows graze and crops are grown. And if you have a good ratio in this, you also keep the landscape attractive for tourists".[28] Because of this attractiveness, short food supply chains have value for tourism. In Berg en Dal and Heumen, 9,2 per cent and 12,7 per cent of the total employment respectively can be attributed to tourism and recreation (Stastisch Zakboek Gelderland, 2017a; Stastisch Zakboek Gelderland, 2017b), so this is economically important. Moreover, about half of the respondents, among whom restaurants and producers who sell at home, notice that visitors are interested in local products.[e.g. 2,11,25] This respondent explained it: "If you say: I have my lamb here from down the hill, I have my goats from Groesbeek and I have my wine from Groesbeek and my watercress from Ubbergen. People like that".[4]

Another value that is often mentioned, is the local community.[e.g. 3,19,30] Food from short supply chains can contribute to a local food community and self-sufficiency. "A product with a story always sells better", as a buyer phrased it. [5] Moreover, consumers know who produced their food and are able to

contact the producer, if they are satisfied, but also if they are not.[32] The production is more transparent. Trust between producer and consumer is important in this, as was also described by Smithers et al. (2008).[2,4,7,9] More than ten respondents, mainly producers, mention the 'citizen-farmer bond'.[e.g. 6,14,26] A producer told that consumers are interested to hear how their food is produced, to hear the story and to talk to him as producer.[6] Consumers become more connected with their environment and the production of food. This contributes to the experience of and confidence in food production. This is needed, because "consumers have little respect for what good food is".[29]

Finally, short food supply chains also have economic value, both at micro and macro level. Nine respondents mentioned this value, particularly buyers.[e.g. 5,7,18] The local economy is stimulated, because money spend on (local) food stays in the region.[5] It also can provide employment.[7] Besides, the producer receives a better price for his/her product, because there are less intermediaries.[e.g. 1,13,14] A producer describes this advantage:

> . . . it is also much more attractive financially. Because not everyone is in between. And when you go to the auction you have to wait and see what the price will be. And so [with direct sale] you can make direct agreements and you can make direct appointments for the whole year.[2]

Because of this, the price for the consumer can be better too.[e.g. 6,7,27] For this, it is necessary that the number of intermediaries is as small as possible. Farmers who sell their products at home, can determine their own price, but this is different with an intermediary. The number of intermediaries and the price differs per product group. Fruit and vegetable growers, for example, often can sell their products directly, while meat and dairy products need more processing. Therefore, these products are often more expensive.

4.3 Scaling-up

This section describes the findings regarding the scaling-up of short food supply chains in Berg en Dal and Heumen. First, it gives a description of the current developments which contribute to scaling-up. After that, this section will elaborate on the benefits and barriers that are mentioned by respondents as it comes to scaling-up.

4.3.1 Current developments of scaling-up

There are a few developments in the short food supply chain that can be considered as scaling-up. With these developments, a larger group of consumers is exposed to locally produced food. A few actors play a role in this. First, these are the food hubs. One of the food hubs in this region tries to make local food accessible by offering a range of products via a home-delivery system. The company has a broad network with farmers, growers and other producers. This food hub explains:

> Yes, there are processes, there is a system, there are contacts, there is - in principle - cooperation. It is a matter of supply and demand. Sometimes there is not enough supply for the demand, then it is not possible to scale-up. But then [name food hub] has the task to say: "there is more demand than supply, so next year add a few rows of that crop and I buy it all, because there is a market". So it is very easy to put that supply and demand

> together. That is a continuous game, but it is just a matter of communicating. I think that if the demand increases, if the market grows, the difficulty of scaling-up is not that big.[3]

In contrast to this food hub, another food hub in the region is focused on the business market. It delivers, among others, to hospitals. These hospitals use local products in the food for patients.[5] The first hospital started a few years ago with buying local products that did not need processing, for example apples. This is slowly extended with other products and by now, the hospital buys many products from the short food chain, mainly via a food hub.[5]

Besides food hubs, restaurants and other businesses in the catering industry can also play a role in scaling-up. These companies are in contact with tourists, which are often interested in local products.[4,11] Producers sell their products to different restaurants in Berg en Dal, Heumen and surroundings.[e.g. 6,16,21] At the moment, these are particularly restaurants in the higher segment, as was mentioned in section 4.2.

A final group of businesses that anticipate the demand for local products, are supermarkets. Both organic and regular supermarkets are engaged in this. Organic supermarkets have been buying local products for some time. For regular supermarkets, this is relatively new.[27] It depends on the supermarket chain whether entrepreneurs have the opportunity to include local products in their assortment.[7] A supermarket chain that offers this possibility is PLUS. The municipalities host two supermarkets of these chain and they both have several local products in their assortment. These are particularly fruit and vegetables, and locally processed products as wine, beer and honey. They distinguish themselves by these products and meet the demand for local products.[7,8]

Besides these large supermarkets, one of the small centres in Berg en Dal, Breedeweg, has a corner shop that offers many local products. This shop is part of a health care institution and also has a small café and a bakery. People living at nearby locations of the institution work in the corner shop. The shop buys its local products via a food hub.[9]

4.3.2 Benefits

The theoretical framework showed that scaling-up can have benefits. It can, for example, help in meeting a growing demand, which makes local food (and its values) more effective (Navin, 2016). Moreover, scaling-up can result in economic and organisational structures becoming more efficient (e.g. Bloom & Hinrichs, 2011).

