Building a Common Vision: From allotment garden to sustainable food system

An exploratory research for the planning of food systems in the Western context

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This thesis is written as a final assignment for the master Landscape Architecture and Planning, specialisation Spatial Planning, at Wageningen University

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Abstract

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Although the food system has long been invisible to spatial planners, for approximately ten years, there has been increasing attention for food systems in the planning field. The conventional food system has proven to be unsustainable in many areas including environmental, social and health aspects. As a result, a broad group of scientists and practitioners are searching for sustainable food systems. Various ideas and innovations have been considered to achieve this. In this explorative research, an extensive literature search provides insight into the relation between the different planning attempts to work towards a sustainable food system. The literature review showed that food policy and food planning research are battlefields. There are not only different food systems, but they are also perceived in various ways. The efforts of food planners can roughly be labelled in two major groups; the alternative food discourse and the agribusiness discourse. This distinction is not new and was earlier described in planning literature, however, both systems are described as two complete opposites. Most researchers and practitioners neglect the other discourse, perceiving it as (economically, environmentally or socially) unsustainable. The idea that both discourses will be dependent upon each other eventually, can be complementary, and should be better integrated is starting to develop amongst researchers and practitioners in recent years.

This research attempts to explore questions upon the relation and integration between the alternative system discourse and the agribusiness discourse. Planning literature, interviews and the exploration of some projects in practice showed that there are both starting points and bottlenecks for integration. The main starting point for integration is the common goal of the two discourses to strive for a sustainable food system. Moreover, consumer demand and environmental harm as a common problem can be fruitful starting points. Planners can form a connection between different disciplines and scales in the food system. Two important bottlenecks for integration are the strong ideologies of both groups and the various scales in which activities take place.

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Samenvatting

Het voedselsysteem als een concept is lang onzichtbaar geweest voor ruimtelijk planners, maar sinds circa 10 jaar is er steeds meer aandacht voor voedselsystemen binnen de ruimtelijke planning. Het conventionele globale voedselsysteem is niet duurzaam gebleken op verschillende gebieden. Ten eerste is er binnen het huidige systeem is weinig contact tussen producent en consument door de lange en ingewikkelde voedselketens. Mensen weten niet meer waar hun voedsel vandaan komt. Ook is het voor kleine boeren steeds lastiger om financieel rond te komen van het agrarisch bedrijf. Veeteelt en transport in het voedselsysteem zorgen bovendien voor een aanzienlijk deel van de wereldwijde CO_2 uitstoot. Een diverse groep van wetenschappers is op zoek naar oplossingen voor de huidige problemen in het voedselsysteem. Er bestaan daarom al veel verschillende ideeën en innovaties op het gebied van de verduurzaming van het voedselsysteem.

Dit onderzoek geeft met behulp van een literatuuranalyse inzicht in de relaties tussen de diverse planningsactiviteiten voor de verduurzaming van het voedselsysteem. Het literatuuronderzoek heeft aangetoond dat voedselbeleid en voedselplanning slagvelden zijn. Er zijn niet alleen verschillende voedselsystemen, maar ze worden ook op verschillende manieren beleefd. Het onderzoek en de activiteiten van ruimtelijk planners kan grofweg in twee groepen worden verdeeld; het alternatieve voedsel discours en het agro-business discours. In het algemeen kunnen de twee worden onderscheiden door een focus op technische, globale en economisch efficiënte oplossingen in het agro-business discours en een nadruk op niet-technologische, sociale en lokale oplossingen in het alternatieve discours. Het onderscheid tussen de twee groepen is niet nieuw en is vaker genoemd in plannings literatuur. In de literatuur, worden de systemen echter veelal als twee tegenovergestelden beschreven. De meeste onderzoekers en wetenschappers negeren ontwikkelingen in het 'andere discours' of beschouwen deze als niet economisch, sociaal of ecologisch duurzaam. Steeds meer wetenschappers en experts uit de praktijk, pleiten echter voor een meer integrale aanpak, waarin beide benaderingen worden samengevoegd. Het idee dat de twee discoursen complementair zijn aan elkaar, is steeds breder gedragen.

In dit onderzoek zijn vragen over de relatie en integratie tussen het alternatieve en het agro-business system onderzocht. De literatuuranalyse, vijf semigestructureerde interviews en de verkenning van een aantal praktijk cases, hebben aangetoond dat de problemen in het voedselsysteem verschillend worden ervaren in beiden discoursen. Beiden groepen ervaren afvalstromen, milieuvervuiling, voedselkilometers, en aantasting van het landschap als problematisch. Ook ervaren beide groepen de kloof tussen producent en consument als problematisch. Voor het agro-business discours staat echter het probleem dat de bevolking groeit terwijl het landbouwareaal juist afneemt centraal. Kritiek uit de maatschappij en consumentenvraag worden zeer serieus genomen en ineffectieve regelgeving wordt als een belangrijk probleem ervaren. Hoewel het alternatieve discours in toenemende mate ook deze problemen ervaart, wordt hier in het algemeen meer de nadruk gelegd op de verduurzaming van de stad, obesitas, ondervoeding, en economische problemen voor kleine boeren.

Voor bijna alle beschreven problemen worden oplossingen voorgesteld in beide discoursen. Uiteindelijk hebben beide groepen een vergelijkbaar doel voor ogen; een ecologisch, economisch en sociaal duurzaam voedselsysteem. Hoewel de oplossingen die worden voorgesteld significant van elkaar verschillen, zijn er een aantal gelijke oplossingsrichtingen te benoemen. Beide groepen proberen transportafstanden in het systeem te beperken en consument en producent weer bij elkaar te brengen.

Verschillende redenen voor een integratie van de beschreven discoursen zijn te benoemen. Ten eerste ontstaan innovatieve ideeën en nieuwe inzichten vaak op het raakvlak van twee discoursen die aan het zelfde onderwerp werken. Vervolgens, kan het delen van kennis en het vormen van nieuwe coalities leiden tot meer maatschappelijke steun en macht. Ten slotte, kan een aansluiting bij meer conventionele (agro-business) systemen, voor het alternatieve system voordelig werken.

Aanknopingspunten voor de integratie van de twee systemen zijn hun gezamenlijke doel van een ecologisch, economisch en sociaal duurzaam voedselsysteem, hun gezamenlijke zoektocht naar oplossingen voor milieuvervuiling en voedselkilometers, en de consumentenvraag waar beide system van afhankelijk zijn. Tot slot is de rol van ruimtelijk planners voor de verbinding van verschillende groepen belangrijk. Planners hebben de mogelijkheid om overzicht te houden, actoren te verbinden, flexibiliteit in het proces te behouden en vragen te vertalen naar ruimtelijke plannen. De uitdaging voor planners is daarom niet om de verschillen te vergroten, maar juist om de toegevoegde waarde te zoeken bij de verbinding van de verschillende voedselsystemen.

De integratie van voedselsystemen met verschillende schalen en methodes blijft echter een uitdaging. Veranderingen in het systeem, die op het eerste gezicht makkelijk lijken, blijken toch moeilijk te bereiken. Twee van de meest belangrijke moeilijkheden bij integratie zijn schaal en ideologie. Ideologie en aannames kunnen mensen kortzichtig maken in hun zoektocht naar oplossingen. Systemen die werkzaam zijn op verschillende schaalniveaus sluiten niet op elkaar aan en zijn daarom moeilijk om met elkaar te verbinden.

Preface and Acknowledgements

"I am born and grown up in the most urbanised area in the Netherlands: De Randstad. As a young child I have spent many hours in the allotment garden (volkstuin) of my parents. Happy memories make me think of all the hours I have helped sowing, watering, reaping, cooking and eating our own grown vegetables. Nowadays this background makes me, as a student of spatial planning, interested in the planning of -green areas in- the city. A recent course about urban agriculture made me wonder what the possibilities are to plan allotment gardens in Dutch cities and to integrate them with the public green."

The above-mentioned statement was my first motivation to begin this thesis; however, an initial exploration of the literature on the topic revealed that I was dealing with a topic that was far more complex than the planning of allotment gardens in the urban environment. I dove into the world of food systems, food security and alternative food networks. A world that is far more complex than I could have imagined at the start of this research; a world in which many different disciplines have their own view on the conventional food system, from the health-orientated nutrition experts, to the economically-oriented agriculturalists and the environment-oriented ecologists.

The choice to conduct a research that was mainly grounded in an extended study of planning literature made me a bit disappointed at first. I had hoped for a research in practise, having looked forward to interview people and visit new locations. The fact that a comparative literature study seemed more relevant for food system planning, was however more important (also to me personally) and thus I started reading an enormous amount of peer-reviewed articles on food system planning. Looking back on this job, it was tough, but I am happy that I did it. Especially during the open interviews with some food planning experts, the knowledge that I had received throughout the literature study, appeared very useful. Towards the end of the research, all information that I had collected had to be connected and merged into a consistent story. This was maybe the most difficult part of the research.

I therefore want to thank my supervisor Prof. Arnold van der Valk, to help keeping the storyline structured and logic and providing interesting ideas and new insights during the study. Also I want to thank Wouter, for keeping me motivated during the entire study and time and time discussing food related topics with me. Many thanks to Lauran, Guido and Wouter, for reading and criticising (parts of) the concept report. Also, many thanks to Kathy for correcting the English text on grammar and spelling mistakes. Finally, I want to thank my family, in particular my mother and my grandparents, for supporting me during my entire studies.

1. Introduction

"It could be plausibly argued that changes of diet are more important than changes of dynasty or even of religion." (Orwell, 1962, p. 82)

1.1 Planning and Food Production

Food is one of the first necessities of life. By far most of our food is produced, processed and consumed in a global network of mass production and consumption. Mass production and global competition have made food inexpensive and easily accessible in supermarkets to the western civilian. The variety of products available to the average western consumer has risen significantly in the last decades. However, the 'conventional food chain' is under pressure to react upon some major challenges including threats to the health of food in the western world, food security problems in poor countries, global obesity problems and environmental harm (Morgan et al., 2006). Studies on food, health, and hunger have long expressed remarks on globalization. The restructuring of relations to the land seemed almost forgotten, although there have been extensive changes in the distribution and retail sector. For many years, the planning of food production has been a forgotten topic in the spatial planning discipline (Born et al., 2006). Food chains and networks been essentially ignored as spatial phenomena. Planning has (had) the tendency to exclude agriculture and food from its working field (Pothukuchi and Kaufman, 2000). Although food system planning (FSP) has thus been a long forgotten topic in the planning discipline, there is an increased attention for FSP since 2000 (Born et al., 2006; American Planning Association, 2007; Pothukuchi and Kaufman, 2009). For the likely future, food planning seems to be a serious part of the planning agenda (Morgan, 2009).

Planning is a discipline that is par excellence comprehensive in scope and focuses on spatial interconnections of different land uses. One of the main aims of the spatial planner is to create sustainable communities. Since food is one of the first necessities of life, a well-functioning food-system is an essential part of a sustainable community. Moreover, planners are quite able to give a holistic understanding of the food system (Pothukuchi et. al., 1998). Planners can be critical in a variety of activities that can shape food systems. They can for example site and permit land uses, such as food system activities (Hammer, 2004).

1.2 A complex problem

During the last third of the 20th century international trade has developed substantially (Castells, 2000). Castells describes this development in the context of a major change in society; the development of the 'network society'. Historically, the main link between countries consisted of international trade. Although the relative importance of trade in the network society has decreased, it still has a vital role in the modern network society. Through the years, global trade networks have become increasingly complex. A new form of trade has developed through the rise of multinational companies, whose number has grown substantially in the last two decades. Today's society is a network society in which the most important social structures and activities are organized around electronic processed information networks (Castells, 2000).

The food system can be seen as one of the networks that developed into a global network in the last century. This development is described in literature in both a positive and negative way. From a productivist discourse, this development is explained as an economic success, while the environmentalist discourse points to the negative environmental and social effects that the intensification and globalisation of the food production chain have caused (Morgan et al., 2006).

In the last decades, the environmentalist discourse has gained a broader attention. The notion that our current global food system is unsustainable has risen amongst a significant group in

our society. A UK research showed that food miles made during producing and consuming of food caused at least 22% of the total greenhouse gas emissions in the UK and agriculture's contribution was at least 7.5 % of the UK total (Garnett, 2003). The reasons for this conviction are diverse. Apart from the contribution to global warming that long distance transports of food make, there are various other environmental, social and economic problems named in literature. Production and consumption habits in our conventional system cause for example enormous environmental and health costs in western societies. Health problems, such as obesity and diabetes, can be caused by excessive, unbalanced or inadequate intake of food. In 2000, the number of obese people and the number of undernourished people in the world, matched for the first time (1.1 billion people each)(Morgan et al., 2006). This is to a certain extent caused by the absence of healthy, fresh and affordable food in neighbourhoods (described as food deserts) in combination with the rapid growth of the fast food industry. In addition, plagues and infectious diseases stemming from intensive husbandry are more frequent now than they were before. In order to achieve greater efficiency and a higher profit many farmers use pesticides and chemical fertilizers to increase their yields. These have a negative impact on both the health of human beings and on the environment (for example: Wiskerke, 2009; Sonnino, 2009; Vallianatos et al., 2004; Pothukuchi & Kaufman, 1999; Lang, 1999).

The problems that occur in the conventional food chain are thus diverse and complex. Given this complexity, it is not surprising that various forms of food production have been developed over the last decades that differ not only in their problem focus, but also build on different consumer groups, production techniques, and geographical scale (Campbell, 2004). Morgan et al (2006) have described these alternative food systems as 'worlds of food'. However, the relation between the various food systems is ambiguous. Jarosz (2008) describes this relation between the conventional and alternative food systems in academic research.

"While recognizing that the two systems can be intertwined or combined in different distinctive ways…, academic research, as well as popular accounts, continues to emphasize the distinctions between the two systems characterizing local food systems as oppositional responses to global systems… or as alternatives." (Jarosz, 2008, p. 233)

In literature, alternative and local food systems are thus often introduced as subsidiaries for the global, unsustainable food system. Consequently, the global and local food systems are considered mutually exclusive.
In this research two main discourses that can be distinguished in the food planning debate are explored and compared. Both react to a number of the above-described problems in the food system in their own manner and from their own convictions. The first can be found in literature as the 'alternative food system'(AFS) and covers a broad and diverse number of alternatives to the conventional food system (CFS). These alternatives are generally oriented on small scale and local markets. The alternative discourse turns itself against practically all aspects of the CFS and displays itself as a complete opposite of the last. The second discourse can be found under different names in literature. I will use the term 'agribusiness' in this research, although names as 'agro(-food) system', and 'industrial model' are used as well. Agribusiness is a system of agro-production that wants to provide a sustainable answer to the changing and competing demands of the modern urban society, using the intelligent connections that are present in the network society (Smeets, 2009).
Although both discourses aim for a more sustainable food system, there seems only a minor contact between the two worlds. Positive results can be reported from both the alternative food system and agribusiness in practise; however, the (unsustainable) CFS remains by far

the most important food network in the western world.
In recent literature, this problem is more and more endorsed. Researchers name a better integration of the food systems as an important issue. Marsden (2000) for example states that:

"We need better models of food governance which build upon on a more asymmetrical and differentiated understanding of food as a natural, social and political construction. Through the analysis of food governance we need to explore the ways in which the state, NGOs and civil society are evolving and enrolling actors in ways which begin to make a difference, not only to the 'alternative' modes of food supply and consumption, but also the more conventional 'industrial model' of food supply." (p. 28)

This leads to the following hypothesis of this research:

The ambiguous relation between the different worlds of food causes many food initiatives to function less successful and/or even to obstruct each other. An improved integration of the different worlds of food could strengthen the functioning of the different systems.

The aim of this research, is to improve the theoretical perception of FSP by providing insight in the differences and similarities of the various food networks, the relations between the different food networks and in the (potential) role of spatial planning when attempting to integrate the various food networks.
The problem statement focuses on the question of successfully building a nexus between the agribusiness discourse and the alternative agriculture discourse. The problem and aim are specified into the following research questions that guide and structure the research.

- What problems in the CFS are experienced by the alternative system discourse? & What problems in the CFS are experienced by the agribusiness discourse?
- What answers to these problems provides the alternative system discourse? & What answers to these problems provides the agribusiness discourse?
- How do the alternative system discourse and the agribusiness discourse experience each other's answers on food system problems?
- What can both discourses positively add to each other and what starting points for the integration of the two discourses can be found?
- What examples from practice give starting points for the integration of alternative food planning and agribusiness planning?
- Where can both discourses hinder each other and what are bottlenecks for the integration of the two discourses?
- What examples from practice give bottlenecks for the integration of alternative food planning and agribusiness planning?

1.3 Research methodology

In order to answer the research questions, different methods will be used. In general the research can be described as a qualitative, exploratory, interpretive research. The research thus works with text rather than numbers –qualitative-, looks at a relatively new field of research –explorative- and knowledge is gained through social constructions –interpretive- (Rowlands, 2005). Methodologically the research can be described as interpretative with help of triangulation (explained in 1.3.4). In the following paragraph the most important assumptions that were made in this research are clarified. Then the approach, methods of data collection and methods of data analysis that were used are described. Finally, some methods to scientifically validate this research are described.

1.3.1 Assumptions

Worlds of food

The food system does not exist. Instead, there are various food systems functioning next to each other, or (partly) integrated into each other. Morgan et al (2006) describe these different systems as different worlds of food. In fact every food chain that starts with a set of basic resources and ends with food waste and the consumption of food can be seen as a food system; from the micro-scale in which one household grows vegetables in their own kitchen garden, to the macro-scale in which, for example, ConAgra joint ventures produces and processes meat and fish products that end on grocery shelves all over the world.

Multidisciplinary collaboration is necessary to develop a sustainable food system

There are many different disciplines over the broad spectrum of science conducting research on various aspects of our food system. As food systems are complex entities with numerous aspects to research, scholars and scientists tend to isolate specific aspects in order to make research feasible. This is inherent to science and research and thus not seen as problematic in itself. However, different scientific disciplines sometimes tend to forget existing research of other disciplines that might be of important value for their own research. In the field of food system research there is much research done in various disciplines (varying from amongst others sociology, economy, planning, design, biotechnology, and food technology). If we truly want to develop a sustainable food system, these disciplines have to collaborate, as the various aspects of the food system have close interrelatedness in practise.

The social construction of knowledge

The assumption that science is completely neutral and unbiased has long been the norm. In this research, the assumption is made that an unbiased research is impossible. All knowledge is socially constructed and influenced by many activities and experiences. Interpretation is everywhere, also in this research. The analytical and the intentional component, that are both part of this research, are impossible to distinguish from each other. It is an illusion that research can be completely objective. However, the insight in the researcher's assumptions and ideology can make the results of the research more valuable and transparent.

A complex reality

The last assumption follows partly from the first assumption; reality is too complex to deal with. Still, scientists have to analyse and investigate the 'reality'. In order to do research, it is therefore inevitable to simplify reality. This statement may seem logical, but appears often forgotten by researchers when drawing conclusions and giving recommendations in the last stage of the research.

Food networks are complex systems in a complex world full of interpretation. The idea to get a complete and 'real' insight in the mutual relations between these food systems is naïve and unrealistic.

The last two assumptions follow from the interpretive approach that was used to conduct this research. The philosophical basis for this form of research departs from the conviction that pure facts do not exist, but that facts are always constructed through our beliefs, values, and knowledge (i.e. Yanow and Schwartz-Shea, 2006). This does not imply that there is no reality rather that the reality is subject to continuous different interpretations of all living beings existing in this reality.

1.3.2 Methods of Data collection

Method of theoretical sampling

In order to answer the research question, an overview of perspectives on food systems in planning literature is needed. A structured literature review was therefore executed. Although the topic 'planning for food systems' is rather broad, there is relatively few literature written on food systems from a planning perspective. The main outcome of the literature search is an extended list of relevant literature on planning and food systems. To compile the list, different search methods were used:

1. Database "Google Scholar"
2. Databases of 12 major planning journals[1]
3. References in relevant literature

It is only fair to acknowledge that the omission may be the result of a personal choice of journals and the publication strategy of scholars. For example, scholars in non-English speaking countries are under-represented in the literature scan. The literature was screened on four important characteristics:

1. Central theme of the source is the "food system"
2. The source is written from a planning perspective
3. At least one of the authors has a background in planning
4. The source is published/presented in a planning related journal or conference.

The selection of literature and documents was carried out according to the method of theoretical sampling (Wiedemann, 1995). This is an iterative process in which cycles of data collection and data analysis are repeated until the data collection yields no further results that contribute to answering the research questions. Attempts were made to assign the literature to specific sets of values and assumptions. Moreover, these were translated into ideal types; mental images, constructed by means of accentuation of certain view-points.

Expert Interviews

Following the first part of the research, the second part consists of a creative step which needs to be made. In order to make this step, scientific and practical planning experts, specialized in the field of FSP, will be asked to react on the first results of the analysis. Their visions, opinions and ideas are crucial for a successful step forward in the second part of the research. The selection of experts tried to encompass a group of important scientific experts on FSP worldwide. The experts were free to give their vision on the topic and were only steered by a number of key topics that were set before the interviews. The conversations were recorded and transcribed afterwards. Interesting statements were used to shape the second part of the research.

1.3.3 Methods of Data analysis

Typology

To be able to handle the large amounts of data both for the literature and the interviews the method of typology will be used to create an overview of categories. In order to reach this various steps will be made:

1. Group literature in four main groups, corresponding to the four sub-questions:
    * alternative – perceived food system problem
    * agribusiness - perceived food system problem
    * alternative – perceived food system solution
    * agribusiness - perceived food system solution
2. Distinguish and label the various aspects that are named in the text

3. Texts with similar labels are compared and used to describe the networks per theme.
A similar approach will be used to work out the data that are collected by interviewing experts.

Grounded Theory
The review of the literature and an initial number of books and papers provided an overview of the general situation, past developments and current trends in the study area. The insights from the literature and document analysis were proposed to various experts in the fields. Moreover, they were asked for contrasting or complementary literature on FSP. The research was thus carried out in repeating cycles of data collection, data analysis and literature research, similar to the research process in grounded theory (Glaser and Strauss, 1967). As a result the viewpoint was constantly changing during the research process in order to achieve a deeper understanding on the research theme. In the literature review, special attention was paid to the values and assumptions underpinning the ideal types. Discourses were constructed for the ideal types and constantly modified and refined. The procedure was repeated until interviews and literature research ceased yielding any additional relevant insight or contribution to the development of the ideal types and discourses.

1.3.4 Validation Methods

Clarification of the researcher's bias
The clarification of the researcher's bias at the beginning of a study, creates an open and sincere story (Creswell, 2003). In paragraph 1.3.1 the researcher's assumptions are elucidated. Moreover, the preface indicates the personal background of the researcher and her personal reasons to start this research.

Triangulation
Triangulation is a term from social sciences that indicates the use of more than two (generally three) different research methods to validate the accuracy of the research findings (Creswell, 2003). In this research, three different research methods (literature study, document analysis and experts interviews) were used to test the hypotheses that were formulated at the beginning of the research. After each of the research methods the hypotheses were sharpened or adapted if this was thought necessary.

Use of an external auditor
An external auditor that is new to the research project can provide a useful assessment of the project during the process of research or after the concluding chapter of the research is written (Creswell, 2003). This thesis was critically assessed by an external auditor with a planning background after the concluding chapter was written.

1.4 Readers guide

This research consists of two main parts. In the first part of this research two major worlds of food are described, using planning literature. The questions that are answered in this first part are: "Which problems are experienced by the alternative system discourse and the agro-system discourse in the CFS?", "Which answers do the alternative system discourse and the agro-system discourse propose to the named problems?" and "How do the alternative system discourse and the agro-system discourse perceive each other in their search for solutions?" The second chapter provides a theoretical frame in which background information on food systems, the context in which they occur and theory on interpretation is described. The third chapter describes the alternative food discourse, its functioning, the problems actors in the

agribusiness discourse perceive, and the answers they name for their problems. The fourth chapter describes the agribusiness discourse in a similar structure as the alternative system is described in the third chapter. The fifth chapter compares the two discourses in the food system, making use of both earlier comparisons between food systems in literature and the results of the previous chapters. Moreover, this chapter describes an example from practise that can be seen as a form of food system integration.