It is hard to define the benefits of scaling-up short food supply chains in this research. When asked about these benefits, most respondents mention the values of local food in general. It could be expected that these values and advantages of local products will increase if the chains are scaled-up. Nevertheless, there are also different (potential) benefits of scaling-up specifically. These benefits are mainly economy and community-related. The expectation that scaling-up can improve the efficiency of production was met. As a producer phrased it:

> The advantage of scaling-up is always that you can work more efficiently. That is not that difficult. Scaling-up also means that you can collaborate more in advertising, that sort of things. Of course, that is always possible. It has to become known to the consumer. The more you sell, the easier it will become. To do things.[2]

This could result in lower prices, which make these products more attractive to buyers, for example for supermarkets:

> And for us as a retailer, it is of course also beneficial in some cases if you can remove a number of intermediaries from the chain. One of the advantages, for example, if we buy strawberries or asparagus directly: the price is lower, so we can also sell them at a lower price and with this you can create volume.[8]

And if more or other buyers are interested in local food, producers can sell more products. A producer mentions: "If all goes well, you can sell more through those channels".[10]

A second benefit is that scaling-up can contribute to the local community, this value becomes more effective. Four respondents, a producer, a buyer and two others, mention the importance of mutual contact and transparency.[11,12,29,32] If local products are available at more places, consumers could become more aware of the region in which they live:

> People just find it all normal. In the city, they hardly know where the food comes from. Yes, from the supermarket. But how much effort farmers have been put into it, that is actually shown, unfortunately. We therefore want to try to repair that connection in various ways. And then the short food supply chain is a means to achieve that goal.[29]

Consumers can learn about the products that are available and about the producer of these products. Transparency is important in this. Also, scaling-up can lead to more collaboration among buyers or producers and between buyers and producers, as this buyer mentions: "I think if you know each other and know what you can do for each other, you can also support that".[11] This producer agrees with this: ". . . that you also know each other better. That is always good of course. And then you can also work with each other's products".[12]

4.3.3 Barriers

This section elaborates on the potential barriers of scaling-up short food chains. The theory indicated that there can be general barriers, which apply to multiple actors, but also specific barriers at the side of producers or buyers. This section describes the barriers in this same order.

General barriers

In the theoretical framework, it was explained that barriers were found in keeping sustainable ideals (e.g. Connelly et al., 2011). Moreover, lack of capital and (physical and social) infrastructure were mentioned as obstacles to scale-up short food supply chains (e.g. Day-Farnsworth et al., 2009).

The first barrier, keeping sustainable values, is particularly mentioned by producers. This will be further described in the next part of this section.

Although people acknowledge that there is little collaboration between actors in the short food supply chain, lack of social infrastructure is not mentioned when asking about barriers. Nevertheless, respondents do see collaboration as a governing tool in scaling-up, as will be described in section 4.4.

The expectation that lack of infrastructure can form a barrier is met. One of the most frequently mentioned general barriers in this research is logistics. Thirteen of the 34 respondents mentioned this barrier, among whom farmers, food hubs, supermarket managers and others.[e.g. 3,6,8] This can go together with a lack of capital: transport is a high cost in short food supply chains.[3,30] This producer described it as follows:

> No matter how you see it: in local food production, if you take the word local literally . . . that it is very expensive. So I drive our route on Thursday evening / Friday, is that financial possible? Well, it is part of our concept. If I have to hire someone who I have to pay 15 euros per hour, it would still be possible, but it does make it a lot less interesting.[13]

Except from staff and lack of capital, the difficulty with logistics has also to do with quantities, as was mentioned by respondents from different groups.[e.g. 18,20,30] Because of small quantities, it is hard to have an efficient and cost-effective transport system:

> You have to reach larger groups of consumers. So it's about volumes. Logistics is a very important cost item. People are not prepared... In the beginning, if you start with an initiative and you need five cauliflowers, you put them ready. But if after five months it is still five cauliflowers or it has become seven, it will take too much time. So if it does not involve a bit of reasonable volumes, it does not work.[30]

A producer describes a comparable experience with (lack of) volume: “Logistics is a problem. . . . Then he has to stop here for two pumpkins. That is actually not possible. For me it is not really possible, but for him neither”.[6] Increasing volumes is necessary to overcome this barrier. However, producers are not very willing to increase their production, as will be described in the next part.

Besides the logistics, administration can also form a barrier, for both buyers and producers.[6,7,8,14] Supermarkets often have a computer-based management system of their assortment. Buying locally often means that orders have to be made manually, just as paying the bills: “You have to do the range management yourself. At [supermarket] we have a central system and all products are in there. Everything that you do locally must be adopted and maintained locally. That obviously takes time”.[8] Another supermarket manager has the same experience.[7] Supermarkets also have more stops at the door if they buy local products, because producers often deliver the products themselves. This is explained by the same supermarket manager:

> But what is happening now, we have ten regional producers and they all supply us individually. So we have ten extra stops at the door. That is not efficient at all. This is actually not efficient for the producers either. Normally they let a truck come from the auction and gone is it. And now they have to get into a car themselves, they have to make the bills. So you have the administrative burden that goes with it.[8]

As the quote above shows, administration can form a barrier for producers too. Sometimes they have to make separate bills for multiple small orders. If they sell their products on the world market or at home, this is not a problem. A producer phrased it as follows: “Everything becomes more. There is a lot more work involved. Just setting up and harvesting and trading separately. There is a lot more work in that“.[14]

These administrative problems could be solved if a food hub is used, as the literature indicated (e.g. Cleveland et al., 2014). Then, producers only have to make out one bill and buyers have one extra stop at the door. However, food hubs also have to pick-up the products. They try to do this as efficient as possible, but that is hard if they have to make a detour for the products of one producer or for very small quantities.[15] A food hub explains this field of tension:

> . . . on the one hand, the whole local2local story is very attractive and sustainable. On the other hand, it sometimes is relative, because you drive with small quantities. It would be best if you drive back and forth with a full bus every time. Then you really get everything out of it. But sometimes a customer wants a few crates with mushrooms or something. Then you go with a whole diesel bus with a few crates. So, to get this really sustainable, you do want certain volumes. So, in this sense, this chain would benefit if more turnover is generated, more sales.[15]

Another barrier in scaling-up short food supply chains is the availability of products and the expectation of consumers in this.[e.g. 6,14,15] This respondent describes this as follows: "To me, the biggest barrier now seems to be to have the right producers: the variety and diversity of producers. That this matches each other, that seems difficult".[31] With local products, one is dependent on what is offered. This differs per season. In winter, the variation is very small, but also in other seasons it could happen that products are available for only a short time. The literature described this as a problem for (bigger) organisations, but it was found that it can form a barrier for (direct) consumers too. They expect most products all year round, as the following quote shows: "the winter periods are somewhat difficult. Then people still expect products. They do not understand that cauliflowers do not grow in the winter".[9] A food hub has the same experience with demanding consumers:

> Look, if you have consumers who want you to have strawberries grown in the open for half a year, yes, then it is right, then your offer is not broad enough, every week of the year. But if you know: yes, I only have six or seven weeks of organic strawberries grown in the open, and after that I have to do it with cherries ... well, it is not such a big punishment.[3]

Apart from demanding consumers when it comes to availability, food is also not always produced in large quantities, as was already mentioned above. This could particularly form a barrier for supermarkets and businesses in the catering industry:

> What sometimes is a bit difficult, is a certain difference between an expectation of a buyer and what the farmer or grower can deliver. The harvest can fluctuate considerably, and the demand is rather constant: I just want this every week and this and this, so many kilos of asparagus. So that remains difficult.[15]

This respondent described a comparable situation for institutions: "They want constant supply. There, you cannot say: this week we only have broccoli to offer, and forget the rest. That is difficult, to get that well organized".[29]

Barriers at the side of producers

The above-mentioned barriers apply to multiple actors, but there are also barriers at the side of producers. The theory indicated that these could be found in (lack of) processing facilities and in the fact that scaling-up is at the expense of the values of small scale production, such as lower margins and the need to increase production (e.g. Kummer et al., 2015; Mount, 2012). This latter expectation is met in this research. This influence producers' ambitions in scaling-up. Particularly farmers do not see the necessity or do not want to scale-up.[2,6,13,26] They have a (successful) business and are busy with

this. They wonder why it is necessary to scale-up, because this can be at the expense of (the benefits of) small-scale production: "Then it becomes an anonymous product again", as a producer explains it.[6] As the production increases, employees could be needed, which means that the margin decreases. This producer phrased it as follows:

> That is why you have to ask yourself whether you want to scale-up as a producer. Because if you scale-up you need large sales, then you need those guys, and before you know it you lose that margin. Or before you know it, you have to hire staff, you have to get even bigger . . .. And then, what is still a regional product?[13]

For producers that need to process their product, scaling-up can be difficult as this dairy producer explains:

> You often end up in a completely different type of business. Then it is no longer at farm level. That is very clear with the dairy, for example. If you want to expand, you immediately come to industrial machines. And then you are no longer a farm, but then you are a factory. There is actually very little in between.[1]

The expectation that scaling-up can form a risk for producers, as was described in the theoretical framework, was somewhat met. Only two producers mentioned that scaling-up can be a risk, because it requires investment in storage capacity and sale need to be secured.[25,26]

Barriers at the side of buyers

There are also barriers that go for specific buyers. As was found in the literature, these can lie in complex logistics and economic pressure (e.g. Lehtinen, 2012; Monteny & Van der Schans, 2015). For supermarkets, there are administrative barriers and the possibilities offered by the parent company, as described in a previous part. Moreover, respondents worry that involving supermarkets will be at the expense of the price for the producer, because of the economic pressure: "What has happened in other places in the Netherlands, is that the wholesaler runs off with it and tries to get involved. Then it seems to become more efficient, but then you might lose your charm".[4] A producer does not believe in the involvement of retail too:

> Yes, it would be very nice if the producer can live on it. But the supermarkets are not known for doing business very nicely. So the farmer search for alternatives, especially when he is small. And often you cannot deliver what Albert Heijn wants. If they want 500 pumpkins a week, you have to have a piece of land to be able to do that.[16]

Besides the role of supermarkets, it was found that businesses in the catering industry can form a barrier too. They are often mentioned as demanding when it comes to order and delivery times, especially by farmers.[e.g. 10,13,23] Moreover, their purchase is irregular. This restaurant owner explains his view on this group:

> . . . I feel that catering, chefs and so, are tough people to work with. In terms of planning and making appointments, products being necessary or not. Of course, they buy something at a time. And I prefer to buy per day. Have a try to deliver that way: one head

> of lettuce and one celeriac. That does not really progress. While we might need three to four celeriac during the week, but we will not order it at once. This is logical from the chef's point of view, but in terms of logistics...[4]

For restaurants, it is also often cheaper to order via a wholesaler or they are committed to contracts, as because of which they have no choice. This relates to the, in the literature described, economic pressure. The same restaurant owner about the importance of price:

> Cost can be a problem: companies may think: very nice, that local eel, but I can get it at the wholesale for two euros cheaper. And finished, then you lose it. Then the story must be very good and it must also be a thing in the company that works with that eel that they want to make it known. If they do not want it, they will never pay that extra price. And big companies are already looking at a ten-cent piece. So they will say: it is too expensive, finished. And then you lost it.[4]

4.4 Governance

Now that the benefits and barriers in scaling-up are defined, it is important to find out which role different actors could play in governing the process of scaling-up short food supply chains. The theoretical framework described a number of things which are important in this governance, including the focus on physical and social infrastructure and the importance of motivation and incremental change. Respondents were asked which role each actor could have. This section describes the findings for each group of actors.