In the second part of this research, the relations between the two food systems are explored and an attempt is made to integrate both food systems, using expert's ideas. In chapter 6, the view of some food planning experts on the integration of food systems is described. Chapter 7 discusses the starting points for a grounded theory pointing to a third way, using the insights from literature combined with insights from established scientist in the food planning research. This chapter ends with an concluding parapgraph that reflects on the research questions, posed at the start of the research.

2. Food Systems in a comprehensive context

'Food systems' and 'Spatial planning' are the two main study fields of this research. Since both food systems and spatial planning are very broad fields, it is important to construct a strong focus or frame to deal with these broad fields. This chapter offers a theoretical background on FSP in the western context. The first paragraph describes the physical context of food systems in a dynamic western landscape; the 'foodscape'. As the physical context is strongly interwoven with the interpretation of the environment, the second paragraph adds an interpretive context. Both physical and the interpretive elements have had an important share in describing two major FSPdiscourses. In the third paragraph, the two dimensions come together, leading to a theoretical frame to describe and interpret both food system discourses.

2.1 Background: Context of the Western Foodscape

This paragraph elucidates on the context of western food systems. The first section describes the broad transition processes that currently take place in western rural areas. These transitions influence an important environment in which western food systems occur. Subsequently, the second section describes the historical development of today's food systems, influenced by large processes as globalisation and the development of a network society. The final section works on the physical context of today's western food systems; the metropolitan landscape.

2.1.1 A new foodscape arises

Two important developments have caused a huge change in agriculture in the 20th century; intensification and globalisation. Since the Second World War, there has been a trend in developed countries towards intensification, mechanisation and scale enlargements in agriculture in order to increase yields. The process of intensification in agriculture is generally characterised by the replacement of labour force by machinery, the increasing use of technical production methods and the development of (improved) pesticides and fertilisers to increase yields per square meter land. As a result, the rural landscape has changed from a region specific landscape into a general and efficient production landscape, with a straight allocation and decreasing landscape quality (Hendriks et al., 2003). Parallel to the intensification process, the global food system as we know it today, developed. Globalisation refers to a worldwide change that is characterised by the global exchange of capital, economic integration and cultural homogenization (Dredge and Jenkins, 2003). Worldwide trade of food and spices is not new and can be traced back in history to ancient Greece. The different with the 20th century process of globalisation is the speed and scale at which changes take place. In addition, the systematic manner in which today's globalisation is executed and organised, differs from the historical globalisation of the food system (Lang, 1999). Global agreements like the General Agreement on Tariffs and Trade (GATT) and the North American Free Trade Agreement (NAFTA) helped this process to occur rapidly. The system that was created by these global appointments is focused on mass-production and enforces producers to intensify or scale-up their business. In the post-war period, the global and industrial food system in Europe was seen as the most appropriate system to produce large quantities of food, avoid hunger, and ensure social stability. The liberalisation of worldwide trade through the establishment of the World Trade Organisation (WTO) and the Common Agricultural Policy (CAP) increasingly made agriculture something that occurred on a global scale. The food market is influenced by these developments and takes place more frequently on the global scale.

The globalisation of the food market not only has political support, it also engenders a worldwide political opposition. A new development of the food market has originated as a reaction to the various problems that occur in the intensified and mechanised global food

system. The variety of problems that occur in the CFS, have caused a variety of solutions that are described in literature as the AFS (Wiskerke, 2009). Economic problems originated for producers on the food market due to overproduction, which caused production prices to decrease. The removal of the CAP subsidies, in combination with the market pressure to invest in new technologies, made it impossible for small traditional farms to compete on the free market, using traditional production methods (Holt, 2005). In various fields of research, serious problems exist because of the malfunctioning food system. A complex and dynamic 'foodscape' is developed by these activities in both urban and rural areas.

2.1.2 Food Systems in the Metropolitan Landscape

All activities of the food system; production, processing, distribution, consumption, and waste processing, have a serious impact upon our environments. The activities[2] together form a serious amount of the land-use in metropolitan landscapes. In the last century there has been nearly no attention to the relation between these activities (the food system as a whole) and their impact on space. However, today various planners expect that planning can help to make the food system more sustainable by looking at the system as an integrated whole. Spatial planning can adjust various activities with each other, causing for example the transport distances in the system to be decreased. Moreover, planners can help to coordinate conflicting spatial claims between different forms of food systems and between food systems and other land-uses demanding space. Finally, spatial planning is good to make different wishes and intentions of actors in the food system comprehensible and to translate them into spatial claims (Van der Valk and Neuvel, 2010).

The spatial pressure on West-European rural environments has been increased in the last decades. Urbanisation, infrastructural projects, recreational activities, nature development and agricultural intensification have put a heavy burden on the former countryside (Frouws, 1998; Hidding et al., 2002). Urbanisation is the process of change from rural lifestyles into urban lifestyles. Clearly this affects and changes the emergence of the landscape. Urbanisation rates show an exponential growth since the end of the 19th century (Antrop, 2004). In the last century, the relative number of people living in urban areas increased from 13% in 1900 to 50% in 2007 (United Nations, 2006; Grimm et al., 2008). Figure 2.1 illustrates urbanisation rates in Europe in the last 60 years. Figure 2.2 illustrates urbanisation in the Netherlands

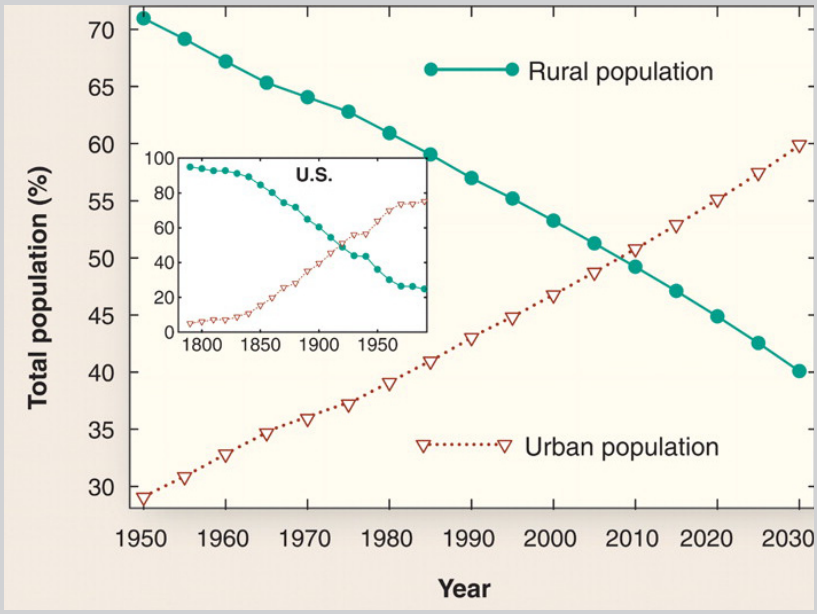
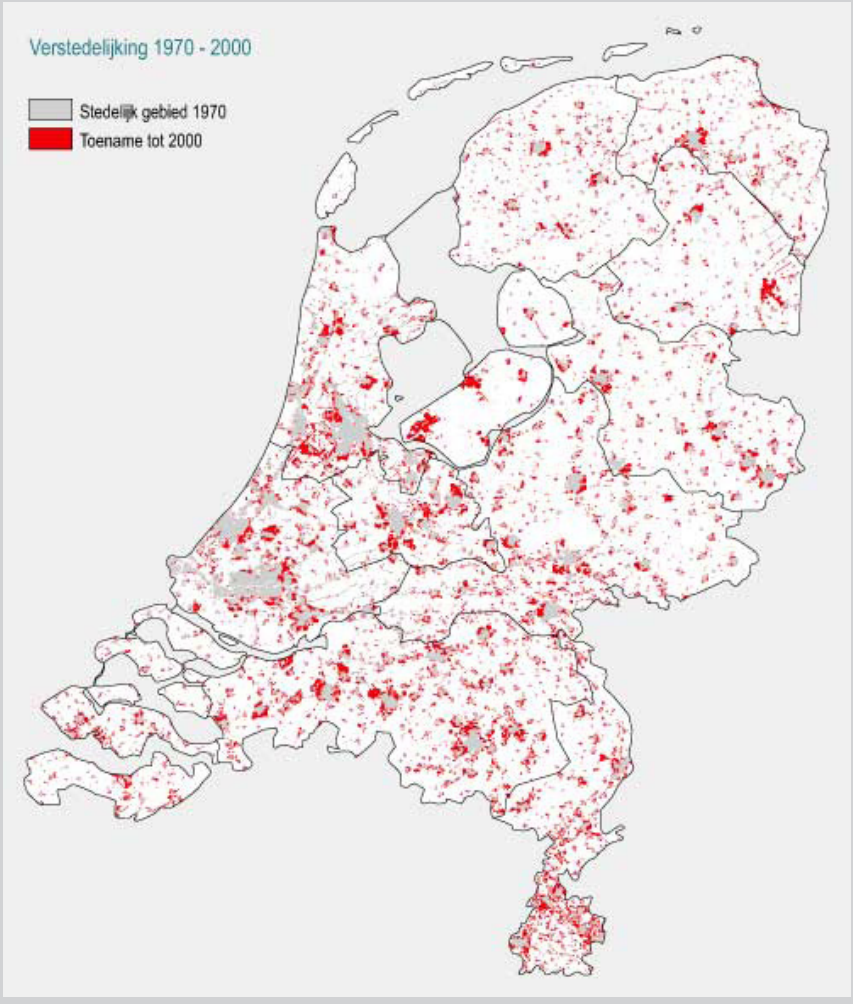


Figure 2.1 The worldwide relative urban population has been growing in the last decades. The figure projects the urban-rural population (%) for the coming 20 years (Grimm et al., 2008).

in the period between 1970 and 2000. The urban land area in the Netherlands increased 128.000 hectares in this period. In 2000 about 12% of the land in the Netherlands was urban (PBL, 2003). Urbanisation is a complex process in which different stages can be distinguished. The cyclic model of urbanization stages distinguishes four different stages of urbanization based on the growth and decline of the urban fringe and the urban city centre (figure 2.3). In the first stage; 'urbanization', people migrate from the urban fringe into the urban centre. In the second stage, called 'suburbanization', the urban area still grows, but the growth in concentrated in the fringe areas rather than in city centres. The third stage, described as 'disurbanization', is characterised by a starting decline of urban population in both the city centre and the urban fringe. Finally, in the fourth stage; 'reurbanization' shows the beginning of the recovery of urban growth starting in the urban centre and followed by growth in the urban fringe again. The change from stage to stage is mainly dependent on changing land qualities such as land prices and liveability. During urbanisation the relation between the urban and rural areas thus becomes increasingly complex (Antrop, 2004). The relative number of people living in cities is not only increasing, also the absolute number increases with the entire population growth. The United Nations population projections predict the rise of global population to a maximum of 9.2 million people in between 2050 and 2075 (Alexandratos, 2005).

The area between city and countryside is referred to as the rural-urban fringe; a transition zone between the urban and the rural region (amongst others Gallent and Shaw, 2007). However, it is important to observe that the urban influence reaches far beyond the visible



2.2 Historical urbanisation process in the Netherlands. Gray areas correspond to the urban land in 1970, while red areas correspond to urban areas that developed in the period 1970-2000. The map clearly illustrates the large increase in urban land in this period (PBL, 2003).

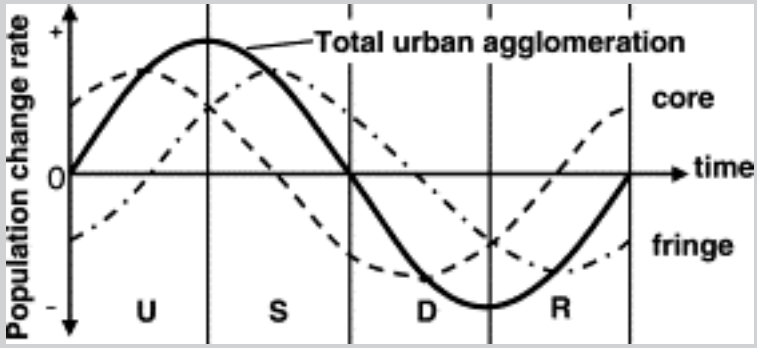
transition zone and acts within the countryside in different ways (Antrop, 2000). Carsjens (2009) refers to this influenced zone as the metropolitan landscape. If we use this definition of the metropolitan landscape, large parts of west-Europe belong to the metropolitan landscape.
The development of metropolitan landscapes is here perceived as part of the broader process of global land uses change (figure 2.4) and the above described urbanisation process.

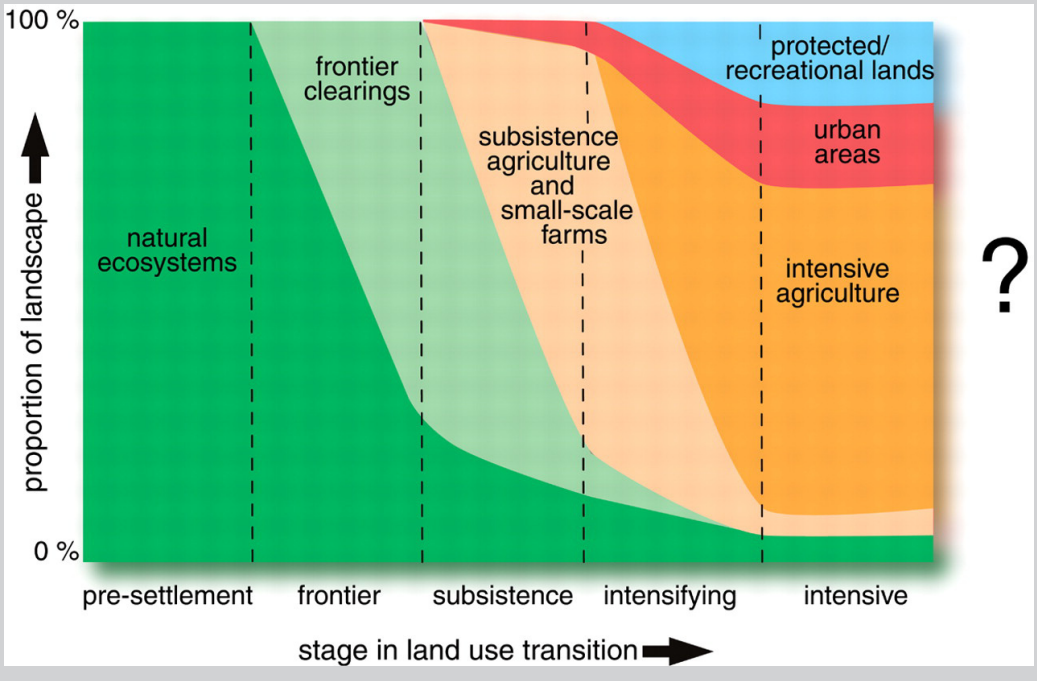
It seems fruitful to perceive the western landscape as a metropolitan landscape, rather than as a combination of urban and rural landscapes, which is still regularly done. The clear distinction between urban and rural planning can lead to an unpredictable outcome of policy, due to conflicting objectives in red and green areas (Van den Brink et. al., 2006). Also the strict distinction between the 'city and the country' can have a negative impact on the functioning of local food systems (Holtslag, 2010). Food systems typically occur in metropolitan landscapes which are part of both the open (rural) and the more closed (urban) areas of the landscape.

2.2 From discourse to ideal-type

This paragraph deals with theory on interpretation (of food systems). The first paragraph describes Foucault's notion of discourses. Although several philosophies on discourse theory and discourse analysis (for example the rather linguistic explanation of discourses) exist, this research consciously chose to follow Foucault's ideas on discourses and power.

2.3 Cyclic model of the stages of urbanization (Antrop, 2004).





2.4 Global land use change (Foley et al., 2005).

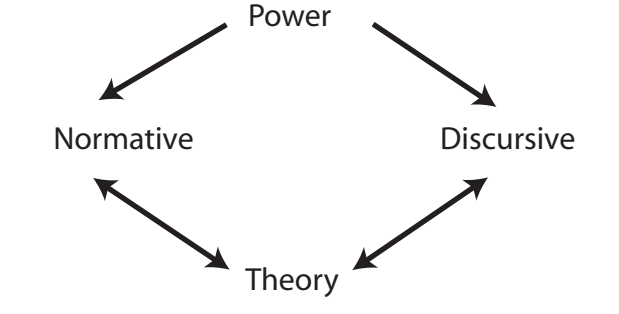
His ideas and description of discourses link up very well to the planning context of this research. The second paragraph describes a new movement in society, in which local and global are no longer seen as two complete opposites. Finally, the last paragraph describes Weber's theory on ideal types.

2.2.1 The social construction of a discourse

The French philosopher Foucault is famous for his writings on knowledge, power and discourse. Foucault argues in his writings that human knowledge follows from structures beyond our personal control. He states that the universal truth does not exist, but that knowledge is socially constructed. What is assumed to be 'true' in society is in fact socially defined. We are continuously interpreting everything we see, smell, hear and feel. Even scientific theory should be considered to be rather political, than objective (Allmendinger & Tewdwr-Jones, 1997). Both normative and discursive influences are present upon science and upon scientific theory (figure 2.5).

Yet, the socially defined truth is in our contemporary western society strongly related to science. Foucault sees moreover an intrinsic relation between truth and power, which leads in our contemporary society to a relation between science and power. This does not imply that knowledge can easily be reduced to power. Knowledge can only be used as a form of power if it is strategic knowledge, in other words when you have the right to speak the truth. One could state that scientist have this role in today's western society (Flynn, 2007). Flyvbjerg (1998) experienced a similar relation between knowledge and power during his research on the Aalborg project. Both Foucault and Flyvbjerg see that power relations are present in all social relations. The negative association that is for many people related to the concept of 'power' is not applicable for the concept of power (rather power relations) as it is described by Foucault. Power relations are unavoidable in all social relations.

Foucault uses 'discourse' to describe an important set of structures that are beyond our control. A discourse is a group of statements, which provide a language for talking about a particular topic at a particular moment. Discourses are politically constructed, dynamic and change through history, context and culture; they have neither a set audience, nor a set application. Moreover, discourses can be either very clear or rather vague and more or less restrictive. However, discourses never consist of one statement or source; the same way of thinking will appear across a range of texts and at a number of institutional sites in society. Discourses can thus be seen as organised sets of social representations. Yet, discourses are a combination of social and personal interpretations, which allows them to be described both positively and negatively (Allmendinger, 2002; Van Assche, 2004). The division in both a positive and negative interpretation of a discourse is clearly visible in today's notions towards the food chain. The general ideas can be divided in a discourse



2.5 Power influnce on theory, after Allmendinger (2002).

that pictures the food chain (or agribusiness) in a rather positive way and a discourse that pictures the food chain (or food system) in a rather negative manner.

Typical for discourses are hidden assumptions. A part of reality is presented in a particular way because of the (hidden) assumptions of the author. People might be aware of their assumptions, but it is also very well possible that they are not aware of their assumptions. One of the important goals of discourse analysis is to identify the hidden assumptions, to relate them to each other and to the social world and power relations in this social world (Van Assche, 2004).

A form of hidden assumptions is unintentional bias. Unintentional bias is present in every person's thinking more than we may expect. It is natural for a human to rationalize actions and beliefs. It is because these thoughts are subconscious that we do not expect ourselves to have them. Individuals form beliefs based on observations and data presented to them. The judgements and decisions we make based on the facts and observations we have been presented to, are not always as rational as we would think. In an American research, a group of respondents was asked the question: "If someone sues you and you win the case, should he pay your legal costs?" eighty-five percent of the respondents answered this question positively. However when another group of respondents was asked the same question in a different way: "If you sue someone and lose the case, should you pay his costs?" only 44% answered the question positively (Cain and Detsky, 2008). People's personal wishes have an important influence on their beliefs. The theory of motivated reasoning describes the fact that people naturally tend to draw conclusions that are positive for their personal well-being. We are thus prone to draw conclusions that provide support to our personal existing beliefs or conclusions that confirm our status or success, in other words conclusions that we wish to be true. When people are provided with an agreeable proposition they are inclined to ask themselves the question "Can I believe this" while they would ask themselves the question "Must I believe this" when asked a proposition that is threatening or disagreeable to themselves (Dawson et al., 2002). There are many different cognitive biases, which go too far to name and explain them all in this chapter. The researcher therefore chose to elucidate upon one of the many form of bias: the experimenter's bias. This type of bias was judged to be of particular interest for this research. The experimenter's bias is the propensity for researchers to believe, certify, and publish data that agree with their expectations for the outcome of their research, and to disbelieve or reject the data that appear to conflict with those expectations (Jeng, 2005).

Assumptions are not necessarily unconscious, as the biases described in the former paragraph are. Another form of assumptions that this research distinguishes are premises. Premises are in this context described as statements that are assumed to be true. They are generally described in the research, and used to reach the central conclusion.

2.2.2 Local-Global Dialectics

A worldwide development towards the intensification of dialectics between objects that seem contradictory can be noticed. The development is characterised by efforts to relate questions and approaches that under a single-dimensional vision appear opposite. The changing approach towards local and global fits in this worldwide development. The notion that local is an antithesis of global has long been leading and is still followed by some. However, a new movement under the denomination of 'Paradiplomacy' is being established. This movement rejects the perception that global is opposite to local and brings up the debate about the necessity of new theories to explain the complexity of the relations that exists between the

two scopes (Okazaki, 2008). Paradiplomacy can be found in food planning literature. Several articles emphasize on the fact that local and global are no opposites. Jarosz for example states:

"A critical examination of the 'local' in local food systems and networks reveals that 'local' and 'localization' are not necessarily oppositional to globalization and global food systems. Local food systems may employ industrialized production techniques, exploit farm workers and still produce organic food. 'Local' is a construct, and local food systems cannot be assumed to be uniformly 'good' or progressive, because they emerge from a complexity of contingent, place-based social, political and ecological processes." (Jarosz, 2008, p. 233).

Sonnino (2010) adds even that global and local food systems cannot be seen as two separate systems, but that there is a need for new conceptualisations for the CFS and AFS.

"The analytic focus on the relationship between global and local attributes has raised the need for new conceptualizations that account for the blurring of the boundaries between conventional and alternative food systems (Feagan, 2007; Sonnino & Marsden, 2006) and emphasize the links between localism and globalism. In this perspective, global and local food systems cannot be treated separately because they are mutually constitutive; in other words, they influence and feed back into each other (Campbell, 2004, p. 346; DuPuis & Goodman, 2005). Even from a more practical standpoint, research shows that in some cases local food systems need support and protection at wider scales to become and remain sustainable (Sonnino, 2007)." (Sonnino, 2010, p.26)

2.2.3 Ideal Types

The theory of ideal types was first described by Weber in the beginning of the 20th century. Weber used the concept 'ideal type' to describe a mental image, constructed by means of accentuation of certain view-points. The ideal type is thus a social construct; a utopia (Bruun, 2007; Calhoun, 2007). Max Weber states on the ideal type that:

"In its conceptual purity, this mental construct (Gedankenbild) cannot be found empirically anywhere in reality. It is a utopia." (Weber, translated by Shills and Finch, in Calhoun, 2007, p. 211)

Weber used the word "ideal" to refer to the world of ideas and idea-constructs rather than perfection. An ideal type is formed of several characteristics or components of a certain phenomenon, but not meant to refer to all elements of the phenomenon, rather stressing out certain elements and combining them in an unified construct (Calhoun, 2007).

"We should emphasize that the idea of an ethical imperative, of a "model" of what "ought" to exist is to be carefully distinguished from the analytical construct, which is 'ideal' in the strictly logical sense of the term. It is a matter here of constructing relationships which our imagination accepts as plausibly motivated and hence as 'objectively possible' and which appear as adequate from the nomological standpoint." (Weber, translated by Shills and Finch, in Calhoun, 2007, p. 212)

The theory of ideal types is found to be especially fruitful in value relation and value analysis. It is regularly used in nowadays comparative social research, such as comparative welfare state research (Kvist, 2006). In this research, scientists ideas and values on the food system are perceived as ideal types, leading to different 'ideal' food systems.

2.3. Towards a theoretical frame

In the first two paragraphs of this chapter some theoretical background on the physical (2.1) and interpretative (2.2) context of food systems has been given. The following paragraph will combine this knowledge, and present a theoretical frame that is used to structure the results of the research in the following chapters.

Holloway et al (2007) describe seven analytical fields for the description of food projects (table 2.1). They derive the fields from the analysis of more than 100 food projects in the UK. The analytical fields of Holloway have formed an inspiration for the development of the theoretical frame that is presented in this paragraph.

Heuristic analytical field	Examples from sample food projects
Site of food production	Community garden, school grounds, urban brownfield sites, farm, rented field, allotments
Food production methods	Organic, biodynamic, consumer participation, horse ploughing
Supply chain	Local selling/procurement, Internet marketing
Arena of exchange	Farm shops, farmers markets, home delivery, mobile shops, pick-your-own
Producer–consumer interaction	Direct selling, e-mail, newsletters, cooking demonstrations, food growing work (such as weeding parties), farm walks, share/subscription membership schemes
Motivations for participation	Business success, making food accessible, social/environmental concerns, anxiety avoidance, sensory pleasure
Constitution of individual and group identities	Customers, participants, stakeholders, supporters groups, children's groups, disability groups, women's groups

The analytical fields of Holloway were used to describe various food projects in a structured manner. The model is thus not in its pure form appropriate to describe a discourse in the food system. An important aspect that misses from the model is the aspect of interpretation, which is essential when describing a discourse. This research chose to describe two main discourses in the food system based on the description of the ideal food system they promote (describing) and the interpretations and assumptions that were made in order to argue for this 'ideal' food system. The theoretical frame to describe the food systems themselves was inspired by the analytical fields of Holloway, but is adjusted to the following seven categories using the definition of a food system by Pothukuchi and Kaufman (2000):

"A food system is the chain of activities connecting food production, processing, distribution, consumption, and waste management, as well as all the associated regulatory institutions and activities."

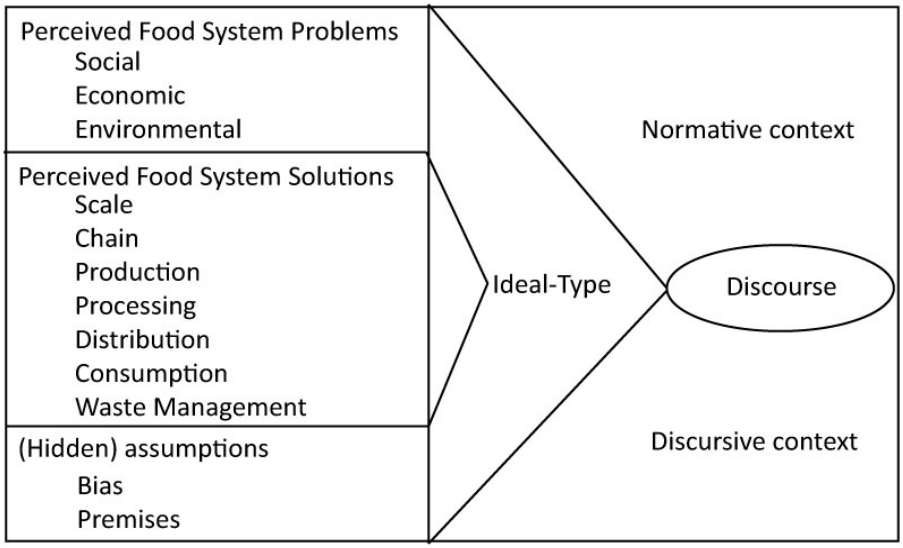
If applicable both the geographical aspects (the site) and the methodological aspects were translated in a theoretical concept. Furthermore the scale of the entire food system was added as an important seventh theoretical concept.

Theoretical Concept	Examples
Scale	Local, regional, global
Chain	Complex, long, short, dependent

Production (site and methods)	Site: Urban, rural, metropolitan Methods: Efficient, multifunctional, sustainable, organically
Processing (site and methods)	Site: Urban, rural, metropolitan, close to production site Methods: Important value added, combined with production, minimized
Distribution	Supermarket, retail, farmers market, on-farm shops
Consumption (site)	Urban, city centre, urban fringe, metropolitan, close to consuming market, home
Waste Management	Waste cycles

The previous table displays the key theoretical concepts that will be used in the following two chapters to describe the alternative food system and agribusiness chain discourses.

In order to complete the theoretical framework an interpretive part should be added to the part that helps us to describe a food system. For this part of the theoretical frame, discourse theory of Foucault is combined with the theory of 'ideal types' of Max Weber. After the exploration of literature a difference between two different ways of thinking on the ideal food system were found. These two ways of thinking are perceived and described in this research as two discourses, each arguing for an ideal type of the food system; the alternative food system and agro-business as part of the agribusiness chain. In order to gain insight in these two discourses and ideal-types, both the ideal-types (perceived food system solutions) and the discourse that directed them towards these ideal-types (perceive food system problems and (hidden) assumptions), are described.
The problems that are described in literature are thus perceived as interpretations on the food system and part of a discourse. Moreover, there might be more assumptions hidden in the thoughts and believes of researchers in the alternative and in the agribusiness discourse. This research distinguishes unintentional bias and premises as two main forms of hidden assumptions. If we add both the descriptive and the interpretive aspects of theory, the following theoretical framework can be formed. This framework (figure 2.6) is used to structure the depiction of food system discourses in the following two chapters.



2.6 Theoretical Frame

3. Conceptualising the Alternative Food System

3.1 Introduction

The alternative food system (AFS) is a term that covers many different forms of non-conventional food production that started from the idea that our current food system is unsustainable. Although most of these alternatives can be found at a small scale, this is not necessary the case. It is difficult to conceptualize the AFS that ís produced and sustained by a diversity of processes and locations (Jarosz, 2008). Consequently, a great diversity exists among AFS's in both popular and academic discourses and are AFS conceptualised in different ways in literature (Jarosz, 2008, after Venn et al). Campbell (2004) describes a division between the 'sustainable agriculture movement' and the 'community food security movement' as the main movements within the alternative food network. Holt (2005) sees local food and organic food as the two main types of the AFS. Renting et al. (2003) add a third division, based on the producer-consumer relation. They divide the AFS in face-to-face networks, proximate networks, and extended networks. Jarosz (2008) describes four major concepts of AFS's: shorter distances between producers and consumers; small-scale farming and organic or holistic farming methods; the existence of food purchasing places such as farming markets; a commitment to sustainable food production, distribution and consumption. FSP is in this context perceived as the reaction of planning-science on problems in the CFS, proposing the AFS as a substitute.

This chapter describes the AFS and FSP as a way to make the CFS more sustainable. The movement is described as a discourse, meaning that statements food system planners are described as perceived problems, rather than the problems of the CFS. The bases for the description were approximately 50 articles on FSP from refereed journals.

3.2 Perceived Food System Problems

AFS have started from the idea that the CFS is unsustainable. Problems in the CFS often form a direct reason and need for the research to start and are not difficult to find. Understandably, most literature focuses on a specific problem or specific group of problems in the CFS. This paragraph gives an overview of the most commonly named food system problems in alternative food planning literature.

3.2.1 Social

Disconnecting, disembedding and disentwining

Consumers have become estranged from the production process. Children do not know where their food comes from anymore (Garnett, 2000; Sonnino, 2009). For most consumers, the visibility of the food chain stops in the grocery store. Consumers are thus 'disconnected' from the up scaling food chain and from the primary place of production; the farm. Furthermore, the vast majority of consumers do not read labels indicating local or regional origin. The relation between the production place and the product itself is disappearing. The identity of places is decreasingly bound to products and the quality or nature of products can ever less be ascribed to its place of production. The link between a food product and its 'natural' environment is lost in the process of 'disembedding'. A last process of estrangement that currently stands out is 'disentwining'. The food chain is split into separate activities that do not have direct connections with each other. One of the consequences of the gap between producers and consumers is the growing uncertainty and distrust of consumers towards their food (Wiskerke, 2008). Another important consequence of the above-described processes is unawareness and growing indifference about the social, environmental and economical

consequences of their food choices (Pothukuchi, 2004).

Food Deserts

Although the CFS made food easy accessible to many urban residents, the number of supermarkets is decreasing due to scale enlargements. Consequently, the number of neighbourhoods that have direct access to shops selling fresh, nutritious and healthy food is decreasing. The absence of healthy fresh food is often replaced by the presence of (unhealthy and cheap) fast food (Garnett, 2000; Sonnino, 2009).

Food deserts are neighbourhoods that do not have direct access to healthy and fresh food. The inhabitants are often from low-income classes and do not have access to cars to be able to buy fresh and healthy food in surrounding neighbourhoods. As a result, inhabitants of food deserts pay generally more for their food. In spite of their low income, the costs and time for travelling to larger (cheaper) shops are often too high. A study on the nutrition in poor African American neighbourhoods in Los Angeles found that these areas had significantly higher proportions of small grocery stores than more prosperous neighbourhoods with fewer African American inhabitants (Dunkley et al., 2004). Although food insecurity does not seem a western problem at first sight, there are significant numbers of food insecure households in western countries. For example in 2005, 11 percent of all households in the USA were food insecure. Food stamps and emergency food assistance in the USA could not meet the total demand in 2003. Research implies lower rates of obesity and overweight in neighbourhoods with direct access to supermarkets or retailers that offer fresh and healthy food (Kaufman and Pothukuchi, 2007).

Obesity

An indirect result of the CFS is the change in people's dietary patterns. Supermarkets offer an increasing amount of ready-made prepared foods, energy-dense snack foods, supersized fast foods and sweetened juice beverages. The increasing amount of available processed food seems contradictory with the message that people should take better control on their diets to reduce the chance on obesity and heart diseases (Lang, 1999). The large intake of these unhealthy and energy-dense forms of food combined with the decrease in daily muscular exertion forms an important cause for the increasing obesity rate (Paarlberg, 2010). This change should be seen in the light of a broader change in society in which people spend relatively less money on food and less time on cooking. Many people have lost kitchen skills as ready-made food is easily accessible (Steel, 2008; Wiskerke, 2009). The change in dietary patterns forms one of the main causes of the growing trend in obesity that is visible in all western countries. The associated costs of obesity are a significant concern for governments worldwide (Kaufman and Pothukuchi, 2007).

3.2.2 Economical

Economic Problems for Small Farmers

The functioning of the CFS influences the management of farms. It is not as obvious as it used to be, to keep a steady income as a farmer. Especially the incomes of small (family) farms have been decreased in the last decades. Two aspects illustrate this. First, the 'cost price squeeze': the gross value of production is declined, while at the same time the primary production costs have increased. Second, the economic share of the farmer as primary producer became smaller. Dutch pig farmers for example only retain six percent of the total market value. The remaining 94 percent of the value goes to the supply sector, the slaughterhouse, de-boner, pre-packer and retailer. These two aspects have caused a new phenomenon to arise, described as the 'treadmill effect' (Wiskerke, 2009, after Morgan and Murdoch). Farmers feel forced to increase their production in order to scale up and reduce their cost of production

per unit. Many farmers cannot keep up to this competitive environment in the CFS. In the USA middle-scale farms (50-1000 acres) have been significantly decreased in recent years, while large farms over 2000 acres have gone up nearly five percent (Kaufman et al., 2007). Urban pressure makes it even more difficult for small farmers to survive. Around many western cities urban sprawl and farmland loss can be found. There is a widely recognised relation between farmland loss and sprawl. Much of the farmland lost, is due to poor planning and sprawling land-use (Vallianatos et al., 2004; Garnett, 2000). In many western countries, a significant part of the farmers is ageing and has no successor for the business. This makes the land even more vulnerable for urban pressure. Urban sprawl and farmland loss influence the agricultural landscape around cities and intimidate the cities capacity to obtain fresh and local food (Kaufman et al., 2007). Most farms that survive in the CFS are financially enforced to intensify or to scale-up their production.

Globalisation on the retail market

There has been a power shift in food sector from producers to retailers. The chain has changed from a supply driven to a demand driven system. This has serious economic and financial impact both on farmers at the production side and on retailer at the turnover side (Duncley et al, 2004). Low prices for food can only be guaranteed because of the constant competition between different grocery stores. The downside of this competition is the fact that only the largest stores can withstand this (Duncley et al. 2004). By the mid 90's in the UK fifteen retailers owned 83 million square feet of the total sales area of 127 million square feet (Lang, 1999 after Myers). Due to increasing vertical integration, the food chain is in hands a small group of large companies, who have enormous power (Pothukuchi, 2004). Still, even for today's largest retailers the market is uncertain. Each year about 10.000 new products are launched in the EU, of which only 10% survive (Duncley et al. 2004).

3.2.3 Environmental

Environmental Pollutions and Landscape Destruction

Intensive agriculture production leads to various forms of environmental pollution including, the groundwater (nitrate), surface water, air (ammonia) and soil (phosphate saturation). Moreover, intensification of agriculture can lead to habitat loss (Wiskerke, 2009; Pothukuchi, 2004).

"Agricultural processes and practices are inherently local and regional, and the environmental risks associated with them tend to be spatially bounded (rather than atmospheric or global)… In short environmental effects can be isolated." (Marsden et al., 1999, p. 298).

The intensification of agriculture has also resulted in the reduction of agricultural diversity and the disappearance of many populations of crops. In addition, natural habitats and historic-cultural landscapes have been destructed, resulting in the loss of non-agricultural biodiversity (Wiskerke, 2009).

Food Miles

As stated before the production chain is disentwining into an increasing number of activities. This development, combined with globalisation and low transport costs have lengthened the average measured distances of production chains (Nichol, 2003). Although globalisation has shortened the relative distances between places, it has helped to increase the absolute transport distances in the food chain. This development is known in literature as the 'food miles' problem and is seen by some as the cause of increased greenhouse gasses. The total transport-emission of the CFS has been estimated to produce more greenhouse gasses per household than car use, heating or lighting per household cost (Nichol, 2003). Moreover,

consumers travel further (by car) to buy their food. Hypermarkets generate trips for food shopping (Lang, 1999), constituting a significant portion of the urban transportation volume (Pothukuchi & Kaufman, 1999). The problem of increased food miles, may seem obvious at first sight, but is rather ambiguously analysed in literature.

Ghost Acres

The invisibility of our food chain has caused another phenomenon to rise. The so called 'ghost acres' refer to the acres a certain region (for example a country or a city) uses to fulfil his needs outside the region itself. Most western countries use by far more land to fulfil their needs than they actually have. A study estimated for example that the net import of hidden land in the UK was 4.1 million hectares in 1995 (Lang, 1999 after MaClaren et al). Garnett (2000) names the unsustainable food system of London, including a food print measuring 125 times the city's surface area and a high food import ratio, as the main reason to start 'rethinking London's food economy' (Garnett, 2000, p. 477).

Unsustainable Cities

The impact of the CFS is not only visible in rural areas, but also in the city. Food waste makes up to one third of the urban, household, commercial and institutional wastebasket. It uses up local landfill capacity and can increase air pollution (Kaufman and Pothukuchi, 1999; Kaufman et al., 2007).

The environmental and esthetical impact is even more direct. Large stores in urban areas can lead to a reduced local environmental quality. Large parking lots (especially reserved for supermarket customers) generally do not influence a cities esthetical quality positively. Moreover, the stores often increase traffic congestion in their direct environment, cause noise, odours and can even cause excessive storm-water runoff caused by large areas of impervious surface (Dunkley et al., 2004). Some scholars question even the consumer convenience in conventional hypermarkets. They state that it is not certain that consumers also prefer large stores. Industry executives even believe that smaller shops are easier for consumers who are pressed for time and for consumers who appreciate relationships that are more personal with customers (Dunkley et al., 2004).

3.3 Towards Solutions

Food planning literature offers a broad variety of activities in food systems that can help to improve the current conditions of the food system. In this paragraph an attempt has been made to give a structured overview of the different activities and strategies that are described in planning literature. As both strategies and activities were found in literature, these can both be found in this paragraph. This results in some overlap between the different solutions. For instance, urban agriculture as an activity can be part of the urban food strategies, continuous productive urban landscapes and of community food security. In order to avoid overlap in the textual content, the sub paragraphs on specific activities (3.3.1-3.3.4) focus on the activities itself, while the paragraphs describing broader visions on the food system (3.3.5-3.3.7) lay their emphasis on the general idea and vision behind the strategy. Possible activities part of the strategy are named, but not described.

3.3.1 Local Agriculture

Local food strategies can contribute to the survival of small-scale farmers that would have difficulties to survive in the dynamics of the global food system (Sonnino, 2009). Also, local agriculture has the ability to bring producers and consumers closer together again. Small farms are good places for this contact. Marsden et al (2000) state that the most important value of short food supply chains is the fact that 'the product reaches the consumer embedded

with information' (p. 425). This can both be by information (for example labels) printed on the package or by personal communication between consumer and producer. Furthermore, local agriculture is a guardian of natural resources, and contributes to local community and economic development (Jarosz, 2000). Another advantage of short food supply chains is the decrease of food miles that are made during conventional production processes. Even when a consumer has to travel a longer distance to buy its food in a farm shop, the transport-related carbon dioxide emissions of food at the farm shop is approximately 30 times lower than the carbon dioxide emission of the same amount of food in the supermarket. In Wales, the agro-food sector attempted to develop a quality-based agro-food regime in order to achieve a serious focus on product quality. It was expected that the food sector in Wales could have a role in the development of local economic capacity and via the construction of a territorial identity. The undeveloped character of the many supply chains makes them relatively expensive. Therefore, the sector is restricted to growth since most consumers are not willing to pay substantial price differences (Banks and Bristow, 1999). Farmers have a variety of strategies to market their (local) quality food to consumers from urban areas. The most known selling strategies are on-farm shops, box schemes, community supported agriculture (CSA), internet shops, pluck-your-own farms, and farmers markets (a.o. Nichol, 2003; Jarosz, 2008; Holtslag, 2010). Techniques as crop rotation, maintenance of buffer strips and the use of manure are often used to make local agriculture improve the landscape and environmental qualities as well (Jarosz, 2008).

3.3.2 Organic production methods

A strategy for small farmers to distinguish themselves from the CFS is to produce organic. Organic production is more extensive and therefore perceived as better for the quality of the environment and of the landscape. However, the transformation towards an organic company is not without risk and asks for serious investments of the agrarian. Van der Ploeg and Frouws (1999) describe a 'world of insecurities' when starting up a new organic supply chain. An important difficulty is the need for scale enlargement in order to stay competitive, while the same scale enlargement is in contradiction with the added value of products. The local government in Woodbury (Iowa, USA) reacted upon financial problems from starting organic farmers, providing them tax breaks if shifting to organic production (Pothukuchi, 2009).

Today's organic agriculture movement can be divided in two main groups. On the one hand, mainstream interest in organic produce has been growing in the last years. Due to the risen demand for organic produce, supermarkets are increasingly interested to sell organic food. Also, governmental support for conversion has made organic production methods increasingly attractive for farmers. The majority of organic sales takes place in this sector of the organic market. On the other hand, there is a group of farmers that rejects to cooperate in these mainstream systems and perceives that the values of organic produce are getting lost in mainstream systems. The loss of personal contact with customers, doubts on the feasibility of the high packaging requirements and bad feelings on food that had to be wasted when it did not reach the pre-packaging standards, make them reject the mainstream organic production methods (Smith, 2006).

3.3.3 Multifunctional Agriculture

Another manner to increase a small farmer's income is to diversify into a new kind of enterprise that is not dependent on the production of food alone. There is a broad variety of functions that can be combined with agricultural activities. A well-known combination with agriculture are for example recreation and tourism such as the experience of agriculture (strolling and

cycling through agricultural areas), venture of locally produced products, camping at the farm, recreational green in the city (reed production, urban forestry) (Deelstra et al., 2001). Other activities that can generate extra income for farmers are educational activities (farm-to-school, internships, workshops) or business activities (conference rooms, team building activities, offices and studios) (Vallianatos, 2004; Nichol, 2003; Jarosz, 2000).

Despite various income strategies, the economic position of small farms now and in the future remains debatable. Research has confirmed that small farms can be at least equally productive as large industrial farms (Jarosz, 2000). Moreover, there is a huge potential consuming market and there are serious economic development possibilities for local food (Kaufman and Pothukuchi, 2007). Jarosz (2008) found that local and organic farmers in Washington have difficulties to survive. Costs and the labour demands of direct marketing can make their way of working unsustainable. Farmers often have to drive large distances to sell their food at farmer's markets, costing a lot of time and fuel, which is not only expensive, but also conflicting with the main ambitions of local and organic agriculture.

Communities make plans and policy to protect the agricultural landscape from sprawl, protect productive soils from non-agricultural land uses, support sustainable water supplies and to improve agricultural viability (Kaufman and Pothukuchi, 2007).

3.3.4 Urban Agriculture

There is much research on urban agriculture (Sonnino, 2009). Urban agriculture can be described as the growing of food and fuel inside urban areas, produced directly for the market and regularly processed or marketed by farmers or their close associates (Smit and Nasr, 1992). Thus, various activities can belong to urban agriculture. A way to bring agriculture into the city is for example by means of a city farm. These farms have an important educational function for children in the city (Holland, 2004). According to Howe (2002), urban agriculture can provide economic, environmental, social and health benefits. Urban agriculture can for example provide affordable food in food deserts. In addition, it can preserve the biodiversity and shorten the distance people travel for their food. Growing food in the city can finally lead to nutritional diversity and community cohesion. The production of food in the city is not new. Allotment gardens can be found for more than a hundred years in and around cities all over the world. However, the main function of the allotment gardens has changed through the years. A century ago, allotments were seen as a means of permitting poor people to grow their food in a cheap manner. Today, the function of allotment gardens is changed to a more broad social and recreational function (De Silvey, 2003). Urban agriculture can be much broader than the allotment gardening or urban farms that have been named before. Production methods can be as diverse as community gardening, home gardening and can even include rooftop farms[3]. Sale opportunities can include farm stands, farmers' markets, Good Food Markets, produce auctions, mobile produce carts, home-delivery box schemes and CSA (Nasr et al., 2010).

3.3.5 Urban Food Strategies

In recent literature on food production in urban areas, the step from urban agriculture activities towards urban food policies is often made. These food policies integrate food related activities and policy with each other. Various cities (a.o. Amsterdam, London, Rome and New York) have taken the challenge of developing urban food strategies or policies. These can contain diverse goals, strategies and ideas, but all provide a holistic view on the future food plan of the city.

"Besides helping to coordinate the ways that community residents get access to quality food, a food policy can also create new linkages with area farmers, particularly those committed to sustainable production." (Feenstra, 1997, p. 34)

Urban Food Strategies have a wide thematic scope, which may include urban design, public health, farmer's income, urban containment, mixed land uses, urban agriculture, water management, waste disposal and education. Still, literature on urban food systems tends to be rather focussed on strategy and policy than on the working of the complete system. Blay-Palmer (2009) attempts to connect food issues, using the case of Toronto. In a sustainable food system model the rural area surrounding the city is responsible for feeding the city in a way that 'respects biodiversity and environmental integrity' (p. 409). Sonnino (2009) describes urban food strategies that often have an important role for the survival of small farmers and contribute to the individual and communal health. She states that:

"They are beginning to redesign the urban and peri-urban environments (as well as the linkages between them), with important gains for the general quality of life of the millions of people who live in and around fast growing cities." (p.426)

An example of an action that can be part of the urban food strategy is the school food program. School food or farm to school programmes are developed in order to get more fresh, healthy and locally grown food on schools (Garnett, 2000; Sonnino, 2009). In regions of the USA, the farm-to-school projects connect schools with local and regional farmers. Students get the opportunity to eat fresh and locally grown vegetables and fruits. Moreover, they can grow their own food in school gardens and make field trips to farmers from their own region. These experiences lower the barriers between the farmers and the students. Although some school programmes also provide ecological food, the fact that the food is local is of essential importance. Much of the program parts, such as a visit to the farm, are only possible if the schools cooperate with local farms (Vallianatos, 2004; Sonnino, 2010). Another possibility to connect children with farming activities is to combine education and childcare facilities with agriculture (Deelstra et al., 2001).