4.4.1 Producers

Producers obviously play an important role in in the local food production. The theory indicated that for them, it is important to have knowledge about market and consumer behaviour. Also, they could collaborate and learn from each other (e.g. Connelly & Beckie, 2016; Monteny & Van der Schans, 2015). In this research, the ideas about what they could do to in order to stimulate short food chains vary. According to some, particularly buyers, it would be good to have a shared goal: "To more collectively come out with your local products".[17] This would stimulate the social infrastructure, as was described by Connelly et al. (2011). At the moment, the collaboration is minimal. Berg en Dal hosts a cooperative of agrarian entrepreneurs, but this has not a clear purpose.[4,6,9,17] They organise the 'Streekgala', an open day of agrarian businesses in the surroundings of Nijmegen. However, this is particularly focussed on agrotourism and not that much on the marketing of local products.[32] Producers could focus more on expanding local products and creating a local market together. A buyer described this:

> A glance at that common goal. That would be a nice thing, of all stakeholders. A little bit going beyond yourself, that you do not just look at your short-term self-interest, but that you see that when you look for that cooperation, and you keep an eye on increasing the local product, and creating such a local market, and investing in that local product, that this ultimately makes you all better. And that you do not have to be afraid of competition, or that a colleague goes off with the same product, that you want to keep him/her out. You know, that feeling about, there is a world to win, instead of focussing on that greedy one small percent, as it is now.[3]

It has to be less about competition, but about collectively making local food known. Producers should come together, according to this buyer:

> . . . that is why I think that bringing together, bundling, in whatever way, that that is most likely to succeed. And look for a party that wants to manage that [collaboration]. That should not be a tourist office, but rather from the farmers themselves.[4]

This could, for example, lead to a logo or quality mark for products from this region, together with other actors. This form of labelling was also described in the theoretical framework, as a way of creating awareness (EIP-AGRI Focus Group, 2015). Three respondents, two buyers and someone from the tourist sector, proposed this idea as a means of creating visibility.[9,18,28] This buyer explains his idea: "And actually I am also thinking about a kind of brand, a logo, a stamp: 'From Groesbeek'. Then you really have a hallmark".[9] Buyers can also use such a hallmark to show that they use local products (see section 4.4.2)

Besides the aspects from the literature as described above, it was found that producers can have an informing role. They could, for example, organise meetings for businesses, or take part in meetings. In this way, potential buyers can gain more knowledge about food from the short chain and meet producers: "that it is mainly putting the heads together and making people enthusiastic about those products".[4] Another buyer describes it as follows:

> Maybe you should organize a kind of meeting with several companies. And that there are one or two producers who show their products or tell a story or something like that. I think that that combination, that will make it very strong. If both parties are present.[18]

Moreover, producers have an informing role to citizens. They, for example, can organise an open day and show citizens their business and the production of food: "Show what you do to citizens. Open your doors. Try to develop something that will attract citizens to your company".[6] Consumers could be involved by letting them experience and try the food: ". . . where people can taste that experience and feel how it works, growing food. That it is important to develop this awareness".[16] With this, the bond between farmer and citizen could be strengthened. According to this buyer, it is also important to involve children in this: "if you can create an information function in that, I think that is very good. Primary schools, which also have a school garden and so".[19]

The above-mentioned ideas about the role of the producer particularly came from buyers or other respondents. Most producers themselves think that they should not be pushed to anything: "Leave business to the businesses".[6] They want to decide themselves whether they want to change something or not. Scaling-up should be borne by market parties, without intervention.[1,2,13,14] The agricultural organisation also stimulates this bottom-up development:

> So we stimulate, but ultimately entrepreneurs have to do it themselves. And we prefer that a question comes from below. That people themselves express: we have this plan and how can you support us. If you are going to bring up things: we have a recipe here,

> that just does not work. It really has to come from below. Otherwise people will lean back.[29]

Respondents emphasize that it is about managing a business and it does not work to stimulate somebody if he/she does not want it him/herself: ". . . that is doing business. You have to do that yourself. And you have to learn too".[13]

4.4.2 Buyers

(Potential) buyers could do several things to stimulate short food supply chains. The theoretical framework indicated that buyers could create an infrastructure for local products and work together with producers (Worley & Strobbe, 2012). Moreover, they can have a task in informing consumers (Monteny & Van der Schans, 2015).

The findings in this research suggest that businesses should be more open to local food or inquire information about this. As described in the previous part, there could be more collaboration between different actors. Seven respondents, particularly buyers, mentioned this.[e.g. 5,8,11] Both producers and buyers have a role in this, as this producer described:

> I would certainly invite them once to such tasting room and acquaintance. Some restaurants will nonetheless choose for the wholesale and the convenience, and are at the bottom of the pricing for that matter. But the region also hosts plenty of restaurants that would like to show to tourists that they are proud of this region. Then this is just a chance to make something of it. And I think they are all hard workers, both the farmers and the catering people, so you have to pull them out of their isolation to bring them together, because otherwise they do not know each other.[20]

Buyers of local food can also communicate more with other buyers, in general or within a sector, for example with restaurants.[3,4,8,18] There is already a lot of knowledge about local food, so not everything has to be invented. In one-on-one contacts or in meetings, knowledge could be exchanged. Moreover, businesses could inspire each other in buying or using local products. This buyer phrased this possibility:

> Yes, there could be much more mutual consultation. I think that is not even such a bad idea. You do not pay much attention to that. . . . And of course we also try to work on those kinds of developments. But to take the time to informally work out ideas with someone from another company, that's a nice idea.[18]

Companies, for example supermarkets, have to be receptive to this kind of food.[21] Businesses that start buying local food are advised to start small and to increase the number of products slowly. This relates to the need of incremental change, as the theory indicated (Connelly & Beckie, 2016). It is necessary to be flexible, because the supply of local products fluctuates. This buyer tells about his own experience with this:

> So that's why we said, we start very simple. An apple, pear, everyone can eat that, so a box of apples and pears. And we gradually built it up more and more. We got used to it and in the house [hospital] they talked more and more. And apples and pears are scaled-

> up to cut or peeled vegetables. Dairy is a little more difficult, so you have to take the time for that. And then you are talking about delivery times, they have to be able to deliver 7:30 in the morning. So these are things that you have to take into account. . . . You have to be flexible in that, otherwise you will go crazy.[5]

In line with the literature (Monteny & Van der Schans, 2015), the findings show that buyers have an informing role too.[e.g. 8,12,28] Businesses that already work with local food, should spread this more. Eight respondents from all groups mentioned the importance of this: ". . . promoting and spreading well, only then it obtains that added value", as a respondent phrased it.[31] As mentioned in the previous section, this could be done using a hallmark: "Put it on your façade, just pin up a sticker. Show a sense of belonging. That is a quality mark".[28] Such hallmark can show pride of one's region and can develop enthusiasm for the products. Moreover, it makes local products more recognisable for consumers. This buyer describes how he experiences this in his supermarket:

> Despite the fact that we do a lot with local products, the recognisability in the store, as a regional product, is not always clear. So we are working on that. . . . we really want to make that communication complete, so not only in the store, but also online. So it's about a design of a uniform logo: these are our regional products. With a photo of the grower or farmer or producer and with a story about what makes it so special.[8]

The tourist sector can also take advantage of this visibility.[e.g. 11,22,28] Moreover, in tourism, products could also be linked to recreational activities, such as cycling or hiking. For example, in a tour along different cafés and restaurants, as this restaurant owner described: "That we say: at your place the beer, here the starter and there the dessert".[11] Or as this producer describes, with a tour to visit farmers: "Maybe hotels can set up a bike ride along the products they serve at the table in the evening. That's great fun. Tourists would like that".[22]

4.4.3 Food hubs

Food hubs can also play a role in scaling-up. The theory indicated that they can use personal trust as a governance mechanism (Bloom & Hinrichs, 2011). The expectation that trust would be important, related to food hubs, was not met. Although there is one food hub with a strong and broad network, the findings show that respondents do not have many concrete ideas about the role of this food hub (and others). Two respondents, a farmer and a restaurant owner, mentioned that a food hub can "be involved for the logistics"[4], because ". . . they already have routes. And they know farmers and drive a certain route. If you have to start that completely new, it may be cheaper to use someone who already does it".[22] The section on barriers also showed the possibility to use food hubs to overcome logistic or administrative problems.

Another possible role for food hubs could lie in promotion and marketing. They could "try to acquire more publicity"[15] and "give more information about the products that you can get, where does it come from?".[12] This task is comparable with the role of other buyers, as described in the previous section and has the aim to increase the visibility of local products. The other roles of buyers in general, as described above, could be applied to food hubs too, since food hubs are buyers too.

4.4.4 Municipality

Municipalities can possibly play a role in scaling-up too. The theoretical framework suggested that this role can lie in making operational, funding and regulating settings available. Moreover, municipalities can use local products in their own food procurement and stimulate other (public) organisations to do this as well (e.g. Monteny & Van der Schans, 2015). The municipalities in this research foresee an inspiring role for themselves on the short term. In Berg en Dal, stimulating short chains is part of their economic vision for the coming years (Berg en Dal, 2017). Market parties should take up on the long term (personal observation, 12 July 2017).

Respondents have differing views on the role of the municipality. In the past, multiple subsidized initiatives on local food have shown that they could not exist after the subsidy ended. Therefore, a number of respondents think that the municipality should have a small role and should not spend any money (or subsidy) on this kind of initiatives.[e.g. 6,14,22] This quote shows the opinion of several respondents: "It all sounds great, short food chains and subsidies and things like that. But they would probably not have done it without a subsidy".[6] Some farmers even think that the government should not play a role at all in scaling-up short food supply chains. This has to be developed and supported by market parties. They have to be free in this. A producer put it in words as follows:

> What you have to ask yourself is: why do these people want a subsidy and why have those people not approached the market themselves until then? . . . there are many companies like us, but only companies that have their sales under control, they are successful. Starting 100 projects, that does not help. You have to do it yourself. Every penny that you put in it is wasted money.[13]

This producer has a similar opinion on that:

> I actually think that politics should stay out of this. If they facilitate, there are often requirements and then you are not free anymore. You are an entrepreneur and you are free as an entrepreneur. You can make it, you can break it. You do not need the government to do that.[23]

Notwithstanding these views on the role of municipality, there are also ideas about what they actually could do. First, a municipality has a role as buyer. As was expected (Crabtree et al., 2012), they should "set a good example themselves".[10] Many respondents mentioned that local products should be part of the municipal procurement.[e.g. 3,10,32] The municipality can use these products in catering, at drinks and in little gifts. Especially the wine from the municipality Berg en Dal should be used for these purposes. At the moment, the municipalities do not serve local wines, which is "at least peculiar".[25] This respondent has a similar view:

> It is unimaginable. I do not know why, but when the Queen's Commissioner comes to visit here, at the inauguration of the mayor, and he says: I am here in the wine village of the province of Gelderland and they are all here in the hall to toast with a Chilean wine in the hand. Then I think: how can you serve it, how can you do it? Apparently it is very complicated. . . . Yes, they have to start with that [local products in their procurement]. You have to set a good example. You really have to start with that. Because otherwise you

> are totally unreliable. If you do not do it yourself, you cannot expect someone else to do it.[28]

Using local products does not only financially stimulate producers, it is also a recognition of them and their products, as this producer explains:

> And I also think that the municipality itself must use its own products, if there is a presentation. Do you have something to celebrate? Then serve your own wines. That kind of things. That is appreciation from the municipality.[17]

Secondly, a municipality can also play a role in the network. Not so much as leader, but as supporter: "I think the municipality should facilitate more. And then see what would be the result, in which the entrepreneurs experience the urgency. And the municipality has a much more supporting role than a leading role".[16] The municipality could for example link producers and (potential) buyers, because these actors do not always find each other yet, as seven respondents mentioned. They could do this in collaboration with the association for entrepreneurs.[8] Moreover, the municipality can facilitate: "to give assistance to certain things, but also when a group of farmers or producers say: we want to organize a market with our regional products. Perhaps the municipality should say: no problem".[26] The municipality can remove barriers in policy.[31] Moreover, they can facilitate in promotion[27], as this producer proposes: "At some point the municipality could say: if there is a vacant store, in the season you can promote some regional products and sell them there. With someone who does not have work at that moment, for example".[10] This facilitating role corresponds to what was found in the literature.

Besides these aspects which were found in the literature, a municipality can also play a role in informing citizens, as was proposed by six respondents; producers and buyers.[e.g. 14,19,28] "Provide constant information via television, via newspapers, through local newspapers. That they really make a difference. That they [the municipality] really spend money and time on that. That people become aware", as a producer sees it.[24] Short food supply chains could be seen as part of a transition to another food system. Communication to citizens about this change could be part of a sustainability plan:

> . . . if the municipality says: we want to make people more environmentally conscious or... It can be part of the entire sustainability plan. That people eat differently, I think that is a very important part. And when man connects with nature, with his food, he automatically takes care of his environment, for the planet.[16]

4.4.5 Other

Except for the above-mentioned actors, there are also other parties that could be involved in scaling-up short food chains. These are for example nature or landscape organisations and environmental organisations. Especially the three respondents in this research that work for this kind of organisations, think they can have a role. They often have much knowledge about the region and a broad network. These could be used in stimulating the local food network, for example through relating regional food to nature and landscape: "You also have to connect it with the landscape management and why you do it and what value it has. And you must spread that value. Otherwise, people can continue to ignore it".[31] Moreover, these organisations could play an informing role:

> . . . that you write positive articles about it in a magazine. And make it public that it exists. If there is a solution for a problem that we are dealing with; too intensive agriculture, then we would like to cooperate. In any way whatsoever.[33]

Other important players are agricultural organisations, both local and regional. They have contact with farmers and growers and could inform them about short food supply chains: “Of course we have contact with the farmers who participate in landscape management and nature management. So, with these members, . . . we can start to arouse interest and see if that is something”.[34] These actions can contribute to a larger familiarity with local food for both actors from the field and consumers.

5. Conclusion and reflection

This research investigated the network and actors in short food supply chains in the municipalities Berg en Dal and Heumen. These Dutch municipalities planned to apply for a provincial subsidy to stimulate short supply chains. The research mapped the current network and the benefits and barriers of scaling-up, which information can be used in the subsidy request. Moreover, it contributes to the knowledge on governing supply chains at the practical level. In the research, qualitative methods were used, particularly in the form of semi-structured interviews. More than thirty people were interviewed. Most of them produce or buy food in/from Berg en Dal and Heumen. A smaller number of respondents work for related organisations, for example in agriculture and nature management.

This final chapter describes the conclusions of the research and reflects on the research process. First, it is important to bring to mind the central question and sub questions that formed the basis of this research. The central question in the research is:

> *What are the benefits and barriers in the scaling-up of short food supply chains and how can scaling-up be governed?*

The following section first answers the sub questions in which the central question is divided. After that, the second section discusses these results and answers the central question. Finally, the chapter reflects on the research process and its restrictions.

1. *Which actors and initiatives form the network of short food supply and market in the municipalities?*

Based on the theory, it was expected that producers for the short food supply chain produce many different products, which are sold through multiple channels (Kummer et al., 2015; Worley & Strobbe, 2012). The findings show that the municipalities Berg en Dal and Heumen indeed have a broad supply and market when it comes to local food. Both rural municipalities produce different kinds of food, from fruits and vegetables to dairy products and wine. These are often small-scale producers, who choose to sell their products at home or through box schemes, as Berti and Mulligan (2016) described as well. But the region hosts also different other actors that buy these products, such as supermarkets, restaurants and health institutions. Moreover, two regional food hubs function as intermediary between the producer and consumer (or another buyer).

All three types of proximity which are described by Eriksen (2013) play a role in the network in this region. Geographically, the research shows that most products for the short food supply chain are sold in the city of Nijmegen and surrounding area. Nevertheless, this geographical region is not strictly demarcated. Some producers sell their (local defined) products in a larger region. The same goes for buyers in purchasing local products. The other types of proximity of Eriksen (2013), relational and values, are important in this region and are often mentioned as reason for producing/buying local.