An often-named necessary step forward in the food system is a change in people's awareness towards food. The system will never function (or even never appear) if there is not enough awareness on the current provenance of our food, the food chain and the problems within it. Education can have an essential role in raising this awareness. Since 2000, courses on food issues are increasingly offered in planning curricula (Pothukuchi, 2009; Hammer, 2004). Other manners to integrate food in the urban environment are the organisation of food events such as food festivals, farmers markets or a public dinner with local food. Some municipalities have policies for the purchasing of local or organic food in governmental institutions such as schools, university, hospitals and the municipality (Kaufman and Pothukuchi, 2007; Blay-Palmer, 2009).

3.3.7 Continuous Productive Urban Landscape

Viljoen et al (2008) describe the concept of a continuous productive urban landscape (CPUL) to visualise the ideal sustainable urban landscape. A CPUL is a combination of a productive landscape and a continuous landscape. CPULs do not yet exist in cities, but were designed by André Viljoen, Katrin Bohn and Joe Howe to encourage and inspire urban dwellers, landscape architects and planners for a sustainable future of our cities. CPULs are open landscapes that are productive in economic, social and environmental aspects. The landscapes run through the city, connecting various open urban spaces with each other and with the surrounding rural area. CPULs are green, visual attractive and can provide space for multiple land uses such as recreation, nature and food growing. CPULs are intent primarily for non-motorized

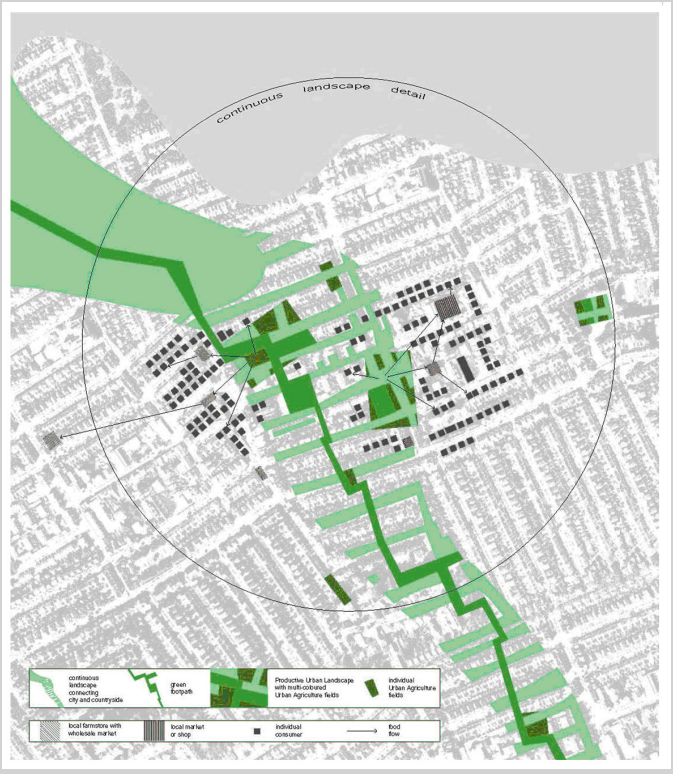
traffic, which should result in the absence of noise, air and soil pollutions. Figure 3.1 shows a detail of a CPUL, designed by Bohn and Viljoen architects.

3.3.8 Community Food Security

Community Food Security is the ambition for communities that are now seen as 'food insecure' to reach a situation in which all community residents obtain sufficient healthy food trough a sustainable food systems. There is not one prescribed method to achieve this, but there are numbers of successful examples from mainly neighbourhoods in the United States. Pothukuchi (2004) suggests for example courses for vegetable gardening, community-based food business, community gardens, farmers markets and food policy councils to advance the food security in neighbourhoods.

In areas in the USA, planners developed improved roads or bus routes to the nearest grocery stores (Pothukuchi, 2009). Planners can help as well during the design of neighbourhoods. In 2007, Design for Health made a checklist for neighbourhood plans for their effectiveness in providing access to basic needs, including food. One of the questions in the checklist is for example: "Are there plans to ensure that there are supermarkets/fruit and vegetables stores located throughout the municipality?" (Pothukuchi, 2009). Community food security can be a useful tool for planners to integrate food in planning, not only at the community scale, but also on a city or county level (Pothukuchi, 2004). The long term health of a community can give an indication of its quality and sustainability (Feenstra, 1997). To some, community food security may seem a small-scale approach that cannot seriously solve the complex problems that occur in the CFS. Pothukuchi elucidates this point:

"It must be noted that community food security cannot be expected to solve all the ills emerging from the current food system… Rather, it is an approach that seeks to increase community influence on the system, to offer an integrated view of the links within the food system and between food and communities, and to provide more sustainable alternatives to current streams." (Pothukuchi, 2004, p. 360).



3.1 A detail of the CPUL concept. Green corridors provide a constant network of productive spaces. The CPUL contains foot paths, cycle ways, and fields for urban agriculture and other outdoor work and leisure activities (Image by Bohn&Viljoen Architects).

One of the often named means to achieve a better community food security are community gardens. Growing food in an urban environment brings healthy and affordable food, for those with a low income. It is a source of food, close to living places and can play a role in reducing food miles. It can thus give both economic and environmental benefits (Holland, 2004). Moreover, community gardens can have health and social advantages such as reduced stress and community binding (Lawson, 2004). Different forms of community gardens can be found with individual characteristics and goals (Holland, 2004). In the UK, most community gardens focus however on social and environmental benefits. Economic benefits are often still of minor importance (Holland, 2004).

"In recent years several new residential developments have been built with farms or community gardens incorporated into their site plans. Prairie Crossing, a planned-unit development in Grayslake, Illinois, leases 40 acres of the 677 acres site to a farmer for a CSA farm; the site also includes an educational farm, a farmers market, and community gardens." (Pothukuchi, 2009, p. 358)

Various researches have proven the benefits of community gardens. Armstrong (2000) for example found that gardening activities, such as planting and weeding, can have mental benefits. Moreover Blair et al. (1991) state that community gardeners have a greater consumption of fresh vegetables and a lower consumption of sweet products compared with non-gardeners.

Most of the benefits of community gardens also count for allotment gardeners. Just like allotment gardens, community gardens can be used for various functions including playground, vegetable plots, sitting areas, flower gardens or as cultural meeting places (Lawson, 2004).

3.4 Concluding the Alternative Food System

The AFS discourse has come into being due to problems they perceived in the CFS. Literature is clear on the various malleability's that environmentalist see in the current way of food production, transport, processing and consumption. The following table gives a summary of the most important problems environmentalist perceive in our CFS and the solutions they offer for them.

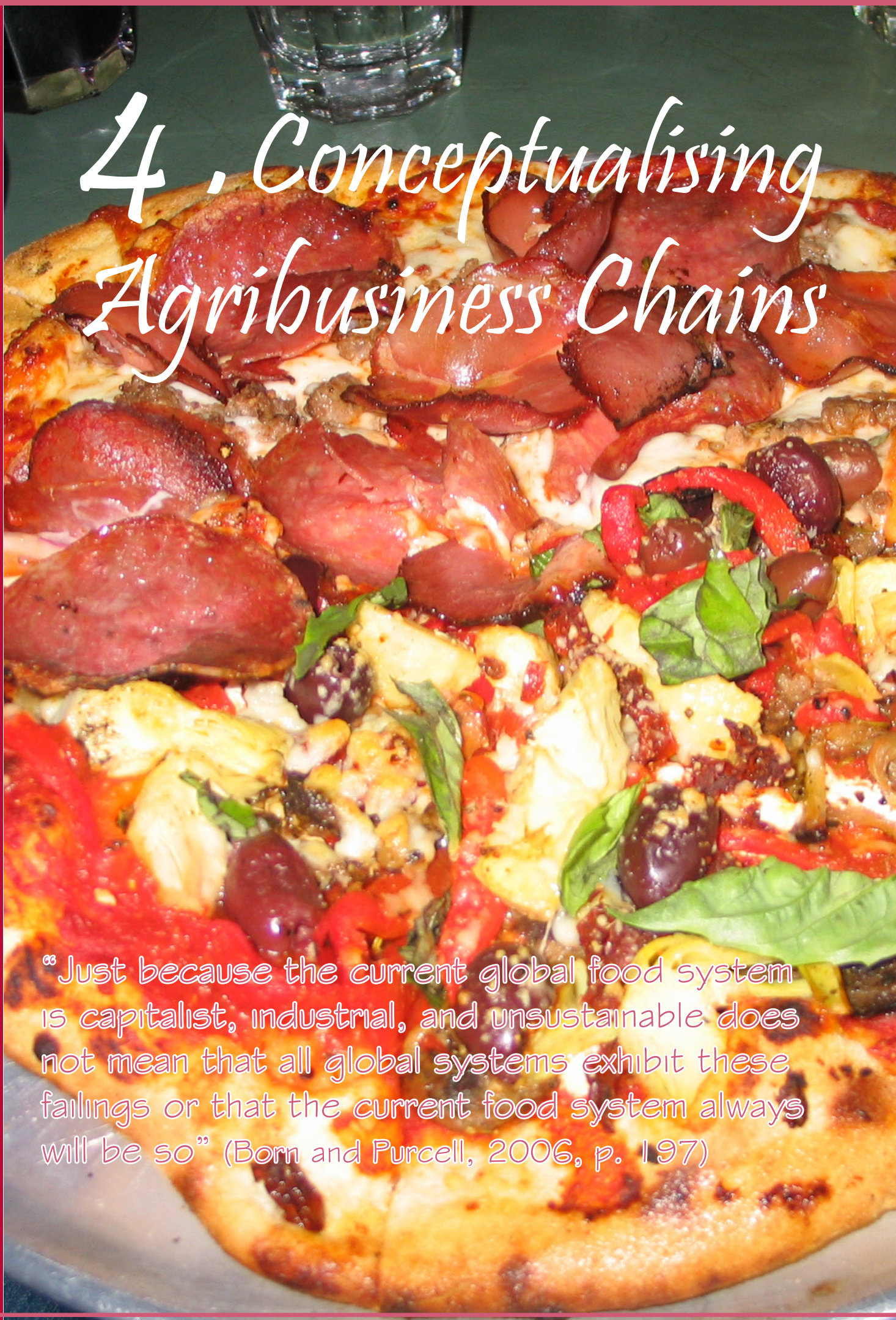
Perceived Problems	Towards Solutions
Disconnecting, disembedding, disentwining	Local Agriculture (On-farm shops, farmers markets, CSA, box schemes, region specific produce), farm-to-school programs, community gardens, allotment gardens, CPULs
Food Deserts	Farmers markets, connections to shops offering fresh produce, internet sales, community food security
Obesity and Malnutrition	Farm-to-school programs, allotment gardens, community gardens
Economic problems for small farmers	Local agriculture, multifunctional agriculture, organic production
Globalization on the retail market	
Environmental Pollutions	Organic production, perma-culture, crop rotation
Landscape Destruction	Landscape protection policy, buffer strips, Small-scale farms, organic production, crop rotation

Food Miles	Local agriculture, urban agriculture
Ghost Acres	Local agriculture, urban agriculture
Unsustainable food system in cities	Urban agriculture, CPULs, Urban Waste cycles

Although the previous table is the researcher's personal interpretation of literature, it gives an interesting overview of the broad variety of solutions that the AFS offers for the various problems in the CFS. Food system activities that can be categorised under the AFS are diverse; however, there are generalities traceable in them as well.

Scale: In contrast of many large-scale activities in the CFS, activities in the AFS tend to be rather small of scale.
Chain: A transparent and short food system.
Production Site: In order to improve the contact between producers and consumer and decrease transport distances, production sites are preferably situated in or near urban areas.
Production Methods: Production methods can vary, but should always minimize their harm done to the environment.
Processing: In general, AFS activities try to shorten the food chain and thus reduce separate processing activities as much as possible.
Distribution: Personal contact between producer and consumer is promoted, the food system should be transparent for the consumer.
Consumption: In urban areas situated close to people's residences.
Waste management: Waste should be reduced in advance where possible (for example by minimizing the use of package material), use of recyclable materials and urban waste management.

4. Conceptualising Agribusiness Chains



"Just because the current global food system is capitalist, industrial, and unsustainable does not mean that all global systems exhibit these failings or that the current food system always will be so" (Born and Purcell, 2006, p. 197)

4.1 Introduction

The food network has become a global network (Lang, 1999) and is described in this thesis as conventional food system (CFS). Nowadays, the CFS is the dominant food system in the (western) world. The system can be characterized by large-scale efficient production, centralization and a focus on profit maximization. In a complex production chain, goods are transported large distances before reaching the consumer. In huge hypermarkets, the CFS has provided the modern consumer with huge product diversity for low prices (Lang, 1999; Campbell, 2004). In the USA, for example, ninety-nine percent of households buy products in grocery stores each week (Dunkley et al., 2004). The CFS made food easily accessible in grocery stores and hypermarkets to many urban citizens. Consumer convenience has grown with the increased choice of products that can be bought in one place. The economic value of the food in this modern system does not lie primarily in the food itself, but in the value that is added to the product during its processing, standardization, packaging and branding (Verzone, 2010). This production chain is also referred to as agribusiness and nowadays encompasses a large industry of research, transport, product development, processing, coordinating and packaging of food. In this chapter, the agribusiness chain and its latest's attempts to innovate are described from a planning perspective. From a first rough literature search to articles on planning and food the literature appeared to be focused on AFS planning. In this body of literature the CFS was seen as unsustainable and the cause of many social, economic and environmental problems. In contrary to the prior chapter this chapter could therefore not be based on a significant number of refereed articles. The dissertation of Peter Smeets was an important source, combined with a few articles on the planning agribusiness chains and a few best-selling books in the field. In order to 'complete the story' it was sometimes necessary to use information from either unscientific sources or literature written by non-planning disciplines.

4.2 Perceived Food System problems

AFS planners are not the only group arguing for a sustainable food system. In the CFS, various stakeholders and scientists are searching for ways to improve aspects of agribusiness as well. Consumers demand food that is safe, cheap, healthy, animal friendly, and produced in a sustainable way. This increasing social pressure on the food sector is one of the reasons for the sector to start searching for more sustainable production methods. Other important factors are the increasingly strict environmental regulations that make it increasingly difficult for farmers to produce food at the prescribed manner. Some of the problems perceived by actors in the agro-business chain were already described as problems in the third chapter of this research. In order to provide a complete overview this paragraph names these problems, but does only elaborate on the problems that were not described in the previous chapter.

4.2.1 Social

Decreasing agricultural area, growing urban population

The global population has been growing in the last centuries, but will continue to grow from todays 6.8 billion to an expected amount of 9.2 billion people in 2050 (Alexandratos, 2005). In addition, the relative number of people living in urban areas is growing. Finally, the average prosperity of people keeps growing, making the demand for space per person rise. In 2007, the average person used 2.7 global hectares, and the food print per capita of Netherlands was 6,19 global hectares, while scientist calculated a world-average biocapacity of only 1.8 global hectares per person.

Cities grow in size and pressure on (agricultural) land increases. Expending cities take away

more and more agricultural land for housing, businesses and recreation. The expected doubling of the urban residents combined with growing prosperity would lead to cities claiming four times the space that they demand today. In areas with a high agricultural profitability and a high urbanization rate, this could lead to a substantial decrease in agricultural land. If agricultural land would be cut in half and urban population would double, consequently the agricultural productivity in the remaining areas would need to be four times more intensive in order to keep the urban population nourished (Smeets, 2009).

Ineffective Regulations
(European) regulations have anticipated on the polluting effects of intensive agriculture. Although the regulations are designed to make our agricultural sector more sustainable, they can work contrarily and restrict famers from developing new activities. As a result of the many regulations, quick changes have become difficult in the agro-sector. Also, regulations may regulate aspects that they were not made for in the first place. In the Netherlands it is for example, almost impossible to cluster different functions on one location, because of (over)regulations related to environmental and zoning plans (Veldkamp et al., 2009).

An increasing gap between producer and consumer
This problem is already described in the third chapter of this research under the name 'disconnecting, disembedding and disentwining'. The AFN discourse perceives a broader problem than the agribusiness discourse that sees the fact that the food chain is not transparent to consumers as the main aspect of the problem. The motivation for agribusiness seems to come mostly from consumer organizations that plea for a more transparent food system. In conventional supermarkets food is promoted to be 'natural' while in fact it is produced in a highly industrialized system (Schoor et al., 2005).

Increased critics from society on Agriculture
Agriculture comes under increased social pressure. Consumers demand more transparency, but want at the same time food that is convenient, cheap, healthy, and easily accessible (Schoor et al., 2005). In the Netherlands, there are more and more political and social groups that have wishes on rural areas. These groups have different values, aiming for example for more nature, more recreation or the protection of the original countryside (VROM-raad, 2004). The SER (Dutch socio-economic counsel) perceives a development in which the food chain changes from a supply driven into a demand driven chain.

4.2.2 Economical

Economic problems in the agriculture sector
The alternative food discourse perceives this problem as a problem for small-scale (family) farms. The agribusiness discourse perceives a broader problem of income decline in the entire farming and agribusiness sector (Schoor et al., 2005). Moreover, agriculture in the Netherlands should remain its competitive position in the international food market (Smeets et al., 2007). The relative economic importance of the agricultural sector in the Netherlands has decreased in the last years. Still, all the agri-business in the Netherlands together counts for 10 percent of the national income. It is therefore important to keep this sector flourishing (Ministerie van LNV, 2004).

4.2.3 Environmental

Unsustainable Waste Flows
In CFS we deal in an unsustainable way with energy, water, production material and compost. This leads to unnecessarily large amounts of waste in the food system (Smeets et al., 2007).

Food Miles
This problem is described in the third chapter of this research.

Landscape Destruction
This problem is described in the third chapter of this research.

Animal Well-being
In conventional intensive stock-farming businesses, animals have little space and no daylight. Economic efficiency has a higher priority than animal welfare. Animal transport is unfavourable for animals, but takes place regularly in conventional intensive stock-farming business. Moreover, the intensive stock-farming business has had to deal with various animal diseases such as foot and mouth disease, swine fever and avian influenza. The consequences of these disease breakouts were dramatic. As there was much contact between various businesses located at spatially spread locations and viruses could spread themselves via the air, the outbreak of the diseases was often very rapid. Millions of animals had to be slaughtered and farms had to be isolated (Schoor et al., 2005).

4.3 Towards Solutions; The Agro Park

In the CFS, many farmers have been specialised. The food chain has become increasingly segregated. A development adapting to this issue in the CFS are agro-parks. An agro-park is a cluster of agricultural functions and functions related to agriculture on or around one location. Highly intensive animal and vegetable production and processing occur, in a place where air, water, mineral and waste cycles are integrated in the business park (Smeets, 2009). Agro-parks produce for the global market, but cluster the production, processing and packaging processes as much as possible. The spatial form of an agro cluster is indefinite and can differ from flat buildings to a multifunctional park on the countryside (Van den Schoor et al., 2005). There are already several agro-parks in progress on all continents. They have a common drive to integrate agricultural production and the processing industry and to reach a sustainable triple P (People, Planet, Profit) performance.

"Planet means a shift from focus on production chains towards a focus on flows of energy and matter. People means a shift from focus on the technical system towards a focus on organisation and knowledge management, communication, information management, training and capacity building. It also means a shift from hierarchical planning to governance in networks, also social and cultural. Profit means producing a reasonable return by focusing on integral production network for improved chain relations, cost reduction and quality management." (Smeets et al., 2007, p. 9)

Yet, their focus points differ due to different local conditions. Researchers plea for the founding of an association for sustainable agro-parks in which all agro-parks can be united, exchange knowledge and strengthen each other to work towards a common goal (Mager and De Wilt, 2010). Figure 4.1 gives four impressions of different types of agro-parks.

4.3.1 Shorten transport distances

In the first place, the shorter transport distances in the food chain do not only lead to less air pollution and traffic congestion, but also lead to better circumstances for animals (Agrarisch Dagblad, 15-08-2007). Agro-clusters should be situated on important transport nodes, so that fast transportation of products with different transport modes is possible (Smeets, 2007). The number of food miles is thus reduced as much as possible, while still producing for the world market.

4.3.2 Closed Waste and Energy Cycles

Waste and energy cycles can be closed by concentrating and uniting different activities in the food system. This moderates the use of space, saves energy and is therefore less polluting for the environment. Smeets et al (2007) state:

"The main technological innovation lies in the heart of the Park, in which the Central Processing Unit combines all flows and recycles nutrients, water, energy and biomass, and CO2 and converts the 'wastes' into maximal use of resources, cost reduction and quality improvement of through waste management and recycling of valuable materials and energy" (Smeets et al., 2006, p. 6)

The mentioned CPU concept leads to closed cycles of waste and materials. Also it generates surplus energy from biomass processing and has no environmental impact. The technique is expensive and thus not feasible for one single farmer (Smeets et al., 2007).

4.3.3 Landscape Protection

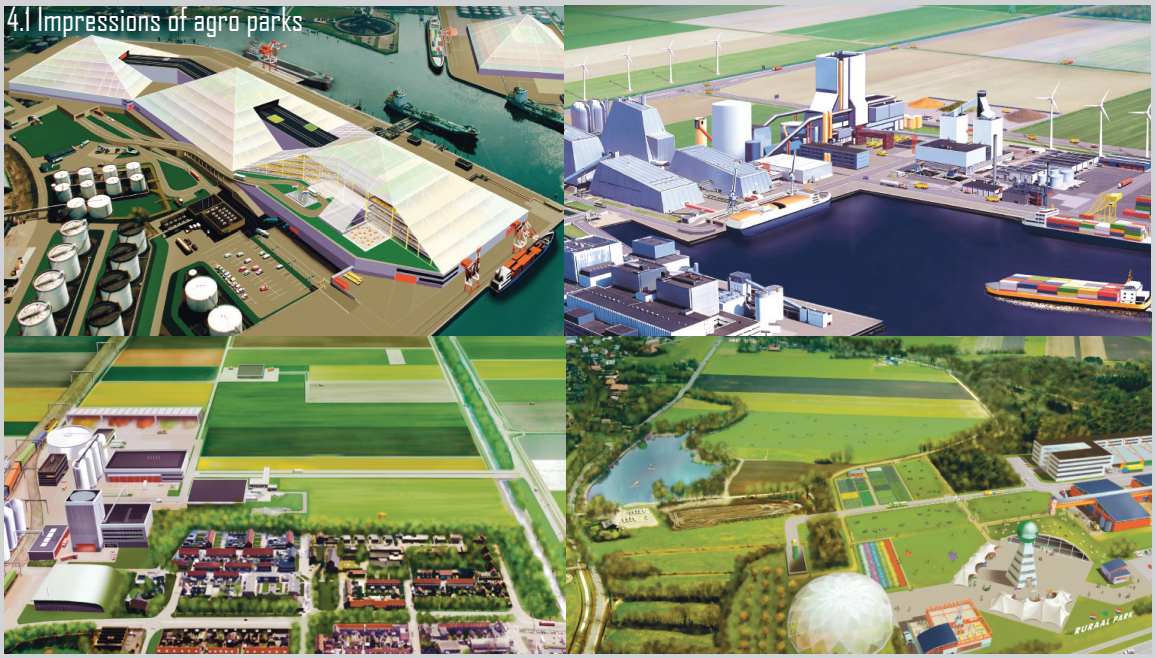
The clustering of industrial agriculture activities near urban and logistic intersections spares the quality of the rural area. Through agro-parks, activities that fit well in the rural landscape, such as recreation, water management and extensive agriculture, can take place in the countryside without hindrance of intensive agriculture (Van den Schoor et al., 2005).

4.3.4 Animal friendly environment

The health and environment for animals in agro-parks may be better than in the conventional intensive agriculture sector. The improvement of animal well-being is possible due to economic advantages of the agro cluster. In addition, the risk for animal diseases decreases due to the closed cycles of stock farming (Van den Schoor et al., 2005).

4.3.5 Transparent Food Chain

Agro clusters might make our food chain more transparent. In agro-parks high quality training on agribusiness can be given, research can be conducted, and tourism and leisure



activities may be held (Van den Schoor et al., 2005). A manner to reduce the uncertainty amongst consumers is the use of product labels. Although food labelling is used both in the alternative and in more conventional food sectors, the concept is here seen as part of the agribusiness system. Many different forms of labels exist including the origin-label (Loureiro and Umberger, 2007) and the 'fair-trade' label (Hess, 2009). Products from agro-parks could be easily recognisable using a special label. As the production chain of an agro-park is entirely closed there can be good guarantees for the quality, contents and adding's of the produce. A pitfall is the fact that the creation of more and more different labels originates also a growing confusion amongst consumers. The credibility of the labels decreases as the variety of labels to indicate that a product is sustainable, environmental friendly, healthy, or animal friendly, decreases (Wiskerke, 2009).

4.3.6 Economic Profit for farmers

Agro-parks may lead to economic and social profits after investment (Van den Schoor et al., 2005). Technological tools that are expensive for one single farmer can be profitable in an agro-cluster. Moreover, farmers that were before their own boss, are now in service of the agro-park. This may decrease their autonomy on the one hand, but at the same time provides them with a stable income.

4.4 Concluding Agro-Business Chains

Perceived Problems	Towards Solutions
Decreasing agricultural area vs. growing urban population	High intensive food production in agro- parks
Ineffective Regulations	-
Producer-consumer gap	Provide (school) visits to agro- parks or Greenport, Food labels
Critics from Society	Agro- parks providing sustainable, local and animal friendly products
Unsustainable waste flows	Closed waste cycles in agro- parks
Food miles	Cluster agribusiness activities in agro- parks or Greenport
Landscape destruction	Limit to intensive agro- parks in order to protect the rest of the landscape
Animal well-being	Agro- park

Scale: Activities in the agribusiness chain are generally large-scale for efficiency reasons.
Chain: Complex, but spatially clustered where possible. Products can be transported globally.
Production Site: Preference for strategic turnover points with good transport connections and relatively close to large cities.
Production Methods: Focus on efficiency and productivity, moreover according to the latest regulations and laws concerning agriculture.
Processing Methods: Form an important part of the agro-food chain. Add value to food in order to make in more attractive to consumers who demand more and more for convenience. Spatially integrated with production site.
Distribution: Large hypermarkets or supermarkets providing a broad variety of sustainable products for affordable prices.
Consumption: Adapted to consumer wishes and demands. Convenient and inexpensive.
Waste management: Production and processing industries should be integrated, so that waste cycles can be developed. In the ideal situation there should be a closed waste system.

5. Towards an integrated Food System, Imaginabel?

'The conflict between globalized aspatial systems of production and locally situated ecological systems will be crucial in shaping the future direction of alternative agro-food development' (Marsden et al, 1999, p. 299)

In the third and fourth chapter of this research, the CFS and the AFS have been conceptualised using a literature analysis. While there is a relatively large amount of literature on various food-planning policies such as urban agriculture, there are relatively few articles describing an integrated approach to planning and food (Blay-Palmer, 2009).This chapter expounds on former comparisons between food systems in literature (5.1) and furthermore compares and discusses the results of the literature study in the previous two chapters of this study (5.2). Also, the chapter addresses literature on the integration of food systems (5.3) and describes an example from practise that was earlier characterized as the integration of food systems.

5.1 Comparisons of Food systems in literature

The global and the local food network have been conceptualized and compared in various articles. The existing comparisons between two food systems form an interesting starting point for the analysis of the results of the literature review described in the previous chapters. Banks and Bristow (1999) compared mainstream and premium food supply chains in the region of Wales. The result of their research is shown in table 5.1. Lang (1999) compared the local and the global food system (table 5.2). The table shows the tensions between two different views on the future of food. Both the table of Banks and Bristow and the table of Lang, picture the conventional and alternative as two complete opposites of each other. The idea of the CFS as a complete opposite of the AFS can be traced back indirectly in most food planning literature.
Campbell (2004) makes a step further and describes the poor relation between the various food systems as tensions and conflicts. Campbell made a table in which the different interests of stakeholders are identified. The table can be used as a starting point for coalition building. The tensions she aims for can be found in table 5.2 of Lang. Campbell moreover states that:

"Applying the tools of conflict assessment and analysis… can help us identify potential complementarities from which to build coalitions or work toward consensus." (Campbell, 2004, p. 346).

Ilbery and Maye (2005) argue that the distinction between the two food systems is not as clear-cut, as is described in most literature. Different food systems are often strongly interwoven and related to each other, for example organic produce may be sold in 'conventional' supermarkets. Wiskerke (2009) distinguishes two major paradigms that have a significant difference in their view on the problems that currently arise in the food sector (table 5.3). The first paradigm, the hypermodern food geography sees mainly technical solutions for the problems. The second paradigm, the alternative food geography, focuses on shorter links and regional solutions. The two discourses that have been described in chapter 3 and 4 are most related to the paradigms that Wiskerke distinguishes.

It is inherent to the AFS that it is looking for improvements for, or answers to the problems in today's global food systems. This research therefore did not compare the AFS with the CFS in its 'traditional' form, but has been searching for the solutions that are provided within the CFS itself. AFS planners sometimes tend to forget that they are not the only ones struggling with problems of CFSs.

Generalized features of mainstream and premium food supply chains		
Feature	Mainstream	Premium
Location	Less likely to make reference to a region or place of production. Broad regional or national classifications are sometimes used but they do not necessarily add any value.	Likely to define region or specific location of production
Availability	Nationally available. Quantity produced dictated by demand	Available less widely in many cases., e.g. within region of production, due to limits on prodcution and local knowledge/associations
Commercial quality	Compete on price with rival, similar products.	Likely to mediate the role of price trough recourse to other qualities.
Production method	Unlikely to inform consumer about production methods outside recipe details	Likely to make reference to some atributes of the production process at production and processing levels.
Environmental qualities	Emergence of some widespread labelling e.g. dolphin-friendly tuna. As markets differentiate so there is greater scope for environmental statementsto be presented to consumers	Premium products often highlight the civic worth of goods to the environment, health and food safety
Public qualities	Strong use of brands and private labels (retailer own-brands). Use of generic branding to help differentiate commodity items (e.g. Welsh Lamb).	Premium packaging often used to support products. Brandingmore specific than 'generic/national' labels
Industrial quality	Stress on process efficiency, especially on consistency of products	Reliability in taste very important. Greater scope for variety. However, little demand for low-quality goods.

5.1 - left page - Generalized features of mainstream and premium food supply chains (Banks and Bristow, 1999)
5.2 - right page above - Differences between the global and the local food system (Lang, 1999)
5.3 - right page bellow - A comparison of the agri-industrial paradigm and the integrated agri-food paradigm (Wiskerke, 2009)

Globalization	vs.	Localization
Urban/rural divisions	vs.	Urban-rural partnership
Long trade routes (food miles)	vs.	Short trade routes
Import/export model of food security	vs.	Food from own resources
Intensification	vs.	Extensification
Fast speed, pace & scale of change	vs.	Slow pace, speed, scale of change
Non-renewable energy	vs.	Re-usable energy
Few market players (concentration)	vs.	Multiple players per sector
Costs externalized	vs.	Costs internalized
Rural de-population	vs.	Vibrant rural population
Monoculture	vs.	Biodiversity
Science replacing labor	vs.	Science supporting nature
Agrochemicals	vs.	Organic/sustainable farming
Biotechnology	vs.	Indigenous knowledge
Processed (stored) food	vs.	Fresh (perishable) food
Food from factories	vs.	Food from the land
Hypermarkets	vs.	Markets
De-skilling	vs.	Skilling
Standardization	vs.	"Difference" & diversity
Niche markets on shelves	vs.	Real variety on field & plate
People to food	vs.	Food to people
Fragmented (diverse) culture	vs.	Common food culture
Created wants (advertising)	vs.	Real wants (learning thru' culture)
Burgerization	vs.	Local food specialties
Microwave re-heated food	vs.	Cooked food
Fast food	vs.	Slow food

Global decisions
Top-down controls
Dependency cultur
Health inequalities
Social polarization
Consumers

Problem/issue addressed	Agri-industrial paradigm (hypermodern food geography)	Integrated territorial agri-food paradigm (alternative food geography)
Economic position of primary producers	Intensive production 'lock-in'; economies of scale approach; cost price reduction;	Economies of scope approach; increase producers' share in consumers' food spending
Environmental sustainability	Technical solutions for environmental problems: agri-industrial parks, pest and disease resistant GMO crops, low/zero emission livestock housing systems; eco-efficient systems for mass distribution of food products	Localized/regionalized food networks; nutrient cycles at regional level; traditional plant varieties and animal breeds adapted to local conditions; organic or low external input production; seasonal products
Organoleptic quality and diversity	End-of-chain diversification; Created by the food processing industry based on standardized primary product	Created by farmers and/or artisanal food processors; quality linked to region (*terroir*)/tradition/nature
Consumers' trust	Quality and safety assurance schemes; industry and retail labels and hallmarks; tracking and tracing	Personal trust based relations; denomination of origin labels; transparent food supply chains
Health	Nutritionism: nutritionally engineered functional food (food as a carrier of vitamins, calories, proteins, nutrients, etc.)	Focus on lifestyle, dietary pattern and eating habits: more fresh food and less convenience & processed products, more physical exercise; organic products

Source: Marsden (2003); Lang & Heasman (2004); Nosi & Zanni (2004); Sonnino & Marsden (2006); Scrinis (2007).

5.2 This research's comparison between food systems

Based on the literature review in the first part of this research, a comparison between various food system aspects is made in table 5.4.

Perceived Problems	Agribusiness Solutions
Decreasing agricultural area vs. growing urban population	High intensive food production in Agro-
Obesity and Malnutrition	The creation of healthy food stuffs by the
C: Producer-consumer gap A: Disconnecting, disembedding, disentwining	Provide (school) visits to Agro- Clusters, F -
Critics from Society	Agro- Cluster providing sustainable, loca products
C: Unsustainable waste flows A: Unsustainable food system in cities	Closed waste cycles in Agro- Cluster -
Food miles	Cluster agribusiness activities in Agro- Cl
Landscape destruction	Limit to intensive Agro- Cluster in order t landscape
Animal well-being	Agro- Clusters offering healthy and wide
Food Deserts	-
Environmental Pollutions	Innovation of artificial manure, technical production techniques
Economic problems for small farmers	-
Globalization on the retail market	-
Ineffective Regulations	-
Ghost Acres	Agro-Cluster

	Alternative Solutions
Clusters	CPULs
e food processing industry.	Farm-to-school programs, allotment gardens, community gardens
Food labels	Local Agriculture (On-farm shops, farmers markets, CSA, box schemes, region specific produce), farm-to-school programs, community gardens, allotment gardens
l and animal friendly	Local Agriculture (On-farm shops, farmers markets, CSA, box schemes, region specific produce), farm-to-school programs, community gardens, allotment gardens
	Urban agriculture, CPUL's, urban food strategies
uster or Greenport	Local agriculture, urban agriculture
o protect the rest of the	Landscape protection policy, buffer strips, Small-scale farms, organic production, crop rotation
spaces for animals	Organic Produce
	Farmers markets, connections to shops offering fresh produce, internet sales
innovations for cleaner	Organic production, perma-culture, crop rotation
	Local agriculture, multifunctional agriculture
	-
	-
	Local agriculture, urban agriculture

The table should be seen as a summary of the results of the literature review, as described in chapters 3 and 4. The most left column shows the problems that are perceived in today's food systems by both alternative and agribusiness food planners. It is remarkable that both alternative and conventional food planners perceive a majority of the problems in similar ways. The current alternative and conventional answers to the described problems that were found in the literature are visualised in remaining two columns of the table. The structured overview in the table aims to help establish white spots in current food planning debate.

In the following table (5.5), an overview is given of the problems and the way they are perceived by planners from the agribusiness and the alternative discourse (number 1 and 2). In the last two columns (number 3 and 4), an overview is given of the solutions provided for problems in both agribusiness planning literature and in alternative food planning literature. The table purely describes if there were answers referring to the perceived problems described in the literature that was read or not. It gives thus no judgement upon the value of the various solutions that are provided by both discourses. However, for many of the answers provided in both discourses it is not difficult to argue that they will not provide a full answer to the complexity and the dimension of the entire problems. For

example, local and urban agriculture might decrease the number of food miles made, but most western countries will still have to import exotic and non-seasonal food from distant places. Moreover, it is very well possible that food from local food chains is not reducing the amount of transport due to the relatively large amounts of short transports in comparison to the small numbers of long transport that are made in the global food chain (Paarlberg, 2010). Another example comes from the answer agribusiness planners give on the increasing critics from society; agro-clusters. It can be questioned whether agro-clusters will reduce those critics, as it is exactly the large industrial and high intensive businesses, like agro-parks, that cause commotion amongst inhabitants of the specific area.

Perceived Problems	1 (Prob. AB)	2 (Prob. AFS)	3 (Sol. AB)	4 (Sol. AFS)
Decreasing agricultural area vs. growing urban population	+ +	?	+	-
Obesity and Malnutrition	- -	+ +	+ -	+
C:Producer-consumergap A: Disconnecting, disembedding, disentwining	+ + -	+ + +	+ + -	+ +
Critics from Society	+ +	+	+	+
C: Unsustainable waste flows A: Unsustainable food system in cities	+ -	+ + +	+ -	+ +
Food miles	+ +	+ +	+	+
Landscape destruction	+	+ +	+	+
Animal well-being	+	+ -	+	+
Food Deserts	- -[4]	++	-	+
Environmental Pollutions	+ +	+ +	+	+
Economic problems for small farmers	- -	+	-	+
Globalization on the retail market	- -	+ - / +	-	-
Ineffective Regulations	+	+ -	-	+
Ghost Acres	+ -	+	+	+

1: Perceived as a problem by agribusiness discourse	3: Solution provided by agribusiness discourse
2: Perceived as a problem by alternative discourse	4: Solution provide by alternative discourse

Judgments upon the value of the solutions offered by agribusiness and alternative food planners are dangerous terrain though. There is not much research done on the effectiveness of the various strategies to help solving large problems in our food systems. To give a judgment upon the various 'solutions' and comparing them mutually would be based on (personal) common sense combined with some exploratory research.

5.3 Integrations of food systems in literature

It remains difficult to give concrete form to the integration of food systems. In this paragraph, a first step to integration is made by giving an overview of existing knowledge on this concept that can be found in literature.

From the early food planning research, scholars write on integration and see it as a necessary action for FSP. The meaning of integration has however changed through the years. Lang and Marsden argue that FSP should cooperate and integrate with other reformers to share knowledge and understanding of food (Lang, 1999) and to build coalitions with other groups to gain more support (Marsden, 2000).

"There is a need for reformers – academics, consumer/citizen groups, environmentalist, and proponents of public health – to continue to build an integrated understanding of food as a system and to refine and help organize alliances accordingly." (Lang, 1999, p. 169).

Marsden even states that the future of sustainable agriculture is dependent on the success of these coalitions. Several of these coalitions have already been founded in the last decades. In 1996, a North American network mobilized amongst others the Community Food Security Coalition (Pothukuchi, 2009). In the Netherlands the mobilisation of food networks has also made significant progress in the last years. Thirteen large food organizations signed a testimony in which they declared the intention to show effort in the coming years for the market development of biological agriculture. Parties that signed were amongst others the Dutch minister of agriculture and food quality, the central organization of trade in edibles, animal and nature protection associations and an environmental friendly bank (Ministerie van LNV, 2007). Other food planning organizations that were formed are the American Planning Association (APA) Food Planning Steering Committee (Pothukuchi, 2009). The European community followed with a new thematic group 'The sustainable food planning group' of the Association of European Schools of Planning (AESOP). So far, two conferences on sustainable food planning have been organized in 2009 (Almere) and in 2010 (Brighton).

Another reason for AFP to argue for more integration between food systems is the connection to systems that are well ingrained in food governance.

"Thus, the slow emergence of a new 'bio-politics' needs to be analytically located in the established networks of prescription which are more ingrained in structuring the terrain of food governance." (Marsden, 2000, p. 28).

Also, local food systems can gain from protection at wider scales to remain durable (Sonnino, 2010). Food urbanism can only succeed if we are able to move beyond the grassroots level and find models that are both economically, ecologically and socially sustainable (Verzone, 2010)

"While it is arguably more ecologically responsible to eat one's own carefully grown tomatoes versus those grown halfway around the world, for Food Urbanism to have a consequential impact on macro-global trends, it must produce at a considerably large scale with a minimization of environmental costs… Food urbanism can only succeed if it is able to provide an economically viable model maintained by dedicated professionals over the course of time." (Verzone, 2010, p. 7).

Finally, innovative ideas and new insights are more likely to be found where discourses discussing the same phenomenon or problem meet and challenge each other. In a search

for innovative ideas on the interaction and differentiation between town and country, the comparison between five discourses on town and country was of use to reveal innovative ideas. The friction between the different discourses is likely to produce new ideas (Hidding et al., 2000). This study explored two discourses, each proposing an own ideal type of a sustainable food system. Though positive results and examples can be presented from both ideal food system types, both have today not yet managed to achieve major changes in the CFS. The relation or integration of both discourses might be of help to find innovative ideas for a sustainable system. The disclosure of new ideas for the sustainable food system is however not the only reason to integrate different food systems.

Yet, integration between food systems with different scales and working methods is a huge challenge. So far, relations between small farmers and agribusinesses have had mainly negative outcomes (Jarosz, 2000). The search for an integrated solution for the problems in the food system, or the search for one integrated food system, seems very challenging when analysing the problem(s). In the current situation many food systems and problems exist, that all are a part from multi-dimensional, multidisciplinary, and complex systems.

Van der Ploeg and Frouws explain that changes in this complex system, may seem simple at first sight, but are in practise very difficult to achieve.

"Technically speaking, each of the elements that together compose the indicated farming practice might be changed easily; high levels of fertilization are an example. As demonstrated by the practice of 'economical farming', it is possible to reduce fertilization levels on a wide range of conditions. However, any such reduction is impossible on the farm discussed here, since it would immediately effect the very content of the produced fodder, which in turn will have a negative impact on both the productivity and the health of the herd: the animals have been selected to produce a very high milk yield and, hence, they require a high-energy diet." (Van der Ploeg and Frouws, 1999, p. 337)

There are thus major differences between the local and the global food system. However, the challenge for spatial planning is not to enlarge the differences, but to find complementarities between these different food networks. Campbell (1996, cited in Campbell, 2004) states that the tasks for spatial planners resolving the food system tension is "'(1) to manage and resolve conflict; and (2) to promote creative technical, architectural, and institutional solutions' to yield a common vision of a sound secure, and just community food system. Planners can play a strong facilitative and mediating role in the evolving community food security discourse and stimulate concrete action.

Morgan (2009) describes two major problems that localization creates. First, the local scale of food planning activities makes it almost impossible to gain political support at national level, as the influence of these activities is too fragmented. Second, is the problem that is earlier in this research described as the 'local trap'. Local food is not seen as a means to reach sustainability, but is seen as a goal in itself. This is a trap, as local food production is not always better than global food production. Moreover, other sustainable (global) solutions can be set aside, just because they do not fit under the 'local umbrella'. For both problems, Morgan describes how food planners can deal with them:

"To overcome this problem, local food planning movements would need to orchestrate themselves in such a way as to secure the twin benefits of a federal organization – that is to say, being small enough to control locally yet being part of something big enough to make difference beyond the locality… What this means is that the food planning movement needs to embrace a cosmopolitan conception of sustainability in which locally-produced seasonal food

and fairly traded global food are given parity of esteem, otherwise this new social movement could degenerate into a parochial form of green localism" (Morgan, 2009, p.345).

The role of planners in the food system and in the integration of different systems or activities, are often named. Nichol and Poppe state:

Planners have a key role to play, and will be increasingly important to farmers as they restructure the pattern of land holdings and diversify into food processing, marketing and retailing." (Nichol, 2003, p. 425)

"Spatial planning is missed, both regarding large scale and further chain integration (regional development) and for the further expansion of agriculture (new style land development). Extended and/or regional agriculture is still being given support by the EU, the state, the provincial governments and municipal councils, but will this still be the case after 2013? Are we heading towards a common rural policy, analogous to the common agricultural policy?" (Poppe, 2010)

Nichol (2003) concretises things planners can do. In general, planners can help to install infrastructure and services that are needed for local food systems. This can be done by allocating sites for urban agriculture (for example farmers' markets) in municipal plans, create encouraging policies and regulation and help to coordinate networks of abattoirs, cutting plants, livestock markets, storage facilities and feed mills.

Nasr et al (2010) have written a document on building an infrastructure for scaling up urban agriculture in Toronto. They observe urban agriculture in Toronto to be limited in addressing the inadequacies of the CFS and propose action to strengthen the informal sector and 'jump-starting a profit-oriented food production that addresses multiple food-system problems' (p.12).

5.4 An example from practise – Proeftuin Amsterdam

The first paragraph of this chapter gave a short insight in the theoretical foundations on the integration of food systems. In order to get a better view of the meaning and forms of integration this paragraph describes a commencing case of integration. There are various other examples from practise that illustrate the concept of integration. Organisations such as Sustain[5] and Transforum[6] operate at the boundary between alternative and conventional food chains, emphasizing on the concept of sustainability. The main goal of Transforum is to build on the sustainable development of the Dutch agriculture by connecting it with the urbanized environment (Transforum, 2010). The main aim of Sustain is to advocate food and agriculture policies and practices that enhance the health and welfare of people and animals, improve the working and living environment, promote equity and enrich society and culture. In this paragraph a less known example of integration in the region of Amsterdam is described; Proeftuin Amsterdam.

'Proeftuin Amsterdam' (literally translated: taste/test garden Amsterdam) is a food project from the ministry of Agriculture Nature and Environment (LNV), the province of North Holland and the municipalities of Amsterdam and Zaanstad. The main ambitions of Proeftuin Amsterdam are healthy food, a regional sustainable food chain and a firm relation between the city and the countryside. The program focuses on the raising of awareness on the production and health effects of food amongst citizens. Moreover, citizens should become more aware of the social role of farmers in their own regions. The program brings forward food related topics, helps bottom-up initiatives, brings people together, shares knowledge, and takes care of media attention. The program has mainly a facilitating role, the activities have to be organized and carried eventually by local inhabitants or entrepreneurs. The program for example started farmers markets in neighbourhoods where these were not present. In the first year, the initiative came from Proeftuin, but in the second year the continuation of the markets depended on local (governmental) support and organization.
Amsterdam is not the only place in the Netherlands that works on a sustainable food program. The Hague (Foodprint), Rotterdam (Edible Rotterdam), Utrecht (Lekker Utregs), Amersfoort (Stad zoekt Boer), Almere (Agromere) and Tilburg (Voedsel in de stadsrand) all have their own food programs.
The cities learn from each other's knowledge and experience, but do not physically work together (there is no exchange of local products between the cities). The exchange of produce between for example Utrecht and Amsterdam is not possible, as the municipality of Utrecht defined a distance of no more than 20 kilometers as local, food from Amsterdam would thus be too far to belong to the category of local (Vermeulen, 2010).
The municipality has decided that Proeftuin Amsterdam is no longer supported in 2010. The project is seen as too small-scale. Yet the founders of Proeftuin do not perceive themselves as typically small-scale.

"We perceive Proeftuin Amsterdam more as a regional initiative, than as a local project. Internationally the term 'local' seems to work better though. If we publish internationally we therefore refer to local and not to regional." (Vermeulen, 2010)

The lack of governmental support in the coming years does not imply that the Proeftuin will disappear, according to Vermeulen.