2. *What is the potential and ambition in scaling-up initiatives?*

Selling local products through supermarkets, catering businesses and food hubs, can be considered as scaling-up. Most of these buyers in this region are motivated to increase the number of local products they buy. They see a possibility in working together with other (groups of) buyers. Also, scaling-up through food hubs can be possible. This corresponds to the theory on the role of food hubs (Berti &

Mulligan, 2016; Cleveland et al., 2014). A food hub has a broad network and a logistic system that can be scaled-up.

However, it was found that the ambition of scaling-up is less present among producers. They do not see the need, or even think it would have negative consequences for them. This decreases the potential of scaling-up short food chains from the supply side of the market. The reserve of producers was not described as such in the theory. However, it is not a surprise, since involving larger buyers is associated with more economic ideals, which can be at the expense of sustainable values of small-scale production (Cleveland et al., 2014). These values are important to producers.

3. *What are the benefits and barriers of scaling-up short food chains, related to the values and concerns of involved actors?*

It is hard to define benefits of scaling-up short food chains based on the findings in this research. It is expected that values related to economy and community increase if the trade in local products increases. Moreover, (logistic) processes can become more efficient if quantities increase, which can lower the price for buyers. This corresponds to what was found in the literature (e.g. Bloom & Hinrichs, 2011). However, this lower price is considered as a barrier for producers.

Actors also mentioned multiple other barriers when it comes to scaling-up. First, producers in particular are worried that it will be at the expense of small-scale production. Eight of them mentioned this during the interviews. This corresponds to the literature, which showed that scaling-up can be conflicting with the values of the short food chain (Connelly, 2010). Other barriers can be found in logistics and administrative difficulties for both producers and buyers. Also, the availability of products, both in quantity and variety can form a barrier. About half of the respondents mentioned these latter two as barriers to scaling-up. These results correspond to the literature too. Multiple authors have written about these barriers (e.g. Connelly, 2010; Monteny & Van der Schans, 2015). Finally, about a third of respondents mentioned characteristics of specific actors as limitation to scaling-up, for example the demandingness of restaurants. This is related to the previous part about ambition. Cleveland et al. (2014) described the importance of motivation. Actors need to understand that economic goals are not the main drive. This motivation and ambition needs to be taken into account.

4. *How can the ambition in scaling-up be governed?*

Connelly (2010) described that social infrastructure is an important aspect in scaling-up short food chains. Concepts that relate to this are trust, reciprocity and collaboration. Therefore, in governing scaling-up it is important to take into account these aspects. These were also mentioned by respondents, especially collaboration, although lack of social infrastructure was not directly mentioned as a barrier. The results show that working together and sharing knowledge are expected to contribute to information about local products.

The results also show that there is a task in informing (potential) consumers. About ten respondents mentioned this as a task for producers or buyers. Producers can open their doors for consumers. Buyers have a role in spreading information about local products too. This corresponds to the article of Monteny and Van der Schans (2015). Food hubs can also play a role in scaling-up (Cleveland et al., 2014). These have a broad network, which can contribute to the above-mentioned social infrastructure.

Finally, the municipality can play a role. The majority of respondents agree on the fact that the municipality should use local products in their own procurement, as was also described by Monteny and Van der Schans (2015). Moreover, it is suggested that the municipality can play a role in connecting

actors and in facilitating scaling-up, for example in information about available real estate. This latter corresponds to the article of Connelly et al. (2011). They described that policy makers can ensure that necessary operational, funding and regulating settings are available. However, a small number of respondents, mainly farmers, think that the municipality should not play a role at all and that scaling-up should be left to the market.

Taking into account the ambition of the different actors, it seems to be most effective to start collaboration and scaling-up at the demand side of the short food supply chain. These actors are willing to increase their purchasing of local products and are open to collaboration. This could start with organising meetings for buyers or groups of buyers (for example from the catering industry), in which they can learn and exchange knowledge about the possibilities of local food for them and how potential barriers can be tackled.

Central question

This part discusses the results and answers the central question of this research: *What are the opportunities and barriers in the scaling-up of short food supply chains and how can scaling-up be governed?*

The results show that there are both practical and personal barriers in scaling-up short food chains. Practical barriers lie in logistic processes and administrative obstacles. Governing scaling-up should focus on removing these barriers. Food hubs are seen as an opportunity in this. They already have logistic processes, which can become more efficient with larger quantities. Moreover, they have the possibility remove administrative barriers for (larger) buyers, because they gather products from multiple producers. This ensures that buyers only have one stop at the door, instead of each producer separately.

The above-mentioned scenarios demand for an increase in production, because larger (or more) buyers require more products. However, most producers do not have the ambition or motivation to scale-up or expect that this would have negative consequences for them. This can be considered as a personal barrier. An opportunity to overcome this barrier, is to focus on the demand side of the market first. As described in the previous part, buyers play a role in this. The municipality can facilitate by removing regulatory barriers or by informing about available real estate. Buildings could be used for a (temporary) market or shop. Moreover, it is important to inform citizens about local products. This is a task of the municipality, but producers and buyers have a role in this too. Creating a hallmark or label can be a means of creating awareness.

If the demand for local products increases, the supply can follow. This supply can be formed by existing local (small-scale) producers. However, increasing their production can result in decreasing the values of the short food supply chain. Therefore, it is also useful to focus on producers that do not sell their products on the local market yet and to inform them about the values of selling their products locally. This can ensure an increase of local products, while keeping the values and benefits of these products.