"It is like getting a huge tanker to turn the other way"

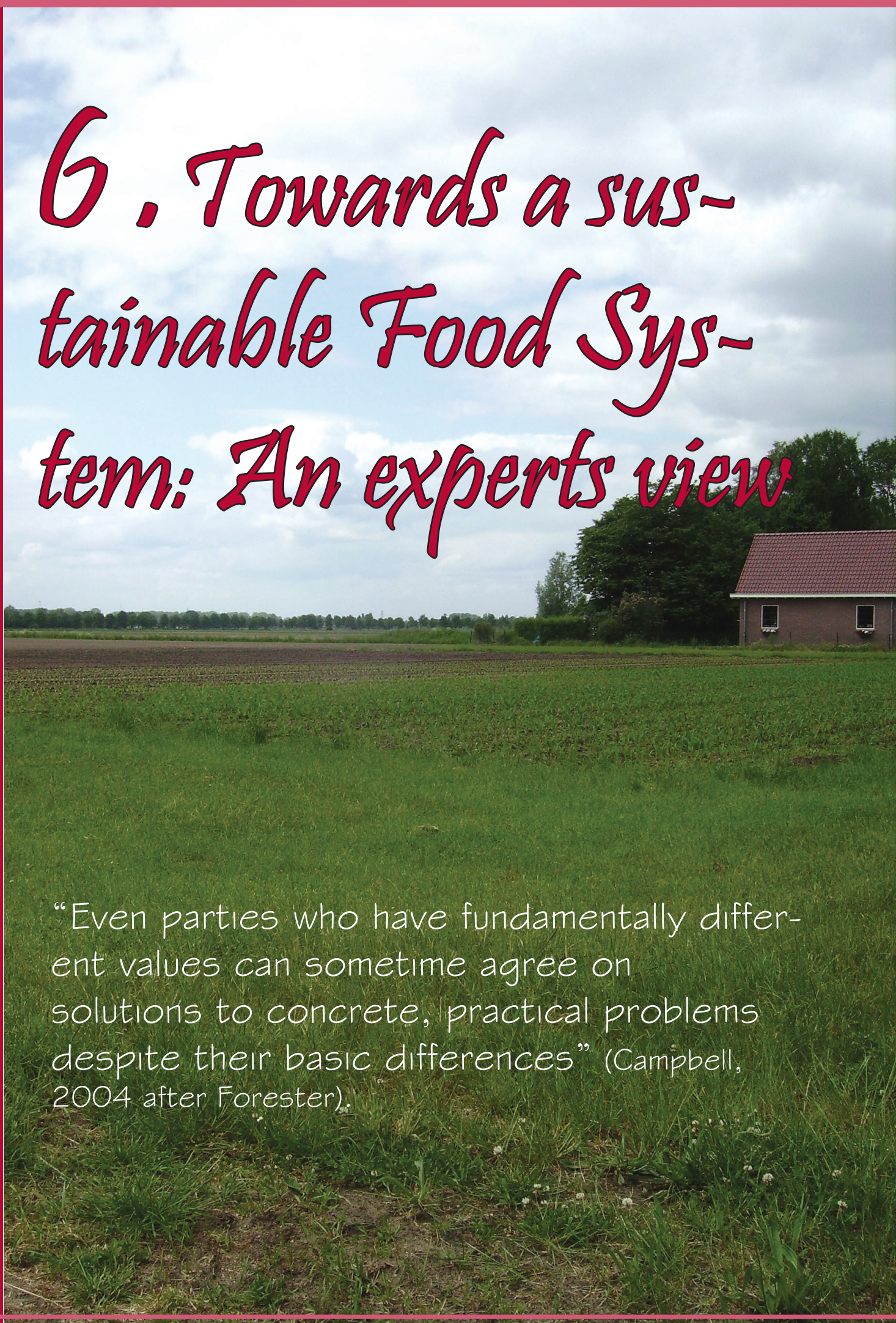
It will however be much harder to continue the project. One of the main activities of Proeftuin

is the organisation of network activities in which different actors can exchange ideas and knowledge or cooperate. Furthermore, Proeftuin organises healthy school lunches, school gardens, school to farm visits, farmers markets and 'de week van de smaak' in which there are several food related activities in and around Amsterdam.
While working on the promotion of local and regional produce in Amsterdam, it stroke Vermeulen that many entrepreneurs are aiming for subsidy, while Proeftuin cannot afford this as they work with a minor budget.
One of the things Proeftuin has tried is the connection of local farmers with homes for elderly. However, many problems appeared during this attempt. The system of homes for elderly appeared to be made for produce from wholesaler's and not adjusted on the use of fresh local produce. Moreover, the adjustment of the growth scheme on the institute for elderly was difficult for the farmer. Finally, there was not enough space to cook in the houses.
Even the change of the municipalities own food behaviour is difficult. The canteen has catering contracts that Proeftuin Amsterdam cannot change easily.

"Of course, this should be possible, but we do not have enough power and the one who do have power do not see the necessity of it." (Vermeulen, 2010)

Proeftuin is often named as an example of integration. Vermeulen himself however doubts if Proeftuin is a good example of integration. After all, it is now being cut down by the politics. Vermeulen understands that politicians easily choose for this kind of project to save on. A critical reflection on the project might be useful.
Yet, Vermeulen emphasizes that local food is today on the agenda in Amsterdam and in the whole Netherlands. At local governments the awareness on food systems is growing, but amongst the inhabitants the awareness is still small. The number of farmers markets in Amsterdam has increased and food on schools has become a point of discussion. Moreover there is more cooperation between farmers shops. But, it is hard to say if all these developments are due to Proeftuin Amsterdam.
Small scale urban agriculture has become popular amongst urban planners and designers. For urban designers today it is very trendy to design urban agriculture in a neighbourhood. The Proeftuin has organized a gathering on urban agriculture for urban designers that had overwhelming fervour. Vermeulen did not expect this huge popularity amongst urban designers.

6. Towards a sustainable Food System: An experts view



"Even parties who have fundamentally different values can sometime agree on solutions to concrete, practical problems despite their basic differences" (Campbell, 2004 after Forester).

6.1 Introduction

Based on the hypotheses stated at the beginning of this research, and the outcomes of the literature analysis, five experts on food systems, have been interviewed. The topics discussed with the experts follow from hypotheses and research questions that came up during the literature search. As most of the questions and hypotheses can be seen as a new research in itself, this chapter does not intent to answer the questions. Rather, it gives a first impression of the relevance of each of the questions and hypotheses for the research agenda of FSP. Each topic fills a paragraph, in which the topic is introduced, using the theoretical background, and discussed, using the interview results. The experts were carefully selected for their leading, scientific or practical expertise on food systems and have a short introduction bellow.

Dr. Roberta Sonnino is lecturer in Environmental policy and planning at the department of City and Regional Planning at Cardiff University. Two of her main research interests are sustainable agri-food chains, urban food planning and education programs on food. She has published many leading refereed articles on FSP and has worked together with Professor Kevin Morgan and Professor Terry Marsden.

Dr. Kami Pothukuchi is Associate Professor at the College of Liberal Arts and Sciences of Wayne State University (Detroit). One of her main research interests are community food systems. She has published many leading refereed articles on community food systems, and has worked together with Professor Jerry Kaufman.

Dr. Joe Nasr is Associate at the Centre for Studies in Food Security of Ryerson University (Toronto). He teaches courses on Urban Agriculture and Urban Food Security and has mentored a number of architecture students working with food- and agriculture-related design. He worked amongst others on the research project 'Scaling up Urban Agriculture in Toronto. Building the Infrastructure', published in June 2010. Moreover, he is co-coordinator of MetroAg, the North American Alliance for Urban Agriculture.

Drs. Craig Verzone is a landscape architect from Massachusetts interested in food urbanism. He co-founded the office 'Verzone Woods Architects' in 1995 in Rougemont, Switzerland. For 18 months, the bureau works on food urbanism. The preliminary results of their research were presented in 2010 at the CELA conference in Maastricht, The Netherlands.

Drs. Pim Vermeulen is a senior planner at the municipality of Amsterdam. In the past years, he worked on the project 'Proeftuin Amsterdam' that tries to connect various food initiatives in the metropolitan region of Amsterdam. While working on this project, he has experienced which problems come up when trying to integrate various food system activities.

6.2 Local versus Global

"Certainly, minimizing the unnecessary transportation of goods is desirable. But the blanket assumption that the reduction of food miles that local production provides always trumps other considerations can be harmful environmentally and economically." (Born and Purcell, 2006, p. 203).

One of the aspects that is important when comparing alternative food systems and agro-food systems is the difference between local and global scale. Born and Purcell (2006) write on the 'local trap' warning researchers that local food is not inherently good or better than global food. The local trap is the assumption that local is an inherent alternative for the unsustainable global food system can be seen as the local trap (Born and Purcell, 2006). Born

and Purcell warn food researchers and activists not to blindly assume that there is something inherent on the local scale. Yet, there is a large body of literature in which is assumed that the local scale is inherently better than the global scale. Born and Purcell argue why this can be a trap. Local food can for example in certain contexts be less sustainable than regional or global food. In addition, a blind stare on the local system can cause planners to neglect or undervalue solutions at other scales that do have desired outcomes.

For most of the scientists I interviewed, the local trap is a well-known concept. The article of Born and Purcell is seen by Pothukuchi and Sonnino as a provocative, but welcome article. Still, they emphasize the fact that local is not inevitably problematic.

"Basically, the point I'm trying to make is that okay, this view of the local trap was very positive and very welcome at the beginning, but then some of the American, and here I am referring particularly to July Guthman and Patricia Allen and even Clair Hinrichs to some extend, have sort of embraced the position of the local trap by turning it into another assumption, now local is almost inevitably bad." (Sonnino)

"We don't want to always say local is always the goal to have or always good, it is also important to remember that local is not always a trap, not always a problem." (Pothukuchi)

Nasr and Verzone emphasize on the broader meaning or context that local food systems can have, stating that

"Local might be not necessarily an end in itself, but because it comes with so many other things, maybe some of the things that might be an end might be associated in many cases with the advantages of emphasizing the local." (Nasr)

"It is true that local food is not the end, the end is higher sustainability, however local food is what we're going to achieve in order to get to the end and the end is not quantifiable…. I think the reason why we talk about local food is because we can understand what local food means, but we do not understand what sustainability means; that is a big global concept. It has been green washed by corporations and large institutions, so the problem is that the bigger goal is very hard to articulate and local food is easy to understand and easy to see. So perhaps it is just a matter of making sure that the issues of sustainability do not get lost in the vision of the local food...In some ways it is easier to argue or to discuss local food than it is to discuss sustainability." (Verzone)

Although local food may not be the end, it is thus easier to understand and to visualize than an abstract concept as sustainability. Moreover, characteristics of local food might be related to many other ends that we try to achieve in the food system.
Pothukuchi emphasizes that it is important to recognize the specific values of food system activities. A farmers market has different values and strengths as for example community gardens have. It is important to keep this in mind.

"So, when we talk about alternative food systems, to me the important question is: 'what values are being supported and are these values other than promoting profit for large cooperation's that have a lot of power. Are these benefitting regions? Are these values trying to increase the capacity of individuals and households and local communities?" (Pothukuchi)

In fact this point is in line with the article of Born and Purcell. We have to pay attention to not stare ourselves blind on the concept of 'local', but always keep in mind what the added value of an activity is. Born and Purcell add to this that we have to be prepared for alternative

solutions to problems that might be more effective than our current solutions. The value of a local food system can still be a point of discussion and moreover differ per context. Vermeulen described the value of local food systems as:

"Local food is mainly valuable to raise the awareness of people on the food system and on healthy meals. Moreover, urban agriculture is often practised on land that would have been useful and can now be of use. Also it can promote the social cohesion in a neighbourhood." (Vermeulen)

Local will however remain a scale that is inevitable to consider in all plans. The fact that local contexts differ from place to place and that this has an effect on plans and policies, is not new. We should however not forget this, when researching food systems.

"The reality is that in the world, the ecological, social and economic condition of different local realities are so different from one another that no sustainable development scheme can afford to neglect looking at the local condition." (Sonnino)

While it is thus very important to consider the local scale for food systems carefully, it seems at the same time impossible to produce all our food locally. The transition from a global into a local food system would not even be the biggest difficulty, but in densely populated areas such as the Netherlands, there is simply not enough land available locally to produce everything locally.

"Amsterdam has some time ago calculated that we are not able to produce food for the whole city inside the municipality boundaries, not even in the whole province of North-Holland. We are thus always partly dependent on food from outside our borders. And sometimes a product from Australia can also grow better there than here, which causes less environmental harm." (Vermeulen)

In different contexts and situations, various scales seem thus to be valuable for activities in the food system. In literature there appeared to be a large gap between two bodies of literature aiming for more local and more global solutions.

"I think it is a completely separate body of literature that doesn't necessarily speak with the body of literature that you'll be looking at." (Sonnino)

Literature on food system can thus be divided in separate bodies of literature that do not cooperate. However, in practise the two systems meet each other and the difference between local and global cannot be stated as black and white as is done in this research. Activities that we would characterize as part of the local food system, might not be as local as we expect them to be.

"We have tried to help organic retailers to promote their local produce, but it appeared that their local produce was actually delivered via a central distribution centre in the Netherlands and consequently the transport miles were still significant." (Vermeulen)

The reason for this could not be satisfyingly explained by the interviewees. Clearly the researchers in the two discourses do not speak each other's language. Moreover, their values and ideal-types of the food system differ.

6.3 Relating Food Systems

The relation between the many conventional and alternative food systems is sometimes ambiguously described. Some articles even refer to the relation between conventional and alternative as aversive. All interviewees agreed that the relation between different food systems is complex and ambiguous. Sonnino for instance stated:

"In a paper that I co-author with Terry Marsden in 2006 I call the relationship between different food systems a battlefield, a battlefield between conventional and alternative food systems." (Sonnino)

Pothukuchi adds that various alternative systems have ambiguous mutual relations as well. She furthermore stated that the different values of the AFS are ambiguous to the CFS. Even for experienced scholars and/or practitioners of AFSs, it remains hard to describe relations between the various food systems.
One might wonder whether this is a problem and why the two apparently separate bodies of research should be connected. The interviewees do not agree upon this question. While Pothukuchi does not seem to perceive the CFS as a necessary partner for the AFS, Sonnino and Vermeulen do perceive the CFS as a strategic partner.

"I'm getting to develop the idea that … a truly sustainable food system is actually a mix of all of them, so it has attributes and features of all these different food systems" (Sonnino)

"If you can cooperate with Albert-Heijn, than you work with a serious large party. That's one of the reasons why you should deal with Supermarkets. We do need to create some extend." (Vermeulen)

Pothukuchi rejects this idea stating that 'Wal-Mart's scale itself is problematic... A hundred farmers markets cannot compete with Wal-Mart's power in the local market.' Pothukuchi thus assumes that a large scale is always problematic and that we therefore should avoid this kind of large scales. Sonnino in contrast warns us to project the CFS as inevitably bad.

"Let's not forget that the conventional industrialized food system is what has made food cheap and hand accessible to everybody… One of the most contentious aspects of the relationship between conventional and alternative is price because this niche products, this localized food systems, they tend to propose food and products that are very expensive, and so not accessible to all different social segments of the citizens." (Sonnino)

Not only Vermeulen and Sonnino, but also Verzone sees the hypermarket as a potential player to make a big difference in the communication on, and distribution of local food.

Vermeulen has tried to connect various food systems, but this appeared very difficult. In the different food systems people do in essence every time the same things, but at different scales. Vermeulen thinks it would be nice if these activities could be brought into contact with each other in networks, so that farmers can for example share their knowledge on food growing with vegetable gardeners. There is however still a gap between the attitude of urban and rural inhabitants. Pothukuchi clarifies another difficulty when relating and integrating various elements of the food system.

"In our corner stores project, I get asked a lot of questions about, can you not connect the gardeners to the corners stores? Sure I can connect them, but the point is, because these gardeners are small and because we want to support urban agriculture as a movement in

Detroit and because the gardeners themselves want to be able to start making some money and supplementing their income, it is more advantageous for them to sell at Farmers markets as a cooperative, because they get more money directly in their hands than to sell at the corner stores, I mean there are hundreds of corner stores in the small part of the city and so we're connecting them to wholesalers and, produce wholesalers." (Pothukuchi)

Nasr stresses the importance to bear the existence of the CFS in mind.

"Accepting the existence, the role of conventional food distribution system at least and then developing alternatives at the same time… That's why I think it is important to not just read the industrial food system as a single block, but as a complex, as pieces." (Nasr)

He moreover adds another form of integration: the integration of multiple values and disciplines.

"Another aspect is the multifunctional of whatever peace, so in regard to urban agriculture for instance, more and more articles try to look at the multiple dimension, the multiple goals that urban agriculture can play and that then brings up questions of different levels of integration. So integration beyond food systems, so relation, housing to transportation access, to health, deal with health would all be a city problem for instance." (Nasr)

Pothukuchi sees the importance to bear the CFS in mind, but on the other hand stresses the importance of grassroots initiatives.

"On the one hand I do think that there is an important role for dedicated professionals working together to weave together an organically system, that is informed by the values that I talked about, … And so I think that professionals, we need to have that kind of an understanding of the context and how the stuff the conventional food system infects with different parts of the community and different factors of the community… On the other hand, I believe in grassroots anarchists approach of solutions that come from need and problems as the community experiences them and articulates them and solutions that help meet those needs and help solve those problems at any given time, recognizing that these efforts than evolve, so Detroit is a very good example of those kinds of grassroots efforts that have emerged from different points of experience and different sets of resources based on where people are at any given time." (Pothukuchi)

6.4 Scale-Up

An increasing amount of literature argues that the AFS should scale up. However, tangible descriptions of scaling up remain omitted. The five interviewees were asked to give their vision on the up scaling of the AFS and the necessity to integrate different food systems. The topic brought about different emotions amongst the interviewees. While some had clear ideas on the future of the food system and perceived scaling up as a necessity, another interviewee seemed to experience it more as a danger for the values of the AFS. It became clear that many aspects can be seen as a form of scaling up or integration. This paragraph describes the variety of aspects of scaling up food systems and the reasons to scale up and problems and disadvantages of scaling up the AFS.

6.4.1 How to scale-up the AFS?

Nasr completed a study on scaling up urban agriculture in Toronto. He describes five areas

that were distinguished in this study as main areas for scaling up urban agriculture. The first is the access of land in the city. The second aspect he names is infrastructure;

"The second area of infrastructure is on the various typical resources, things and others types of resources, things that are needed to make production happen at scale so supply centres or shared equipment and things like that." (Nasr)

Nasr defines infrastructure thus as a broader topic than just transport. Infrastructure is by Nasr defined as the basic resources that are needed to produce food in an urban context. The third area that Nasr names is the connection of urban agriculture to the entire food system. Food production should be linked to processing, distribution, transport and storages activities. The next area is less tangible and refers to the cooperation and sharing of experiences and knowledge.

"A fourth area is knowledge infrastructure, which is kind of less tensional but equally essential, so sharing information about production, getting information out about what has produced and so on and the question over educating new farmers and all of that." (Nasr)

The last area that Nasr names is on financing and the management of the system. Most of the five areas that Nasr distinguishes are seen by the other interviewees as well.

The area of infrastructure is named by Pothukuchi, Vermeulen and Verzone. Infrastructure is however a concept that is interpreted differently by the interviewees. Pothukuchi for example ranges the availability of land as one of the aspects of infrastructure.

"In the food movement, especially the alternative food movement, we are recognizing the importance of the need for infrastructure, not just land, but also other kinds of infrastructure. If you want to build local food systems than here are some things that you need to be doing, otherwise if you allow land to be lost, than we can only dream of local food systems, we want to act on it." (Pothukuchi)

Vermeulen sees the lack of a city website on local food, such as the city harvest website in London as an important lack of infrastructure in Amsterdam. Moreover, he names distribution and transport as important area's that he wants to start exploring in the coming time.

The fourth area that Nasr distinguishes is named by most of the other interviewees, but can be divided in two main areas; coalition building and educating people. Coalition building is related to policy and leadership, while educating people is focuses more on knowledge sharing and raising awareness amongst people. Pothukuchi and Verzone stated for example on coalition building:

"It is important for leaders and thinkers of the food systems to figure out how to create coalitions that are respectful of bare communities." (Pothukuchi)

"It is a responsibility of leaders and people who have been working at this and reflecting on this over time and understand the bigger picture, to help build relationships and balance efforts of the grassroots with more structural level work, with policy changes and institutional change." (Pothukuchi)

"The key is to try to bring the right groups together in the right places, and to make sure that they're local,… that there is a local group that is really willing to fight for these changes, and

that the farmers are part of that thing." (Verzone)

Vermeulen has attempted to build this kind of coalitions in 'Proeftuin' project in Amsterdam. He has succeeded to connect for example transport and distribution companies. In a market research Proeftuin has attempted to describe the different actors and tried to improve the cooperation between these actors. This appeared rather difficult, but Vermeulen does not know why. Actors do not want to cooperate, wait for the municipality and think from their personal gains, while they are in fact all working towards a sustainable food system.

"The cooperation between actors is difficult. I still have no complete overview of the actors that are situated in and around Amsterdam." (Vermeulen)

Pothukuchi adds that alternative food activists should cooperate with policy makers in order to professionalise the current methods and techniques in the food system.

"We need to figure out how to work together in a more collaborative aspect, so that we can create true alternatives and not just alternatives that are very short lived, that may work for this year, but they dye next year, because they're just so hard, they're very big rocks to move up the hill, by just a small group of community members who are working as amateurs." (Pothukuchi)

Educating people can have many different dimensions. It varies from raising a general awareness on food amongst all people;

"If you don't create awareness… things will fall apart." (Sonnino)

"We need to find ways to be balanced the nuisances of fruit trees in public spaces with the added biodiversity factor that they grant by just being there and attracting more animals and by educating people, citizens that they can pick and that they should pick and that an apple with a couple bugs in it is still a productive apple, it should perhaps not be eaten straight of the branch, but maybe can be cooked into a compote or maybe into a jam or a sauce. So it's also about education." (Verzone)

"Educating the children is maybe the most effective way that we are going to make a voluntary difference. Children are beautiful expenses when it comes to learning information and learning about their food and they are very happy to participate in growing and seeing change happen in the short term." (Verzone)

to the education of farmers and gardeners on fertilisation techniques.

"The important thing will be to make sure that all these independent gardeners, or micro-micro farmers are doing in a positive way and that if community gardens in the sustainable framework, that they're using recycled water, that there is a real continuing education on how to fertilize and that they just manage their lands properly." (Verzone)

Verzone adds a new aspect of scaling up; the ideal scale. He expects that we can find an ideal scale for agriculture that is efficient enough to be profitable and feed enough people, but at the same time not harming the environment.

"I think we can think we can find an optimal scale of minimum and maximum size of farming that can help us identify wherever those places are too intimate in certain standards of food urbanism. There will be an issue about scaling up. The bigger, the more surface the more efficient the farming can be" (Verzone)

6.4.2 Problems and disadvantages

Pothukuchi has experienced the loss of certain values of the AFS when scaling up and warns for this.

"A full scale professionalization that takes away live and the vitality that exist at the community level is problematic. I have seen that. I have seen efforts that are organized at the very grassroots level that are tapping into the creativity and wealth of experiences and peoples relationships can really brought away when a lot of money comes and the efforts and becoming much more organized and professionalized, so it is a benefit balance and it is a dialectic and so it is a responsibility of leaders and people who have been working at this and reflecting on this over time and understand the bigger picture to help build relationships and balance efforts of the grassroots with more structural level work, with policy changes and institutional change." (Pothukuchi)

Nasr and Sonnino react on this concern of Pothukuchi:

"It is a big problem, things can obviously get lost when they get bigger. It's the problem that a lot of scholars have conceptualized as conventionalization.... But at the same time … it is also true I think that if you don't have some kind of intervention at a higher governments level, the local remains extremely fragile and vulnerable." (Sonnino)

"Scaling up… doesn't mean simply taking things that are happening, like individual forms of urban agriculture and lucrative activities that are happening in small scale and making them large scale. When we're talking of scaling-up urban agriculture over all, it involves also more replicating, involving many other people, only doing their thing on a small scale, only doing it much more massive… It is more about replication than increase in size." (Nasr)

Verzone and Pothukuchi furthermore describe the difficulties when trying to connect local food system activities to the CFS.