Recommendations for further research

There are a few recommendations for further research. First, in further research, it can be useful to involve producers and/or buyers that do not produce or buy for/from the short food supply chain yet, because they have the possibility to switch to local products. They probably experience other barriers or have other motivations, on which can be anticipated. Secondly, since particularly producers worry

that scaling-up will decrease the values of short food supply chains, it is good to research how small-scale agriculture and scaling-up relate to each other and to what extent it is possible to scale-up without losing a small-scale character. Finally, it is useful to gain insight in the demand and expectations of consumers when it comes to local food, because this is not always clear. Both producers and buyers could anticipate this.

Policy advice

The aim of this research was to gain insight into benefits and barriers of scaling-up short food supply chains. The municipalities Berg en Dal and Heumen planned to apply for a subsidy that can be used for a starting a collaboration that is aimed at scaling-up local food. In the continuation of policy in this field, it is good to take into account certain aspects.

First, it is important to have in mind the benefits of scaling-up. The main benefits for the municipalities seem to be stimulating the local economy and contributing to the local community. Values as sustainability and landscape depend on multiple other factors, such as scale and manner of production. Therefore, these would not necessarily benefit from scaling-up. Nevertheless, they could benefit on the long term.

A second aspect to take into account is the difference in willingness from actors to collaborate and contribute to scaling-up. Many producers, particularly farmers, are not interested in this. It does not seem very useful to involve them on the short term. The possibilities for scaling-up and collaboration therefore lie at the demand side of the chain. Buyers can exchange knowledge and inform their guests or customers about local products. In this, the government can play a facilitating role. If this leads to a growing demand, the supply side will possibly react to this.

Thirdly, it is important to consider the scale of this approach. Both municipalities have relatively few inhabitants, which means that the sale possibilities are limited. The results show that producers sell a large amount of their products in Nijmegen. Therefore, on the long term it will be useful to involve more municipalities in the Rijk of Nijmegen.

Finally, the municipalities really should give the good example by using local products in their own procurement, as many respondents mentioned.

Reflection on the research process

Doing research is a long and complex process. I think this thesis gave a good understanding of the local food network in Berg en Dal and Heumen and the benefits, barriers and governing possibilities of scaling-up. However, there also were some problems and challenges. This section reflects on some of these.

First, the process of doing research and writing a report for the municipalities, and writing this thesis were two separated processes, which was not very efficient. This had to do with the fact that there was some pressure to start interviewing, because of the coming summer period and the deadline for the subsidy request. I did not have a well thought-out theoretical and methodological framework yet when I started interviewing. The interview protocol was based on the literature, but I later operationalised the concepts more comprehensively. Some concepts could have been formulated differently in the interview protocol, using this operationalisation. In asking about the benefits of scaling-up, for example, I could have distinguished more strongly between general benefits (values) of short food supply chains and the benefits of scaling-up specifically.

Related to this, taking notes during my internship at the municipality could have had a different form. In order to use it as a method for triangulation, an observation diary had to be more result-

oriented than it was now. Therefore, the use of these notes in the final results is limited. However, mainly using interviews did not result in a limited picture of the case. I think that the validity of the results is guaranteed sufficiently by the diversity of interviewees.

Another point of reflection is the theoretical framework, especially the section on governance. Scaling-up short food supply chains is an issue in academic literature, but the governance topic in this is often abstract. Therefore, to complete the theory on governance, non-academic literature and reports were also used, describing local experiences with scaling-up and, for example, the role of food hubs in this.

Besides the above-mentioned aspects, it is also good to think about the possibility of generalising the results. This raises the important question whether this case study is comparable to others. I think the case is comparable to other rural regions, especially if these have similar characteristics, such as an important tourist sector. The conclusions of the research can be interesting for local food networks in these localities. However, it is hard to estimate whether the producers and buyers in this research case are representative for a larger group. Therefore, some prudence is called in generalising the results.

Finally, I want to reflect on my own developments during the research. The results were rather different than I expected. Before I started I had a positive idea about scaling-up short food supply chains. I thought (and partly I still think) that short food supply chains are a good alternative to the conventional food system. Scaling-up these chains could increase their influence and therefore, I reasoned, would benefit the people producing for the local market. However, I learned that producers see this differently, which made me re-adjust my own ideas. I think this did not influence the interviews or the research in general, because this realisation came in one of the first interviews. Thus, during the following interviews I had this in mind. I even think this change of view helped me being critical, also in the conversations at the municipality.

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Appendix: List of interviews

	Role	Date of interview
1	Farmer / farmers' market	7 June 2017
2	Farmer	6 June 2017
3	Food hub	1 June 2017
4	Restaurant	23 June 2017
5	Health institution	19 June 2017
6	Farmer	16 June 2017
7	(Organic) supermarket	24 May 2017
8	(Organic) supermarket	4 July 2017
9	(Organic) supermarket	7 June 2017
10	Winegrower	28 June 2017
11	Restaurant	12 July 2017
12	Beer brewer	4 July 2017
13	Farmer / farmers' market	29 May 2017
14	Farmer	30 June 2017
15	Food hub	26 May 2017
16	Farmer	30 June 2017
17	Farmer	8 June 2017
18	Restaurant	7 July 2017
19	(Organic) supermarket	13 July 2017
20	Farmer	28 June 2017
21	Farmer / farmers' market	24 May 2017
22	Farmer	21 June 2017
23	Farmer	23 June 2017
24	Farmer	19 June 2017
25	Winegrower	21 June 2017
26	Farmer	31 May 2017
27	(Organic) supermarket	20 June 2017
28	Tourist sector	7 June 2017
29	Agricultural organisation	21 June 2017
30	Other	16 June 2017
31	Landscape organisation	29 May 2017
32	Other	20 June 2017
33	Nature organisation	7 June 2017
34	Nature organisation	18 July 2017