"The problem is, that their distribution system is not based on local produce, it is based on a centralization and that centralization usually travels from 250-500 kilometres." (Verzone)

"So that's an infrastructure that exists for tobacco for junk food, for alcohol that does not exists for produce, so we are not at the point where we can create an alternative system, yet, because we are still quite small." (Pothukuchi)

The infrastructure that has been built up through many years in the CFS, does not yet exist for the AFS. This leads to questions on the necessity of an infrastructure that fits for AFS. An important question in this context is:

"How do we change the policy framework and the institutional framework and the institutional framework and the institutional framework to support work at the grassroots?" (Pothukuchi)

Vermeulen has experienced that the political system in the Netherlands is not arranged for the process of raising awareness. Even the provision of healthy food in schools is not possible, due to political difficulties.

"The government can of course ban certain foods from schools, but this does not happen as it is very emotional political point. In the Netherlands we should be free to eat what we want

to eat." (Vermeulen)

It is thus not socially accepted in the Netherlands that the government has serious influence on people's personal choice for food. Another problem that Vermeulen faces is his lack of governmental power outside the boundaries of Amsterdam. In this context he would prefer the region as administrative body, instead of the municipality.

Yet, there are positive examples of scaling up the AFS as well. In Scotland for example the national government used a local project as an example for the policy at national level. Nasr articulates the demand that people themselves have to scale-up as an important impulse.

"Many people who are doing things on a very small scale, often want to scale up themselves. They're on operation and they'd like to have access to a bigger piece of land, or to working with their three neighbours or you know starting to sell rather than just produce for the family." (Nasr)

6.5 Towards a new food system; the role of planners

There is an increasing number of people searching for a middle way or a third way in which aspects of AFSs and aspects of our CFS can be combined. However, it remains one of the most important questions what this new system would look like and how it should function ideally. The scholars asked in this research cannot provide us with the design of a new sustainable food system, but they do have various ideas on it. Moreover they have ideas on the role planners can fulfil in food systems. Their ideas are described in this paragraph.

Not all interviewees can describe a picture of their ideal food system. Pothukuchi stated:

"A sustainable food system is as much about a democratic process of division making about people taking charge of their food system their communities food system, as it is about as creating an outcome that is a real alternative to the corporate food system." (Pothukuchi)

Nasr, Verzone, Sonnino and Pothukuchi describe some methods and tools that can be used by planners and governments or changes that should be made to support the development of a sustainable food system. Some refer to a change that the market system should make in order to develop a sustainable food system.

"We need to have a better market, a market that actually works for local economies and local growers rather than one that is globally efficient, so we need to be able to critique the market as it exists and the market's relationship to the state." (Pothukuchi)

"It is a continual clarification of values and asking how it relates to the way the market is currently organized and the relationship that the state has with the market." (Pothukuchi)

Another aspect that was named various times is the change in governmental policy.

"The agricultural subsidies are going more to the farmers who are in fact the least productive, the alpine farmers. What we would like to add to this is the urban farm. Because we think the urban farm is probably as hard these Alpine farms, if not harder. So, we would like to see federal subsidies that final perhaps less to the other farmers and more to the urban farmers." (Verzone)

"It could be facilitated by policy rather than hindered by local policies and state and federal policies and so we are trying to now for example, we're working on a land use policy for urban agriculture support, small scale agriculture, because we want to support this kind of wealth creation by and when they are small gardeners that are adding to their income and their wealth, that money stays in the economy." (Pothukuchi)

"So it can be very dangerous to leave it exclusively to the policy arena, we need to find ways, to embed the game of this kind of revolution, so that they survive the electoral cycle, we can't let it to electoral cycle, one mayor is in favour of sustainability, so let's go for it and that give resources energy time and then 4 or 5 years later, the administration changes and it all falls apart" (Sonnino)

"So far we have had a food policy that has been mostly regulated at the national and super national level, if you think about the WTO, NAFTA, CAP, Farm Bill, these are the policies that have regulated food so far. And they have completely failed to promote sustainability, so it seems to me that one of the things that we seriously need to start thinking about, is to devise an implement policy at different policy scales." (Sonnino)

Some give some general statements on the role of planners in the food system.

"Planners can think in an integrative fashion" (Nasr)

"People, who have a planning background, are increasingly desirable for help work around food systems issues." (Nasr)

Sonnino emphasizes the importance of a supportive political system.

"The political system should be flexible enough to actually receive the local, being welcome and open to the local." (Sonnino)

Some of the interviewees give also more descriptive explanations on their ideal food system in the urban context:

"Based on what Cecilia Rocher has written and what she has told, Belo Horizonte would be my ideal model of a city that is working at different stages of the supply chain to try to promote sustainability, because you see, sometimes we all make the mistake of just focusing on one stage. Let's make food production sustainable, or let's increase access to food, so consumption will become more sustainable, but in reality the two should be integrated and by the way, they are not the only stages. Food is also about packaging, it is about waste. So far, I would say from what I have heard that is the best example of integration of different strategies that are aiming at the same at improving production, consumption, access and everything else." (Sonnino)

"I don't envision a world of isolated locals. I think this locals should be connected… These cities should be speaking to one another, they should be learning from one another." (Sonnino)

"Cities can also exchange products ... so that each local reality can capitalize on their own resources. But obviously I do envision a different type of trade of what we have now, a more sustainable fair trade if you wish. They should be exchanging not just knowledge, but products as well." (Sonnino)

"One of the things that we are looking at is the possibility of these parks and gardeners also to become farmers, to somehow create or to identify a hybrid profession that looks at farming in the city as both in productive element as well as an aesthetic element. Today parks and gardeners, they manage the landscape based on function and aesthetics, but we would like to add productivity to the public park. That would create a different kind of farmscape that may in fact be even closer to the centre of the city and would hand in more visibility to the residents" (Verzone)

Others give more descriptive explanations on their ideal food system in the rural context.

"We need to be sure that any micro scale farm on the edge of the city has some connection to the bigger parcels of land." (Verzone)

"We are looking at these farms as being farms that are focussing on small cultures. They are not planting wheat, corn, sunflowers; they are focussing on lettuces, carrots, strawberries. All the produce that gets hard to deliver over long distances. The problem is when a small farmer in the urban area that does not have a lot of surface area, starts to make corn, he cannot at all compete with the big farmer on the plain or the dairy farmer. It would be nice to have a few cow inside these farms, just to give them a diversity, an internal diversity or simply because it is important that farmers have a broad diversity, but is also important that we think of these pieces of land as hat as dealing farming a little differently than the bigger scale farms." (Verzone)

"Well, I think the new farms are not going to be different than the old farms. I'm not going to pretend to invent anything here, what we're trying to do is find a way to take the smaller farmers in fact the more traditional farm and we encourage them to exist and give them a function. So, we should be careful about calling them new farms, because they're not. The profit and farmers aren't going to change place, but they modify the way they make their farming and may have to do it on smaller surfaces and land. The new part about this is more the urbanism." (Verzone)

"I think large scale farming is still pretty critical because from those farms will come our potatoes and our corn and our rice, these are staples we can't ignore the fact that these things are important and it's easier and more practical to feed a big population on these bigger tracks of land, they're still going to be the big bread winners of agriculture, food urbanism is not going to be taking large sector of agriculture." (Verzone)

7. Discussion and Conclusion: A Sustainable Food System?

"We cannot move toward a future we cannot imagine, and we cannot imagine a future we don't believe is possible" (Allen, 2007, p. 210)

In the final section of this research the theoretical and interview results are compared and discussed. The chapter should be seen as a continuation of paragraph 5.2 in which the theoretical results were discussed. The discussion elaborates on the most important findings of the research and formulates recommendations for further research. The first four paragraphs discuss the most important results of the research, each elaborating on one or several related research questions (table 8.1). The findings are explained, related to other studies and discussed. In the last paragraph the study is concluded. The most important results are summarized and a reflection upon the hypotheses that were stated in the first chapter of this research is given.

What problems in the CFS are experienced by the alternative system discourse? & What problems in the CFS are experienced by the agribusiness discourse?	Par 5.2
What answers to these problems provides the alternative system discourse? & What answers to these problems provides the agribusiness discourse?	Par 5.2
What can both discourses positively add to each other and what starting points for the integration of the two discourses can be found?	Par 8.1
What examples from practice give starting points for the integration of alternative food planning and agribusiness?	Par.8.1
Where can both discourses hinder each other and what are bottlenecks for the integration of the two discourses?	Par 8.2
What examples from practice give bottlenecks for the integration of alternative food planning and agribusiness?	Par 8.2
How do the alternative system discourse and the agribusiness discourse experience each other's answers on food system problems?	Par 8.3

7.1 Starting points for integration

There is a contrast between the perceived gap between alternative and agribusiness food systems and the actual gap between the two systems. While there can be seen many contradictions between the two systems, their main ends are not as different as one might expect. In former literature there is often an emphasis on the differences between the conventional and the alternative food systems (For example; Banks and Bristow, 1999; Lang, 1999; Wiskerke, 2009). This paragraph discusses the most important starting points for integration that were found in this research, based on the similarities that were found between alternative food systems and agribusiness chains.

7.1.1 Towards a Sustainable Food System

The most important starting point for cooperation between the agribusiness and the alternative food discourses is their common goal for a sustainable food system. Both alternative and agribusiness planners described the sustainable food system as their ideal food system type. However, sustainability is a concept that can be interpreted and explained in many different ways. In 1980's and 1990' sustainability as a concept gained recognition. In this period there is much written on the meaning and interpretation of sustainability. In 1987 Brown et al referred to sustainability as a context dependent concept, roughly distinguishing an ecological, social and economic meaning. Gatto (1994) links up with Brown and all, but replaces the social meaning of sustainability for an applied biologists meaning of sustainability. He concludes his elucidation stating:

"I think it is hopeless to try to give a logically consistent and commonly accepted definition

of sustainability, and suggest we discard the term 'sustainable policies'. Instead we have to recognise that each party or scientist involved in the sustainable development debate has a different notion of sustainability because they reflect different priorities and optimization criteria, which are notoriously objective." (p. 1183)

For the interpretation of sustainability in food planning literature, three aspects are often named: ecological, social and economic sustainability. Morgan (2008) for instance emphasizes that sustainable development should be understood 'in a multiple sense to include the social, economic and environmental dimensions of development' (p.2). This three aspects refer to the triple-P concept (People, Planet, Profit). Baldwin (2009) refers in his book 'Sustainability in the Food Industry' to the definition of the WBCSD: 'the needs of the present without compromising the ability of future generations to meet their needs'. In food planning literature the term sustainability is often used without further explanation, which is striking considering the large amount of literature warning for confusion as a result of the multiple meanings sustainability can have.

Sustainability is not necessarily connected to local or global food systems, but can be achieved by combining and relating the best of both (Morgan, 2010). It is just this characteristic that makes sustainability the most important starting point to connect the alternative and conventional food system.

7.1.2 Environmental Harm and Food Miles

When comparing the perceived problems in food systems named in literature, one important similarity can be found. The harm that food system activities cause to the environment is by practically all authors seen as problematic. Food miles, landscape destruction, animal well-being, plagues and diseases in agriculture, waste flows and environmental pollution are problems that can be found in almost all literature on FSP. For some of the problems even the basic idea behind the proposed solutions is equal. Both discourses perceive the shortening of transport distances as the basic solution to the food miles problem. Also both discourses perceive closed waste cycles as a positive step forward in food waste management.

7.1.3 Consumer demand

All food system activities are in the end depended on consumer demand. In theory the largest power in the food system is situated with the consumers. Consumer demand will thus be essential for the future development of a sustainable food system. The trend of consumers demand for on the one hand cheap, convenient and easy available food, but on the other hand green, healthy, fair-trade and animal friendly food (Morgan et al, 2006) is an important starting point for a third way. For the long term, attempts can be made to make consumers aware of the problems in our food system. As a result consumer behaviour may change. However, it can be expected that consumers will always prefer products that answer to all their demands. In other words: if a consumer can choose between two products that are both sustainable and of equal quality, but differ in price, the consumer will always choose the cheapest product. The example perhaps seems obvious and unrealistic, but it illustrates that it is important for food planners to realize that consumers are inclined to choose for products that answer best to their demands. If we add this knowledge to the assumption that all consumers together are the most powerful actor in the food system, we can state that a truly sustainable food system answers to the consumer demands that are present in society.

7.1.4 The role of Planners

Until 1999, when the article of Pothukuchi and Kaufman[7] on FSPappeared, there has been a noticeable silence from the planning field concerning food systems. From the year 1999 onwards, the interest in food systems amongst planners has been growing. Today there is a reasonable body of scientific literature on FSP in various international planning journals. The literature mainly concentrates itself in a movement that was earlier in this research described as 'alternative food system planning'. Moreover, there is a small group of spatial planners working on agro-parks as part of agribusiness. Also, there have been various periodical planning specials[8] on food in the last decade.

Planners writing on food systems picture different roles for spatial planning in the food system. While some perceive the role of spatial planners as policy maker, others elaborate on the role of planners as the ones who can make strategic zoning plans including mixed land uses. The roles of planners can moreover be perceived as the interdisciplinary connection between the many disciplines that are involved in the food system. Food planners have the ability to integrate different wishes and translate these into a spatial task.

Campbell (2004) integrates several of these roles, stating that planners should: "manage and resolve conflict; and promote creative technical, architectural, and institutional solutions to yield a common vision of a sound, secure, and just community food system." (Campbell, 2004, p. 249)

Morgan (2009) adds that planners can be of essential importance in the promotion of healthy cities. What is however of essential importance for the topic of this thesis is the capacity of planners to unite people, to create an overview and to connect scales.

This study has explored planning literature on food systems. In this search it became clear that in general two main groups of research on food systems can be distinguished. The two bodies of literature do not communicate or refer to each other. It is remarkable that although there are many different disciplines active in food systems, most of these disciplines can be categorised in one of the two discourses. Sociologists, ecologists and environmentalists are for instance typically situated in the AFS discourse, while economists, agriculturalists and food technologists are typically situated in the agribusiness discourse. By far most planners are situated in the alternative food system discourse. Yet, there is a small group of planners that could be categorized in the agribusiness chain. The comparison between exactly these two groups brings similarities in addition to the many differences between the two approaches that were described earlier. The connection between these two groups of planners can be an important starting point for the future of a sustainable food system.

7.2 Bottlenecks for integration

The previous paragraph illustrated the starting points for a third way of FSP. This paragraph describes two important bottlenecks that were found during the literature analysis and interviews. While there are many differences between the conventional and alternative food system, it is expected that most of these differences can be deduced from differences in ideology and scale. It should be noted that this study did not compare the 'general' CFS and AFS, but selected planning literature on both systems. This led to the comparison between broad varieties of AFS activities with a specific innovative planning concept in the CFS; the agro-park. This concept was characterized as part of the CFS as it operates at global scale, typically aims for profitability as its highest goal and emphasizes technical solutions for problems in the food system. Yet, the concept is an attempt to answer to the various problems in the CFS and it differs thus significantly from the CFS as it is often described in literature and is still present in practise.

7.2.1 Ideology

"Space has been shaped and moulded from historical and natural elements, but this has been a political process. Space is political and ideological. It is a product literally filled with ideologies." (Henri Lefevbre, Reflections on the Politics of Space)

Campbell (2004) states that stakeholder conflicts in food systems have to deal with deeply hold values on how things should be done. Scholars and practitioners in food system panning have these values as well. In the theoretical framework of this thesis, hidden assumptions were named as an important aspect of discourses. It is not likely for the length of this research to reveal all the (hidden) assumptions in the two food discourses. However, the comparison between the different ways of thinking in the two discourses combined with information on the way these two discourses perceive each other, was valuable to extract some assumptions that planners from the two discourses (consciously or unconsciously) made. The assumptions seem to relate to the strong ideologies that are present in both discourses. This paragraph describes some of the biases and premises that were found during the literature search and interviews. They are described per topic, starting each assumption with a citation in which the assumption is made explicit.

The large scale of companies in the food systems is always problematic

"Wal-Mart's scale itself is problematic... A hundred farmers markets cannot compete with Wal-Mart's power in the local market." (Pothukuchi, 2010)

Problematic aspect of large scale companies and systems were several times found in AFP literature and interviews. In large scale systems, personal contact between consumer and producers is absent, the main goal is economic profit, and efficiency is more important than product quality (Smith, 2006). Moreover, large actors are so powerful that they can use their position as monopolist and exploit their employees. Yet, most of these problems are – although typical for large scale businesses and networks – not inherent to large scale systems. Certainly, it is impossible for a single farmer to have personal contact with all his customers from a certain production scale. However, it is not impossible for customers to have personal contact to an employee that can provide him with information on the provenance of the produce. Retailers and supermarkets have profit as their main goal, yet this is the only thing they are paid-of for. The vast majority of customers still base their product choice on price and not on sustainability of the product. It is therefore not strange that supermarkets mainly aim for economic efficiency. The main problem here is not the scale of supermarkets, but the functioning of our entire business system. As long as this system is completely based on economy, we cannot expect supermarkets to provide true sustainable and fair-trade products.

Large Scale is necessary to achieve efficiency

"Investments can only be profitable at large scale. For example, device to clean the air for each pig breeder having two thousand pigs will be priceless and therefore not feasible. Only at a multiple number of pigs, the device can be profitable and the quality of the air can truly improve. Moreover, large-scale agriculture connects very well to the industrial activities at business areas, which makes connections between the two easier." (Free translated from: Schoor et al., 2005, p.2)

It seems evident from agribusiness planning literature that small-scale agriculture is not considered as a serious alternative to large-scale intensive production. Small farms may be important to preserve the landscape quality in some areas, but will not be of serious economic importance in the food chain. In order to achieve both efficiency and sustainability,

expensive technical solutions should be used, which can only be profitable in large-scale businesses (i.e. Smeets, 2009 and Schoor, 2005). This assumption seems to be based on economic efficiency, rather than on sustainability (economic, social and environmental). In the example, the author does not question the fact if technical devise to clean the air in pig stables is most sustainable, and if there are other devises or methods to reach the desirable result. Instead, the most important aspect of this technique seems to be its profitability.
The most known homogenous farming model that is used throughout the world has however failed in sustainability and equity. A study in Cuba has shown that increasing a farm's diversity, for instance with a mixed crop-livestock system, increases its overall productivity, energy efficiency, nutrient management and reduces risks. This is both possible at small-scale and large scale farms (Funes-Monzote, 2009). There is a considerable amount of literature written on agricultural scale and efficiency. Agriculturalist have different insights on the most efficient scale (even when it is purely based on economic productivity). Also, many other aspects than farm scale can influence the productivity such as technology and soil-type. The optimal scale of farming does evidently not exists, but will for instance depend on the type of produce and soil-type. Finally, it is not scale, but technical changes that are often considered as most important influences on agricultural productivity (Rasmussen, 2009).

Organic produce can make the farming sector ecologically sustainable

"Weatherell et al (2003) note that the new 'concerned' consumer is now showing considerable interest in 'alternative' foods produced under more organic, environmentally friendly, and local supply systems." (Illbery and Maye, 2004)

Although most AFP literature keeps itself distant from the statement that organic produce is inherently better than conventional produce, the number of articles exploring the opportunities of organic agriculture is enormous. Most literature names the growing consumer interest in organic produce as the most important reason to start researching organic production chains. However, it seems that the choice for this research is influenced by personal beliefs that organic produce is better than conventional produce. While it may be clear that organic production methods are better for the environment, there are also many uncertainties. Organic production is for example less intensive as conventional production. This makes organic production more expansive, which is not always directly good for the landscape. Paarlberg (2010) states that in Europe organic cereal crops have a productivity of only 60-70% of conventional production. If Europe would want to feed itself entirely organic, an additional 28 million hectares of farmland would be needed. This equals seven times the surface of the Netherlands.

Multifunctional agriculture is not of economic value and will only become of less value in the future

"Broadening of agricultural companies is rather the start of their ending, than a viable perspective on the long term. The role of broadened agricultural companies in the total impact of the agricultural sector for the Dutch economy proofs to be extremely limited." (Free translation from Smeets, 2009; p. 106)

Smeets perceives multifunctional agriculture as a development, indicating final attempts of small farmers to keep their income steady. Based on the fact that the relative economic value of the sector is still small in the Netherlands, he states that the sector won't be viable on the long term. Several countries including for instance Norway and Switzerland have argued that small farms can add to the economic, environmental and social value of rural areas and can help preserve the cultural heritage. Internationally it has become clear that farmers can

produce many other goods than food (Boody et al, 2005).

Intensive agriculture is necessary to feed our future world population

"A negative side effect of biological production is its extensiveness leading to a relatively large use of our scarce space, compared to intensive agriculture. Various research studies have shown that intensive agriculture is necessary if we want to be able to feed a future world population of nine billion people" (Free translated from: Van den Schoor et al., 2005).

Agribusiness planners see the growing world population as one of main problems in the food system. Although their concern can be seen as valid, it is based on the premise that the world population will grow in 2050 into 9.2 billion people. This premise seems indeed to come true if the current population growth continues. However, today we still have a choice to try to slow down this population growth, which is expected to cause more problems than food insecurity alone. Strategies outside the food planning movement can help to prevent the world population to grow outrages and keep our population fed. Calculations on the potential to feed a world of 9.2 billion people are moreover made based on conventional western diets, while a change in diet could help reducing the amount of land needed to feed one person. Instead of our persistent attempts to adapt and improve the technology to our high wishes and living standard, we could also try to take a hold of the actual problems; population growth and the western diet.

Organic or local food can help to solve income problems for small farmers and is thus improving social justice in the food system.

"In contrast with conventional chains, alternative food networks display new relationships of association and institutionalization; they involve companies and actors that have redefined their relationships with the state; they reconfigure the natural, quality, regional, and value constructions associated with food production and supply; they show positive value-added gains in terms of farm income; and they reveal considerable variation in the associational and face-to-face interactions involved in the production, 'animation', and sales of food." (Sonnino and Marsden, 2006, p. 184)

The premise that local or organic food can help to solve income problems for farmers is regularly made in AFP literature. Moreover, it is seen as an important value of organic and local agriculture to help small-scale farmers that would otherwise have been outcompeted in the CFS surviving. Jarosz (2008) furthermore states that local, sustainable or other alternative farming strategies that emphasize on direct linkages to the city and small-scale production; do not necessarily allow all farmers to gain a sustainable income each year. Another difficulty that should be taken into account are economic issues for customers. Some consumers do not have the means to buy their preferred food. Organic and local produce is generally more expensive than 'normal' food in large hypermarkets. Some people cannot afford these prices which makes locally grown food something of the upper class. Most people only eat local food when it is home-grown or available through food banks (Jarosz, 2008).

7.2.2 Scale

In the previous paragraph, some assumptions from food system planner were addressed. It became clear that both AFS planners and agro-business planners have assumptions concerning scale. Yet, scaling-up is named as an important aspect to bring AFS to a next level.

Scale differences and questions upon scale came forwards as an important aspect of food

systems during this study. Concepts as local-global dialectics, the local trap and scale-up were important in this context. Food systems typically occur at all levels of scale; from the global industrial food networks until the family that cultivates its own food in the garden. When we start thinking about the relation, connection or even integration of these different food systems, scale becomes a bottleneck. Food systems are often only established to function at a single scale. Just like the family growing vegetables in their back garden is not prepared to seriously trade their produce in the local neighbourhood, large institutions and supermarkets are not prepared to buy and process food from local farmers. Moreover, each scale can have characteristic values that get lost when scaling up (or down). As a result, for some activities it might not be desirable and necessary to scale-up. A neighbourhood that is food insecure (a food desert), is an example of a typical local problem, that can be solved using local solutions and should not be scaled-up in itself.
The new movement under the denomination of 'Paradiplomacy' might be a useful starting point to help connecting local, regional and global food systems in the future.

7.3 Discourses in Food Planning

The literature review and interviews showed that food policy and food planning research are battlefields. There are not only different food systems, but these are also perceived in various ways. Ideology and science are intimately interwoven, just as in many other domains of social sciences (Steel, 2008; Paarlberg, 2010). Facts and numbers about global impacts of the food system can be impressive, but they tell different stories in the context of contrasting frames and discourses.

Generally, two main discourses leading to two main bodies of literature were distinguished. The agribusiness sector searches for technological solutions for economic and environmental problems in our current food production system. There are only a few planners involved in this body of literature. The alternative food sector brings forward non-technical solutions for economic, environmental and social problems. Most planners involved in food planning publish their research in this field of research. The alternative food sector discourse frequently conflicts with the dominant paradigm in agricultural sciences about the question what kind of farming is environmentally sustainable. They advocate small-scale diversified farming systems that rely on fewer inputs purchased off the farm. The agribusiness sector argues that there will be less harm done to the environment by highly capitalised and specialised high-yield farming systems using the latest technology (Paarlberg, 2010).

The two bodies of literature are generally aiming for an equal transition towards a sustainable food system. Yet, the two bodies hardly seem to communicate with each other. A spokesman from an organic food production company explains the difference between the two groups in the article of Van der Ploeg and Frouws (1999):

"We leave no stone unturned if there is the possibility to pick up ten guilders from the shop floor; they [large agro-industrial companies] would not even notice losing one million guilders. These are two completely different worlds." (p. 340)

The completely different worlds might start at the explanation of the concept of sustainability. Although both the agribusiness and the alternative sector see sustainability as a combination of environmental, social and economic sustainability[9], their further explanations of these three main concepts differ (table 5.6). The table shows how the apparent obvious concepts of environmental sustainability, economical sustainability and social sustainability can easily

be interpreted differently.

Agribusiness Sector	Alternative Food Sector
Environmental and animal friendly production methods, efficient use of resources	Environmental and ecological sustainable food chain
Economic efficiency and profit maximisation	Economic profitability
Consumer trust in their food	Social Justice in the food chain

7.4 Conclusion

A general awareness amongst scientist on problems in the CFS, has produced a considerable amount of literature addressing these problems and proposing solutions. Disciplines working on (aspects of) food systems vary from sociologists and anthropologists, untill ecologists, economists and agriculturalists. Researchers do not agree upon the kind of answers for problems in the CFS. Generally, two main bodies of literature working on food systems can be distinguished; scholars working on the alternative food system and scientists working on agribusiness chains. The difference between the two can be characterized by a focus on technological, global and economical efficient solutions to reach sustainability in the agribusiness chain and a focus on non-technical, social and local solutions in the AFS. Since approximately ten year planning is one of the disciplines working on food systems. The vast majority of planning literature can be placed in the AFS discourse; however there is a small group of planners working on agribusiness chains. In this study, planning literature on AFS and agribusiness have been analysed. The results were discussed in five semi-structured interviews. An analysis of the perceived problems of both groups showed that not all problems are perceived equally. While both groups experience environmental problems such as unsustainable waste flows, environmental pollutions, food miles and landscape destruction, some other aspects seem to be connected to just one of the groups. In agribusiness literature a central problem is the decreasing farmland versus the fast growing urban population. A central question is 'how to keep our global population fed in the future?' Moreover, critics from society are taken seriously and ineffective regulations are seen as an important struggle in the CFS. Although the alternative food planners increasingly start to acknowledge some of these problems, generally unsustainable cities (including food deserts), obesity and malnutrition, and economic problems for small farmers are seen as central problems.

Both groups perceive the producer-consumers gap that exists in today's market as problematic. For practically all problems that the two groups together perceive solutions are proposed. The effectiveness and capacity of the solutions to seriously solve the problems is debatable, however this was not part of the study. In the end all food planners seem to have an equal goal: the development of an ecological, economic and social sustainable food system. Yet, the proposed way to develop this ideal type at first sight significantly differs for both groups. Similarities are traceable though. Both groups aim to shorten transport distances in the market, to create more transparency in the system and to bring producers and consumers together again. The most significant differences between agribusiness and AFS can be summarized as: a focus on global market vs. a focus on the local market; technical vs. non-technical solutions; rural areas vs. rural-urban connections and focus on economic efficiency vs. focus on product quality.

Several reasons for a connection between the two discourses can be named. In the first place innovative ideas and new insights are likely to be found where tow discourses working in

the same area, meet each other. Moreover, the share of knowledge and formation of new coalitions can gain more public support and power. Also, for AFS, the connection to CFS could help them to become more ingrained in the terrain of food governance. The protection at larger scales can be of essential importance to make AFS succeed.
Starting points for a connection between the two groups are their common aim for an environmental, economic and social sustainable food system, their common search for solutions for environmental harm and food miles, and the demand of consumers of which both systems are dependent. Finally, the role of planners for the connection between different groups can be of essential importance. Planners have the capacity to gain overview, to connect actors, to add flexibility to a plan process, and to translate problems and demands into spatial plans. The challenge for spatial planning is not to enlarge the differences, but to find complementarities between these different food networks.

Yet, integration between food systems with different scales and working methods is a huge challenge. Changes in the system that may seem simple at first sight are in practise very difficult to achieve. Two of the most important bottlenecks are ideology and scale. Ideology and various assumptions can make people short-sighted in their search for solutions. It currently averts the connection between AFS and agribusiness chains. Finally, scale is an important difficulty, as different systems currently operate at different scales that do not easily connect to each other.

Footnotes

[1] Environment and Planning, Environmental Planning and Management, Environmental Policy and Planning, International Planning Studies, Journal of Planning Education and Research, Journal of the American Planning Association, Journal of Planning History, Journal of Planning Literature, Planning Perspectives, Planning Practice and Research, Planning Theory, Planning Theory and Practice
[2] For example: Farming land, food distribution centres, food auctions, supermarkets, retail, restaurants, allotments etc.
[3] Large-scale rooftop farming is still years away from being regular practice, but there are examples of rooftop farms such as the Eagle Street Rooftop Farm in New York (Nasr et al., 2010).
[4] There has been no evidence in agribusiness literature that this was seen as a problem. However, the food desert problem seems something that occurs mainly in the USA, while the main source that was used to describe the agribusiness discourse is written by a Dutch researcher.
[5] http://www.sustainweb.org/
[6] http://www.transforum.nl/
[7] I refer to the article "The Food System, A stranger to the Planning Field". A full reference of the article can be found in the reference section.
[8] For example the Journal of Planning Education and Research had in 2004 a special on the role of planning in community food systems; International Planning Studies has had a special on 'feeding the city' in 2009; and the Dutch town and spatial planning journal "S+RO" had a special on Food in 2010
[9] Often there is referred to the three P's (People, Planet, and Profit) that together would encapsulate the full meaning of sustainability.

Epilogue

In the epilogue a personal reflection on the study, methods and results is given. The epilogue ends giving some suggestions for further research.

Broad exploration of a relative new study area

As stated in the beginning of this research, this is an explorative study. The field of study was relatively new and on some aspects it was therefore difficult to find enough information. Literature on the planning of agro-parks was for example scarce. A correct comparison between the two systems was therefore problematic, due to a lack of information on agribusiness. The first idea to compare peer-reviewed planning articles from both groups, gave not enough body for the agribusiness part of the story. As there is not much written by planners on agro-clusters I decided to search for other sources that could offer information. Valuable information was found on websites, in plan documents, in the dissertation of Peter Smeets and in some books. Yet, the lack of planning data literature on agribusiness chains made it difficult to compare the two systems equally.

Reflection on the methods

In this study a literature search and analysis lead to the distinction of two main discourses and ideal food system types. However, there were a number of articles that could not easily be placed in one of the two groups. A development in which the two discourses slowly integrate, and start to cooperate is starting to become visible. The authors writing on this topic, are often heading for a third way.
After the literature analysis, the results were discussed with food planning experts. Most planners should however be categorized in the AFS field. The group of planners that is known with agro clusters is very small. I therefore did not manage to arrange interviews with planners that are expert in this field.

Difference between the American, European and Dutch context

In this study, an attempt has been made to gain more insight in the planning of food systems in a western context. The results were presented as general results for the complete western context. However, it is important to add that the western context has significant regional differences. Generally, there is a difference between the American and the European context, but also more specific difference between different countries can be found.

The problem of food deserts is not present in the European context. Most European cities have significant different city plans as the modern rationalistic planned American cities. Tarlock (2007) proposes in his article 'Fat and fried: Linking land use law, the risk of obesity, and climate change' the European city model as an example for American cities. Although the problem of food deserts is thus not present in the European context, there should be serious concerns for the sustainability of the food provisioning of our cities in case of emergencies. Areas with high population densities are relatively sensitive for flooding, epidemics and traffic congestion.

Large parts of Western Europe can be perceived as a metropolitan landscape in which the distinction between urban and rural areas is not clear anymore. It is debatable if the metropolitan landscape is suitable for conventional industrial agriculture. The land in metropolitan landscapes is relatively expensive due to urban pressure. This makes the economic position of farmers on a world market vulnerable. Also the former rural areas of the metropolitan landscape are increasingly dealing with pressure from non-agricultural land

uses such as recreation, nature development, housing, business areas and water retention areas. High quality farmland around urban areas is vanishing due to the high pressure on the land in metropolitan areas.

The feeling of urgency for food system problems is another example of something that highly differs per country. In the Netherlands for instance there is only a minority of people that perceives urgency for food system problems. Politicians do not want to limit people's freedom to choose their own food and most consumers determine their choice for food based on the product price.

A global theory?

We have to realise that food system problems can be highly cultural dependent and differ per context. Not only influence difference cultures the way in which people think and behave. Also, different planning histories influence the nowadays food system problems. Yet, there are some elements of food system problems that fit in a global theory in which we strive for a sustainable food system. Based on the results of this explorative study these are at least food miles, the decrease of high quality farmland, health problems due to harmful diets, the producer-consumer gap, unsustainable food waste flows, landscape destruction, animal well-being, environmental pollutions and ghost acres. This global theory can be used by planners (and other scientists) as a framework for the development of sustainable food systems. It should describe and relate important aspects of sustainable food system. The theory is thus normative, providing scientists with general building blocks for food systems. The frame has to be flexible and leave space for differences in context, as these are significant. Theory on paradiplomacy can be useful in the global food system theory to bridge the gap between global and local scales. Paradiplomacy can moreover help to find activities where local and global are complementary in stead of contrasting to each other. Finally, theory on transition management can be valuable when working on a theory of a global food system. Changes in the food system can in this context be perceived as a transition. Important questions in this context are: Can transitions be managed? And if yes, how can we manage them? The global problems in the food system lead to a number of research questions that are clarified in the next paragraph.

Suggestions for further research

There are many suggestions for further research that could be given after this research. I've tries to limit myself to four of important topics:

- A continuation of this research, in which the agribusiness side is more extensively explored would be a valuable addition to the results of this study. Interviews with planners from the agribusiness discourse can give important new insights and provide new starting points and bottlenecks for a third way.
- There is a danger to try and oversee the entire food system problems. The food and the problem in it, are however too complex for this. An important methodological question is therefore: How do we find a good balance between a holistic and reductionist approach? It is remarkable that currently by far most literature addresses the food system from a specific activity or combination of activities that should provide an answer to problems in the food system. The 'solution' is thus the central topic (for example: CPULs, agro-parks, or urban agriculture) and not the problem. The problem is often holistically approached, while the solutions are regularly reduced. It might be interesting to turn this around into a reductionist approach for the problem (and

for example start with sustainable food flows in a middle-sized city) with a holistic approach for solutions.

- Scale was found to be an important bottleneck for connecting different food activities. This is a topic that can be of particular interest for planners. How can different scales be connected to each other? What are bottlenecks? How can policy and infrastructure be changed in order to stimulate sustainable food systems?
- If we want to develop a truly sustainable food system, we need to know what the most sustainable forms of production, transport and processing are. These will however differ per region, time of the year and per product, resulting in a huge amount of research that could be done asking questions as: What is the most sustainable manner and place for Amsterdam to produce it's potatoes in the winter? More generally, a huge amount of research questions can be generated by changing region, product type and season in the above-mentioned question. The amount seems unfeasible, so a research for generalities in this matter would be of major interest.

Personal Reflection

More than one year ago I started my master thesis spatial planning. I was interested in sustainable cities and wanted to research how allotment gardens could be planned successfully in urban areas. As often, the topic has changed trough time and I ended exploring planning literature on food systems. Problems in the food system are complex. Much problems change if perceived from a different standpoint. During the research my personal insight on the food system and on my research was constantly changing. The visit to the second sustainable food planning conference in Brighton, where I presented a poster with some results of this study, gave interesting new ideas. Various people asked me if agro-parks aren't just the third way that we are looking for. If there are such similarities between AFS and agro-parks, while the last are connected to the world market, is that not a good 'middle way' between the conventional and the alternative food system? It made me think differently on argo-parks and yes, maybe they are a third way. At least the exploration of agro-parks in combination with AFS is an interesting starting point when searching for the third way. I'm convinced that the two have complementarities and can add interesting aspects to each others research.

Glossary

Agro-park: A cluster of agro and non-agro functions at or surrounding a specific location. (Smeets, 2009)

Allotment Garden (AG): A piece of land that is cultivated and hired individually on a non-commercial basis.

Alternative Food System (AFS): The network of food production, distribution and consumption places that want to provide non-technical sustainable alternatives on the conventional food system.

Civic Agriculture: The embedding of local agricultural and food production in the community (Lyson, 2005)

Community Garden: A green space managed (and may be developed) by a neighbourhood community in which urban agricultural activities take place. (Irvine et al., 1999)

Conventional Food System: The dominant food network of food production, processing distribution and consumption.

CPUL: A CPUL is a combination of a productive landscape and a continuous landscape. CPULs are open landscapes running through the city, connecting various green places with each other and are also productive in economic, social and environmental aspects. (Viljoen et al, 2008)

Food industry: Farmers, food processors, food manufacturers, waste management and retailers of all sizes.

Food miles: A phrase used to encapsulate concerns about the increasing distances our food travels, and the environmental and social consequences thereof.

Foodscape: A combination of the words 'food' and 'landscape'. The (metropolitan) landscape of food activities.

Food Security: A condition in which all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. (FAO)

Food System: The chain of activities connecting food production, processing, distribution, consumption, and waste management, as well as all the associated regulatory institutions and activities. (Pothukuchi and Kaufman, 2000)

Global Food System: See conventional food system.

Globalisation: The growing social, political and economic interdependence of countries worldwide through the increasing volume of cross-border transactions in communication, goods, services, and capital flows.

Industrial Food System: See conventional food system.

Local Food: Food, whose main ingredients are grown, processed and sold from or within a

given radius. (Garnett, 2003)

Local Food System: A system in which foods are grown or produced, processed, and distributed locally at the household, neighbourhood, municipal, and even regional level. (Dahlberg, 1994)

Malnutrition: The lack of adequate food utilization which, in this context, is the proper digestion and absorption of nutrients in food by the human body and requires adequate diet, water sanitation, health services, and health education. (Rome Declaration of World Food Security, 1996)

Metropolitan Landscape: All space that is under the influence of urbanities and urban spheres. (Carsjens, 2009)

Agro-business: Agro-business is a system of agro-production that wants to provide a sustainable answer to the changing and competing demands of the modern urban society, using the intelligent connections that are present in the network society. (Smeets, 2009)

Paradiplomacy: A new movement that rejects the perception that global is opposite to local and brings up the debate about the necessity of new theories to explain the complexity of the relations that exists between the two scopes. (Okazaki, 2008)

Planning doctrine: Persistent and coherent set of ideas on the spatial arrangement of a region.

Spatial Planning: Spatial planning refers to the methods used by the public sector to influence the distribution of people and activities in spaces at various scales19 as well as the location of the various infrastructures, recreation and nature areas (EU glossary planning, 2007).

Urban Agriculture: Food and fuel grown within the daily rhythm of the city or town, produced directly for the market and frequently processed or marketed by the farmers or their close associates. (Smit and Nasr, 1992)

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Appendix I: List of Interviewees and conferences

List of Scientific experts		
Prof. Dr. A. van der Valk	Wageningen, NL	List, Supervision
Dr. R. Sonnino	Cardiff, UK	List, Interview via Skype
Dr. K. Pothukutchi	Wayne, Detroit, USA	List, Interview via Skype
Joe Nasr	Toronto, Ontario, CA	List, Interview via Skype
Craig Verzone	Switzerland	Interview via Skype
List of Practical experts of Case Amsterdam		
Pim Vermeulen	Amsterdam, NL	Interview
Visited Conferences		
Sustainable Food Planning Conference	Almere	9-10 October 2009
2nd European Sustainable Food Planning Conference	Brighton	29-30 October 2010

Appendix II: Poster Second Sustainable Food Planning Conference

BUILDING A COMMON VISION FROM ALLOTMENT GARDEN TO SUSTAINABLE FOOD SYSTEM

Broekhof, S.M. & Van der Valk, A.J.J. Land Use Planning Group, Wageningen University

ABSTRACT

Although the food system has long been invisible for spatial planning, since approximately ten years there is an increasing attention for food system in the planning field. A broad group of scientists and practitioners searches for more sustainable food systems. Various ideas and innovations have taken place in the field. In this explorative research a literature scan provided insight in the relation between the many different attempts to work towards a sustainable food system. The literature review showed that food policy and food planning research are battlefields. There are not only different food systems, but these are also perceived differently. The efforts of food planners were labeled in two major groups; the alternative food discourse and the agro-industrial food discourse. This distinction is not new and is regularly described in planning literature. However, both systems are often described in literature as two complete opposites. Researchers and practitioners often neglect the other discourse, perceiving it as unsustainable. The idea that both discourses can be valuable to each other is starting to develop in the last years. Indeed it appears rather odd that two discourses that strive for the same end, exclude each other. This research attempts to explore the question: 'To what extend exists a necessity to search for integration between the alternative system discourse and the metropolitan agriculture discourse?' Literature, interviews and the exploration of projects in practice showed that there are both starting points as bottlenecks for integration. The main starting point for integration is the common goal of two food discourses to strive for a more sustainable food system. An important bottleneck for integration is the strong ideology of both groups that are complete opposites.

BACKGROUND

The context in which food systems occur has been changing rapidly in the last decades. Urbanisation, globalisation and an increased pressure on the rural areas have been important in this process of change. The relation between urban and rural areas has become complex, often resulting in a metropolitan landscape in which city and rural areas can no longer be seen as two separate spaces (Antrop, 2000). Agriculture is still present in the metropolitan landscape, but typically has difficulties to resist the large urban pressure. The food market has become a global market in which agricultural produce is transported to many places in the western world. Globalisation of food systems evokes contrasting reactions in the scientific debate, in the press and in political arenas. Advocates of the global food system emphasise supposed advantages of the agribusiness model. This complex global system of high-productivity farming, hyper-efficient logistics, scientific research and food processing industry has created the conditions for the provision of large quantities of cheap processed food and made food easy available to many citizens (Morgan, Marsden and Murdoch, 2006). Critics of the global food system adhere to the persuasion that high-productivity farming - based on specialisation and science - is not sustainable on the long term (Pollan, 2006, 2008; Ponting, 2007; Steel, 2008). Both discourses have a loyal following in science. The ensuing discourses have produced a long list of contested premises and a deep divide between the worlds of food. Ideology and fact are intricately interwoven. Consequently it is difficult to conceive a third way or shades of grey between the blacks and whites of the globalists versus the environmentalists (Paarlberg, 2010, preface). Bias may explain for the absence of papers in planning journals about the pros and cons of mixed, integrative and regional food systems.

AGRO-INDUSTRIAL FOOD SYSTEMS

Agro-industrial food systems belong to the dominant convential food system (CFS) in the (western) world. The system can be characterized by large-scale efficient production, centralization and a focus on profit maximization. In a complex production chain, goods are transported large distances before reaching the consumer. In huge hypermarkets, the agro-industrial food system has provided the modern consumer with huge product diversity for low prices (Lang, 1999; Campbell, 2004). The CFS made food easy accessible in grocery stores and hypermarkets to many urban citizens. Consumer convenience has grown with the increased choice of products that can be bought on one place.

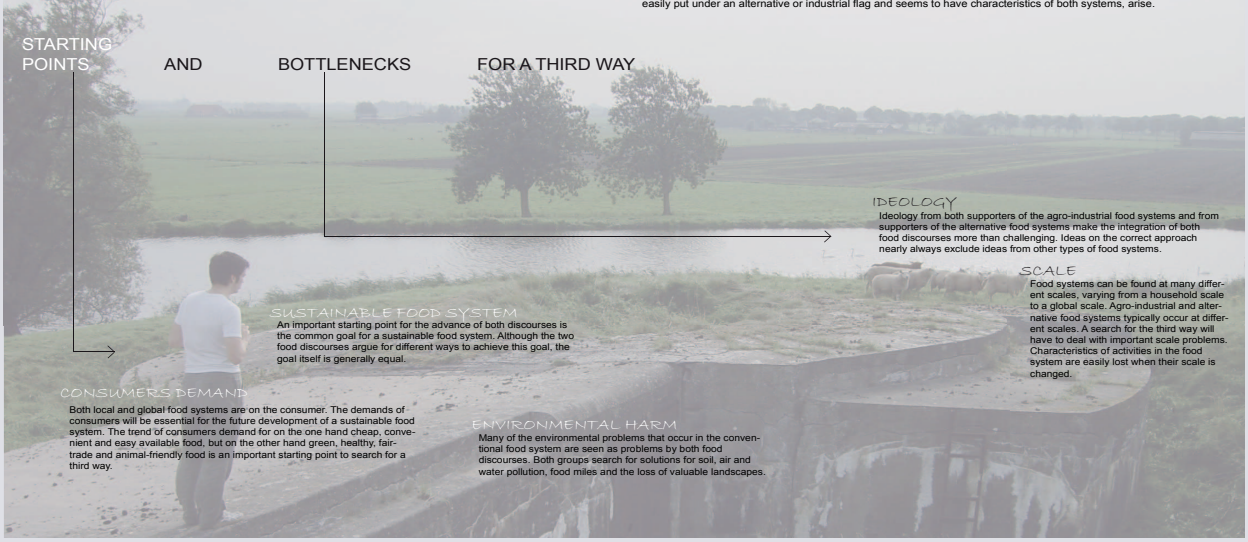
ALTERNATIVE FOOD SYSTEMS

The alternative food system (AFS) is a term that covers many different forms of non-conventional food production that started from the idea that our current food system is unsustainable. Although most of these alternatives can be found at a small scale, this is not necessary the case. It is difficult to conceptualize the AFS that is developed and sustained by a diversity of processes and locations (Jarosz, 2008). Consequently, there is a great diversity existing among AFS's in both popular and academic discourses (Jarosz, 2008, after Venn et al) and are AFS conceptualised in different ways.

INTEGRATING FOOD SYSTEMS

"Even parties who have fundamentally different values can sometime agree on solutions to concrete, practical problems despite their basic differences." (Campbell, 2004 after Forester).

There is recognition in planning literature for the need of integrating food systems. This need is amongst others broadly described by the call of an integrated understanding of food (Lang, 1999), the necessity to build coalitions between movements and groups (Marsden, 2000), the development of an economically viable model (Verzone, 2010), or the development of (knowledge) networks (Pothukuchi, 2009). In practise an increasing number of examples of food production that we cannot easily put under an alternative or industrial flag and seems to have characteristics of both systems, arise.



CONCLUSION

The need for a sustainable food system is broadly supported by scientists and practitioners from diverse fields of study. However, scholars do not agree upon the most effective and just manner to achieve sustainable food systems. The need to search for a 'third way' in which the two main food discourses are integrated, is based upon various aspects. First, consumer demand connects to both characteristics of agro-industrial systems, as to characteristics of alternative systems. Second, many current food activities do not achieve the success that they could potentially have achieved if the conventional food system would support them better. Finally, integration of food discourses is important because food scholars and practitioners all strive for a similar goal. The common goal of sustainability has the power to bring groups with contradictory standards around one table to search together for a third way.

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